

**Education, Training, Research  
and Fellowship Opportunities in  
Space Science and Technology  
and its Applications**

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*A Directory*

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**Office for Outer Space Affairs  
United Nations Office at Vienna**



**United Nations  
2001**

This publication has not been formally edited

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## INTRODUCTION

The Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82), held in Vienna from 9 to 21 August 1982, recommended (i) that the expanded United Nations Programme on Space Applications should develop a fellowship programme for in-depth training of space technologists and applications specialists, with the help of Member States and relevant international organizations, and establish and update lists of available fellowships in all States and relevant international organizations; and (ii) that an international space information service should be established, initially consisting of a directory of sources of information and data services. At its thirty-seventh session, held in 1982, the General Assembly of the United Nations endorsed these recommendations of UNISPACE 82 in its resolution 37/90.

Among the first activities conducted under that particular mandate was the convening, under the auspices of the United Nations Programme on Space Applications, of a United Nations International Meeting of Experts on Remote Sensing Information Systems, hosted and co-sponsored by the Government of the Federal Republic of Germany and held in Feldafing and Oberpfaffenhofen, Federal Republic of Germany, from 7 to 11 May 1984; the meeting was also supported by the European Space Agency. That Meeting of Experts recommended that the United Nations International Space Information Service should collect information on education and training opportunities and disseminate such information, on request, to Member States and specialized organizations.

Starting in 1985, the United Nations, through a note verbale and a questionnaire, has been requesting on regular basis information from Member States, United Nations specialized agencies and international agencies regarding education, training, research and fellowship opportunities available in different aspects of space science and technology, including basic space sciences, remote sensing, satellite communications and satellite meteorology, in their educational and scientific institutions and establishments. The information received have been published as directories (United Nations documents A/AC.105/366 and Add.1 and 2 published in 1986-87, A/AC.105/432 published in 1990, A/AC.105/548 published in 1993 and A/AC.105/671 published in 1997).

This directory is an updated and expanded version of the earlier directories, based on the information submitted by Member States and international organizations up to 15 October 2001. The information submitted by Member States has been arranged in alphabetical order by country name in English. The information is given in the language in which it was submitted.

The information contained in this directory for each institution includes its areas of specialization, the educational and research programmes offered, the facilities available, the prerequisite qualifications, financial information, fellowship opportunities and opportunities for international co-operation. Addresses and contact points for further information are also included.

An effort has been made to present, as accurately as possible, the information provided by responding Member States, specialized agencies and international organizations. However, programmes frequently change and users of this directory who are interested in a particular programme are urged to contact the institution for current detailed information. It should also be noted that the list of countries and institutions contained in this directory is not exhaustive. Further addenda to this directory will be issued, as necessary, with additional or updated information from Member States and international organizations.

It is hoped that this directory will be of assistance to Member States and will promote international co-operation in the peaceful uses of outer space. In particular, it is hoped that information on education and research opportunities will assist developing countries in establishing indigenous capabilities in space science and technology and its applications.

Comments, queries and information with respect to this directory, including additional submissions or updated information, should be sent to the following address:

Office for Outer Space Affairs  
United Nations Office at Vienna  
Vienna International Centre  
P.O. Box 500, A-1400 Vienna, Austria

## A R G E N T I N A

COMISION NACIONAL DE ACTIVIDADES ESPACIALES

Av. Dorrego 4010/18 (1425), Buenos Aires, Argentina  
 Tel.: 774-9310, 771-5810 Fax: 541-774-5703  
Persona a Contactar: Dr. Conrado Varoto

Funciones principales de la institución: Asesoramiento al P.E.N. en materia espacial. Coordinación de la actividad espacial en la Argentina

## 1. PROGRAMAS ACADEMICOS Y CIENTIFICOS

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications, satellite meteorology

Lista de cursos y actividades de investigación:

Cursos: Curso de Postgrado en Tecnología Aeroespacial; Aplicación de la teleobservación en la enseñanza de la geografía, curso nacional de sensores remotos, curso regional para América Latina sobre aplicaciones de la teleobservación en la evaluación de los recursos naturales

Proyectos: Desarrollo de un satélite científico (SAC-I); Rutina de manchas solares; Aplicación de imágenes digitalizadas a la física solar; Transporte y liberación de energía en fulguraciones solares; Magnetismo terrestre aéreo y satelitario (MAGATYS); Evaluación regional de recursos geotérmicos (REGTEOT); Sistemas fotovoltaicos autónomos; Banco de ensayos de colectores solares; Relevamiento solarimétrico y eólico; Desarrollo e implementación de métodos para corrección geométrica con minimización de puntos de control; Desarrollo de métodos de clasificación automática no supervisada y supervisada para reducción del tiempo de cálculo de precisión; Aplicación de técnicas de reconocimiento de formas de la registracion de imágenes de la superficie terrestre; Adaptación de las facilidades para procedimientos de cintas de alta densidad al sistema PI; Desarrollo de método de comparación de datos para almacenamiento -Desarrollo de un sistema para presentación en pantalla de imágenes de alta resolución; Desarrollo de un sistema de procesamiento de senales analógicas; Evaluación de análisis automático de textura para incrementar la precisión de la clasificación con datos SPOT; Proyecto de implementación de un sistema de comunicaciones por satélite (DOMSAT); Proyecto de caracterización espacio-temporal de variables termohidrodinámicas en niveles estratosféricos

Duración/Frecuencia/Idioma(s) de enseñanza: 1-4 cuatrimestres/Permanente/Español

Tipo de servicios o instalaciones: Laboratorios, computadoras, aulas

Número de participantes: Entre 1 y 2

Calificaciones académicas (mínimas) requeridas: Grado en disciplinas afines a la especialidad

Certificados o diplomas extendidos por la institución: Certificados

## 2. COSTO DE LOS PROGRAMAS

Costo de los cursos, de los libros de texto, y de los materiales de Investigación afines: A ser definido en cada caso

Gastos mensuales de alojamiento, manutención y gastos menudos: --

## 3. DISPONIBILIDAD DE BECAS

Disponibilidad de becas para participantes extranjeros: Variable segun el caso

Otras posibilidades de ayuda financiera para participantes extranjeros: Alojamento con tarifas preferenciales en el Centro Espacial San Miguel

4. COLABORACION CON LOS PAISES EN DESARROLLO: Si

Esfera de interés: Formación de recursos humanos, intercambio de tecnologías espaciales, asesoramiento, diseño de proyectos

Region geográfica determinada: Con todas las regiones

## A U S T R A L I A

A. AUSTRALIAN DEFENCE FORCE ACADEMY

Northcott Drive, Canberra ACT 2600, Australia

Tel.: 61-6-2688279

Fax: 61-6-2688279

E-mail: [j-baird@adfa.oz.au](mailto:j-baird@adfa.oz.au)

Contact person(s): A/Prof. John Baird

Principal function(s) of institution: Education, research and development

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing

Summary of courses and research activities:

Courses: M.Sc. and Ph.D.

Research: Aerothermodynamics, supersonic mixing. Satellite attitude stabilization. Space structures

Duration/Frequency/Language(s) of instruction: 2 years (M.Sc.), 3 years (Ph.D.)/Annually/English

Facilities: Modern teaching and research facilities, access to hypersonic wind tunnel, shock tube, structural testing and composite manufacturing facilities

Number of trainees: 2-3 in each programme

Entry requirements: Honours undergraduate engineering degrees

Degree/Diploma/Certificate awarded: Ph.D., M.Sc. from University of New South Wales

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: No fees charged

Monthly room and board and incidental expenses: A\$ 1,200 per month

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: 4 to 5

Other financial support available for foreign participants: Yes

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Aerothermodynamics, spacecraft engineering, remote sensing

Geographical preference: None

B. UNIVERSITY OF SYDNEY, DEPARTMENT OF PHYSIOLOGY

Sydney 2006, NSW, Australia

Telex: AA 26169

Cable: UNIVSYD

Contact person(s): Dr. J.F.Y. Hoh

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:Courses: --

Research: Research into basic mechanisms of adaptation of skeletal muscles to the zero gravity environment of space. Studies conducted on changes in the muscle protein Myosin which determines muscular performance in rats to be flown in space. Studies also done on rats under conditions which simulate zero-gravity conditions. Research is also being done to eliminate the physiological mechanisms for adaptive changes of muscles under zero-gravity conditions

Duration/Frequency/Language(s) of instruction: 3 years/Annually/EnglishFacilities: Ph.D. programme within the Faculty of SciencesNumber of trainees: 1Entry requirements: B.Sc.(Hon) in Physiology/Biological SciencesDegree/Diploma/Certificate awarded: Ph.D.

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --Other financial support available for foreign participants: --

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Space physiologyGeographical preference: NoneC. AUSTRALIAN NATIONAL UNIVERSITYContact person(s):

- R.W. Boswell, Plasma Research Lab, Canberra ACT 2600, Australia, Tel.: 61-6-2492425, E-mail: [Rod.Boswell@anu.edu.au](mailto:Rod.Boswell@anu.edu.au)
- Dr. D.J. Faulkner, Associate Director, Mount Stromlo & Sidney Spring Observatories, Weston P.O. ACT 2611, Tel.: 61-6-2490266, Fax: 61-6-2490260, E-mail: [director@mso.anu.edu.au](mailto:director@mso.anu.edu.au)

Principal function(s) of institution: Education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities: Magnetospheric and auroral physics (interaction of waves with plasma, active experiments with electron beams, and computer simulation). Ph.D. programme in Astronomy and Astrophysics. Ground and space based astronomical observations

Duration/Frequency/Language(s) of instruction: 4 years/Annually/EnglishFacilities: Space simulation chamber, comprehensive diagnostics, fast computers (Cyber 205), telescopes, instrumentation engineeringNumber of trainees: 5-10Entry requirements: B.Sc. Honours (physics), M.Sc.Degree/Diploma/Certificate awarded: 3-6 year Ph.D.

2. **COST OF PROGRAMMES**  
Cost of tuition, texts and related research material: A\$ 16,500 p.a.  
Monthly room and board and incidental expenses: A\$ 1,000
  3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**  
Scholarship/Fellowship opportunities for foreign participants: 5 fellowships exist on a competitive basis at ANU  
Other financial support available for foreign participants: Other financial aid possibilities exist
  4. **COLLABORATION WITH DEVELOPING COUNTRIES:** Yes  
Specific areas of interest: Laboratory and computer space plasma simulation. Astronomy  
Geographical preference: None
- D. AUSTRALIAN NATIONAL UNIVERSITY, RESEARCH SCHOOL OF PACIFIC AND ASIAN STUDIES

Canberra, ACT 2600, Australia

Tel.: 61-6-2494347

Fax: 61-6-2494896

E-mail: [bj406@coombs.anu.edu.au](mailto:bj406@coombs.anu.edu.au)

Contact person(s): Dr. Bryant Allen

Principal function(s) of institution: Education and research

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: Ph.D. by thesis

Research: Delineation of agricultural systems in Papua New Guinea; Reconstruction of palio-coastline on the east coast of China over the last 1000 years in conjunction with documentary and cartographic evidence

Duration/Frequency/Language(s) of instruction: 3 years/Intermittent/English

Facilities: Sun Sparc Computer station running ERMapper remote sensing software and ARCIINFO GIS

Number of trainees: 1-2

Entry requirements: B.Sc./B.A. with first class honours or M.Sc. in relevant fields

Degree/Diploma/Certificate awarded: Ph.D.

2. **COST OF PROGRAMMES**  
Cost of tuition, texts and related research material: --  
Monthly room and board and incidental expenses: --
3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**  
Scholarship/Fellowship opportunities for foreign participants: Yes  
Other financial support available for foreign participants: Yes
4. **COLLABORATION WITH DEVELOPING COUNTRIES:** Yes  
Specific areas of interest: Sustainable development of agricultural systems

Geographical preference: Papua New Guinea; NE and SE Asia

E. AUSTRALIAN NATIONAL UNIVERSITY, RESEARCH SCHOOL OF PHYSICAL SCIENCES

Canberra ACT 2600, Australia

Tel.: 61-6-2492467

Fax: 61-6-2491884

E-mail: [Iain.Macleod@anu.edu.au](mailto:Iain.Macleod@anu.edu.au)

Contact person(s): Dr. I.D.G. Macleod

Principal function(s) of institution: Research and postgraduate education

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities: Digital image analysis of remotely sensed data, oceanographic applications

Duration/Frequency/Language(s) of instruction: 3 to 4 years/Occasional/English

Facilities: Extensive research facilities including computer and specialized peripheral facilities for operating on digital image data

Number of trainees: 1 to 3

Entry requirements: Honours/Master degree in Physics, Computer Science, Electrical Engineering

Degree/Diploma/Certificate awarded: Research students are candidates for the Ph.D.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: A\$ 13,000 p.a.

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: ADLOS/OPRS scholarships

Other financial support available for foreign participants: Graduate student assistantship on a competitive basis - A\$ 5,000 a year

4. COLLABORATION WITH DEVELOPING COUNTRIES: None

Specific areas of interest: --

Geographical preference: --

F. UNIVERSITY OF WOLLONGONG, DEPARTMENT OF PHYSICS

P.O. Box 1144, Wollongong, NSW 2500, Australia

Tel.: 042-213-517

Fax: 042-213-151

E-mail 1: [wjzealy@UOW.EDU.au](mailto:wjzealy@UOW.EDU.au)

E-mail 2: [p.nulsen@UOW.EDU.au](mailto:p.nulsen@UOW.EDU.au)

Contact person(s): Dr. William J. Zealey

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: Undergraduate (Astronomy/Astrophysics); Grad.Dip. (Astronomy/Astrophysics); M.Sc. (Astronomy/Astrophysics); Ph.D. (Astronomy/Astrophysics)

Research: Image digitizing and processing; optical, infrared and radio observations of galactic and extragalactic star formation regions; studies of long period variable stars; numerical hydrodynamics and astrophysical flows

Duration/Frequency/Language(s) of instruction: 2<sup>nd</sup> year B.Sc. 56 hrs, 3<sup>rd</sup> year B.Sc. 112 hrs, M.Sc. 1-2 years, Ph.D. 3 years/Annually/English

Facilities: Image digitizing/processing systems (PC/Sun); 0.4m DFM Telescope, CCD, photometer; TV Blink comparator; ESO/SERC plate libraries, CDROM planetary image library; access to AAT, ANU, AT telescopes; access to Science Centre Planetarium

Number of trainees: Undergraduate/Grad.Dip.- not set; Postgraduate - 2 M.Sc. and 1 Ph.D. per year

Entry requirements: See university calendar or advice to overseas students

Degree/Diploma/Certificate awarded: B.Sc./Grad.Dip./M.Sc./Ph.D.

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: HECS charges to Australian students. Apply for details of overseas fees

Monthly room and board and incidental expenses: Apply for details

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: Equity and Merit/DEET Overseas Postgrad. Awards (forms available via International Office, UOW)

Other financial support available for foreign participants: None

4. **COLLABORATION WITH DEVELOPING COUNTRIES:** Yes

Specific areas of interest: Astronomy/physics education/planetarium techniques

Geographical preference: Asia – Pacific

G. **RMIT UNIVERSITY**

P.O. Box 2476 V, Melbourne, Victoria, 3001, Australia

Tel.: 61-3-9925 2529 (Advance College) Fax: 61-3-9-663 2518

Contact person(s):

- Professor Malcom McCormick, Dean, Faculty of Applied Science;
- Professor Tony Norton, Head Department of Geospatial Science, Tel.: 61-3-9925-2213, Fax: 61-3-663-2517, E-mail: [geospatial@rmit.edu.au](mailto:geospatial@rmit.edu.au)

Principal function(s) of institution: Education and applied research

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: measurement and mapping science, land and geographic information systems, spatial information, remote sensing, photogrammetry, satellite communications, multimedia and visualization

Summary of courses and research activities:

- ❑ Applied Science – Department of Geospatial Science: undergraduate teaching of applied science in surveying, geomatics and multimedia cartography; research and experimental activities related to Geographic Information Systems, satellite positioning via the Global Positioning Systems, multimedia and visualisation, risk and community safety, sustainable development;
- ❑ Bachelor of Applied Science in Surveying, Geomatics and Multimedia Cartography and a double degree in Geomatics/Computer Science;
- ❑ Graduate Diploma in Geospatial Information;
- ❑ Master of Geospatial Information by coursework;
- ❑ Master of Applied Science by research;
- ❑ Ph.D. and relevant short courses;
- ❑ Technical and Further Education (TAFE): Advanced Diploma in Spatial Information

Duration/Frequency/Language(s) of instruction: B.App.Sci. Surveying and Geomatics–4 years; B.App.Sci. Multimedia Cartography–3 years; B.App.Sci. Geomatics/Computer Science–5 years; Grad.Dip.–1 year; M.Geo.Info.–1½ years; M.App.Sci.–1 year; Ph.D.–3 years/Annually/English

Facilities: The latest geospatial science technologies and a sophisticated Virtual Reality computer centre

Number of trainees: --

Entry requirements: Applied Science Faculty – Department of Geospatial Science Entrance to undergraduate courses – University entrance level in mathematics: for postgraduate diplomas, Masters and Ph.D. degrees – undergraduate degrees in Science, Engineering or related disciplines

Degree/Diploma/Certificate awarded: Applied Science Faculty – Department of Geospatial Science – B.App.Sci. in Surveying/Geomatics/Multimedia Cartography and Geomatics/Computer Science, Grad.Dip. in Geospatial Info, M Geospatial Info, M.App.Sci. and Ph.D. TAFE – Advanced Diploma in Spatial Information

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Variable

Monthly room and board and incidental expenses: Approx. A\$ 1,200

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: Possibility of some tutoring/teaching duties for postgraduate students

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Measurement Science, Geographic Information Systems, Land Information Management, Spatial Information, Satellite Positioning – Global Positioning Systems, Mapping, Multimedia and Visualisation, Sustainable Development, Remote Sensing, Photogrammetry, Risk and Community Management, Education (Faculty of Applied Science – Department of Geospatial Science)

Geographical preference: None

## H. LA TROBE UNIVERSITY

Bundoora, VIC 3083, Australia

Tel.: 4792735

Telex: AA33143

Cable: LA TROB

Contact person(s): Prof. K.D. Cole, Dept. of Physics

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities: Physics of the upper atmosphere, ionosphere and magnetosphere

Duration/Frequency/Language(s) of instruction: 1 year/Annually/English

Facilities: Computing facilities, ionosondes, photometer, Fabry Perot interferometer, Faraday rotation measurements, geomagnetic pulsation recording at field station at Beveridge, Victoria

Number of trainees: Between 1 and 8

Entry requirements: B.Sc.

Degree/Diploma/Certificate awarded: B.Sc. (Hon.) or M.Sc. (Prelim)

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: A\$ 2100 + visa fee

Monthly room and board and incidental expenses: A\$ 700

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: 4 postdoctoral fellowships and 40 postgraduate scholarships

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Ionospheric physics

Geographical preference: Preferably with developing countries in the region

I. UNIVERSITY OF NEWCASTLE

Newcastle NSW, Australia 2308

Contact person(s): Assoc. Professor B.J. Fraser

Principal function(s) of institution: Teaching and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: --

Research: Studies of particle interaction with the ionosphere via micropulsations

Duration/Frequency/Language(s) of instruction: --

Facilities: --

Number of trainees: Between 1 and 3

Entry requirements: A good honours degree

Degree/Diploma/Certificate awarded: M.Sc., Ph.D.

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: 15 fellowships/scholarships, Approx. A\$. 10,000

Other financial support available for foreign participants: --

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Master and doctoral research programmes, collaborative research

Geographical preference: None

J. UNIVERSITY OF TASMANIA

Box 252C GPO, Hobart, Tasmania 7001, Australia

Tel.: 202101

Telex: 58150 UNTAS

Cable: TASUNI

Contact person(s):

Prof. P.A. Hamilton, Department of Physics;

Dr. M. Nunez, Department of Geography

Principal function(s) of institution: Education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite meteorology

Summary of courses and research activities:

Courses: Principles of basic space sciences are included in a number of Bachelor of Science courses. Undergraduate courses in remote sensing and its applications, and climatology

Research: Astronomy, astrophysics, radio astronomy, cosmic ray and nuclear physics. Applications of remote sensing. Sea surface temperatures, evapotranspiration

Duration/Frequency/Language(s) of instruction: M.Sc. and Ph.D. programmes - 3-5 years; remote sensing - 18 weeks; climatology - 27 weeks/Annually/English

Facilities: Extensive optical astronomy, radio astronomy, x-ray astronomy and cosmic ray equipment. Control image processing system

Number of trainees: Between 8 and 20

Entry requirements: B.Sc.(Hon..) or equivalent/2<sup>nd</sup> year undergraduate science or surveying subjects

Degree/Diploma/Certificate awarded: M.Sc., Ph.D. in BSS, none in RS

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: M.Sc.: A\$ 13,500 p.a.; Ph.D.: A\$ 13,500 p.a.

Monthly room and board and incidental expenses: Min A\$ 700

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Several scholarships a year

Other financial support available for foreign participants: Various bilateral assistance schemes: e.g. Colombo Plan, South Pacific Aid programme, Malaysia Scholarship, Mara Scholarship

4. **COLLABORATION WITH DEVELOPING COUNTRIES:** Yes  
Specific areas of interest: Mapping of natural resources, climatology  
Geographical preference: None

K. JAMES COOK UNIVERSITY OF NORTH QUEENSLAND

Post Office, Townsville, Qld 4811, Australia  
 Tel.: 077814111  
Contact person(s): Prof. Hopley, Dept. of Geography

Principal function(s) of institution: Education

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializatoin: remote sensing, satellite meteorology

Summary of courses and research activities:

Courses: Remote sensing, satellite meteorology

Research: Ecological modelling, environmental remote sensing; GIS; research into hydrometeorology on wet tropical coasts; studies of rainfall systems on wet tropical coasts; evaluating the hydrological impact

Duration/Frequency/Language(s) of instruction: Remote sensing and GIS - 9 hours per week; Geography - 15 hours/Semester/English

Facilities: Computer laboratory, GIS software, weather chart facsimile receiver, satellite (GMS) receiving equipment

Number of trainees: 70 (2<sup>nd</sup> year), 40 (3<sup>rd</sup> year), 14 (postgrad.)

Entry requirements: 1<sup>st</sup> year science (for 2<sup>nd</sup> year); 2<sup>nd</sup> year RS or GIS (for 3<sup>rd</sup> year)

Degree/Diploma/Certificate awarded: M.Sc., Ph.D., Diploma

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: A\$ 10,100 p.a.

Monthly room and board and incidental expenses: --

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

4. **COLLABORATION WITH DEVELOPING COUNTRIES:** Yes  
Specific areas of interest: Coral reef management; landuse; hydro-meteorology  
Geographical preference: Tropical regions

L. MACQUARIE UNIVERSITY

North Ride, NSW 2113, Australia  
 Tel.: (02) 8058908; (02) 888-8000

Telex: AA22377 MACQUNI

Contact person(s):

- Prof. D.J. Skellern;
- Prof. R.E. Aitchison, School of Mathematics and Physics

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing, satellite meteorology

Summary of courses and research activities:

Courses: --

Research: Surface temperature contours, GMS-3, S-band high resolution pictures

Duration/Frequency/Language(s) of instruction: --

Facilities: Fixed 6M GMS-3 installation, high resolution S-band, tracking 4 M dish, NOAA-TIROS receiving station

Number of trainees: Up to 2 per year

Entry requirements: B.Sc. or B.E.E.

Degree/Diploma/Certificate awarded: M.Sc.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: Approx. A\$ 600 suggested minimum

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: 6 postgraduate scholarships per year

Other financial support available for foreign participants: Visiting fellowships for senior scholars - airfare plus 8 weeks' living allowance

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Surface temperature profiles, fisheries, environmental pollution, rainfall, floods

Geographical preference: None

M. UNIVERSITY OF NEW SOUTH WALES, CENTRE FOR REMOTE SENSING

P.O. Box 1, Kensington 2033, New South Wales, Australia

Tel.: 61-2-697-4964

Fax: 61-2-6622087

Telex: AA26054

Contact person(s): Professor B.C. Forster, Director

Principal function(s) of institution: Training, education, research and development

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: Master's Degree course (1 year full time, 2 years part time), Graduate Diploma (1 year full time, 2 years part time), range of short courses in image analysis, principles of remote sensing and application areas. Tailored short courses have also been conducted in a number of Asian countries

Research: Synthetic Aperture Radar Research (SIR-B), geology, mapping information extraction, urban monitoring, soil moisture, arid land applications, microwave properties; Analysis of high resolution spaceborne visible and near infra-red images (SPOT, LANDSAT TM, Large Format Camera) for medium scale mapping, urban monitoring and input to land information systems; Integration of remote sensing and other data sources; Bushfire monitoring; Forest assessment; Rice monitoring; Classification procedures; Atmospheric correction using reference surfaces; Hydrographic and bathymetric mapping; Remote sensing input to geographic information systems

Duration/Frequency/Language(s) of instruction: 1 year full time, 2 years part time, 2-5 days (short courses)/Annually/English

Facilities: Remote sensing laboratory: Dipix Aries II Image Analysis System; Meridian Image Analysis System; A-Image System; colourwrite facility; coordinate digitizer; wide range of satellite digital images, ERDAS/ARC INFO laboratory with 16 SUN stations

Number of trainees: Postgraduate programmes - Between 10 and 20; Short courses - Between 10 and 30

Entry requirements: Masters - 4 years degree, Diploma - 3 years degree; Short course-professional experience

Degree/Diploma/Certificate awarded: Master of Engineering Science, Master of Applied Science, Graduate Diploma in Remote Sensing

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Postgraduate programmes require entry visa fee or full fee payment, university costs and textbooks A\$ 250; short courses A\$ 120 per day

Monthly room and board and incidental expenses: A\$ 800

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Technology transfer, short courses, land use mapping and monitoring, coastal and near shore monitoring, all aspects of remote sensing research

Geographical preference: Asia, South Pacific

## N. UNIVERSITY OF MELBOURNE, METEOROLOGY DEPARTMENT

Parkville, Victoria 3052, Australia

Tel.: (03) 3446912

Telex: AA 35185

Contact person(s):

Dr. R. Lile;

Dr. T. Gibson

Principal function(s) of institution: Research and education

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializatoin: remote sensing, satellite meteorology

Summary of courses and research activities:

Courses: Physical principles of remote sensing. Basic principles of satellite meteorology, applications of analogue and digital satellite data

Research: Applications of remote sensing. Use of satellite imagery and radiance values in synoptic climatology, structure and evolution of atmospheric features, development of video-based hardware for processing of satellite imagery

Duration/Frequency/Language(s) of instruction: 8 weeks/Annually/ English

Facilities: Direct read-out of polar-orbiting and geostationary satellite imagery, computing facilities

Number of trainees: Between 1 and 8

Entry requirements: Second year university level in mathematics or physics

Degree/Diploma/Certificate awarded: --

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Full-time overseas students are charged tuition fees of approx. A\$ 1,500 per year

Monthly room and board and incidental expenses: Approx. A\$ 180

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Remote sensing applications, synoptic climatology

Geographical preference: Southern hemisphere

O. CANBERRA COLLEGE OF ADVANCED EDUCATION

P.O. Box 1, Belconnen, A.C.T. 2616, Australia

Tel.: 062 522111

Telex: 62267

Cable: COLLADVED

Contact person(s): Mr. W. Wasserman

Principal function(s) of institution: Education

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing, satellite communications

Summary of courses and research activities: Undergraduate and graduate courses in remote sensing. Undergraduate studies in physics, electronics and communications engineering. Optical and radiowave research

Duration/Frequency/Language(s) of instruction: Semester/Annually/ English

Facilities: Satellite earth station and data acquisition equipment, photogrammetric and data processing systems

Number of trainees: Between 4 and 15

Entry requirements: Normal college entry requirements for degree course

Degree/Diploma/Certificate awarded: --

2. **COST OF PROGRAMMES**  
Cost of tuition, texts and related research material: College fees  
Monthly room and board and incidental expenses: College fees if resident on campus
3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**  
Scholarship/Fellowship opportunities for foreign participants: --  
Other financial support available for foreign participants: --
4. **COLLABORATION WITH DEVELOPING COUNTRIES**: Yes  
Specific areas of interest: Remote sensing and satellite communications technology  
Geographical preference: Pacific Basin preferred, but not exclusively

P. **RESEARCH SCHOOL OF ASTRONOMY AND ASTROPHYSICS**

Mt. Stromlo Road (off Cotter Rd.), Weston, ACT 2611, Australia  
 Tel.: +61-2-6125-0266 Fax: +61-2-6125-0260 E-mail: [director@mso.anu.edu.au](mailto:director@mso.anu.edu.au)  
Contact person(s): Prof. J.E. Norris, Interim Director

Principal function(s) of institution: Education and research

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: Ph.D. program in astronomy and astrophysics

Research: Ground and space based astronomical observations

Duration/Frequency/Language(s) of instruction: 4 years/Annually/English

Facilities: Telescopes, instrumentation engineering

Number of trainees: 10

Entry requirements: B.Sc. Honours (Physics)

Degree/Diploma/Certificate awarded: 3-6 year Ph.D.

2. **COST OF PROGRAMMES**  
Cost of tuition, texts and related research material: --  
Monthly room and board and incidental expenses: --
3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**  
Scholarship/Fellowship opportunities for foreign participants: Yes  
Other financial support available for foreign participants: --
4. **COLLABORATION WITH DEVELOPING COUNTRIES**: --  
Specific areas of interest: --  
Geographical preference: --

## A U S T R I A

A. AUSTRIAN SPACE AGENCY (ASA)

Garnisongasse 7, A-1090 Vienna, Austria

Tel.: 43+1+4038177

Fax: 43+1+4058228

E-mail: [mgitsch@asaspace.at](mailto:mgitsch@asaspace.at)

Contact person(s): Michaela Gitsch, Administrator

Principal function(s) of institution:

Co-ordination of space activities in Austria, governmental space agency:

The Austrian Space Agency (ASA) established by the Federal authorities in Vienna in 1972, serves as a focal point for the co-ordination of space activities in Austria and is the Austrian link to international space activities. ASA assists the Federal Ministry for Transport, Innovation and Technology in co-ordinating space activities and is responsible for establishing the programmatic framework and strategic guidance of industry and scientific institutions to play a significant role in international space related undertakings. For this objective ASA is supported by leading Austrian space companies and institutes, such as Austrian Aerospace, Siemens Austria, Steyr-Daimler-Puch Space Technology, Plansee, Joanneum Research, Austrian Research Centres Seibersdorf.

ASA is responsible for:

- Organisation and management of programme contributions on ESA, bilateral and international level;
- Promotion and support of Austrian science and industry;
- Supporting and advising the Federal Ministry of Transport, Innovation and Technology in carrying out the Austrian space policy;
- Co-ordination of national space activities and liaison management with foreign space agencies;
- Organisation and management of space relevant events and education and training activities;
- Public relations

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializatoin: basic space sciences, remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities: The annual Summer School Alpbach looks back on a long tradition and takes place on a yearly basis since 1975 on different subjects of space research. The aim of the Summer School is to offer advanced training and working experience to European graduates as well as post-graduate students and young scientists and engineers on subjects which are not usually part of the academic curricula. The participants are being enabled to extend and to strengthen their knowledge and to put it into practice during the workshops, the desired results of which are the exemplarily design of space missions.

The Summer School is organised by the Austrian Space Agency in co-operation with the Austrian Federal Ministry of Transport, Innovation and Technology and co-sponsored by the European Space Agency (ESA) and the national space authorities of its member states.

This annual event has a high reputation worldwide for its promotion of young space scientists and engineers.

Duration/Frequency/Language(s) of instruction: 10 days/Each year in Alpbach, Tyrol, Austria/English

Facilities:

- ❑ ASA grants scholarships for 15 Austrian Summer School participants;
- ❑ ASA chairs the Programme Committee which is responsible for establishing the programme of the Summer School;
- ❑ ASA offers the local facilities in Alpbach

Number of trainees: About 60

Entry requirements: M.Sc., Ph.D. or completed first term of studies

Degree/Diploma/Certificate awarded: Certificate of attendance

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Registration fee of ATS 3.600,- (Euro 261,62)

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None, but ASA mediates fellowships/scholarships of the European Space Agency (ESA). Please refer to ESA's homepage [www.esa.int](http://www.esa.int)

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: None

Specific areas of interest: --

Geographical preference: --

## B. INSTITUT FÜR NACHRICHTENTECHNIK UND WELLENAUSBREITUNG

Inffeldgasse 12, A-8010, Graz, Austria

Tel.: 316 7061/7441      Telex: 31221

Contact person(s): Prof. W. Riedler

Principal function(s) of institution: Education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities:

Courses: Space experiments; results of space research; plasma in space. Radar techniques. Selected topics on communication satellite systems

Research: Development of space research payloads and experiments data analysis. Development of special radar equipment. Wave propagation at frequencies above 10 GHz, analog and digital data transmission experiments. Development of low-cost meteorological satellite receiver units

Duration/Frequency/Language(s) of instruction: - 2 hrs a week/Semester/German

Facilities: Development laboratories, test facilities, computers, radar station, satellite earth station

Number of trainees: Between 1 and 2

Entry requirements: Bachelor, Master's degree preferred

Degree/Diploma/Certificate awarded: --

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: Approx. AS 5,000

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Basic space sciences, remote sensing, satellite communications, satellite meteorology

Geographical preference: None

## A Z E R B A I J A N

AZERBAIJAN NATIONAL AEROSPACE AGENCY

159 Azadlig Ave., Baku 370106, Azerbaijan

Tel.: (994-12) 629-300

Fax: (994-12) 621-738

E-mail: [rrustam@independ.baku.az](mailto:rrustam@independ.baku.az)

Contact person(s): Rustam B. Rustamov

Principal function(s) of institution: (i) Gathering and thematic interpretation of RS data and (ii) air/space monitoring of the territory of the republic, including the Caspian Sea

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: --

Research:

- Gathering, processing and interpretation of remote sensing (RS) data for investigation of Earth's natural resources;
- RS of the Earth surface using airborne measurement systems;
- Contact measurements installed in measurement complexes of ground and sea test sites;
- Methodical, algorithmic and program software of computer-based systems of thematic interpretations and mapping of multispectral air- and space images for practical applications;
- Advanced ground and sea measurement systems for subsatellite space investigations;
- Design methods of regional, ecological monitoring on the basis of RS results;
- Ecological mapping of the territory on the basis of RS and ground observations;
- Mathematical modelling for ecological forecasting and database for environmental monitoring;
- Estimation methods for effectiveness of actions directed at increasing soil fertility, irrigation systems, water purification from oil contamination, etc.

Duration/Frequency/Language(s) of instruction: --/--/ Azeri and English

Facilities: --

Number of trainees: --

Entry requirements: --

Degree/Diploma/Certificate awarded: --

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Software and hardware development, satellite remote sensing, data processing and thematic interpretation of remotely-sensed data, development of GIS

Geographical preference: We are not taking into account any particular geographical preference in our collaborative activities

## B A H R A I N

BAHRAIN CENTRE FOR STUDIES AND RESEARCH

P.O. Box 496, Manama, Bahrain

Tel.: (973) 754680

Fax: (973) 756225

E-mail: [azainal@bcsr.gov.bh](mailto:azainal@bcsr.gov.bh)

Contact person(s): Dr. Abdul Jalil Zainal

Principal function(s) of institution: Research, development and contractual projects

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: --

Research: Applications of remote sensing for mapping of shallow marine habitats (part of coast management) and for marine environmental monitoring

Duration/Frequency/Language(s) of instruction: On-going research and projects/English

Facilities: Computer hardware and software, all major GIS and RS software, field survey equipment (boat, diving gear, GPS, etc.)

Number of trainees: 1-3 depending on the specific qualifications of each person

Entry requirements: Post graduate level (prefer in RS and GIS related fields)

Degree/Diploma/Certificate awarded: None

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: Approx. \$ 700/month for accomodations and approx. \$ 800/month for board

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: Lab assistantship/office etc. Must have at least a postgraduate degree and a research project plan in remote sensing

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Applications of geomatics (GIS and RS) in the marine environment, utilities and telecommunications

Geographical preference: None

## B A N G L A D E S H

SPACE RESEARCH AND REMOTE SENSING ORGANIZATION (SPARRSO)

Mohakash Biggyan Bhaban, Agargaon, Sher-e-Bangla Nagar, Dhaka-1207, Bangladesh  
 Tel.: 9131741 Fax: 8802-8113080 E-mail: [sparrso@bangla.net](mailto:sparrso@bangla.net)  
Contact person(s): Chairman, SPARRSO

Principal function(s) of institution: Application of remote sensing in monitoring natural resources and disasters. Research on satellite meteorology is also conducted. Training for own scientists is arranged as per requirement. Students from educational institutions are supported by providing training and research facilities

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specialization: remote sensing, satellite meteorology

Summary of courses and research activities:

Courses: None

Research: Research work is being carried out on Agriculture Landuse, mapping, erosion/accretion in the rivers and the coast, fishfaring, forest resources, environment, meteorology, crop estimation using remote sensing

Duration/Frequency/Language(s) of instruction: 1-3 years/English and Bengali

Facilities: All modern facilities for digital image processing, ground truthing, Cartographic lab, Meteorological ground stations, Photographic lab, library

Number of trainees: 2-3 research students are accommodated on request from universities

Entry requirements: Graduate or Post graduate researchers in the allied field

Degree/Diploma/Certificate awarded: Certificates of completion from SPARRSO and academic degrees like M.Sc., M.Phil., Ph.D. from University with which the research is affiliated

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Complementary support is provided by SPARRSO

Monthly room and board and incidental expenses: None

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: TC DC activities on mutually agreed field of application of remote sensing

Geographical preference: None

## BELGIQUE

A. FACULTES UNIVERSITAIRES NOTRE-DAME DE LA PAIX

61, rue de Bruxelles, 500 Namur, Belgique  
 Téléphone: 081/724903 Fax: 081/724914  
Responsable : Jacques Henrard

Vocation(s) principale(s) de votre établissement: Enseignement et recherche

## 1. PROGRAMMES DE CULTURE GENERALE ET SCIENTIFIQUES

Area(s) of specializaton: basic space sciences

Description des cours et activités de recherche:

Cours: Astronomie et mécanique céleste

Recherche: Mécanique céleste: détermination d'orbite de satellite artificiel; détermination d'orbite d'objets naturels du système solaire

Durée/Fréquence/Langue(s) d'enseignement: 1 an/Annuelle/Français

Moyens dont dispose l'établissement pour exécuter les programmes: Salles de cours. Ordinateur

Nombre de participants: Entre 1 et 3

Critères régissant l'admission: Licence en Sciences Mathématiques

Certificats ou diplômes obtenus: --

## 2. COUT DES PROGRAMMES

Frais de scolarité, manuels et autres matériaux de recherche: --

Frais mensuels de logement et de subsistance et faux frais: --

## 3. POSSIBILITES DE BOURSES D'ETUDES OU DE PERFECTIONNEMENT

Possibilités de bourses d'études ou de perfectionnement pour des participants étrangers: Néant

Existence d'autres possibilités d'octroi d'une aide financière pour participants étrangers: Néant

## 4. COLLABORATION AVEC PAYS EN DEVELOPPEMENT: Oui

Domaines qui vous intéressent: Mécanique céleste

Préférence géographique: Aucune

B. UNIVERSITE LIBRE DE BRUXELLES

Avenue de F.D. Roosevelt, 50, B-1050 Bruxelles, Belgique  
 Téléphone: 32-2-6503141 Fax: 32-2-6503126 Télégraphique: UNILIB  
Responsable:

M. J.C. Legros  M. M. Paiva

Vocation(s) principale(s) de votre établissement: Enseignement, recherche et développement

## 1. PROGRAMMES DE CULTURE GENERALE ET SCIENTIFIQUES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications, satellite meteorology

Description des cours et activités de recherche:Cours: Physique. Cours de 2ème cycle (licence en géologie)Recherche: Etude de matériaux en micro-gravité. Etude de la respiration en apesanteur.

Transmission de données

Durée/Fréquence/Langue(s) d'enseignement: Variable/Snnuelle/FrançaisMoyens dont dispose l'établissement pour exécuter les programmes: Crédits du Ministère de la politique scientifique et de l'Agence spatiale européen (ASE)Nombre de participants: VariableCritères régissant l'admission: Diplôme de 1er cycleCertificats ou diplômes obtenus: --

## 2. COUT DES PROGRAMMES

Frais de scolarité, manuels et autres matériaux de recherche: --Frais mensuels de logement et de subsistance et faux frais: --

## 3. POSSIBILITES DE BOURSES D'ETUDES OU DE PERFECTIONNEMENT

Possibilités de bourses d'études ou de perfectionnement pour des participant étrangers: NéantExistence d'autres possibilités d'octroi d'une aide financière pour participants étrangers: Bourses et stages ASE et Commission des Communautés Européennes

## 4. COLLABORATION AVEC PAYS EN DEVELOPPEMENT: Oui

Domaines qui vous intéressent: Les domaines sont les mêmes que les descriptions des activités de recherchePréférence géographique: AucuneC. ROYAL MILITARY ACADEMY

Avenue de la Renaissance, 30, 1040 Bruxelles, Belgique

Tel.: 32-2-7376120

Fax: 32-2-7376047

E-mail: [amuls@elec.rma.ac.be](mailto:amuls@elec.rma.ac.be)Contact person(s): Muls Alain, Mees Wim, Dept. ASGEPrincipal function(s) of institution: Education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensingSummary of courses and research activities:Courses: Celestial machnics, space geodesy, GPS, earth's gravityResearch: GPS, establishment of GPS reference stations, photogrammetryDuration/Frequency/Language(s) of instruction: Variable/Yearly/French and DutchFacilities: GPS equipment, photogrammetric equipmentNumber of trainees: VariableEntry requirements: Depends on course type requestedDegree/Diploma/Certificate awarded: Civil engineer (Polytechnic)

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Textbooks

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: May be granted by RMA commander

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes (in consideration)

Specific areas of interest: GPS, cartography, navigation, geodesy

Geographical preference: None

D. UNIVERSITE CATHOLIQUE DE LOUVAIN

Place de l'Université, 1, 1348 Louvain-la-Neuve, Belgique

Tel.: +32-10-473884 Fax: +32-10-478814 E-mail: [barthelemy@etu.ucl.ac.be](mailto:barthelemy@etu.ucl.ac.be)

Responsable:

- Prof. G. Gregoire, Tel.: 010/473216, E-mail: [gregoire@fynu.ucl.ac.be](mailto:gregoire@fynu.ucl.ac.be)
- Prof. J.P. Declercq, Tel.: 010/472924, E-mail: [declercq@chim.ucl.ac.be](mailto:declercq@chim.ucl.ac.be)
- Prof. P.P. Knops-Gerrits, Tel.: 010/472939, E-mail: [ppkg@chim.ucl.ac.be](mailto:ppkg@chim.ucl.ac.be)
- Prof. E. Lambin, Tel.: 010/474477, E-mail: [lambin@geog.ucl.ac.be](mailto:lambin@geog.ucl.ac.be)
- Prof. P. Defourny, Tel.: 010/472374, E-mail: [defourny@biom.ucl.ac.be](mailto:defourny@biom.ucl.ac.be)
- Prof. P. Sobieski, Tel.: 010/472303 or 010/472300, E-mail: [sobieski@tele.ucl.ac.be](mailto:sobieski@tele.ucl.ac.be)
- Prof. D. Vanhoenacker, Tel.: 010/472304 or 010/474020, E-mail: [vanhoenacker@emic.ucl.ac.be](mailto:vanhoenacker@emic.ucl.ac.be)

Vocation(s) principale(s) de votre établissement: Education and research

1. PROGRAMMES DE CULTURE GENERALE ET SCIENTIFIQUES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications, satellite meteorology

Description des cours et activités de recherche:

(DEA) Diplôme d'études approfondies: physics, chemistry, engineering (master's level)

(DES) Diplôme d'études spécialisées: cartography and remote sensing (master's level)

Doctorat en sciences: physics, chemistry, geography (Ph.D.)

Doctorat en sciences appliquées: engineering (Ph.D.)

Courses: meteorology, climate dynamics and planetary physics, telecommunications and hyperfrequencies, communication systems, remote sensing, photo interpretation, geographic information systems

Research:

- Flux charged particles in the earth magnetosphere;
- Protein crystallography. Crystallisation under microgravity conditions;
- Study of hydrogen bonding in microgravity generated by micro- and mesoporous oxides, aluminosilicates, aluminophosphates;
- Protein fluorescence to assess the quality of microgravity generated crystals;
- Remote sensing: land use and land cover change at a regional scale;
- Remote sensing: agriculture and forestry crop monitoring;
- Remote sensing: salinity of sea water and radiometric signatures;
- Satellite communication and transmission, channel modelization (tropospheric and urban)

Durée/Fréquence/Langue(s) d'enseignement: DEA – 1-2 years, DES – 1 year, Doctorate – 4 years.  
Lectures in French with some in English. Dissertation can be written in English

Moyens dont dispose l'établissement pour exécuter les programmes: Particle accelerator; high intensity and energy neutron beams; Detection and test equipment, data acquisition systems; Construction, test and design facilities; Equipment for crystallisation and X-ray diffraction analysis of single crystals; Remote sensing and GIS workstations

Nombre de participants: 2-3

Critères régissant l'admission: Depends on the final diploma aimed at

Certificats ou diplômes obtenus: Master's Degree and Ph.D.

## 2. COUT DES PROGRAMMES

Frais de scolarité, manuels et autres matériaux de recherche: 703 Euros for DEA or DES; 29 Euros for preparatory years to Ph.D.; 703 Euros for the year of graduation Ph.D.; Specific conditions for foreign students to be checked in a case by case basis

Frais mensuels de logement et de subsistance et faux frais: 750 Euros

## 3. POSSIBILITES DE BOURSES D'ETUDES OU DE PERFECTIONNEMENT

Possibilités de bourses d'études ou de perfectionnement pour des participants étrangers: UCL awards some 30 fellowships annually to students coming from less developed countries who register for Masters or Ph.D. degrees. The annual stipend is around 800 EUR monthly for a single person. Some fellowships can also be obtained via the Belgian embassies and/or representatives. Finally, fellowships are also available via international organizations. Rates and conditions can be obtained by contacting these organizations

Existence d'autres possibilités d'octroi d'une aide financière pour participants étrangers: Research fellowships related to a research contract with a federal agency or the European space agency

## 4. COLLABORATION AVEC PAYS EN DEVELOPPEMENT: Yes

Domaines qui vous intéressent: Basic space science, space weather. Microgravity application programs in crystal nucleation and growth, materials chemistry. Remote sensing applications and spatial modelling applied to the environment

Préférence géographique: None

## E. UNIVERSITE DE LIEGE

Place du 20 Août, 7, B-4000 Liège, Belgique

Responsable:

- Centre de Recherches, IAL Space, Avenue du Pré 1-1 Aily, B-4900 Angleur, Liège, Tel.: 041-676668, Fax: 041-675613;
- Prof. Jacques C.J. Nihoul, b5, Sart Tilman, B-4000 Liège, Tel: 041-420080;
- A. Pissart et A. Ozer, Laboratoire de géomorphologie et de géologie du quaternaire, Tel.: 041-440080, ext.257-446-478;
- Seminaire de geographie, Laboratoire de Photo interprétation, Tel.: 041-665556;
- Prof. J. Alexandre, Tel.: 041-665556

Vocation(s) principale(s) de votre établissement: Enseignement, recherche et développement

## 1. PROGRAMME DE CULTURE GENERALE ET SCIENTIFIQUES

Area(s) of specializaton: basic space sciences, remote sensing, satellite meteorology

Description des cours et activités de recherche:

Cours: 3ème cycle sur détecteurs optoélectroniques. 2ème partie du cours de photo-interprétation dans laquelle on envisage les données du satellite LANDSAT et leur utilisation pour l'aménagement du territoire

Recherche: Participation à divers projets: TDI, space télescope (FOC), Giotto, Hipparcos. Problèmes traités: radiométrie, tests optiques et optoélectroniques, alignements, conception de systèmes de tests, simulation thermique. Applications de la télédétection à l'étude de l'environnement et au développement de modèles mathématiques pronostiques de l'atmosphère, des mers et des climats. Interprétation des images-satellite et des photos aériennes dans le domaine géologique et géomorphologique. Recherches sur la localisation et l'extension horizontale de la zone de convergence intertropicale: variations temporelles (impact climatique en basse latitude) et analyse des amas nuageux convectifs à partir de l'imagerie trihoraire de METEOSAT

Durée/Fréquence/Langue(s) d'enseignement: Depend des sujets traités et des préalables acquis par l'étudiant/--/Français

Moyens dont dispose l'établissement pour exécuter les programmes: Laboratoires d'optique et optoélectronique. Installation de traitement optique et digital d'images. Stéréoscopes, chambres claires, densitomètre, laboratoire photographique. Système de réception automatique d'images du satellite METEOSAT

Nombre de participants: Entre 2 et 20

Critères régissant l'admission: Le niveau dépend des cours choisis

Certificats ou diplômes obtenus: --

## 2. COUT DES PROGRAMMES

Frais de scolarité, manuels et autres matériaux de recherche: --

Frais mensuels de logement et de subsistance et faux frais: --

## 3. POSSIBILITES DE BOURSES D'ETUDES OU DE PERFECTIONNEMENT

Possibilités de bourses d'études ou de perfectionnement pour des participants étrangers: --

Existence d'autres possibilités d'octroi d'une aide financière pour participants étrangers: --

## 4. COLLABORATION AVEC PAYS EN DEVELOPPEMENT: Oui

Domaines qui vous intéressent: Optoélectronique spatiale, mais nous devons être financés à cet effet. Télédétection et géologie/géomorphologie. Affectation du sol, croissance urbaine. Interprétation des documents provenant du satellite METEOSAT en relation avec les bulletins et cartes météorologiques et les sondages aérologiques

Préférence géographique: Aucune

F. LABORATOIRE DE GEOGRAPHIE REGIONALE

Centre de Télédétection, Université de l'Etat de Gand, Krijgslaan 281, B-9000 Gent, Belgique  
Tel.: 091-225715

Responsable: Prof. Dr Luc Daels

Vocation(s) principale(s) de votre établissement: Enseignement, recherche et développement

## 1. PROGRAMMES DE CULTURE GENERALE ET SCIENTIFIQUES

Description des cours et activités de recherche:

Cours: Cours d'entraînement dans le domaine de la télédétection sur différents niveaux

Activités de recherche: Recherche fondamentale surtout axée sur la méthodologie et l'analyse de l'image. Recherche sur l'interprétation des données des satellites de la deuxième génération. Recherche appliquée: plusieurs chercheurs travaillent sur la problématique de la désertification (études au Soudan, en Iraq et en Egypte). Les données de la télédétection sont analysées d'une manière visuelle et d'une manière digitale. Plusieurs études concernant l'utilisation des sols sont en cours pour l'Afrique centrale

Durée/Fréquence/Langue(s) d'enseignement: 1 année/46 h par semaine/Anglais, Néerlandais

Moyens dont dispose l'établissement pour exécuter les programmes: Instruments d'interprétation, équipement pour le renforcement des images, équipement pour le traitement numérique des données satellites

Nombre de participants: Entre 2 et 6

Critères régissant l'admission: Niveau universitaire, géographe, géologue, agronome. Niveau A2 (ingénieur technique)

Certificats ou diplômes obtenus: Diplôme M.Sc. (après 2 ans), diplôme d'études approfondies (après 1 an), certificat (après un stage de 6 mois)

## 2. COUT DES PROGRAMMES

Frais de scolarité, manuels et autres matériaux de recherche: A régler avec l'administration universitaire

Frais mensuels de logement et de subsistance et faux frais: --

## 3. POSSIBILITES DE BOURSES D'ETUDES OU DE PERFECTIONNEMENT

Possibilités de bourses d'études ou de perfectionnement pour des participants étrangers: Oui. Variable

Existence d'autres possibilités d'octroi d'une aide financière pour participants étrangers: Néant

## 4. COLLABORATION AVEC PAYS EN DEVELOPPEMENT: Oui

Domaines qui vous intéressent: La télédétection pour l'étude de la désertification (transports des sables, salinisation et formation des croûtes calcaires). L'utilisation des sols (Afrique et la Méditerranée)

Préférence géographique: Soudan, Iraq, Egypte, Zaïre

## G. FACULTE DES SCIENCES AGRONOMIQUES DE L'ETAT

B-5800 Gembloux, Belgique

Tel.: 32 (0) 8162287 Fax: 32 (0) 81614544

Responsable: Prof. S. Dautrebande

Vocation(s) principale(s) de votre établissement: Enseignement, recherche et développement

## 1. PROGRAMMES DE CULTURE GENERALE ET SCIENTIFIQUES

Area(s) of specializaton: remote sensing

Description des cours et activités de recherche: Données de base et orientation agronomique. Exploitation logiciels Teledetection et GIS dans le domaine agronomie-hydrologie (orientation vers Afrique centrale et Afrique sèche, Belgique, Europe)

Durée/Fréquence/Langue(s) d'enseignement: 2 à 4 ans/Français (Anglais)

Moyens dont dispose établissement pour exécuter les programmes: Logiciels ERDAS et ARCINFO, table de digitalisation, scanner

Nombre de participants: Entre 1 et 3

Critères régissant l'admission: Graduat en agronomie ou géographie

Certificats ou diplômes obtenus: Certificat d'études approfondies ou doctorat

2. COUT DES PROGRAMMES

Frais de scolarité, manuels et autres matériaux de recherche: --

Frais mensuels de logement et de subsistance et faux frais: --

3. POSSIBILITES DE BOURSES D'ETUDES OU DE PERFECTIONNEMENT

Possibilités de bourses d'études ou de perfectionnement pour des participants étrangers: Neant

Existence d'autres possibilités d'octroi d'une aide financière pour participants étrangers: Néant

4. COLLABORATION AVEC PAYS EN DEVELOPPEMENT: Oui

Domaines qui vous intéressent: Agronomie et hydrologie

Préférence géographique: Afrique centrale et zones du Sahel

H. CENTRE SPATIAL

Pare Scientifique, B4031 Angleur, Belgium

Tel.: 32 43676668

Fax: 32 43675613

E-mail: [prochus@uly.ac.be](mailto:prochus@uly.ac.be)

Contact person(s): Pierre Rochus

Principal function(s) of institution: Research and development

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing

Summary of courses and research activities:

Courses: Space environment, astrodynamics, design of space scientific instruments, applied optics, scientific payloads

Research: Optics

Duration/Frequency/Language(s) of instruction: 1 year/Annually/French

Facilities: CSL is a ESA Co-ordinated Test Facility

Number of trainees: 20

Entry requirements: Engineer, Physicist, other to be analysed

Degree/Diploma/Certificate awarded: DE.A.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: University of Liege rules

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: None

Specific areas of interest: --  
Geographical preference: None

## I. LABORATOIRE D'HYPERFREQUENCES, UCL

Batiment Maxwell, Place du Levant, 3, B-1348 Louvain-La-Neuve, Belgium  
 Tel.: +32 10 47 8095 Fax: +32 10 47 8705 E-mail: [vanhoenacker@emic.ucl.ac.be](mailto:vanhoenacker@emic.ucl.ac.be)  
Contact person(s): Prof. D. Vanhoenacker-Janvier

Principal function(s) of institution: Education and research

### 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: satellite communications

Summary of courses and research activities:

Courses: --

Research: Satellite communication and transmission, channel modelization

Durée/Fréquence/Langue(s) d'enseignement: Depend des sujets traités et des préalables acquis par l'étudiant/--/Français

Moyens dont dispose l'établissement pour exécuter lesprogrammes: La répartition exacte dépend des sujets. En général, on peut que le travail se répartit environ en trois tiers égaux entre le travail théorique en classe, le travail expérimental et le travail indépendant. L'Université dispose d'une équipe de recherche expérimentée et de moyens expérimentaux adéquats

Nombre de participants: Entre 10 et 20

Critères régissant l'admission: Le niveau dépend des cours choisis. Les critères ne peuvent donc pas être définis en général

Certificats ou diplômes obtenus: Les diplômes peuvent être, le cas échéant: Ingenieur civil electricier. Ingenieur civil en télécommunications. Certificat de spécialisation. Licence en sciences appliquées. Maitrise. Doctorat

### 2. COUT DES PROGRAMMES

Frais de scolarité, manuels et autres matériaux de recherche: On peut considérer que le coût global d'une année d'études s'élève à environ FB 300,000 par an pour un célibataire. Ce montant comprend le droit d'inscription: FB 27,000 et le logement: environ FB 8.000 par mois

Frais mensuels de logement et de subsistance et faux frais: FB 25,000

### 3. POSSIBILITES DE BOURSES D'ETUDES OU DE PERFECTIONNEMENT

Possibilités de bourses d'études ou de perfectionnement pour des participants étrangers: L'UCL octroie chaque année quelque 35 bourses à des ressortissants du tiers monde qui entament des études de postgraduat. Le montant mensuel de la bourse s'élève à FB 25.500 pour un célibataire

Existence d'autres possibilités d'octroi d'une aide financière pour participants étrangers: Des bourses peuvent également être obtenues auprès de l'Administration Générale de la coopération au développement à Bruxelles ainsi qu'auprès du Commissariat général aux relations internationales, également situé à Bruxelles, via le poste diplomatique belge à l'étranger. Enfin, des bourses sont disponibles auprès d'organismes internationaux tels que l'UNESCO, la CEE, etc. Les conditions et les montants de ces bourses, variables selon les organismes, peuvent être obtenus auprès de ceux-ci

### 4. COLLABORATION AVEC PAYS EN DEVELOPPEMENT: Oui

Domaines qui vous intéressent: Télécommunications spatiales en général, exploitation de stations terrestres, radiometres, conception de circuits de télécommunications spatiales. Applications de la télédétection a l'étude de l'environnement  
Préférence géographique: Aucune

## B R A Z I L

A. INSTITUTO DE AERONAUTICA E ESPACO

Pca. Mal. Eduardo Gomes, 50, Villa das Acacias 12228-904, São José dos Campos, São Paulo, Brazil

Tel.: 55-12-3947-6555 Fax: 55-12-3941-2522 E-mail: [director@iae.cta.br](mailto:director@iae.cta.br)

Contact person(s): Director

Principal function(s) of institution: Research and development

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: Applied research on aeronautics, sounding rockets and satellite launchers

Summary of courses and research activities:

Courses: --

Research: Applied research on aeronautics, sounding rockets and satellite launchers

Duration/Frequency/Language(s) of instruction: --

Facilities: Laboratories of electronics, mechanics, propulsion, guidance and control, aerodynamics, chemistry, testing facilities

Number of trainees: None

Entry requirements: B.Sc. in the specific field

Degree/Diploma/Certificate awarded: None

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Applied research on aeronautics, sounding rockets and satellite launchers

Geographical preference: None

B. INSTITUTO TECNOLOGICO DE AERONAUTICA

Pca. Mal. Eduardo Gomes, 50, Villa das Acacias 12228-900, São José dos Campos, São Paulo, Brazil

Tel.: 55-123-412211 Fax: 55-123-417069

Contact person(s):

Dr. Wagner Sessin (basic space sciences);

Prof. Fernando Walter (satellite communications)

Principal function(s) of institution: Education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, satellite communications

Summary of courses and research activities:

Courses: Graduate courses in spatial mechanics. Graduate courses in satellite communications, navigation and surveillance by satellite

Research: Study of motion and equilibrium of celestial bodies. Satellite communications, navigation and surveillance by satellite

Duration/Frequency/Language(s) of instruction: 2-5 years/Every semester/Portuguese

Facilities: Library, computer facilities, astronomical observatory, laboratories

Number of trainees: Up to 15

Entry requirements: B.Sc. degree in Mathematics, Physics or Engineering (for basic space sciences programme) and B.Sc. degree in Electronics or Aeronautical Engineering (for satellite communications programme)

Degree/Diploma/Certificate awarded: Master of Sciences and Ph.D.

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: Free for students with scholarship

Monthly room and board and incidental expenses: US\$ 300.00

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: Yes. The number depends on funds availability

Other financial support available for foreign participants: Eventual support from specific agencies such as CNPq, FAPESP, CAPES, UNDP, ICAO, etc.

4. **COLLABORATION WITH DEVELOPING COUNTRIES**: Yes

Specific areas of interest: Control of attitude and orbits of artificial satellites, study of ionosphere. Satellite communications, navigation and surveillance by satellite

Geographical preference: Latin America and Portuguese speaking African countries

C. **INSTITUTO NACIONAL DE PESQUISAS ESPACIAIS (INPE)**

Caixa Postal 515, 12200, São José dos Campos, São Paulo, Brazil

Tel.: 55-0123-229977

Telex: 123-3530 INPE BR

Contact person(s):

- Dr. René A. Medrano-Balboa (basic space sciences);
- Woldir Renato Paradella (remote sensing);
- Mr. Aydano Barreto Carleial (satellite communications);
- Dr. Ralf Gielow; Dr. Nelson de Jesus Ferreira (satellite meteorology)

Principal function(s) of institution: Research and development

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities:

Courses: Master's and Doctoral level graduate courses on Space Geophysics, Astrophysics, Radio Astronomy and Solar Physics. Courses on station operation and image interpretation. Training and Master's level courses in remote sensing. Master's and doctoral level graduate courses in informatics (pattern recognition). Master's and doctoral level graduate courses in meteorology (dynamic meteorology, numeric weather forecasting, synoptic meteorology, satellite meteorology, micrometeorology, climatology)

Research: High energy astrophysics, radio-astronomy and solar physics, geomagnetism, ionosphere, upper atmosphere, middle and lower atmosphere, nuclear geophysics. Applications of remote sensing to agriculture, cartography, environmental monitoring, forestry and oceanography. Development of automatic image processing systems. On-board telecommunication subsystems (telecommand reception, telemetry transmission, repeating of signals); ground segment telecommunications (main and back-up stations for tracking, telemetry and command operations of satellites; data collection platforms; communications network). Atmospheric and climate simulation, numeric weather forecasting, meteorological satellite reception stations, automatic remote data collection platforms, automatic image processing systems, image compression techniques, real-time dissemination of meteorological satellite imagery and data

Duration/Frequency/Language(s) of instruction: 2-4 years/Annually/Portuguese

Facilities: Laboratories, field work facilities when needed

Number of trainees: Up to 25

Entry requirements: B.Sc. for Master's Degree; M.Sc. for Doctoral courses

Degree/Diploma/Certificate awarded: Diplomas for Master's and Doctoral degrees. Certificates for short courses and training

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Graduate course: no tuition. Special arrangements for research materials. Other courses/training: special arrangements

Monthly room and board and incidental expenses: Approx. US\$ 300

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: Through Organization of American States (OAS) and other international organizations

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Basic space sciences, remote sensing, satellite communications, satellite meteorology

Geographical preference: None

## D. NATIONAL INSTITUTE FOR SPACE RESEARCH

Av. dos Astronautas, 1758 – C.Postal 515 – CEP. 12201-970, Brazil

Tel.: +55-12-3945-6862

Fax: +55-12-3945-6870

E-mail: [taniam@ltid.inpe.br](mailto:taniam@ltid.inpe.br)

Contact person(s): Tania Maria Sausen

Principal function(s) of institution: Responsible for dissemination and training activities on space science and technology knowledge

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specialization: basic space sciences, remote sensing, satellite meteorology

Summary of courses and research activities:

Courses: Short term courses in basic space science and satellite meteorology, specialization course in remote sensing

Research: --

Duration/Frequency/Language(s) of instruction: Short term/Portuguese

Facilities: Auditorium (2), classrooms, geoprocessing laboratory

Number of trainees: 15 at specialization level

Entry requirements: Graduation degree

Degree/Diploma/Certificate awarded: Short and middle term courses, specialization level

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: R\$ 700,00 (Brazilian currency)

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: Yes, 15 available. Must have a graduation degree

Other financial support available for foreign participants: None

4. **COLLABORATION WITH DEVELOPING COUNTRIES**: Yes

Specific areas of interest: Space science and technology

Geographical preference: Latin America

## B U L G A R I A

A. BULGARIAN SPACE COORDINATING COMMITTEE

Acad. G. Bonhev Str., bl. 3, Sofia 1113, Bulgaria  
 Tel.: 359-2-700226 Fax: 359-2-700229

Contact person(s):

- Ivan Kutiev (basic space sciences);
- Dimitar Mishev (remote sensing);
- Vladimir Sharov, Institute of Hydrology and Meteorology, Blvd. Lenin, No. 66, Sofia, Bulgaria (satellite meteorology)

Principal function(s) of institution: Research and development

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializatoin: basic space sciences, remote sensing, satellite meteorology

Summary of courses and research activities: Upper ionosphere, middle atmosphere, magnetosphere, and cosmic rays. Principles of remote sensing. Sensors and acquisition systems. Image processing and data interpretation. Satellite observations of clouds for synoptic analysis; vertical temperature profiles; analysis of tropical circulation; retrieval of meteorological fields by satellite data

Duration/Frequency/Language(s) of instruction: 1-3 years/Every 1-3 years/English, Russian

Facilities: Satellite experiments, air- and satelliteborne and ground-based facilities

Number of trainees: Up to 6

Entry requirements: University education (M.Sc.)

Degree/Diploma/Certificate awarded: Professional certificate and/or Ph.D. degree

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 900 per month

Monthly room and board and incidental expenses: US\$ 1,800

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Scholarship/fellowship opportunities available and organized on request and depending on agreements

Other financial support available for foreign participants: Other financial aid possibilities exist for foreign participants

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: As indicated above

Geographical preference: None

B. SPACE RESEARCH INSTITUTE

6 Moskovska Str., Sofia 1000, Bulgaria  
 Tel.: 359-2-883503 Fax: 359-2-801347

Contact person(s):

- P. Nenovsky (basic space sciences);
- Dr. A. Stoimenov (remote sensing);
- Mr. B. Madjarov (satellite meteorology)

Principal function(s) of institution: Research, development and training

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite meteorology

Summary of courses and research activities: Astrophysics, ionosphere, aurora, optical observations, magnetosphere, material sciences, satellite navigation systems, space biology, electronics. Remote sensing applications. Satellite tracking, ground station, mapping. Data acquisition and processing

Duration/Frequency/Language(s) of instruction: --

Facilities: Computer facilities, laboratory equipment, image processing facilities

Number of trainees: Between 1 and 3

Entry requirements: Academic diploma

Degree/Diploma/Certificate awarded: Should be specified for each particular case

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Depends on each particular case

Monthly room and board and incidental expenses: Depends on each particular case

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Yes

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Above-mentioned areas of research

Geographical preference: Balkan region

## CAPE VERDE

DIRECCAO GERAL DA AERONAUTICA CIVEL

Pouta Bolew, Cape Verde

Tel.: (00238) 603430 Fax: (00238) 611075

E-mail: [dgeral@acivel.gov.cv](mailto:dgeral@acivel.gov.cv)

Contact person(s): Engeulieuo Carlos V. Liua

Principal function(s) of institution: Civil aviation

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: --

Summary of courses and research activities: --

Duration/Frequency/Language(s) of instruction: --

Facilities: --

Number of trainees: --

Entry requirements: --

Degree/Diploma/Certificate awarded: --

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Inspections, engineer, maintenance

Geographical preference: --

## C H A D

A. ECOLE NATIONALE DES TRAVAUX PUBLICS

B. P. N'djamena, Chad  
 Tel.: 514971                      Telex: 5284 KD MINTP  
Contact person(s): --

Principal function(s) of institution: Training and education

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities: Basic space sciences

Duration/Frequency/Language(s) of instruction: --/Semester/--

Facilities: --

Number of trainees: --

Entry requirements: --

Degree/Diploma/Certificate awarded: None

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: None

Specific areas of interest: --

Geographical preference: --

B. EFATA

DREM BP 429 N'djamena  
 Tel.: 5130081, 513043                      Telex: PNUD                      Cable: PNUD  
Contact person(s): --

Principal function(s) of institution: La formation temporaire de 60 Agents un Agrométéorologie

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: satellite meteorology

Summary of courses and research activities: Ce sont des cours de météorologie et d'agrométéorologie des pensés aux Agents Techniques en Agrométéorologie. Cours météorologique (c1IX OMM)

Duration/Frequency/Language(s) of instruction: 2 ans/Trimestre/Français

Facilities: Pas d'équipement particulier, Mais on prête des appareils de diapositif et de projection pour utilisation

Number of trainees: 20-23

Entry requirements: Niveau BPCT

Degree/Diploma/Certificate awarded: --

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: None

Specific areas of interest: --

Geographical preference: --

## C H I L E

A. UNIVERSIDAD DE CHILE, CENTRO DE ESTUDIOS ESPACIALES

Arturo Prat 1171, Santiago, Chile

Tel.: 56-2-721816

Fax: 56-2-8441003

E-mail: [edodiaz@cecux1.cec.uchile.cl](mailto:edodiaz@cecux1.cec.uchile.cl)

Contact person(s): Eduardo Diaz

Principal function(s) of institution: Training, research and satellite data applications

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities:

Courses: Basic and advanced remote sensing. Basic and advanced GIS

Research: Applications of remote sensing to environment, oceanography, fisheries, forestry, and agriculture. Research in acquisition and processing of satellite data (receiving stations, antennas, processing systems), research in agrometeorology

Duration/Frequency/Language(s) of instruction: 2 weeks/3 per year/ Spanish

Facilities: Receiving stations, data processing systems, laboratories

Number of trainees: Up to 15

Entry requirements: Degree in Engineering

Degree/Diploma/Certificate awarded: --

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 500

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: --

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Above areas

Geographical preference: South America

B. UNIVERSIDAD DE CONCEPCION, DEPTO DE INGENIERIA MECANICA

Edmundo Larenas s/n, Concepci'on, Chile

Tel.: 56-41-204306

Fax: 56-41-251142

E-mail: [dimec@udec.cl](mailto:dimec@udec.cl)

Contact person(s): Dr. Luis Quiroz

Principal function(s) of institution: Education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specialization: basic space sciences

Summary of courses and research activities:

Courses: Ingenier'ia Civil Aeroespacial (Aerospace Engineering)

Research: --

Duration/Frequency/Language(s) of instruction: 6 years/once per year/ Spanish, English

Facilities: Laboratories of Mechatronics, composite Materials, Manufacturing, Control and Guidance, Aerodynamics, Computational Mechanics, Library

Number of trainees: --

Entry requirements: National examination

Degree/Diploma/Certificate awarded: Ingeniero Civil Aeroespacial (Aerospace Engineer)

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

## 4. COLLABORATION WITH DEVELOPING COUNTRIES:

Specific areas of interest: --

Geographical preference: --

## CHINA

SPACE SCIENCE AND TECHNOLOGY CENTER

Chinese Academy of Science, P.O. Box 8701, Beijing, China  
Tel.: 285776

Contact person(s): Prof. Zhi-gang Lu

Principal function(s) of institution: Education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities: Scientific balloons (100,000 m), sounding rockets (solid fuel), instruments suitable for International Solar Terrestrial Physics Programme (ISTP), magnetosphere and plasma physics

Duration/Frequency/Language(s) of instruction: --

Facilities: --

Number of trainees: --

Entry requirements: --

Degree/Diploma/Certificate awarded: --

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Basic space sciences

Geographical preference: --

## C O L O M B I A

A. EMPRESA NACIONAL DE TELECOMUNICACIONES (TELECOM)

Calle 23, No. 13-49, Piso 13, Bogotá, D.E., Colombia

Teléfono: 2420660 Telex: 44280

Persona a Contactar: Victoria Kairuz Marquez, Transversal 49, No. 105-84, Bogotá, Colombia

Funciones principales de la institución: Prestar servicios de telecomunicaciones nacionales e internacionales

## 1. PROGRAMAS ACADEMICOS Y CIENTIFICOS

Area(s) of specializaton: satellite communications

Lista de cursos y actividades de investigación: Cursos con el fin de analizar el comportamiento general de enlaces satelitales y estaciones terrenas para la correcta operación y mantenimiento de estas últimas

Duración/Frecuencia/Idioma(s) de enseñanza: 105 horas/Semestral/Español

Tipo de servicios o instalaciones: Telecom cuenta con la División de Capacitación ITEC

Número de participantes: Entre 10 y 20

Calificaciones académicas (mínimas) requeridas: Conocimientos básicos

Certificados o diplomas extendidos por la institución: Certificados

## 2. COSTO DE LOS PROGRAMAS

Costo de los cursos, de los libros de texto y de los materiales de investigación afines: --

Gastos mensuales de alojamiento y manutención y gastos menudos: --

## 3. DISPONIBILIDAD DE BECAS

Disponibilidad de becas para participantes extranjeros: No

Otra posibilidades de ayuda financiera para participantes extranjeros: El curso para extranjeros es gratuito

## 4. COLABORACION CON LOS PAISES EN DESARROLLO: Sí

Esfera de interés: Comunicaciones por satélite

Region geográfica determinada: Actualmente se adelanta el proyecto denominado CONDOR, con el cual los países del Pacto Andino compartirán un satélite propio

B. INSTITUTO GEOGRAFICO AGUSTINCODAZZI, CENTRO DE INVESTIGACION EN PERCEPCION REMOTA (CIAF)

Carrera 30 No. 48-51, Santafe de Bogota, Colombia

Tel.: 571-3681057

Fax: 571-3680950

E-mail: [IGAC@Colcig3.Colciencias.gov.Co](mailto:IGAC@Colcig3.Colciencias.gov.Co)

Contact person(s): Hugo Villota

Principal function(s) of institution: Education, training, research and advisory services

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specialization: basic space sciences, remote sensing

Summary of courses and research activities:

Courses: Postgraduate course in GIS and remote sensing. Short courses on photogrammetry, computer cartography, photointerpretation and remote sensing applications

Research: Remote sensing and GIS applications to earth sciences

Duration/Frequency/Language(s) of instruction: Postgraduate: 32 weeks/Yearly/Spanish; Short courses: 4-12 weeks/Yearly/Spanish

Facilities: Photogrammetric laboratory, photointerpretation laboratory, five microcomputer rooms and two workstation rooms with software for digital image processing and GIS, soil laboratory, geographic information centre, library

Number of trainees: Between 10 and 20 students per course

Entry requirements: B.Sc. in the corresponding subject or an equivalent

Degree/Diploma/Certificate awarded: Postgraduate diploma in GIS. Certificates awarded for short courses

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Postgraduate programmes-US\$ 3,050; Short courses: between US\$ 300 and US\$ 900, depending on length

Monthly room and board and incidental expenses: US\$ 650

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Postgraduate programmes - 12 per year; some short courses - 5 to 10 per year

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Photointerpretation, remote sensing applications, development of software for digital data analysis, GIS and computer cartography

Geographical preference: Latin America and Caribbean

## C Z E C H   R E P U B L I C

A. DEPARTMENT OF GEOINFORMATICS

ty. Svobody 26, 771 46 Olomouc, Czech Republic  
 Tel.: +420-68-5634513      Fax: +420-68-5225737      E-mail: [vitek@risc.upol.cz](mailto:vitek@risc.upol.cz)  
Contact person(s): Ass. Prof. Dr. Vít Voženílek

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: Remote Sensing, Geoinformatics in Geography, Raster Data Handling, Computer Cartography

Research: Environmental GIS Modelling, Orthophotomap Production, Remote Sensing for Landscape Ecology, Thematic Cartography

Duration/Frequency/Language(s) of instruction: 3 year bachelor programme, open every year, courses (15 weeks) every year, Czech and English

Facilities: GIS laboratory, GIS and RS equipment

Number of trainees: 5 persons in academic staff

Entry requirements: A-level from secondary school

Degree/Diploma/Certificate awarded: Bachelor diploma

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 1,000

Monthly room and board and incidental expenses: US\$ 500

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Yes, 2 are available

Other financial support available for foreign participants: Yes

4. COLLABORATION WITH DEVELOPING COUNTRIES: None

Specific areas of interest: --

Geographical preference: None

B. SILESIA UNIVERSITY AT OPAVA, FACULTY OF PHILOSOPHY AND SCIENCE

Bezrucovo nam.13, 746 01 Opava, Czech Republic  
 Tel.: +420 653 684 255      Fax: +420 653 216 948  
 E-mail 1: [physics@fpf.slu.cz](mailto:physics@fpf.slu.cz)      E-mail 2: [katerina.malenovska@fpf.slu.cz](mailto:katerina.malenovska@fpf.slu.cz)  
Contact person(s): Stanislav Hledik

Principal function(s) of institution: Education in Bachelor, Master, and Ph.D. degrees and scientific research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses:

- 1) Physics (B.Sc.): Astrophysics, Ionizing Radiation, Optoelectronics;
- 2) Applied Physics (B.Sc.): Computer Technology and its Applications;
- 3) Physics (M.Sc.): Theoretical Physics, Teachers' Physics;
- 4) Physics (Ph.D.): Theoretical Physics and Astrophysics

Research: Relativistic physics and astrophysics; Particle physics; Quantum theory of atoms and molecules; Optoelectronic; Optics

Duration/Frequency/Language(s) of instruction:

- |                            |                            |
|----------------------------|----------------------------|
| 1) 3 years/Annually/Czech; | 3) 5 years/Annually/Czech; |
| 2) 3 years/Annually/Czech; | 4) 3 years/Annually/Czech  |

Facilities:

- 1) Computational Physics Laboratory, Laboratory of Optoelectronics;
- 2) Laboratory of Computer Networks, Laboratory of Multimedia, Laboratory of Electronics;
- 3) Computational Physics Laboratory, Basic Physics Courses Laboratories;
- 4) Computational Physics Laboratory

Number of trainees:

- |        |        |
|--------|--------|
| 1) 20; | 3) 30; |
| 2) 20; | 4) 15  |

Entry requirements:

- |                                |                                |
|--------------------------------|--------------------------------|
| 1) Secondary school completed; | 3) Secondary school completed; |
| 2) Secondary school completed; | 4) University M.Sc. completed  |

Degree/Diploma/Certificate awarded:

- |                               |                                |
|-------------------------------|--------------------------------|
| 1) Bc. (equivalent to B.Sc.); | 3) Mgr. (equivalent to M.Sc.); |
| 2) Bc. (equivalent to B.Sc.); | 4) Ph.D.                       |

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: 73,000 Czech Kr.

Monthly room and board and incidental expenses: Approx. 1,000 Czech Kr.

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Theoretical Physics, Astrophysics

Geographical preference: Opava is a pleasant, small city (70,000) with all buildings and facilities within walking distance, not far to Prague (350km), Vienna (300km). Good place for scientific activities, conferences, etc.

## C. CHARLES UNIVERSITY, FACULTY OF MATHEMATICS AND PHYSICS

Ke Karlovu 3, 121 16 Prague 2, Czech Republic

Tel.: +420 2 2191 2301

Fax: +420 2 688 5095

E-mail: [zdenek.nemecek@mff.cuni.cz](mailto:zdenek.nemecek@mff.cuni.cz)

Contact person(s): Doc. RNDr. Zdenek Nemecek, DrSc.

Principal function(s) of institution: Education, research and development

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses:

- ❑ M.Sc. – study branch “Physics of surfaces and ionized media” includes courses on space plasma physics. Diploma thesis can be devoted to ionospheric or magnetospheric physics, plasma and wave processes in space, active experiments, etc.
- ❑ Ph.D. – study branch “Physics of plasmas and ionized media” includes courses on space plasma physics. Thesis can be devoted to ionospheric or magnetospheric physics, plasma and wave processes in space, active experiments, etc.

Research: Ionospheric and magnetospheric physics, magnetopause, bow shock, magnetosheath wave phenomena

Duration/Frequency/Language(s) of instruction:

MSc. – 5 years/Annually/Czech and English;

PhD. – 3 years/Annually/Czech and English

Facilities: The research and education deals with the data already received from different spacecraft. The facilities for data processing thus consist of the computer network and corresponding software, both firmware and specialized routines

Number of trainees: Approx. 100 in general physics, 10 specialized in plasma physics, 5 specialized in space plasma physics

Entry requirements: M.Sc. – highschool; Ph.D. – M.Sc. degree in physics

Degree/Diploma/Certificate awarded: Corresponding M.Sc. or Ph.D. diploma

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: The education in Czech language is free of charge regardless of program. Both M.Sc. and Ph.D. Courses, are available in English. The cost of the M.Sc. course is \$ 8,000 per year, the Ph.D. course costs \$ 5,000 per year

Monthly room and board and incidental expenses: Approx. \$ 200

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: Yes

4. **COLLABORATION WITH DEVELOPING COUNTRIES**: Yes

Specific areas of interest: Education, especially in Ph.D. courses, collaboration in research

Geographical preference: None

**D. PALACKY UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF GEOGRAPHY**

Svobody 26, 77146 Olomouc, Czech Republic

Tel.: +420-068-563111

Fax: +420-068-5225737

E-mail: vysoudil@ risc.upol.cz

Contact person(s): Ass. Prof. Dr. Miroslav Vysoudil

Principal function(s) of institution: Education

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: Remote sensing and its application in geography

Duration/Frequency/Language(s) of instruction: 1 semester/Czech

Facilities: PC and educational materials, mainly in English

Number of trainees: 60 x 15

Entry requirements: Geography students (after secondary schools learning)

Degree/Diploma/Certificate awarded: Mgv.

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: None

Specific areas of interest: --

Geographical preference: None

E. ASTRONOMICAL INSTITUTE OF THE ACADEMY OF SCIENCES OF THE CZECH REPUBLIC

251 65 Ondrejov, Czech Republic

Tel.: +420-204-620329

Fax: +420-204-620110

E-mail: [ffarnik@asu.cas.cz](mailto:ffarnik@asu.cas.cz)

Contact person(s): František Fárník

Principal function(s) of institution: Research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: Only occasional seminars

Research: X-ray observations of the sun, Microaccelerometric measurements, Non-solar X-ray sources

Duration/Frequency/Language(s) of instruction: Seminars are held in English

Facilities: --

Number of trainees: None

Entry requirements: None

Degree/Diploma/Certificate awarded: None

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**  
Scholarship/Fellowship opportunities for foreign participants: None  
Other financial support available for foreign participants: None
4. **COLLABORATION WITH DEVELOPING COUNTRIES:** Yes  
Specific areas of interest: There is a long-lasting co-operation with the National Institute for Geophysics and Astronomy in Helwan, Egypt, and with the University of Cairo, Egypt, in the field of dynamics and observations of the artificial satellites  
Geographical preference: --
- F. **INSTITUTE OF ATMOSPHERIC PHYSICS (IAP) OF THE ACADEMY OF SCIENCES OF THE CZECH REPUBLIC**

Bocní II., 141 31 Prague 4, Czech Republic  
 Tel.: +4202-72764336 Fax: +4202-72763745 E-mail: [iap@ufa.cas.cz](mailto:iap@ufa.cas.cz)  
Contact person(s): RNDr. Jan Laštovicka, DrSc

Principal function(s) of institution: Research and development

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: Workshops and scientific meetings with international participation: Short visits, temporary attachments to IAP (from few days to months); Note: no regular courses

Research: magnetosphere and Ionosphere Physics, solar-Terrestrial Physics; Small satellite technology, scientific payload and subsystems; the IAP developed and manufactured 5 small satellites (below 70 kg) of the MAGION Series devoted to MAGnetosphere-IONosphere research programs within international co-operation; More details and other IAP activities: see [www.ufa.cas.cz](http://www.ufa.cas.cz)

Duration/Frequency/Language(s) of instruction: No regular programmes/English

Facilities: Spacecraft payload development and testing laboratory, scientific data processing equipment, satellite telemetry and telecommand station

Number of trainees: --

Entry requirements: Graduate from university (Technical University)

Degree/Diploma/Certificate awarded: None

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: Yes, IAP can offer limited financial support for foreign scientists (short term visits); the Academy of Sciences of the Czech Republic can offer financial support for foreign scientists based on bilateral agreements on research co-operation and scientists exchanges; Applications are considered individually

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes  
Specific areas of interest: Atmospheric Physics, Solar-Terrestrial Physics  
Geographical preference: None

G. CZECH TECHNICAL UNIVERSITY, FACULTY OF ELECTRICAL ENGINEERING,  
 DEPARTMENT OF RADIO ENGINEERING

Technická 2, 166 27 Praha 6, Czech Republic

Tel.: (+420) (2) 2435 2246 Fax: (+420) (2) 2435 5829 E-mail: vejrazka@fel.cvut.cz

Contact person(s):

- Prof. František Vejražka, Head of Department  Ass. Prof. Jan Sýkora

Principal function(s) of institution: Education, research and development

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: satellite communications

Summary of courses and research activities:

Courses:

- Undergraduate and graduate courses in some basic knowledge of satellite communications: systems, hardware, modulation, etc.  
 Undergraduate and graduate courses in some basic knowledge of satellite navigation systems (GPS, GLONASS, GALILEO)

Research: Performance of modulation methods; Satellite navigation precision and its improvement

Duration/Frequency/Language(s) of instruction: One semester/Year or 5 semesters for Master degree in Radio Engineering/Czech and English

Facilities: Laboratory for simulation of digital communication systems; Reference station for DGPS

Number of trainees: Between 2 and 6

Entry requirements: Bachelor degree in electrical sciences and usual entry requirements

Degree/Diploma/Certificate awarded: M.Sc. in Radio Engineering after 5 semesters schooling

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Less than US\$ 1,000, depends on agreement with Faculty

Monthly room and board and incidental expenses: Less than US\$ 250

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Terrestrial and Space Communication Systems; Satellite Navigation

Geographical preference: None

## H. JOINT LABORATORY OF OPTICS UP AND PHI ASCR PALACKY UNIVERSITY IN OLOMOUC

17 listopadu 50A, 772 07 Olomouc, Czech Republic  
 Tel.: (+420) (68) 5631501 Fax: (+420) (68) 5224047 E-mail: rabovsky@sloup.upol.cz  
Contact person(s): Assoc. Prof. RNDr. Miroslav Hrabovsky, DrSc.

Principal function(s) of institution: Research and development

### 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: Individual internal programme

Research: Optical telescope for basic research in space science

Duration/Frequency/Language(s) of instruction: 1-3 years/In accordance with requirement/English

Facilities: Our laboratories are equipped for design, computation manufacturing and testing of optical components for telescopes in space science

Number of trainees: 1 per year

Entry requirements: M.Sc. degree

Degree/Diploma/Certificate awarded: Diplomas or Ph.D. depends on the length and programme of course

### 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 500 per semester; if it will be Ph.D. study; for price see <http://www.upol.cz>

Monthly room and board and incidental expenses: US\$ 150 per month

### 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

### 4. COLLABORATION WITH DEVELOPING COUNTRIES: None

Specific areas of interest: --

Geographical preference: --

## I. CZECH TECHNICAL UNIVERSITY, FACULTY OF CIVIL ENGINEERING, DEPARTMENT OF MAPPING AND CARTOGRAPHY

Thakurova 7, 166 29 Praha 6, Czech Republic  
 Tel.: (+420) (2) 2435 4953 Fax: (+420) (2) 2431 0774 E-mail: kolar@fsv.cvut.cz  
Contact person(s):

Ass. Prof. Jan Kolár, Head of the Remote Sensing Laboratory

Ing. Lena Halounova

Principal function(s) of institution: Education, research and development

### 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses:

- Undergraduate and graduate courses in geodesy and cartography, photogrammetry and remote sensing;
- Undergraduate and graduate courses in some basic knowledge of satellite observation systems and geographic information systems (GIS)

Research:

- Optical and radar satellite data processing
- Application in agriculture, forestry, hydrology and mapping

Duration/Frequency/Language(s) of instruction: 5 semesters and two semesters/Year for Master degree in Remote Sensing and GIS/Czech and English

Facilities: Laboratory for satellite image data processing; Receiving station for meteorological satellites

Number of trainees: Between 2 and 6

Entry requirements: Bachelor degree in geodesy or physics or natural sciences and usual entry requirements

Degree/Diploma/Certificate awarded: M.Sc. in Remote Sensing and GIS

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: Less than US\$ 1000, depends on agreement with Faculty

Monthly room and board and incidental expenses: Less than US\$ 250

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. **COLLABORATION WITH DEVELOPING COUNTRIES**: Yes

Specific areas of interest: Remote sensing and GIS

Geographical preference: None

## D E N M A R K

A. TECHNICAL UNIVERSITY OF DENMARK, OERSTED DTU

Building 348, DK 2800 Lyngby, Denmark  
 Tel.: 45-42-881444 Fax: 45-45-931634  
Contact person(s): Prof. N. Skou

Principal function(s) of institution: Education, research and development

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: Remote Sensing course designed for electronic engineering students with emphasis on the basic physics and principles of instrument design. The major part of the course is related to passive and active microwave remote sensing. It also includes a number of case studies of actual satellite Earth Observation

Research: Development of methods of satellite data analysis applied to polar and sub-polar ocean studies, to forestry and agriculture studies and monitoring, to environmental studies in coastal waters, with emphasis on passive and active microwave techniques

Duration/Frequency/Language(s) of instruction: Postgraduate: 14 weeks/Annually/English

Facilities: Digital image processing systems with workstations, disk drives and other peripheral equipment

Number of trainees: Depends on funding possibilities

Entry requirements: B.Sc.

Degree/Diploma/Certificate awarded: Statement issued by the Institute

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: About DKK 500

Monthly room and board and incidental expenses: About DKK 5,000

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: Yes

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Above-mentioned areas

Geographical preference: None

B. UNIVERSITY OF COPENHAGEN, INSTITUTE OF GEOGRAPHY

Oster Voldgade 10, DK-1350 Copenhagen K, Denmark  
 Tel.: 4533132105 Fax: 45-33-148105

Contact person(s):

Michael Schultz Rasmussen       Henrik Sogaard

Principal function(s) of institution: Education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing, satellite meteorology

Summary of courses and research activities:

Courses: The physical basis, technology and agricultural and environmental applications of optical remote sensing. Satellite data processing. The use of satellite data for estimating the surface energy balance; monitoring water balance/soil moisture and evapotranspiration using combined thermal, IR and visible satellite data

Research: Mapping and monitoring of agricultural land-use and environmental conditions; monitoring of natural vegetation and crop development; monitoring of agrometeorological parameters, such as rainfall, temperature and actual evapotranspiration; urban land use mapping

Duration/Frequency/Language(s) of instruction: 12 weeks/Every autumn/English (only for foreign students)

Facilities: Windows NT workstations (>20) using ESRI products (ArcView and ARC/INFO); Image processing using ENVI or WinChips

Number of trainees: Between 4 and 10

Entry requirements: B.Sc.

Degree/Diploma/Certificate awarded: Certificates are awarded after each course

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 5,000 / 150 / 150

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: For trainees from developing countries scholarships are in some cases available through DANIDA

Other financial support available for foreign participants: Yes. According to official exchange programmes

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: As indicated above

Geographical preference: Africa

C. GRAS(GEOGRAPHIC RESOURCE ANALYSIS & SCIENCE LTD.)

c/o Institute of Geography, Øster Voldgade 10, DK-1350 Copenhagen K, Denmark  
Tel.: +45 35 32 25 78 Fax: +45 35 32 25 01 E-mail: GRAS@GRAS.ku.dk  
Contact person(s): Michael Schultz Rasmussen

Principal function(s) of institution: Capacity building with remote sensing and GIS, development and training

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: Courses in remote sensing and digital image processing and GIS

Research: --

Duration/Frequency/Language(s) of instruction: 1 week to 4 months/English

Facilities: Windows NT workstations (> 20) using ESRI products (ArcView and ARC/INFO).  
Image processing using ENVI or WinChips

Number of trainees: Max 16 trainees

Entry requirements: B.Sc. level or the equivalent

Degree/Diploma/Certificate awarded: Course specific certificates are awarded

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Between US\$ 1,000 to 15,000 (depending on the course in question)

Monthly room and board and incidental expenses: From US\$ 1,000

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: Yes, Danida fellowships may be applied for, minimum 3 months, accomodation and boarding is all being taken care of. Trainees come from countries with Danida activities. Planned well in advance

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Environmental analysis and monitoring, remote sensing and GIS, vegetation, agriculture, forests, water resources (Senegal, Burkina Faso, Vietnam, Mongolia, Ghana, Laos etc)

Geographical preference: None

## E C U A D O R

CLIRSEN/COTOPAXI GROUND STATION

Seniérge s/n y Gral. Paz y Miño, Edif. IGM, 4to. Piso, Quito, Ecuador  
 Tel.: 593-549-472, 593-581-063 Fax: 593-2-581-066

Contact person(s):

- Mr. Edgar Peñaherrera       Mr. Fernan Sandoval

Principal function(s) of institution: Receiving, recording and processing satellite data and forming the national natural resources inventory

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing, satellite meteorology

Summary of courses and research activities: Digital data processing, spectral measurements. Remote sensing applications. Satellite meteorology math algorithms to solve atmospheric problems in receiving satellite information over equatorial zones. (These courses are not given on a regular basis. They are only given under institutional needs)

Duration/Frequency/Language(s) of instruction: --

Facilities: Cotopaxi ground station capable of receiving Landsat, SPOT, ERS and GOES data. Specific hardware and software, including ERDAS, Earthview, Microid, Meridian, Sigren, SARPS, GIS, GICS

Number of trainees: Between 5 and 25

Entry requirements: Specialists in natural resource management and environmental monitoring

Degree/Diploma/Certificate awarded: Only participation diplomas/certificates

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: National courses are free, and international courses are about US\$ 150

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: Yes

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Remote sensing

Geographical preference: Central and South American countries

## E G Y P T

NATIONAL AUTHORITY FOR REMOTE SENSING AND SPACE SCIENCES

Academy of Scientific Research and Technology, 101 Kasr El-Eini, Cairo, Egypt

Tel.: 3557110, 3540173 Fax: 3557110

Contact person(s): Prof. Dr. Hussein A. Younes

Principal function(s) of institution: Image production, training, research and development

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: Principles of remote sensing. Applications of remote sensing to geology, geomorphology, mineral resources, water, soil, natural vegetation, cultivation, land use, etc. Image processing and production. GIS

Duration/Frequency/Language(s) of instruction: 1-2 months/Annually/English

Facilities: Publications, literature notes, facilities for field trips, teaching staff

Number of trainees: Between 10 and 20

Entry requirements: B.Sc. in geology, engineering, agriculture

Degree/Diploma/Certificate awarded: Certificate of attendance

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: According to duration and the content of the particular programme: 1,000 - 3,000

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: --

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Software development and applications, joint research projects

Geographical preference: Arab and African countries

## FINLAND

A. UNIVERSITY OF HELSINKI, OBSERVATORY AND ASTROPHYSICS LABORATORY

Tähtitorninmäki, SF-00130 Helsinki  
 Tel.: 358-0-1912940 Fax: 358-0-1912952  
Contact person(s): Dr. Osmi Vilhu

Principal function(s) of institution: Research and education

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: Elementary and Advanced courses in major fields of Astronomy and Space Astrophysics

Research: Planetary sciences, solar and stellar astronomy, interstellar matter and nebulae, radio-IR-optical-UV-X-ray astronomy

Duration/Frequency/Language(s) of instruction: 3.5 mos. every semester/Annually/Finnish and English

Facilities: Computers, data handling systems

Number of trainees: Up to 2

Entry requirements: M.Sc. (Ph.D. preferred)

Degree/Diploma/Certificate awarded: M.Sc., Phil. Lic. and Ph.D. can be awarded with major topic in Astronomy

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 1,000/year/person

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: 1

Other financial support available for foreign participants: Yes

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Planetary, radio and infrared, UV and X-ray astronomy

Geographical preference: None

B. UNIVERSITY OF OULU, DEPARTMENT OF PHYSICS

SF-90570 Oulu, Finland  
 Tel.: 358-81-352031 Fax: 981-81-353259  
Contact person(s):

Prof. P. Tanskanen  Lasse Jalonen

Principal function(s) of institution: Education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: Auroral Physics; Ionospheric and Magnetospheric Physics; Cosmic Ray Physics-Solar Modulation; Use of Incoherent Scatter Technique for ionospheric studies; Magnetic pulsations

Research: Satellite studies of magnetosphere/ionosphere coupling; Satellite studies of solar wind interaction with the magnetosphere

Duration/Frequency/Language(s) of instruction: 2 hours a week/Every semester/Finnish and English

Facilities: Good computer facilities; high standards and highly qualified personnel

Number of trainees: Up to 3

Entry requirements: M.Sc. or B.Sc. Degree

Degree/Diploma/Certificate awarded: --

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: 3000 FIM

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: Yes

4. **COLLABORATION WITH DEVELOPING COUNTRIES:** Yes

Specific areas of interest: Magnetosphere/ionosphere research

Geographical preference: --

C. **HELSINKI UNIVERSITY OF TECHNOLOGY**

Otakaari 5A, SF-02150 Espoo, Finland

Contact person(s):

Mr. Martti Hallikainen, Laboratory Of Space Technology, Tel.: 358-0-4512371;

Dr. Antti Räisänen, Radio Laboratory, Tel.: 358-0-4512241, Fax: 358-0-460224;

Prof. Einari Kilpelä, Institute Of Photogrammetry and Remote Sensing, Otakaari 1, 02150 Espoo, Tel.: 358-0-4513900

Principal function(s) of institution: Education and research

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities:

Courses: Space physics, radio astronomy, fundamentals of astronomy and radio astronomy, antennas, radiometers, spectrometers and observation techniques. Remote sensing, environmental electronics. Fundamentals of photogrammetry and photointerpretation, Photogrammetry and photointerpretation. Photogrammetric equipment and its calibration. Photography in photogrammetry, processing techniques in photogrammetric mapping. Satellite communications. Propagation of radio waves: propagation in atmosphere and near space, scattering in various surfaces and obstacles

Research: Continuum and spectral line astronomy at millimeter waves, development of low-noise receivers, mixers and amplifiers at millimeter waves. Radar mapping of Mars. Development of radiometers and radars. Remote sensing of soil, snow, ice. Mapping of atmosphere ozone. Interpretation of satellite data. Digital image processing in photogrammetry. Recursive least squares estimation in photogrammetry. Propagation from satellite to Earth at millimeterwaves; Measurement of attenuation due to atmosphere, rain, etc.

Duration/Frequency/Language(s) of instruction: Variable/Annually/Finish (English if necessary)

Facilities: Precision 14 m radio telescope antenna. Millimeter-wave receivers and measurement equipment. Airborne radiometers and radars. Image processing systems. Ground truth equipment. Various mapping and photogrammetric equipment. Radio research station, receivers

Number of trainees: Up to 10

Entry requirements: B.Sc.

Degree/Diploma/Certificate awarded: M.Sc. and Ph.D. in Space Technology, Licensiate in Technology

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Nominal fees

Monthly room and board and incidental expenses: Approx. FIM 2,500 (in dormitory)

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: As indicated above

Geographical preference: None

## D. UNIVERSITY OF TURKU, SPACE RESEARCH LABORATORY

Tykistokatu 4 A, 20520 Turku, Finland

Tel.: 358-21-6338734 Fax: 358-21-503060

Contact person(s): Jarmo Torsti

Principal function(s) of institution: Research and education

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: Solar Plasma; Solar Wind; Cosmic Radiation; Cosmology

Research: Solar Physics; Energetic Particle; Cosmic Rays

Duration/Frequency/Language(s) of instruction: Semester/Annually/Finnish and English

Facilities: Laboratory (incl. cleanroom) for design and assembly of instruments

Number of trainees: Between 1 and 4

Entry requirements: B.A.

Degree/Diploma/Certificate awarded: None

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: None

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Yes

Geographical preference: None

E. FINNISH METEOROLOGICAL INSTITUTE, DEPARTMENT OF GEOPHYSICS

P.O. Box 503, SF-00101, Helsinki, Finland

Tel.: 358-019291

Contact person(s): Hannu Kosleinen

Principal function(s) of institution: Research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities: Research in Space plasma physics; Magnetospheric physics; Planetary atmospheres; Solar wind physics; Stratospheric ozone research

Duration/Frequency/Language(s) of instruction: --

Facilities: Modern computing facilities, electronics laboratory

Number of trainees: Up to 3

Entry requirements: M.Sc. (highest grades)

Degree/Diploma/Certificate awarded: None

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: Yes

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: All research are collaborative

Geographical preference: --

F. TECHNICAL RESEARCH CENTRE OF FINLAND (VTT)

P.O. Box 1303, FIN-02044 VTT, Finland

Tel.: 358-0-4561

Fax: 358-0-4553349

E-mail: [tuomas.hame@vtt.fi](mailto:tuomas.hame@vtt.fi)

Contact person(s): Tuomas Hame

Principal function(s) of institution: Research and development

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications

Summary of courses and research activities: Scientific instruments for space missions, development of technologies for instruments and platforms, data processing, image interpretation. Remote sensing applications to forestry and water resources. SAR and video techniques. Imaging spectrometry

Duration/Frequency/Language(s) of instruction: --

Facilities: --

Number of trainees: Up to 2

Entry requirements: Undergraduate

Degree/Diploma/Certificate awarded: None

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: Yes, salary can be paid for the exchange researchers

4. COLLABORATION WITH DEVELOPING COUNTRIES: None

Specific areas of interest: --

Geographical preference: --

G. TAMPERE UNIVERSITY OF TECHNOLOGY

P.O.B. 527, 33101 Tampere, Finland

Tel.: 358-31-162111

Contact person(s): Leo Sintonen

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: satellite communications

Summary of courses and research activities: Satellite computer communications. This research activity is at the beginning. No courses on that topic are available

Duration/Frequency/Language(s) of instruction: --

Facilities: The research is mainly theoretical

Number of trainees: --

Entry requirements: M.Sc. degree

Degree/Diploma/Certificate awarded: None

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

4. **COLLABORATION WITH DEVELOPING COUNTRIES**: Yes

Specific areas of interest: Satellite computer communications

Geographical preference: None

## FRANCE

A. GRUPEMENT POUR LE DEVELOPPEMENT DE LA TELEDETECTION AEROSPATIALE (GDТА)

18, Avenue Edouard Belin 31055, Toulouse Cedex, France  
 Tel.: 33-61274290 Fax: 33-61281498 E-mail: [jpp@venus.gdta.cnes.fr](mailto:jpp@venus.gdta.cnes.fr)  
Contact person(s): Dr. Jean-Pierre Paris

Principal function(s) of institution: Education and training in remote sensing and GIS

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: A variety of training programmes (CETEL, SITEL, SPOT, RSC, GIS, etc.) in optical and microwave remote sensing methodology and applications, GIS, space cartography, inventory and management of natural resources

Duration/Frequency/Language(s) of instruction: from 1 week to 10 month (CETEL)/Annually/  
 French, English or Spanish

Facilities: Digital and analog image processing systems, computing and workstation facilities with GIS software (ERDAS, ARC INFO), computer-aided photointerpretation (CAPI) facilities, documentation centre

Number of trainees: Between 6 and 30

Entry requirements: Licence level or higher

Degree/Diploma/Certificate awarded: CETEL - leads to a French university diploma (DESS) or specialist certificate. Other programmes – certificates

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: From FF 6,000 to FF 120,600 (CETEL) depending on programme

Monthly room and board and incidental expenses: Approx. FF 6,000 per month

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Not directly, but there are possibilities to arrange fellowships through the Ministry of Foreign Affairs or through European programmes

Other financial support available for foreign participants: Through French organizations

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: All the application fields of remote sensing training centres

Geographical preference: None

B. UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION (UNESCO)

1 rue Miollis, 75732 Paris Cedex 15, France  
 Tel.: (33)(1) 45.68.41.17 Fax: (33)(1) 45.68.58.22 E-mail: [r.missotten@unesco.org](mailto:r.missotten@unesco.org)  
Contact person(s): Focal point for outer space activities

Principal function(s) of institution: Training, education, research and development

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing, satellite communications

Summary of courses and research activities:

Courses:

Remote Sensing: UNESCO and its Intergovernmental Oceanographic Commission (IOC) organize and co-sponsor international training courses, post-graduate programmes and summer workshops on the geological, oceanographic, ecological, marine, hydrological and environmental applications of remote sensing and GIS, in cooperation with the International Institute for Aerospace Survey and Earth Sciences (ITC), Netherlands; Musée Royal de l’Afrique Centrale; Belgium; Groupement pour le Développement de la Télédétection Aérospatiale, France; Experimental Geophysical Observatory, Italy; EURISY, France; International Space University, France; Boston University’s Remote Sensing Centre; European Space Agency, France and Instituto Nacional de Pesquisas Espaciais (INPE), Brazil.

Training modules on coastal management (with UNESCO’s BILKO image processing software) are available online (<http://www.unesco.org/science/csi/bilko>) and in CD-ROM free of charge

Satellite Communication: --

Research:

Remote Sensing: Research on new methodologies for natural hazard mapping is carried out in the framework of the “Geological Applications of Remote Sensing” (GARS) programme. (<http://www.unesco.org/science/earthsciences/gars>).

Research on aquifer resource management will be carried out with FAO, International Association of Hydrogeologists and the Economic Commission for Europe

Satellite Communication: UNESCO and ITU, in cooperation with open universities, local television channels and regional and international donor agencies, are initiating distance learning programmes and creating community centres for learning in the different regions of the world.

UNESCO, Arab Gulf Programme and the United Nations Development Programme are initiating a cyber multimedia space education programme for blind people

Duration/Frequency/Language(s) of instruction: From 2 weeks to 2 years/English

Facilities: UNESCO’s partner institutes have training facilities which are equipped with relevant hardware and software equipment. Practical work (ground truth campaigns, field surveys) is also part of the training course/programme

Number of trainees: Short term: number varies but not more than 24 participants. Long-term: maximum 3 candidates per year

Entry requirements: B.Sc. degree in geology, hydrology, environmental, ecological or marine sciences and few years’ work experience in the theme/subject of the course/programme

Degree/Diploma/Certificate awarded: A certificate is issued upon successful completion of the short course. A diploma is awarded at the end of the long-term programme

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Borne by UNESCO or partner institute

Monthly room and board and incidental expenses: Varies according to the course/programme. More information can be obtained from the UNESCO National Commission of the country of the applicant

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Yes, number varies. Detailed information can be obtained from the National Commission for UNESCO of the country of the applicant

Other financial support available for foreign participants: None

4. **COLLABORATION WITH DEVELOPING COUNTRIES**: Yes

Specific areas of interest: Geological, ecological , environmental, oceanographic and hydrological applications of remote sensing and GIS; satellite communication for distance learning programmes and creation of community centres for learning

Geographical preference: None

## GERMANY

A. DEUTSCHE FORSCHUNGSANSTALT FÜR LUFT- UND RAUMFAHRT E.V. (DLR), (GERMAN AEROSPACE RESEARCH ESTABLISHMENT)

P.O. Box 90 60 50, 5000 Köln 90, Federal Republic of Germany

Tel.: 49 (0) 2203-6010 Fax: 49 (0) 2203-67310

Contact person(s): Prof. Dr. Walter Kroll, Chairman

Principal function(s) of institution: Aeronautical and space research and development

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities:

Courses: Microgravity Summer School (German Lectures)

Research: Material and life sciences under microgravity conditions, planetary sciences. Sensor technology in optical and microwave remote sensing and data processing. Communications and navigation using space systems and technology. Remote sensing of the atmosphere

Duration/Frequency/Language(s) of instruction: --

Facilities: Laboratories, research aircraft, simulation-, training- and user support facilities, mobile field testing equipment. Digital and analog image processing facilities

Number of trainees: Depends on number and scope of joint projects

Entry requirements: M.Sc. or Ph.D.

Degree/Diploma/Certificate awarded: None

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: NA

Monthly room and board and incidental expenses: NA

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: On a case-by-case basis, financial assistance for living expenses may be available

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Any area where a foreign partner will make a substantial (not necessarily financial) contribution to a joint project of common interest

Geographical preference: --

B. GERMAN FOUNDATION FOR INTERNATIONAL DEVELOPMENT, FOOD AND AGRICULTURE DEVELOPMENT CENTER

Wielingerstr. 52, P.O. Box 20, D-8133 Feldafing, Germany

Tel.: 49-8157-38120

Contact person(s): Olaf Anders, DSE Forestry Section

Principal function(s) of institution: Training (individual and courses)

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: Applications of remote sensing and GIS to tropical forests management

Duration/Frequency/Language(s) of instruction: 4 weeks/Annually/English

Facilities: Training facilities, electronic equipment

Number of trainees: Between 20 and 25

Entry requirements: B.Sc. and 3 years of practical experience

Degree/Diploma/Certificate awarded: --

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Information upon request

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Yes, 25 a year

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Above-mentioned areas

Geographical preference: ASEAN region, South-east Asia

## G H A N A

POSTS AND TELECOMMUNICATIONS TRAINING SCHOOL

Posts and Telecommunications Corporation, Accra-North, Ghana

Tel.: 226766/221412

Telex: 2752 PTTS. GH.

Contact person(s): --

Principal function(s) of institution: Training

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: satellite communications

Summary of courses and research activities: Satellite equipment, ground stations equipment

Duration/Frequency/Language(s) of instruction: 2 +2 years/Yearly/English

Facilities: Training satellite earth station under construction, other equipment to be provided

Number of trainees: Between 6 and 10

Entry requirements: B.Sc. or Part II C. & G.

Degree/Diploma/Certificate awarded: --

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. **COLLABORATION WITH DEVELOPING COUNTRIES**: Yes

Specific areas of interest: Equipment sharing, exchange of lecturers

Geographical preference: Yes. Proximity essential

## G R E E C E

A. UNIVERSITY OF ATHENS, REMOTE SENSING LABORATORY

P.O. Box 64022, Athens 157.01, Greece  
 Tel.: 30-1-7284299 Fax: 30-1-3602145  
Contact person(s): --

Principal function(s) of institution: Education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing

Summary of courses and research activities: Comparative planetology. Geodesy and remote sensing satellites. GIS. Digital analysis of remote sensing data. Remote sensing applications in geodesy, oceanography, climatology, geomorphology, and structural geology

Duration/Frequency/Language(s) of instruction: 1 semester/Annually/Greek

Facilities: Data processing systems

Number of trainees: Between 5 and 30

Entry requirements: Must be a senior student of the University

Degree/Diploma/Certificate awarded: --

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Free for registered University students

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Yes. 6 available

Other financial support available for foreign participants: --

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: --

Geographical preference: --

B. EUGENIDES FOUNDATION

387 Syngrou Ave., Paleo Faliro 175-64, Athens, Greece  
 Tel.: +30-1-941-1181 Fax: +30-1-941-7372 E-mail: [admin@eugenfound.edu.gr](mailto:admin@eugenfound.edu.gr)  
Contact person(s): Mr. C. Nestorides

Principal function(s) of institution: Education

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, satellite communications, remote sensing, satellite meteorology

Summary of courses and research activities: General study of space applications

Duration/Frequency/Language(s) of instruction: 4 months/2 per year/Greek  
Facilities: PC-based graphics stations, METEOSAT ground station, extensive science library  
Number of trainees: Up to 300  
Entry requirements: B.Sc.  
Degree/Diploma/Certificate awarded: None

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: None  
Monthly room and board and incidental expenses: --

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: None  
Other financial support available for foreign participants: None

4. **COLLABORATION WITH DEVELOPING COUNTRIES:** Yes

Specific areas of interest: Space applications  
Geographical preference: None

C. **INSTITUTE OF GEOLOGY AND MINERAL EXPLORATION**

70 Messoghion St., 11527 Athens, Greece  
 Tel.: 7798412

Contact person(s):

J. Karfakis       Dr. P. Tsombos       Dr. M. Stefouli

Principal function(s) of institution: Research

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: --

Research: Remote sensing applications to geology, image interpretation, geographic information system; these activities could not be offered as a training course, but only through specific collaborative projects

Duration/Frequency/Language(s) of instruction: --

Facilities: Remote sensing interpretation equipment, computer, collection of air photographs and LANDSAT images

Number of trainees: --

Entry requirements: --

Degree/Diploma/Certificate awarded: --

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: --  
Monthly room and board and incidental expenses: --

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: --  
Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes  
Specific areas of interest: --  
Geographical preference: None

D. OTE TELECOMMUNICATION TRAINING CENTRE

23, Davaki Street, GR 176-72 Kallithea, Athens, Greece  
 Tel.: 9587299  
Contact person(s): Mr. K. Kalitsis

Principal function(s) of institution: Training

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: satellite communications

Summary of courses and research activities: Training and specialized courses for engineers and technicians on various subjects of satellite communications such as operation and maintenance techniques of earth stations, INMARSAT installations, etc.

Duration/Frequency/Language(s) of instruction: Variable/Occasionally/Greek

Facilities: Classroom audiovisual facilities, earth station

Number of trainees: Up to 25

Entry requirements: Higher level, mainly in electronics

Degree/Diploma/Certificate awarded: None

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Varies depending on course

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: About 10 fellowships are available

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: None

Specific areas of interest: --

Geographical preference: --

## INDIA

A. INDIAN SPACE RESEARCH ORGANIZATION (ISRO), DEPARTMENT OF SPACE

Antariksh Bhavan, New BEL Road, Bangalore 560094, India  
 Tel.: 91-80-3416356 Fax: 91-80-3415298

Contact person(s):

Mr. M. G. Chandrasekhar       Mr. K. Narayanan

Principal function(s) of institution: Research and development in space sciences, technology and applications. Execution of the national space programmes at its establishments

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializatoin: basic space sciences, remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities:

Courses: Fundamental aspects of remote sensing; data acquisition and processing, analysis, interpretation and information extraction for resources management. Digital image processing, including multispectral interactive data analysis system. Development of space and ground hardware for Satellite Communications and applications, specialized applications involving digital communication techniques, rural telecommunication systems, emergency communications; data collection and relay. Forecasting of major weather systems such as tropical cyclones, deep depressions using INSAT data. Research activities being pursued in utilizing the cloud wind and temperature information available from INSAT in studying the monsoon performance and forecasting the associated rainfall

Research: X-ray, infrared, gamma-ray astronomy; solar terrestrial programme; atmospheric dynamics using MST radar; satellite missions for space sciences; studies in aeronomy and space astronomy. Use of GIS and digital terrain modelling techniques to develop a sustainable management of natural resources. Development of interpretation/analysis aid tools, both digital and visual. Satellite switched TDMA, Ku band payload, advanced earth station technology, VSAT technology, satellite navigation and radio determination. Weather related studies using INSAT data for better forecasting of monsoon and synoptic system such as cyclone and depressions. Preliminary one dimensional and two dimensional models developed for climate change studies proposed to enhance the same to global circulation models altered to suit the India subcontinent

Duration/Frequency/Language(s) of instruction: 1.5 - 2 years/Annually/English

Facilities: Observation time on astronomy telescopes may be provided to trainees. Payloads on sounding rockets could be offered to researchers from developing countries. Remote sensing and space communications research facilities

Number of trainees: Up to 10

Entry requirements: B.Sc. or M.Sc., depending on programme

Degree/Diploma/Certificate awarded: --

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: No course fee is charged for participants covered under "Sharing of Experience in Space" (SHARES) programme

Monthly room and board and incidental expenses: Nominal rate charged for accommodation

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: Yes. Financial support ranges from Rs.3000 to Rs.4500 per month for participants depending on their background and experience

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Space sciences, remote sensing, satellite communications, satellite meteorology

Geographical preference: --

B. TATA INSTITUTE OF FUNDAMENTAL RESEARCH

Homi Bhabha Road, Bombay 400005 India

Tel.: 219111 Cable: ZETESIS

Contact person(s): Prof. Dr. R.R. Daniel, Department of Physics

Principal function(s) of institution: Doctoral training and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specialization: basic space sciences

Summary of courses and research activities:

Courses: Quantum mechanics; classical mechanics; statistical mechanics; nuclear physics; solid state physics; astronomy and astrophysics

Research: X-ray astronomy using balloons; infra-red astronomy-near and far IR; radio astronomy; cosmic rays; theoretical astrophysics and cosmology

Duration/Frequency/Language(s) of instruction: Each course of 30 lectures/Annually/English

Facilities: Adequate research facilities to support programmes listed

Number of trainees: Up to 2

Entry requirements: M.Sc. in Physics or Astronomy

Degree/Diploma/Certificate awarded: --

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: Rs 2,000 minimum

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: 2-3 under the COSPAR programme of promoting space science in developing countries; usually for short-term visits less than 6 months

Other financial support available for foreign participants: Under bilateral agreements; agreements between science academies

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: As listed above

Geographical preference: None

C. INDIAN INSTITUTE OF REMOTE SENSING

Indian Institute of Remote Sensing (NRSA), Dept. of Space, Govt. of India, No. 4 Kalidas Road,  
Post Box 135, Dehra Dun (Uttanchal), Pin-248 001, India

Tel.: +91-135-744583 Fax: +91-135-741987; E-mail: [dean@iirs.gov.in](mailto:dean@iirs.gov.in)  
+91-135-748041

Contact person(s): Dr. P.S. Roy, Dean

Principal function(s) of institution: Training, education, research and consultancy in remote sensing and GIS applications

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: A variety of short-term training programmes in remote sensing, GIS, NNRMS, orientation and decision making; Long-term courses include Post Graduate Diploma in various disciplines, proposed M. Tech Degree in remote sensing and GIS and proposed M.Sc. Degree in Geoinformatics; Special courses of various duration as per requirement of user department

Research: Some key research areas include: biodiversity characterization using RS and GIS – Landscape ecology; Various research projects under ISRO-GBP Programme; User defined research in Remote Sensing and GIS applications

Duration/Frequency/Language(s) of instruction: From five days to ten months/One per year for all courses/English

Facilities: Two technology divisions consisting of (i) Photogrammetry and Remote Sensing Division and (ii) Geoinformatics Division. Six application divisions consisting of (i) Agriculture and Soils Division, (ii) Forestry and Ecology Division, (iii) Geosciences Division, (iv) Marine Sciences, (v) Water Resources Division and (vi) Human Settlement Analysis Division. All divisions are well equipped with practical laboratory, field instruments, computer lab and latest softwares of DIP and GIS viz., WRDAS Imagine, Arc Info, MGE etc.

Number of trainees: Between 10 and 100

Entry requirements: Graduate in science/Engineering with 2 years experience or Post Graduate in Science/Engineering depending on particular training programme

Degree/Diploma/Certificate awarded: Diploma/Degree for long-term courses and certificates for all other courses

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Varies for different courses from US\$ 300 to US\$ 13,200 (for foreign participants)

Monthly room and board and incidental expenses: US\$ 40 for foreign students

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Foreign participants can be provided with fellowship under "Sharing of Experience in Space" (SHARES) programme through the Department of Space, Government of India

Other financial support available for foreign participants: Yes

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Training, research and consultancy in remote sensing applications

Geographical preference: None

D. NATIONAL REMOTE SENSING AGENCY (NRSA)

Balanagar, Hyderabad 500-037, India

Tel.: 91-40-279572 to 76

Fax: 91-40-278648

E-mail: [bld%nrnsa-hyd@uunet.in](mailto:bld%nrnsa-hyd@uunet.in)

Contact person(s): Director

Principal function(s) of institution: Remote sensing data acquisition, data dissemination, training

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: Regular and user-requested training courses on remote sensing technology and applications

Research: Spectral signature collection and analysis from various landuse/landcover features in IRS/Landsat TM spectral bands. District spatial scale studies using NOAA/AVHRR NDUI/RUI data and agrometeorology. NDUI/RUI characteristics of crops over crop growth cycle. Land surface temperature and albedo estimation. Spatial integration techniques for Global Studies. Digital image processing and pattern recognition

Duration/Frequency/Language(s) of instruction: From 1 to 10 weeks/--/English

Facilities: Data processing systems for large volume of data handling. Photo processing and image interpretation laboratories. Image analysis systems (ERDAS, ARIES, ARC/INFO)

Number of trainees: Between 8 and 16

Entry requirements: A degree in basic science/engineering/geography

Degree/Diploma/Certificate awarded: Certificate of participation

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: from US\$ 100 to US\$ 900, depending on training programme

Monthly room and board and incidental expenses: approx. US\$ 450 per month

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Possibility under the SHARE programme

Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: None

Specific areas of interest: --

Geographical preference: --

E. SPACE APPLICATIONS CENTRE (SAC)

SAC P.O., Jodhpur Tekra, Ahmedabad 380 053, India

Tel.: 446099/447043

Contact person(s): Director, Space Applications Centre (SAC)

Principal function(s) of institution: Training, education, research and development, specific projects with users

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities:

Courses: Regular training courses for Indian users on remote sensing every three months. Courses cover all major applications areas followed by on the job training in agriculture, crop forecasting, forestry, water resources, coastal processes, water quality, crop stress detection and crop yield modelling; these also cover geomorphology, thematic mapping, digital image processing, geology, and ground water. Specialized courses on space communications are organized periodically. Typical courses include both formal instruction and on-the-job training. Training to individuals in selected fields of satellite communication for longer duration (up to 6 months) is possible

Research: Land resources, marine resources, oceanography, use of microwave sensor data, geographic information systems, digital cartography. Satellite earth station technology, data communication, communication techniques, systems engineering, operations training. Middle atmosphere, monsoon dynamics, cyclone genesis, retrieval of meteorological parameters from satellite data; study of main layer depth related to oceans; use of microwave sensor in meteorology

Duration/Frequency/Language(s) of instruction: Up to 12 weeks/Up to 4 courses per year/English

Facilities: Fully equipped photointerpretation laboratories, facilities for ground truth and spectral signature collection, airborne sensors, image processing facility. Experimental satellite earth stations, research and development laboratories and production facilities for earth station and satellite payload equipment; integration and test facilities; access to large general purpose computers (DEC-10 at Ahmedabad and Cyber at Delhi)

Number of trainees: Between 1 and 15

Entry requirements: Graduate or post-graduate degree in physics, mathematics, remote sensing, electronics/communication or experienced engineers from relevant field

Degree/Diploma/Certificate awarded: Certificate of participation

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: Approx. US\$ 500 per month

Monthly room and board and incidental expenses: US\$ 250

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: Between 8 and 10

Other financial support available for foreign participants: Living expenses, tuition fees and some incidental expenses can be provided

4. **COLLABORATION WITH DEVELOPING COUNTRIES: Yes**

Specific areas of interest: As listed above

Geographical preference: Most of the research work pertains to the Indian sub-continent and the Indian Ocean, Bay of Bengal and Arabian Sea regions

## I R A N

A. IRANIAN REMOTE SENSING CENTER (IRSC)

No. 22, 14<sup>th</sup> Street, Saadat Abad, Tehran 19979, Iran (Islamic Republic of)  
 Tel.: +98 21 2064471-3 Fax: +98 21 2064474 E-mail: [irsc@www.dci.co.ir](mailto:irsc@www.dci.co.ir)  
Contact person(s): Dr. Ahad Tavakoli, Chairman of the Board and CEO, IRSC

Principal function(s) of institution: Research and development, short-term training and education in the framework defined and approved as the tasks and duties of the Center

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializatoin: remote sensing

Summary of courses and research activities:

Courses:

- 1) Two-week and one-week elementary training courses on the applications of Remote Sensing and GIS;
- 2) Two-week advanced training course on the applications of Remote Sensing and GIS;
- 3) Two-week applied training course on the applications of Radar data with special approach to Radarsat data in co-operation with the Radarsat International Canada

Research: Land surface movement estimation using SAR (Synthetic Aperture Radar) Interferometric data

Duration/Frequency/Language(s) of instruction:

- 1) Two or One week based on the requirements and necessities/No less than 10 times yearly/Persian, English;
- 2) Two weeks/4 times yearly/Persian, English;
- 3) Two weeks/Winter 1998/Persian, English

Facilities:

- 1) Needed hardware and image processing as well as GIS softwares, maps, earth space imagery and educational material;
- 2) Same as (1);
- 3) Maps and educational material

Number of trainees:

- 1) Up to 30 trainees per course;
- 2) Same as (1);
- 3) 35 trainees

Entry requirements: (1), (2) and (3) At least BSc. Degree in physical as well as environmental science

Degree/Diploma/Certificate awarded: (1), (2) and (3) Certificate

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material:

- 1) Approx. US\$ 7000;
- 2) Approx. US\$ 8000;
- 3) Approx. US\$ 5000

Monthly room and board and incidental expenses: (1), (2) and (3) Included in the above corresponding figure

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: --  
Specific areas of interest: --  
Geographical preference: --

B. ISLAMIC REPUBLIC OF IRAN METEOROLOGICAL ORGANIZATION (IRIMO)

P.O. Box 13185-461, Tehran, Islamic Republic of Iran  
 Tel.: +98 21 6025047 Fax: +98 21 6000417 E-mail: [the-rmtc@irimet.net](mailto:the-rmtc@irimet.net)  
Contact person(s): Ahad Wazifeh

Principal function(s) of institution: Training, education, research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: satellite meteorology

Summary of courses and research activities: Satellite Meteorology and Nowcasting, September 28, 2002 to October 09, 2002

Duration/Frequency/Language(s) of instruction: 2 weeks/Annually/English

Facilities: Receiver of Geostationary and Polar orbiting Satellites

Number of trainees: 10 students

Entry requirements: B.Sc. Degree in meteorology or equivalent

Degree/Diploma/Certificate awarded: Certificate of the RMTC

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Tuition fee for 2 weeks at WMO Norms

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: None

Specific areas of interest: --

Geographical preference: --

## I R A Q

SPACE AND ASTRONOMY RESEARCH CENTRE

P.O. Box 2441, Jadiriyah, Baghdad, Iraq

Tel.: 7765116, Ext. 1100

Contact person(s):

- Dr. Kadhim Mouala, Space Department;
- Dr. Quassim A. Abdullah, Remote Sensing Department

Principal function(s) of institution: Research and development

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing

Summary of courses and research activities: Cosmic rays (origin, meteorological effect), geomagnetism, atmosphere and space research (airglow, ionosphere, magnetosphere). Basic and applied research in the field of remote sensing

Duration/Frequency/Language(s) of instruction: Continuous/--/Arabic, English

Facilities: Magnetic observatory, ionosonde, photometer (for airglow), and sun spot observatory.

Ground receiving station, digital image analysis laboratory, photo laboratory

Number of trainees: Between 2 and 4

Entry requirements: B.Sc.

Degree/Diploma/Certificate awarded: --

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: To be negotiated

Monthly room and board and incidental expenses: US\$ 750

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: 2 per year

Other financial support available for foreign participants: Through individual agreements between the two parties

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Geomagnetism, cosmic rays, atmospheric and ionospheric research. Digital image analysis, photo interpretation and processing, software development, remote sensing hardware design and maintenance, photogrammetry

Geographical preference: Ground-based stations having the same geographical co-ordinates as Iraq if possible

## IRELAND

UNIVERSITY COLLEGE DUBLIN

Physics Dept., Stillorgan Road, Dublin 4, Ireland

Tel.: 01-693244

Contact person(s): N. A. Porter

Principal function(s) of institution: Teaching and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities: Gamma-ray astronomy

Duration/Frequency/Language(s) of instruction: 10 hrs/Annually/English

Facilities: Some high-speed electronics facilities, computer facilities and programmes

Number of trainees: 1

Entry requirements: Primary degree

Degree/Diploma/Certificate awarded: Higher degrees by research

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: L 1,000 for higher degree

Monthly room and board and incidental expenses: No provisions

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Limited number of fellowships through Royal Irish Academy

Other financial support available for foreign participants: Possibly EEC support

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Gamma-ray astronomy using ground-based systems

Geographical preference: At good astronomical climate in the southern hemisphere

## I T A L Y

FOOD AND AGRICULTURE ORGANIZATION OF THE UN (FAO)

Sustainable Development Department, Environment and Natural Resources Service (SDRN)  
 Via delle Terme di Caracalla, 00100 Rome, Italy  
 Tel.: +3906-57055583 Fax: +3906-57053369 E-mail: [Changchui.He@fao.org](mailto:Changchui.He@fao.org)  
Contact person(s): He Changchui, Chief SDRN

Principal function(s) of institution: Remote Sensing and spatial technology information development and transfer; Operational agricultural and environmental monitoring by satellites; Agricultural, forestry and fisheries applications of remote sensing; Remote sensing inputs to global (FAO), regional and national early warning systems on food security; Technical backstopping of remote sensing components of FAO executed field projects; Information and advisory services on remote sensing applications to development and management of renewable natural resources; Earth observation applications to support environmental conventions and the Agenda 21; Technical advice on satellite communications and satellite meteorological applications

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities:

Courses: --

Research: Development and field testing of new remote sensing methodologies in the agricultural, forestry and fisheries application fields

Duration/Frequency/Language(s) of instruction: --

Facilities: --

Number of trainees: --

Entry requirements: --

Degree/Diploma/Certificate awarded: --

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: The Service is assisting developing countries in establishing or strengthening their spatial information infrastructures and in developing local capacities for operational applications of remote sensing/GIS/GPS in agriculture, forestry and fisheries sectors and for implementation of environmental conventions such as CCD, CBD and UNFCCC

Geographical preference: Developing countries

## J A P A N

A. COMMUNICATIONS RESEARCH LABORATORY, MINISTRY OF POSTS AND TELECOMMUNICATIONS

4-2-1 Nukuikita-machi, Koganei-shi, Tokyo, 184, Japan

Tel.: 81-423-277467

Fax: 81-423-276659

E-mail: [jun@crl.go.jp](mailto:jun@crl.go.jp)

Contact person(s): Jun Umezu (International Affairs Section)

Principal function(s) of institution: Research and development

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications

Summary of courses and research activities: Advanced space communications technology including satellite broadcasting, mobile communications satellite systems, intersatellite communications, and space laser communications. LEO communications systems, high data-rate satcom systems, and GEO servicing vehicle systems

Duration/Frequency/Language(s) of instruction: About 7-10 years/A new programme usually starts every year or very other year/Japanese

Facilities: Experimental facilities for space communications projects at Kashima Space Research Centre; experimental facilities for optical space communications projects at Headquarters (Tokyo); experimental facilities for high data-rate satellite communications projects at Seika Research Centre

Number of trainees: --

Entry requirements: --

Degree/Diploma/Certificate awarded: --

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: --

Geographical preference: Asia-Pacific region

B. UNIVERSITY OF TOKYO, INSTITUTE OF INDUSTRIAL SCIENCE

7-22, Roppongi, Minatoku, Tokyo, Japan

Tel.: 03-402-6231 Ext. 2560

Contact person(s): Prof. S. Murai

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: Development of computer programmes for pre-processing and classification. Land-use classification in the application to urban environment

Duration/Frequency/Language(s) of instruction: 6 months a year, every week/Annually/English and Japanese

Facilities: Digital image processing system

Number of trainees: Between 1 and 5

Entry requirements: Graduate course, computer programming; under 35 years old

Degree/Diploma/Certificate awarded: Master or Doctor of Engineering only through scholarship given by Ministry of Education

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Y 400,000 per year

Monthly room and board and incidental expenses: Y 150,000

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: 2 to 5 scholarships/fellowships are available

Other financial support available for foreign participants: (a) Japan International Co-operation Agency (JICA); (b) Japan Society for Promotion of Science (JSPS)

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Digital image processing technology; applications to agriculture, land use and geology

Geographical preference: South-East Asia

## JORDAN

A. ROYAL JORDANIAN GEOGRAPHIC CENTRE

P.O. Box 414, Al-Jubayha 11941, Jordan

Tel.: 962-6-5348145

Fax: 962-6-5347694

E-mail: [rgc@nic.net.jo](mailto:rgc@nic.net.jo)

Contact person(s): Director General

Principal function(s) of institution: Surveying and mapping training and production

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: Introduction to remote sensing; Remote sensing applications

Research: Desertification: assessment and impact studies; Desert dams

Duration/Frequency/Language(s) of instruction: 2 weeks/Semi-annually/Arabic and English

Facilities: NT, UNIX workstations; Plotters and photolabs; Remote sensing and GIS software

Number of trainees: 5-8 per course

Entry requirements: B.Sc.

Degree/Diploma/Certificate awarded: Certificate

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 500

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Exchanging of trainees, information and documents

Geographical preference: None

B. TELECOMMUNICATIONS COLLEGE

Jordan, Amman, P.O. Box 2703, Jordan

Tel.: 713320

Contact person(s): Dr. Abdel Fattah Abu Qayyas

Principal function(s) of institution: Education

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: satellite communications

Summary of courses and research activities: Satellite communications technology, which includes principles of satellite communications, RF & BB line calculations, principles of different Intelsat services. Theory of operation and maintenance of components and subsystems of satellite earth stations

Duration/Frequency/Language(s) of instruction: 2 years academic programme/2 years/Arabic and English; Short courses/On demand/Arabic and English

Facilities: Class rooms, laboratory, audio-visual aids, computer based training, BAQA E/S complex

Number of trainees: Between 10 and 20

Entry requirements: Higher Secondary School Certificate

Degree/Diploma/Certificate awarded: Academic diploma for 2 years programme; professional certificate for short courses

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: About US\$ 4,000

Monthly room and board and incidental expenses: --

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. **COLLABORATION WITH DEVELOPING COUNTRIES:** Yes

Specific areas of interest: Exchange of information, instructors and course materials

Geographical preference: Arab countries

## K U W A I T

KUWAIT INSTITUTE FOR SCIENTIFIC RESEACH

P.O. Box 24885, Safat, Kuwait

Tel.: 481-6988

Contact person(s): --

Principal function(s) of institution: Training, research and development

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: remote sensing

Summary of courses and research activities: --

Duration/Frequency/Language(s) of instruction: --

Facilities: --

Number of trainees: --

Entry requirements: --

Degree/Diploma/Certificate awarded: --

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

4. **COLLABORATION WITH DEVELOPING COUNTRIES: Yes**

Specific areas of interest: --

Geographical preference: --

## L E B A N O N

NATIONAL CENTER FOR REMOTE SENSING

P.O. Box 11-8281, Beirut, Lebanon

Tel.: (961-1) 409 845-7 Fax: (961-1) 822 639

E-mail: [consult@cnrs.edu.lb](mailto:consult@cnrs.edu.lb)

Contact person(s): Dr. Mohamad Khawlie

Principal function(s) of institution: Research and development

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: Workshops. Research in water resources, agriculture, geology, environmental conservation, sectoral databases

Duration/Frequency/Language(s) of instruction: 6 months-4 years/--/English and Arabic

Facilities: Advanced computer hardware, software and peripherals

Number of trainees: 10 - 15 (in Workshops)

Entry requirements: B.Sc.

Degree/Diploma/Certificate awarded: Certificate

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Training, resources, environmental conservation and protection

Geographical preference: None

## LIBIYAN ARAB JAMAHIRIYA

LIBYAN CENTER FOR REMOTE SENSING AND SPACE SCIENCE

P.O. Box 82819, Tripoli, Libya

Tel.: 218-21-607004 - 14 Fax: 218-21-607015

Contact person(s): General Director

Principal function(s) of institution: Training, research, development and services

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing

Summary of courses and research activities: --

Duration/Frequency/Language(s) of instruction: --

Facilities: --

Number of trainees: --

Entry requirements: --

Degree/Diploma/Certificate awarded: --

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Remote sensing, aerospace engineering, astronomy

Geographical preference: --

## M A L A Y S I A

A. MALAYSIAN AGRICULTURAL RESEARCH AND DEVELOPMENT INSTITUTE (MARDI)

P.O. Box 12301, 50774 Kuala Lumpur, Malaysia  
 Tel.: (03) 9486601 Fax: (03) 9483664  
Contact person(s): Director General

Principal function(s) of institution: Research and development

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: Research on the use of remote sensing for agricultural and related land resources studies. Assist in the development of remote sensing in the country by organizing seminars, workshops and training

Duration/Frequency/Language(s) of instruction: Continuous research programme/--/English

Facilities: Analogue analysis facilities

Number of trainees: --

Entry requirements: Minimum basic degree

Degree/Diploma/Certificate awarded: None

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: NA

Monthly room and board and incidental expenses: NA

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Land use mapping and agricultural resources evaluation using satellite data

Geographical preference: Humid tropics; Malaysian Peninsula

B. MALAYSIAN CENTRE FOR REMOTE SENSING (MACRES)

No. 13, Jalan Tun Ismail, 50480 Kuala Lumpur, Malaysia  
 Tel.: 03-26966804 Fax: 03-26973350/60 E-mail: [kfloh98@hotmail.com](mailto:kfloh98@hotmail.com)  
Contact person(s): Loh Kok Fook

Principal function(s) of institution: Research development, data supply and delivery, human resources development and consultancy services

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: Basic Remote Sensing (RS) and Geographic Information System (GIS) Course, Basic Satellite Based Positioning System (SBPS) Course, Courses on Integrated Applications of RS, GIS and SBPS, Research Attachment for Application Development

Research: Microwave Remote Sensing, Integration of Remote Sensing and GIS, Data Fusion Information Extraction, Software Development, Hardware Development, Neutral Network Development

Duration/Frequency/Language(s) of instruction:

- Basic Course – 1 month/Annually/English
- Basic RS and GIS Application Course – 1 month/Annually/English
- Courses on RS and GIS Application – 1-2 weeks/2 courses per year/English
- Research Attachment – 3-6 months/4 persons per year/English
- Research activities for Microwave Remote Sensing, Integration of Remote Sensing and GIS, Data Fusion Information Extraction and Software Development – Ongoing till 2005/English

Facilities: Image Processing Laboratory, GIS Laboratory, SBPS instrumentation, training and project rooms

Number of trainees: 20 persons per course; 3 persons per research attachment

Entry requirements: B.Sc. (Hon.) in basic or applied science

Degree/Diploma/Certificate awarded: Certificates

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 1,000 for Basic Course; US\$ 422 for Application Course

Monthly room and board and incidental expenses: No accommodation provided

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Radar Remote Sensing Application Development in oceanography, fishery, oil spill pollution and flood monitoring; Remote Sensing and GIS Softwares Development, SAR Sensor Development, Disaster Management using Remote Sensing and GIS and Airborne Remote Sensing and System Development

Geographical preference: Coastal zone area, river basin, highlands, islands and wetlands

## M A U R I T I U S

UNIVERSITY OF MAURITIUS, SCHOOL OF SCIENCE

Reduit, Mauritius

Tel.: (230) 454-1041

Fax: (230) 454-9642

Contact person(s):

Prof. Ch.V. Sastry

Prof. I. Fagoone

Dr. S.D. Rughooputh

Principal function(s) of institution: Training, education and research

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializatou: basic space sciences, remote sensing, satellite meteorology

Summary of courses and research activities: Survey of southern galactic plane at 150 MHz. Subject of remote sensing is incorporated in degree course on Environmental Studies, including training in image processing. Modelling of spatiatemporal features using GIS

Duration/Frequency/Language(s) of instruction: --/--/English and French

Facilities: Aperture synthesis radio telescope under construction. Hardware and software for study/research in remote sensing and satellite meteorology

Number of trainees: 2

Entry requirements: M.Sc. in Physics/Astrophysics for space sciences programme; undergraduate in environmental studies, math or physics for remote sensing and satellite meteorology programmes

Degree/Diploma/Certificate awarded: B.Sc. (Hon.) in science, M.Sc., Ph.D.

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: Rs. 4,000 per month

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. **COLLABORATION WITH DEVELOPING COUNTRIES:** Yes

Specific areas of interest: Radio astronomy, GIS

Geographical preference: None

## MÉXICO

A. UNIVERSIDAD NACIONAL AUTONOMA DE MÉXICO (UNAM)

Ciudad Universitaria, Coyoacan, 04510 México D.F., México

Tel.: 5622 4113

Fax: 55502486

E-mail: [blanca@tonatiuh.igeofcu.unam.mx](mailto:blanca@tonatiuh.igeofcu.unam.mx)

Contact person(s): Dra. Blanca Mendoza

Principal function(s) of institution: Education, research, training, popular science

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: Comprises of 4 basic courses and 4 complementary courses to choose from. They are:

Basic Courses - Electrodynamics, Magnetohydrodynamics, Plasma Physics, Numerical Methods

Complementary Courses - Advanced Plasma Physics, Solar Physics, Cosmic Ray Physics, Magnetospheric Physics, Upper Atmospheric Physics, Solar-Terrestrial Relationships, Planetary Geophysics, Interplanetary Medium Physics

Research: Solar Physics, Cosmic Ray Physics, Planetology, Space Plasma Physics, Solar-Terrestrial Relationships

Duration/Frequency/Language(s) of instruction: Master: 2 years/Spanish; Ph.D.: 3 years/Spanish

Facilities: Classrooms, laboratories, observatories, computing facilities, appropriate instrumentation and transport for work trips, library, auditorium

Number of trainees: Approx. 15

Entry requirements: B.Sc. for Master degree and M.Sc. for Ph.D. Studies or research experience according to the opinion of the Admission Committee

Degree/Diploma/Certificate awarded: M.Sc., Ph.D.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 500.00

Monthly room and board and incidental expenses: US\$ 1,500.00

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Yes. Any student who fulfil the requirements is entitled to scholarship

Other financial support available for foreign participants: Yes, teaching/lab assistantships

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Space technology

Geographical preference: None

B. UNIVERSIDAD NACIONAL AUTONOMA DE MÉXICO (UNAM), INSTITUTO DE GEOFÍSICA

Ciudad Universitaria, Delegación Coyoacán, 04510 México D.F., México

Tel.: (525) 622-4211

Fax: (525) 550-2486

E-mail: [lira@tonatiuh.igeofcu.unam.mx](mailto:lira@tonatiuh.igeofcu.unam.mx)

Contact person(s): Dr. Jorge Lira

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: Digital Image Processing, Pattern Recognition, Remote Sensing

Research: Radar Image Analysis, Contextual Classifiers, Natural Resources Prospecting, Natural Disaster Evaluation, Software Development

Duration/Frequency/Language(s) of instruction: 2 years/Semestral/Spanish

Facilities: Laboratory with PCs, workstations, extensive software, data banks, extensive library, full time staff

Number of trainees: 4

Entry requirements: B.Sc. and admission test

Degree/Diploma/Certificate awarded: P.Sc. and Ph.D.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 2,000/semester

Monthly room and board and incidental expenses: US\$ 500

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Variable

Other financial support available for foreign participants: Yes

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Radar Image Analysis, Contextual Classifiers, Natural Resources Prospecting, Natural Disaster Evaluation, Software Development

Geographical preference: None

C. GERENCIA DEL SERVICIO METEOROLOGICO NACIONAL

Av. Observatorio 192, Col. Observatorio Tacubaya, D.F., Mexico

Tel.: 515-20-90 Fax: 271-0878

Contact person(s): --

Principal function(s) of institution: Meteorologia, climatologia y redes de observacion

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: satellite meteorology

Summary of courses and research activities: Pronostico Del Tiempo y Aplicaciones a la Hidrologia Y Agricultura

Duration/Frequency/Language(s) of instruction: Permenente/Espanol

Facilities: Por el Momento No Existen Facilidades Disponibles

Number of trainees: --

Entry requirements: --

Degree/Diploma/Certificate awarded: --

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Pronostico del tiempo y Huracanes

Geographical preference: None

## M O R O C C O

ROYAL CENTRE FOR REMOTE SENSING (CRTS)

16 bis, Avenue de France, Agdal, Rabat, Morocco

Tel.: (212-7) 77 63 07/06

Fax: (212-7) 77 63 00

E-mail: [crts@mtds.com](mailto:crts@mtds.com)

Contact person(s): Mrs. Amal Layachi

Principal function(s) of institution: Coordination and promotion of remote sensing, development projects, satellite data distribution, training, research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing

Summary of courses and research activities: Courses on Remote sensing. GIS summer session. Programme in space technology. Applied research in space technology (space oceanography, applications of remote sensing in agriculture, geology, etc.) conducted in collaboration with university, institution and research centre

Duration/Frequency/Language(s) of instruction: 1-2 weeks modules/Every year/French and English

Facilities: Computer workstations, image processing and GIS software, local network, web-site, equipment for data distribution and output peripherals. Lecture room, documentation centre

Number of trainees: About 50 trainees per course

Entry requirements: B.Sc. + 2 to 4 years

Degree/Diploma/Certificate awarded: Certificate of attendance

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 400 per week for Remote Sensing module; US\$ 800 per two weeks summer session

Monthly room and board and incidental expenses: US\$ 60 per day

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Remote sensing and GIS applications; space technology

Geographical preference: None

## NETHERLANDS

INTERNATIONAL INSTITUTE FOR AEROSPACE SURVEY AND EARTH SCIENCES (ITC)

P.O. Box 6, 7500 AA Enschede, The Netherlands

Tel.: (0)53-4874444

Fax: (0)53-4874400; (0)53-4874238

E-mail: [education@itc.nl](mailto:education@itc.nl)

Website: [www.itc.nl](http://www.itc.nl)

Contact person(s):

- Mr. Fred Paats (education);
- Dr. Elisabeth Kusters (research);
- Mr. Mark Noort (consulting)

Principal function(s) of institution: Education, research and advisory services

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializatoin: remote sensing, geo-information managements, geoinformatics, geoinformation systems and geo-information infrastructure

Summary of courses and research activities:

Courses: Regular courses leading to M.Sc. and Professional Master degree and diplomas are offered every year. (Geoinformatics, Geo-information Management, Urban Planning and Land Administration, Natural Resources Management, Earth Resources and Environmental Geosciences, Water Resources and Environmental Management, Diploma Course in Geoinformatics) Education at ITC is modularised. Every module or a number of modules can be followed separately. See also [www.itc.nl/education](http://www.itc.nl/education)

Research: The ITC research programme focuses on research activities in the field of geoinformation science and earth observation with the following spearheads:

- i. Strengthening civil society;
- ii. multifunctional use of space;
- iii. disasters and environment; food and water security; global change.

The Ph.D. programme is an integral part of the research programme. See also [www.itc.nl/res](http://www.itc.nl/res)

Duration/Frequency/Language(s) of instruction: Regular diploma: 9 months; Professional Master: 12 months; Master of Science: 18 months; Ph.D.: 36 months, excluding a qualifying period of up to 6 months; Individual programmes and tailor made programmes: to be determined. All programmes are instructed in English

Facilities: Lecture rooms with digital presentation equipment; exercise rooms with computers for all students. All staff and students have access to e-mail facilities and internet; Image processing lab; GIS labs including a wide variety of software

Number of trainees: Approximately 600 at any one time

Entry requirements: A B.Sc. degree in a field related to the programmes. English language proficiency and relevant working experience

Degree/Diploma/Certificate awarded: Certificate for courses shorter than 6 months; post-graduate diploma for courses of 6 to 11 months; Technologist Diploma; M.Sc. degree; Ph.D. degree awarded by a Netherlands university associated to ITC for ITC Ph.D. programme

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Tuition for M.Sc. courses between Dfl. 23,500, PM courses 12,000; Ph.D. programme Dfl. 30,000 per year; lecture notes, books and other study materials approximately Dfl. 1,000 per course

Monthly room and board and incidental expenses: : Dfl. 1,600 using hotel facilities associated to ITC; Dfl. 85 per month health insurance

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Several scholarships and fellowships are available in the fellowship programme of the Dutch Government, the European Community and UN agencies. For details, the brochure "General Information" should be requested from ITC

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: ITC is primarily focussing on institutional and human resources development of organizations in developing countries

Geographical preference: Development in the areas mentioned under *Research*

## NEW ZEALAND

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH (DSIR)Contact person(s):

- ❑ Dr. M.J. McDonnell, Division Of Information Technology, Lower Hutt, New Zealand, Tel.: 64-4-5666919;
- ❑ S. E. Belliss, Physical Sciences, Box 31, 311 Lower Hill, New Zealand, Tel.: 64-4-5666919, Fax: 64-4-5690067;
- ❑ Peter Stephens, Land Resources, Private Bag, Palmerston North, New Zealand, Tel.: 64-6-3567154, Fax: 64-6-3559230

Principal function(s) of institution: Training, research and development

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: Introduction to remote sensing. Digital image processing; radiometry, automated map production, atmospheric correction of images, Antarctica. Image processing hardware, software and system design. Resource mapping

Duration/Frequency/Language(s) of instruction: From 2 to 18 months/English

Facilities: Comprehensive image processing laboratory; appropriate computer hardware and software; digitising, plotting and photographic facilities

Number of trainees: Up to 16

Entry requirements: M.Sc. or Ph.D. and working experience

Degree/Diploma/Certificate awarded: None

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Some opportunities may be available through NRAC

Other financial support available for foreign participants: Yes

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: As indicated above

Geographical preference: None

## NIGERIA

UNIVERSITY OF LAGOS, DEPARTMENT OF GEOGRAPHY

Akoka, Lagos, Nigeria

Tel.: 821945

Contact person(s): Prof. P.O. Adeniyi

Principal function(s) of institution: Training, education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: Courses on remote sensing from space, applied remote sensing, concepts and foundation of remote sensing

Research: Development of a national land use classification scheme, analogue and digital assessment of various remotely sensed data for agricultural land use inventory and mapping

Duration/Frequency/Language(s) of instruction: One year for M.A., 2 years for M.Phil., 3 years for Ph.D./Annually/English

Facilities: Mirror and pocket stereoscopes; a micro-computer will be added shortly

Number of trainees: Between 1 and 5

Entry requirements: 1<sup>st</sup> degree in Geography

Degree/Diploma/Certificate awarded: M.A., M.Phil., and Ph.D.

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Can be obtained by contacting the University authorities

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Areas indicated in summary above

Geographical preference: --

## N O R W A Y

A. NORWEGIAN RESEARCH COUNCIL FOR SCIENCE AND THE HUMANITIES (NAVF)

Sandakerveien 99, N-0483, Oslo 4

Tel.: +47-2-157012 Fax: +47-2-205571

Contact person(s): Birgit Benterud, Research Co-ordinator

Principal function(s) of institution: NAVF's objective is to promote research in the humanities, the medical, natural and social sciences. The Council is a strategic, evaluating and funding organization emphasizing long-term national perspective for Norwegian basic research. As such it has the responsibility for co-ordination of space research in Norway

The following institutions take part in the space research programme:

- 1) University of Oslo, P.O. Box 1072 Blindern, N-0316, Oslo 3;
- 2) University of Bergen, P.O. Box 25, N-5027, Bergen Universitet;
- 3) University of Tromsø, P.O. Box 635, N-9001, Tromsø;
- 4) University of Trondheim, AVH, N-7055, Dragvoll;
- 5) Norwegian Defence Research Establishment, P.O. Box 25, N-2007, Kjeller

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: Graduate and post graduate courses

Research: Space physics, astrophysics, astronomy, life science, meteorology and oceanography

Duration/Frequency/Language(s) of instruction: Continuous/--/Norwegian

Facilities: Andoya Rocket Range, operated by the Norwegian Space Centre, P.O. Box 85, Smestad, N-0309, Oslo 3

Number of trainees: --

Entry requirements: Contact should be made with universities and institutions

Degree/Diploma/Certificate awarded: Norwegian degrees equivalent to master's and doctor's degrees are given by all the universities

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Contact should be made with universities

Monthly room and board and incidental expenses: Contact should be made with universities and institutions

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: Post Doctorate Fellowship programme may be available from the Royal Norwegian Council for Scientific and Industrial Research (NTNF), P.O. Box 70, Tåsen, N-0801, Oslo 8

4. COLLABORATION WITH DEVELOPING COUNTRIES: --

Specific areas of interest: --

Geographical preference: --

## B. NORWEGIAN SPACE CENTRE

P.O. Box 113 Skoyen, 0212 Oslo, Norway  
 Tel.: 47-2-52-3800 Fax: 47-2-52-2397

### Contact person(s):

- Prof. Bjorn Landmark;
- Prof. Alv Egeland, Univ. of Oslo, Fysisk Inst., P.O. Box 1038, Blindern, 0315, Oslo 3;
- Mr. Per Erik Skrovseth, Head, Earth Observation;
- Prof. Gunnar Stette, Inst. for Teletekn./radiotekn, O.S. Bragstads plass 4, 7034 Trondheim;
- Prof. Arne Grammeltveld, DMNI, P.O. Box 43 Blindern, 0313 Oslo 3, Norway (satellite meteorology)

Principal function(s) of institution: Co-ordinating space activities in Norway

### 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities: Astrophysics (at the universities of Tromso and Oslo); cosmic physics and space plasma physics (at the universities of Tromso, Bergen and Oslo). Remote sensing from a part of courses at the universities in Tromso, Trondheim, Oslo and Aas (agricultural university); Space oceanography from a part of courses at the University of Oslo and a special course is given in Bergen; Special courses in microwave remote sensing are given at NTH (Trondheim) and UNIK (Kjeller) and in image processing at the University of Tromso. Satellite communications is included in teaching at the Technical University of Trondheim, NTH. A special course is given at the university teaching centre, UNIK at Kjeller near Oslo, which is part of University of Oslo. Good opportunities for graduate studies (Masters and Ph.D.) and postgraduate research at all places. Satellite meteorology is included in courses at the University of Oslo; a special course also is given at the University of Bergen

Duration/Frequency/Language(s) of instruction: Semester/Year/Norwegian

Facilities: Sounding rocket range at Andoya and satellite station at Tromso, both in northern Norway. Ship borne in situ measurements form normally part of research activity

Number of trainees: Depends on level of course

Entry requirements: --

Degree/Diploma/Certificate awarded: Only normal diploma

### 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Normal university fees (low)

Monthly room and board and incidental expenses: NOK 4,000-5,000

### 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: The only scholarship/fellowship opportunities presently available are on a post doctorate or visiting scientist basis

Other financial support available for foreign participants: --

### 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: All above areas

Geographical preference: None

C. NORWEGIAN TELECOM, RESEARCH DEPARTMENT

P.B. 83, 2007 KJELLER, Norway

Tel.: 47-6-809100

Contact person(s): --

Principal function(s) of institution: Research and development

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: satellite communications

Summary of courses and research activities:

Courses: Course in "Satellite Communications" given at University of Oslo (UNIK) by lectures from the above department

Research: Research within satellite telecom comprises following activities: system planning, earth station technology, propagation and antennas, modulation and coding/encryption for the following applications: broadcasting, mobile services and business services

Duration/Frequency/Language(s) of instruction: Semester/Annually/Norwegian

Facilities: --

Number of trainees: --

Entry requirements: --

Degree/Diploma/Certificate awarded: --

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes.

Specific areas of interest: Foreseeable activities in developing countries will be co-ordinated by NORAD

Geographical preference: --

## P A K I S T A N

PAKISTAN SPACE AND UPPER ATMOSPHERE RESEARCH COMMISSION (SUPARCO)

Sector 28, Gulzar-e-Hijri, Off University Road, P.O. Box 8402, Karachi-75270, Pakistan  
Tel.: 92-21-4742615 Fax: 92-21-4960553

Contact person(s):

- ❑ Mr. M. Nasim Shah, Director (International Affairs);
- ❑ Mr. Zafar Muhammed Khan, Director, Ionospheric Research Division, Tel.: 8141311-5, Fax: 92-21-4960553;
- ❑ Mr. Saiful Huk, Director, Remote Sensing Applications Division, Tel.: 8141311-5, Fax: 92-21-4960553;
- ❑ Dr. A. Majid, Tel.: 8141275-9;
- ❑ Mr. Ziker-ur-Rehman Siddiqui, Director, Space Science Division, Tel.: 8141311-5; Fax: 92-21-4960553

Principal function(s) of institution: Research and development in space science and technology

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities:

Courses: Special course on space physics/space science at SUPARCO's Space and Atmospheric Research Centre (SPARCENT). As national co-ordinator for remote sensing in Pakistan, SUPARCO organizes short training courses on annual/biannual basis to acquaint the national users with application of satellite remote sensing data for resource and environmental surveying. These courses are regularly held at Remote Sensing Applications Centre (RESACENT), Karachi or at its regional centers at other cities in the country. As the national space agency, SUPARCO organises courses on satellite applications to meteorological and atmospheric studies for scientists belonging to various national agencies. These courses held at SUPARCO's Space and Atmospheric Research Centre (SPARCENT) at Karachi, cover the following: acquisition of data from meteorological satellites. application of satellite data to various meteorological and related environmental studies; determination of vertical profiles of atmospheric parameters through satellite radiance; study of earth's atmosphere through balloon and rocket soundings; air pollution monitoring; collection of environmental data from unmanned Data Collection Platforms

Research: Ionospheric physics and radio wave propagation; satellite tracking using optical and radio techniques; geomagnetism; observational astronomy. The RESACENT has been actively pursuing a multidisciplinary remote sensing application programme since 1973. The research studies based mainly on Landsat/SPOT data supplemented by aerial and conventional data have been carried out at the Centre. A large volume of Landsat MSS/TM and SPOT XS/PAN data covering the whole of Pakistan and a limited amount of SIR-A, Metric Camera and CZCS data are available at this Centre. These data are being used by scientists/engineers of the Centre as well as by the national user agencies for various application studies. Research studies on the topics mentioned above are being carried out at SPARCENT. Satellite data acquired from the NOAA meteorological satellites in APT mode as well as the environmental data acquired through DCPs are also provided to other concerned agencies. Communication Satellite System design, evaluation, technical studies, data acquisition/interpretation, small ground terminals/receivers

Duration/Frequency/Language(s) of instruction: 1 - 4 weeks/Annual or biannual/ English

Facilities: PIR 9A and 9B vertical incidence ionospheric sounders; Digisond 256 for acquisition of ionospheric data; VLF receiver/comparator (16 KHz) for monitoring solar flares; in-house microcomputer facility; automatic geomagnetic observatory; small and medium range sounding rocket launching facilities; telemetry and tracking facility; I4 inches Cassegrain optical telescopes; mobile video optical system; Magnavox receivers; radio tracking receivers. Satellite tracking station. The RESACENT has well-equipped laboratory facilities for visual as well as digital interpretation and analysis of remotely sensed data. Electro-optical equipment used for visual interpretation include density slicer, zoom transferscope, zoom stereoscopes, Diazo developer/printer, rationing radiometer and other equipment. The Centre's digital processing facilities include a dedicated, interactive, micro-processor based image processing system - EBBA II - and MicroVax II computer with a GPX workstation. Various I/O peripherals are connected to both systems. A Local Area Network (LAN) incorporating 8 user terminals and the GPX workstation has also been developed on basis of the MicroVax II. SUPARCO has also established a satellite ground receiving station at Islamabad to acquire Landsat MSS and TM, SPOT XS and Pan and NOAA AVHRR HRPT data in real-time. This station is one of the most advanced and sophisticated stations in the Asia-Pacific region. It covers, in addition to the whole of Pakistan, a large number of neighbouring countries, wholly or partially. The station has most modern facilities for data reception, pre-processing and processing, which include S and X band dish antennas, high density digital tape recorders, VAX 11/780 computers, array processors, high precision B & W and colour film recorder, etc. SUPARCO also has sophisticated ground receiving station for acquisition of NOAA APT pictures and facilities for reception of TOVS/HRPT data. Microcomputer based systems are available for the processing of NOAA and TOVS/HRPT data. Other facilities include DCPs for the collection of environmental data from remote and inaccessible areas and Local User Terminal (LUT) for acquisition and processing of these data under the ARGOS Network; Surface Air Pollution Monitoring Equipment; Analytical Chemistry Lab. for the analysis of field samples; Balloon Sounding Facility for Stratospheric Ozone and related Upper Atmospheric Studies

Number of trainees: Between 15 and 20, including 1 or 2 foreign participants

Entry requirements: B.Sc. or M.Sc. in physics, mathematics, electronics, computer science/engineering or earth sciences such as agriculture, hydrology, geology, etc.

Degree/Diploma/Certificate awarded: Certificate is awarded on successful completion of the training course

2. **COST OF PROGRAMMES**  
Cost of tuition, texts and related research material: US\$ 75-200 depending on programme  
Monthly room and board and incidental expenses: US\$ 500 per week
3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**  
Scholarship/Fellowship opportunities for foreign participants: None  
Other financial support available for foreign participants: None
4. **COLLABORATION WITH DEVELOPING COUNTRIES:** Yes  
Specific areas of interest: As indicated above  
Geographical preference: Developing countries of ESCAP and ESCWA regions

## P E R Ú

SERVICIO NACIONAL DE METEOROLOGÍA E HIDROLOGÍA (SENAMHI)

Jr. Cahuide 785, Jesús María (Lima 11), Perú

Tel.: (51-1) 472-4180

Fax: (51-1) 471-7287

E-mail: [senamhi@senamhi.gob.pe](mailto:senamhi@senamhi.gob.pe)

Contact person(s): Mayor General FAP Gustavo Ebermann Tremolada

Principal function(s) of institution: Manejo y operación de una red de observación hidrometeorológica, predicción del tiempo, clima, hidrológica, agrometeorológica y estudio de la contaminación del aire

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: satellite communication and satellite meteorology

Summary of courses and research activities:

Courses: Se ofrecen cursos de corta duración

Research: Predicción numérica del tiempo, clima e hidrológica

Duration/Frequency/Language(s) of instruction: Los cursos se desarrollan en forma no periódica/Español, inglés y portugués

Facilities: Presupuestos para financiar los gastos de los expertos que dictan los cursos

Number of trainees: 30 participantes

Entry requirements: Meteorólogo clase I e hidrólogos

Degree/Diploma/Certificate awarded: Certificados de aprobación de los cursos desarrollados

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 500

Monthly room and board and incidental expenses: No ofrece

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Predicción numérica del tiempo, clima e hidrológica; Climatología; Agrometeorología; Hidrología; Contaminación del aire

Geographical preference: América del Sur – Brasil; Estados Unidos de Norte América

## PHILIPPINES

A. NATURAL RESOURCES MANAGEMENT CENTER (NRMC)

1610 Triumph Bldg. 9th Floor, Quezon Avenue, Quezon City, Philippines  
 Tel.: 96-86-44                      Telex: 27216 NRCM PH

Contact person(s):

Ricardo M. Umali                       Ricardo T. Biña

Principal function(s) of institution: Research, development and training

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializatoin: remote sensing

Summary of courses and research activities:

Courses: The NRMC Remote Sensing Manpower Development Programme involves the organization and conduct of remote sensing training courses, workshops, symposia, seminars applicable to various natural resources disciplines

Research: Applied research in visual and computerized processing and interpretation of remotely sensed data and research in resource information handling and processing

Duration/Frequency/Language(s) of instruction: 3 weeks-1 month/Depends on availability of funds and Center's workload/English

Facilities: Image-100 multispectral image analyser system and peripherals; UNIVAC System 80; IBM XT microcomputer, and other equipment

Number of trainees: Between 5 and 15

Entry requirements: Bachelor's degree or equivalent in their chosen fields of specialization

Degree/Diploma/Certificate awarded: Certificate of completion-professional

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: : Stipend: based on ESCAP approved funding for 3 weeks remote sensing training

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Research and development applications using remote sensing data in the fields of forestry, agriculture and land use, geology and aquatic/coastal resources

Geographical preference: Same climatic zones

B. PHILIPPINE ATMOSPHERIC, GEOPHYSICAL AND ASTRONOMICAL SERVICES ADMINISTRATION (PAGASA)

1424 ATB Bldg., Quezon Avenue, Quezon City, Philippines

Tel.: (632) 373 3444;  
 (632) 373 3424;  
 (632) 929 4865

Fax: (632) 3733424;  
 (632) 929 4865

E-mail: [agssb@info.com.ph](mailto:agssb@info.com.ph)

Website: <http://pagasa.dost.gov.ph/>

Contact person(s): Leoncio A. Amadore

Principal function(s) of institution: To implement/conduct training courses in the field of Meteorology/Hydrology/Astronomy/other related subjects appropriate to the manpower needs at all levels of the agency. Also to accommodate trainees from other countries/other government co-operating agencies in training courses planned for each year

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses:

- 1) Meteorological Observers Training Course (MOTC);
- 2) Meteorologists Training Course (MTC);
- 3) Astronomers Training Course (ATC);
- 4) Seminar/Workshop on Climatology;
- 5) Advanced Forecasters Course;
- 6) Seminar/Workshop on Climate Change

Research: --

Duration/Frequency/Language(s) of instruction:

- |                                |                        |
|--------------------------------|------------------------|
| 1) 6 months/Annually/English;  | 4) 2 weeks/--/English; |
| 2) 10 months/Annually/English; | 5) 6 weeks/--/English; |
| 3) 10 months/--/English;       | 6) 1 week/--/English   |

Facilities: : 4 classrooms, 2 libraries, conference room, laboratory

Number of trainees: 20-25

Entry requirements:

- 1) 2 years college work with units in College Physics, Algebra and Trigonometry;
- 2) BS graduate in any engineering course/BS Math, BS Chemistry, BS Physics;
- 3) BS graduate in any engineering course/BS Math, BS Chemistry, BS Physics;
- 4) PAGASA Agrometeorologists/Climatologists;
- 5) Meteorologists;
- 6) PAGASA Agrometeorologists/Climatologists

Degree/Diploma/Certificate awarded: Certificate of Training

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material:

- |              |              |            |
|--------------|--------------|------------|
| 1) \$ 1,800; | 3) \$ 5,000; | 5) \$ 120; |
| 2) \$ 5,000; | 4) --        | 6) --      |

Monthly room and board and incidental expenses:

Room rate: At University of the Philippines (UP) International Center:  
 \$ 20/bed/month (3 beds in a room)  
 \$ 30/bed/month (2 beds in a room)

At UP Hostel: (Air-conditioned with hot/cold shower)  
 \$ 10/bed/day (2 beds in a room)

Meal: Around \$ 1.00/meal

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: : None, for local training courses conducted by PAGASA; Yes, for postgraduate courses at University of the Philippines (UP); The Voluntary Co-operation Programme (VCP) in co-operation with the WMO wherein the PAGASA shoulder the tuition fee for Diploma/Post Graduate course at the UP and WMO provide other expenses

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: --

Specific areas of interest: --

Geographical preference: --

C. PHILIPPINE COMMUNICATIONS SATELLITE CORPORATION

11<sup>th</sup> Flr., Telecoms Plaza, Sen. Gil J. Puyat Avenue, Makati, Metro Manila, Philippines

Tel.: 815-8406 Telex: 63586 POTC PN

Contact person(s): Mr. G.T. Parazo, Asst. Station Manager

Principal function(s) of institution: Satellite communications service

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: satellite communications

Summary of courses and research activities: Operation and maintenance of an earth station for satellite communications

Duration/Frequency/Language(s) of instruction: 6 months/As needed/English

Facilities: Three standard "A" earth stations, one 12-meter antenna E/S with RF equipment and auxiliary equipment and one standard B TVRO E/S

Number of trainees: Up to 12

Entry requirements: Registered electronics and communications engineers or radio technicians with 1<sup>st</sup> class radio telephone or telegraph operators licence

Degree/Diploma/Certificate awarded: Certificate of completion

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: In 1985, P 7,000

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Technical exchange programme with ASEAN members with earth station and other communications facilities

Geographical preference: None

D. PHILIPPINE INSTITUTE OF VOCANOLOGY AND SEISMOLOGY (PHIVOLCS), Department of Science and Technology

PHIVOLCS Building, C.P. Garcia Avenue, UP Diliman Compound, Quezon City 1114, Philippines

Tel.: 63 (2) 426-1468

Fax: 63 (2) 920-7058

E-mail: [rsp@phivolcs.dost.gov.ph](mailto:rsp@phivolcs.dost.gov.ph)

Contact person(s): Dr. Raymundo S. Punongbayan

Principal function(s) of institution: To undertake research on earthquakes and volcanoes to predict volcanic eruptions and possible earthquake occurrences in the Philippines

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: PHIVOLCS has projects and programs that undertake various processing and analysis of remotely sensed data. These data are used in mapping of active faults, rapid determination of damaged areas during volcanic eruptions and/or earthquakes, and production of DEM for volcanic and tsunami-prone areas. Within the program, key staff and some students are trained to process as well as to use and interpret satellite imageries

Duration/Frequency/Language(s) of instruction: 1-5 years/1 week to 6 months/English

Facilities: A workstation, print server and several PCs for processing, with GIS capability

Number of trainees: 15 participants

Entry requirements: Bachelor of Science, Bachelor of Science in Engineering, and/or a participant with a good background in earth sciences

Degree/Diploma/Certificate awarded: Certificate of Training in Remote-Sensing for Earthquake and Volcano Hazards and Risk Assessments

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: For employees, none; for non-employees, expenses (usually minimal) related to training may be incurred for the account of participant-trainee

Monthly room and board and incidental expenses: Generally not provided

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Active faults mapping; Earthquake and volcanic hazards and risks assessment

Geographical preference: Generally none; dependent on mutual interest and available resources

E. TELECOMMUNICATIONS TRAINING INSTITUTE

Karuhatan, Valenzuela City, Philippines

Tel.: (632) 292-0593,

Fax: (632) 292-0593,

E-mail: [tti@csi.com.ph](mailto:tti@csi.com.ph)

(632) 292-0701 to 03

(632) 292-0703

Contact person(s): Engr. Guido C. Agon

Principal function(s) of institution: Training

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: satellite communications

Summary of courses and research activities: Digital Radio Fundamentals, Basic Concept of Modulation, Outline of Satellite Communications, Antenna System / Antenna Measurement Technique, Transmit Amplifier Subsystem of Earth Station-Hpa, Low Noise Receiving Amplifier Subsystem, VSAT Theory and Operation / Maintenance, Testing and Instrumentation

Duration/Frequency/Language(s) of instruction: 1 week/6 times yearly/English

Facilities: Very Small Aperture Terminal (VSAT)

Number of trainees: 20 participants

Entry requirements: Applicants must be at least graduate from technical schools or must be at least 2<sup>nd</sup> year Electronics or Electrical Engineering student

Degree/Diploma/Certificate awarded: Certificate of Completion

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: P 2,500.00/participant

Monthly room and board and incidental expenses: P 500.00/participants/day (local only)

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. **COLLABORATION WITH DEVELOPING COUNTRIES**: Yes

Specific areas of interest: JICA Third Country Training Program (TCTP) on Advanced Telecommunications Outside Plant Technology (Optic Fiber Course)

Geographical preference: Asia-Pacific Region

F. **UNIVERSITY OF THE PHILIPPINES TRAINING CENTER FOR APPLIED GEODESY AND PHOTOGRAMMETRY**

College of Engineering, University of the Philippines, Diliman, Quezon City, 1101 Metro Manila

Tel.: (632) 434-3633

Fax: (632) 920-8924

E-mail: [edl@engg.upd.edu.ph](mailto:edl@engg.upd.edu.ph)

Contact person(s): Professor Epifanio D. Lopez

Principal function(s) of institution: Training, education, research and development, extension services, consultancy

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: Geodetic engineering, including remote sensing, geographic information systems, and satellite-based positioning

Summary of courses and research activities:

Courses:

- Degree Programs: 1) Bachelor of Science in Geodetic Engineering;  
(1 – 3) 2) Diploma (Remote Sensing);  
3) Master of Science (Remote Sensing);
- Non-Degree Programs: 4) Training Course on Applied Geodesy and Photogrammetry;  
(4 – 8) 5) Training Course on Photo-Interpretation;  
6) Short Course on Remote Sensing;  
7) Short Course on Introduction to GIS;  
8) Short Course on Advanced GIS

Research: In the past ten years, the Center/Department has conducted or is conducting research on the use of various remotely sensed data (polarimetric SAR, Landsat TM/ETM, SPOT, ADEOS AVNIR, JERS-1 OPS/SAR, and ERS-1/2) for various applications including lahar damage assessment, environmental management, land cover mapping, coastal zone monitoring, and fisheries management. Funding comes from both local and international sources

Duration/Frequency/Language(s) of instruction:

- |                             |                                      |
|-----------------------------|--------------------------------------|
| 1) 5 years/--/English;      | 5) 1 semester/Semi-annually/English; |
| 2) 1 year/--/English;       | 6) 1 week/Tri-annually/English;      |
| 3) 2 years/--/English;      | 7) 1 week/Tri-annually/English;      |
| 4) 1 year/Annually/English; | 8) 1 week/Tri-annually/English       |

Facilities: The Center/Department maintains three laboratories. They are:

- 1) Remote Sensing Image Analysis Laboratory houses 15 Pentium III-based computers running ER Mapper 6.1 and IDL/ENVI;
- 2) ESRI GIS Laboratory comprises 10 Pentium III-based computers running a suite of ESRI GIS products such as ArcView GIS 3.2 and ArcInfo 8.0, and related equipment such as digitizing tablets and plotter;
- 3) Photogrammetry Laboratory houses one LH Systems digital photogrammetric workstation, an analog stereoplotter, and a dark room for processing aerial photographs

In addition, the Center/Department has a satellite-based positioning antenna and a Trimble GeoExplorer II receiver, as well as various instruments for surveying

Number of trainees:

- |                  |                 |                 |
|------------------|-----------------|-----------------|
| 1) 100 trainees; | 4) 15 trainees; | 7) 20 trainees; |
| 2) 15 trainees;  | 5) 15 trainees; | 8) 20 trainees  |
| 3) 15 trainees;  | 6) 20 trainees; |                 |

Entry requirements:

- |                         |                  |                  |
|-------------------------|------------------|------------------|
| 1) High school diploma; | 4) B.Sc. Degree; | 7) B.Sc. Degree; |
| 2) B.Sc. Degree;        | 5) B.Sc. Degree; | 8) B.Sc. Degree  |
| 3) B.Sc. Degree;        | 6) B.Sc. Degree; |                  |

Degree/Diploma/Certificate awarded:

- |                  |                 |                 |
|------------------|-----------------|-----------------|
| 1) B.Sc. Degree; | 4) Certificate; | 7) Certificate; |
| 2) Diploma;      | 5) Certificate; | 8) Certificate  |
| 3) M.Sc. Degree; | 6) Certificate; |                 |

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material:

- |                 |                |                |
|-----------------|----------------|----------------|
| 1) PhP 180,000, | 4) PhP 50,000; | 7) PhP 10,000; |
| 2) PhP 50,000;  | 5) PhP 25,000; | 8) PhP 10,000  |
| 3) PhP 120,000; | 6) PhP 10,000; |                |

Monthly room and board and incidental expenses: PhP 8,000

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes  
Specific areas of interest: The use of remote sensing for rice crop monitoring, natural hazards monitoring, coastal zone management, etc.  
Geographical preference: The ASEAN and ESCAP regions

## POLAND

INSTITUTE OF GEODESY AND CARTOGRAPHY

00-950 Warsaw, ul. Jasna 2/4 Poland

Tel.: 48-22-270328 Fax: 48-22-270328

Contact person(s):

- Prof. Bogdan Ney;                       Dr. Romuald Kaczynski;  
 Prof. Jan Konieczny;                 Prof. Adam Linsenbarth

Principal function(s) of institution: Research, development and training

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: Data acquisition, pre-processing and processing of data (photographic, electro-optical, and electronic), analysis of remotely sensed data (analog and digital), thematic applications of remotely sensed data in geology, vegetation monitoring, forestry, land use and thematic mapping

Duration/Frequency/Language(s) of instruction: 3-12 weeks/ Twice annually/ English, Russian

Facilities: Multispectral cameras, thermal scanner, additive colour viewers, analog and digital systems for data processing

Number of trainees: Between 1 and 15

Entry requirements: College/University degree

Degree/Diploma/Certificate awarded: None

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 250-1,000, depending on the type of course

Monthly room and board and incidental expenses: Approx. US\$ 300

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: 1-2 scholarships/fellowships are available

Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Remote sensing experiments using new instruments and methods for acquisition, processing and interpretation of data. Remote sensing applications in forestry, land use monitoring, geology, environmental protection

Geographical preference: --

## Q A T A R

UNIVERSITY OF QATAR, SCIENTIFIC AND APPLIED RESEARCH CENTER (SARC), REMOTE SENSING UNIT (RSU)

P.O. Box 2713, Doha, QatarTelex: 4630 UNVSTY-DH

Tel.: (0974) 874961

Contact person(s):

Dr. Homaid Almadfs;       Dr. Jaber Al-Noaimi

Principal function(s) of institution: Research and education

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: remote sensing, satellite meteorology

Summary of courses and research activities: Application of remotely-sensed data from aircrafts and satellites to geological mapping, drainage basins, land-use pattern, coastal studies and other natural resource studies. Use of meteorological satellite data to monitor regional environmental phenomena, pollution and ground water studies

Duration/Frequency/Language(s) of instruction: --

Facilities: ERDAS System installed on a PC with the basic peripherals; NEC Color Data Analysis System

Number of trainees: Between 2 and 5

Entry requirements: B.Sc. in Geology, Geography, Oceanography or Civil Engineering

Degree/Diploma/Certificate awarded: Professional

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. **COLLABORATION WITH DEVELOPING COUNTRIES:** Yes

Specific areas of interest: Remote Sensing

Geographical preference: Arab countries of the Gulf Co-operative Council (GCC)

## ROMANIA

A. ROMANIAN SPACE AGENCY

Str. Mendeleev nr. 21-25, 70168 Bucharest, Romania

Tel.: +40-1-6504619

Fax: +40-1-6504222

E-mail: [viso@roearn.ici.ro](mailto:viso@roearn.ici.ro)

Contact person(s):

- Dr. Marius-Ioan Piso, Executive Secretary of ROSA;
- Astronaut Dumitru-Dorin Prunariu;
- Dr. Cornel Opri\_iu

Principal function(s) of institution: Co-ordination of national space activities, government representative, scientific and technical research in the fields of space exploration, consulting

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, satellite communications, remote sensing

Summary of courses and research activities: Basic, advanced and applied research in the areas of specialization developed in affiliated research and higher education centres and institutes. Master and Ph.D. long-term training. Short term associated research programmes in some laboratories

Duration/Frequency/Language(s) of instruction: 1-2 years for Masters, 3-5 years for Ph.D. in Science &Engineering/--/Romanian, English and French

Facilities: Laboratory equipment, information technology, libraries in all centres and institutions

Number of trainees: Approximately 35 Masters and Ph.D. students in 1996 for the areas in the field

Entry requirements: Graduate diploma for Masters in Science/Engineering, Masters diploma for Ph.D.

Degree/Diploma/Certificate awarded: Masters and Ph.D. in Science/Engineering, none for associated researchers

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: According to the specific rules of the Universities for regular students. Particular agreements for associated researchers

Monthly room and board and incidental expenses: Depending on the agreements. An amount of US\$ 300 to 500 monthly is in most cases sufficient for students without other support

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: According to the governmental and/or institutional conventions and agreements

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES:

Specific areas of interest: All areas in space science, technology and applications

Geographical preference: None

B. NATIONAL INSTITUTE FOR AEROSPACE RESEARCHES "ELIE CARAFOLI"

Bd. Iuliu Maniu 220, 77538 Bucharest, Romania

Tel.: +40-1-7452552

Fax: +40-1-3125341

E-mail: [coprisiu@aero.incas.ro](mailto:coprisiu@aero.incas.ro)

Contact person(s): Dr. Cornel Opri\_iu

Principal function(s) of institution: Co-ordination of national aerospace research and development programmes, scientific research and development in aerodynamics, flight dynamics, aerospace systems design

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializatoin: basic space sciences

Summary of courses and research activities: Basic, advanced and applied research in the areas of Aerodynamics, Flight Dynamics, Aircraft design and construction, Aerospace Propulsion and Thermodynamics, Aeroelasticity, Aerospace structures. Master and Ph.D. long-term training together with the Aerospace Department of the University "Polytechnica" Bucharest. Short term associated research programmes

Duration/Frequency/Language(s) of instruction: --

Facilities: Trisonic wind tunnel, Transonic and subsonic wind tunnels, Ludwig Tube. Structural and hydraulic testing laboratories. Information system and LAN. Library

Number of trainees: Approximately 15 Masters and Ph.D. students in 1996

Entry requirements: Graduate diploma for Masters in Science/Engineering, Masters diploma for Ph.D.

Degree/Diploma/Certificate awarded: Masters and Ph.D. in Science/Engineering, none for associated researchers

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: According to the specific rules of University "Polytechnica" Bucharest for regular students. Particular agreements for associated researchers

Monthly room and board and incidental expenses: Depending on the agreements. An amount of US\$ 300 to 500 monthly is in most cases sufficient for students without other support

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: According to the governmental and/or institutional conventions and agreements

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Aerospace science and technology, microsattellites design and construction, space information processing

Geographical preference: None

## RUSSIAN FEDERATION

A. MOSCOW BAUMAN STATE TECHNICAL UNIVERSITY

No. 5, Baumanskaya Str., 107005 Moscow, Russia  
 Tel.: 7-095-2614055, 7-095-2636541 Fax: 7-095-2679893  
 E-mail: RELCOM [POSTMASTER@INTERD.BMGU.MSK.SU](mailto:POSTMASTER@INTERD.BMGU.MSK.SU)  
Contact person(s): Foreign students department

Principal function(s) of institution: Training, education, research and development

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: Rocket engines; electric rocket engines and energy plants; spacecraft and boosters; flight dynamics and flight control; aviation and spacecraft heat engineering; preparatory language course  
Research: --

Duration/Frequency/Language(s) of instruction: B.Sc. programme-4 years, M.Sc.-2 years, fellow-3 years, doctoral student-3 years/Annually/Russian

Facilities: --

Number of trainees: --

Entry requirements: Secondary education, knowledge of Russian (within the programme of the preparatory course)

Degree/Diploma/Certificate awarded: --

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: between US\$ 2,800 and 4,800 depending on programme

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: --

Specific areas of interest: --

Geographical preference: --

B. MOSCOW STATE UNIVERSITY OF AVIATION TECHNOLOGY

No. 27, Petrovka Str., K-21 Moscow, Russia  
 Tel.: 7-095-2006883  
Contact person(s): Rector

Principal function(s) of institution: Training, education, research and development

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: Rocket engines; rocket design and building, preparatory language course

Research: --

Duration/Frequency/Language(s) of instruction: B.Sc. programme-4 years, M.Sc.-2 years, diploma specialist-1½ years, fellow-3 years, preparatory course 3-12 month/Annually/Russian

Facilities: --

Number of trainees: --

Entry requirements: Secondary education, knowledge of Russian

Degree/Diploma/Certificate awarded: --

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: between US\$ 2,500 and 3,500 depending on programme

Monthly room and board and incidental expenses: --

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

4. **COLLABORATION WITH DEVELOPING COUNTRIES: --**

Specific areas of interest: --

Geographical preference: --

C. **MOSCOW STATE AVIATION INSTITUTE (TECHNICAL UNIVERSITY)**

No. 4, Volokolamskoye Shausse, 125871 A80 Moscow, Russia

Tel.: 7-095-1584043, 1581373

E-mail 1: [aet@tk.mainet.msk.su](mailto:aet@tk.mainet.msk.su)

E-mail 2: [alex@tk.mainet.msk.su](mailto:alex@tk.mainet.msk.su)

Contact person(s): Foreign Students Department

Principal function(s) of institution: Training, education, research and development

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: Spacecraft and boosters, preparatory language course

Research: --

Duration/Frequency/Language(s) of instruction: M.Sc. programme-5½ years, fellow-4 years, doctoral student-3 years, training-up to 12 months, preparatory course 1 year /Annually/Russian

Facilities: --

Number of trainees: --

Entry requirements: Secondary education, knowledge of Russian

Degree/Diploma/Certificate awarded: --

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: between US\$ 600 and 6,000 depending on programme

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: --

Specific areas of interest: --

Geographical preference: --

D. MOSCOW PHYSICAL AND TECHNICAL INSTITUTE

No. 9, Institutsky per., 141700 Dolgoprudny, Moscovskaya oblast, Russia

Tel.: 7-095-4087563, 4985700

Fax: 7-095-4086869

E-mail: [karlov@srdep.mirt.msk.su](mailto:karlov@srdep.mirt.msk.su)

Contact person(s): Foreign Students Department

Principal function(s) of institution: Training, education, research and development

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: Flight dynamics and flight control, preparatory language course

Research: --

Duration/Frequency/Language(s) of instruction: B.Sc. programme-4 years, M.Sc.-2 years, fellow-3-4 years/Annually/Russian

Facilities: --

Number of trainees: --

Entry requirements: Secondary education, knowledge of Russian

Degree/Diploma/Certificate awarded: --

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: between US\$ 600 and 6,000 depending on programme

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: --

Specific areas of interest: --

Geographical preference: --

E. MOSCOW ENERGY INSTITUTE (TECHNICAL UNIVERSITY)

No. 14, Krasnokazarmennaya Str., 105835 Moscow, Russia  
 Tel.: 7-095-3625645, 3627560 Fax: 7-095-3628938  
 E-mail: RELCOM [SMS@MEI.MSK.SU](mailto:SMS@MEI.MSK.SU)  
 Contact person(s): Foreign Students Department

Principal function(s) of institution: Training, education, research and development

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: Aviation and spacecraft heat engineering; preparatory language course

Research: --

Duration/Frequency/Language(s) of instruction: Preparatory course-1 year, B.Sc. programme-4 years, M.Sc.-2 years, fellow-3 years, doctoral student-2 years/Annually/Russian

Facilities: --

Number of trainees: --

Entry requirements: Secondary education, knowledge of Russian (within the programme of the preparatory course)

Degree/Diploma/Certificate awarded: --

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: between US\$ 2,000 and 5,000 depending on programme

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: --

Specific areas of interest: --

Geographical preference: --

## S A U D I A R A B I A

A. SAUDICENTER FOR REMOTE SENSING

King Abdulaziz City for Science and Technology (KACST), Kingdom of Saudi Arabia

Tel.: (966 1) 481-1141 Fax: (966 1 ) 488-3756

Contact person(s): --

Principal function(s) of institution: Applied research, R & D

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing, satellite meteorology

Summary of courses and research activities: Remote sensing applications, supporting National Development Plans and academic research in education. Providing data from NOAA 9 and 10 for weather forecasting

Duration/Frequency/Language(s) of instruction: --

Facilities: Image processing systems, receiving station

Number of trainees: --

Entry requirements: --

Degree/Diploma/Certificate awarded: --

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Remote sensing

Geographical preference: Yes, due to availability of data in the Centre

B. SPACE RESEARCH INSTITUTE

P.O. Box 6086, Riyadh 11442, Saudi Arabia

Tel.: +966-1-481-3560

Fax: +966-1-481-3845

E-mail: [serv.sri@kacst.edu.sa](mailto:serv.sri@kacst.edu.sa)

Contact person(s): Prince Dr. Turki bin Saud AlSaud

Principal function(s) of institution: Research and development

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities:

Courses: --

Research: GIS Applications, Remote Sensing Application, Space Communication, Laser Ranging, Numerical Studies

Duration/Frequency/Language(s) of instruction: --

Facilities: --

Number of trainees: --

Entry requirements: --

Degree/Diploma/Certificate awarded: --

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Remote Sensing, GIS

Geographical preference: None

## SINGAPORE

NATIONAL UNIVERSITY OF SINGAPORE

10 Kent Ridge Crescent, Singapore 0511, Republic of Singapore  
 Tel.: 65-7756666 Fax: 65-7757717 E-mail: [crssec@leonis.nus.sg](mailto:crssec@leonis.nus.sg)  
Contact person(s): Dr. LIM, Hok (Tel.: 65-7723220)

Principal function(s) of institution: (i) to offer tertiary education leading to first degrees and post-graduate degrees; and (ii) to conduct research and development in various disciplines

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: Remote sensing is one of the modules offered by the Department of Physics to fourth (Hon.) year students; students also may undertake research in remote sensing pursuing the M.Sc. or Ph.D. degree. A Centre for Remote Imaging, Sensing and Processing (CRISP) was established in 1992. Research activities undertaken at CRIPS focus on algorithms for focussing SAR data; interferometric SAR; applications of SAR data in forestry and oceanography; fusion of SAR and optical data

Duration/Frequency/Language(s) of instruction: --/Every year/English

Facilities: Complete satellite ground receiving station (SPOT and ERS data), CRAY supercomputer and other computers/workstations connected to the campus network

Number of trainees: Variable

Entry requirements: Depends on programme

Degree/Diploma/Certificate awarded: B.Sc., M.Sc. or Ph.D.

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Variable, depends on programme

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Award of fellowship or scholarship is based on qualification of applicant

Other financial support available for foreign participants: Teaching/lab assistantship may be available

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: SAR data processing and applications, fusion of SAR and optical data, development of value-added remote sensing products

Geographical preference: None

## SOUTH AFRICA

A. COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH (CSIR)

P.O. Box 395, Pretoria 0001, South Africa  
 Tel.: 27 12 841-9211 Fax: 27 12 86-2856

Contact person(s):

- Prof. D.A. Scogings/Mr. S.E. Piper, Dept. of Surveying and Mapping, University of Natal, King George V Avenue, 4001, Durban;
- Dr. C.W. Louw, Foundation for Research Development, CSIR;
- Director, Division of Microelectronics and Communications Technology; Director, Division of Earth, Marine and Atmospheric Science and Technology (DEMAST)

Principal function(s) of institution: --

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities:

Courses: An introductory course in remote sensing is offered annually, usually at the University of Natal or, alternatively, at the University of Cape Town. The course covers basic principles of remote sensing, with an emphasis on satellite data and digital image processing. No formal courses in satellite meteorology are offered. However, the South African Weather Bureau conducts in-house training on the applications of satellite meteorology

Research: Remote sensing projects are funded in the following fields: agriculture, forestry, hydrology, land cover mapping, natural vegetation, geosciences, oceanography, data processing techniques and algorithm development. Research in radio-wave propagation and its effects, inter alia, on earth-satellite communications. The South African Weather Bureau and certain divisions of CSIR carry out projects in satellite meteorology. Climate variability over Southern Africa and the behaviour of the Agulhas Current

Duration/Frequency/Language(s) of instruction: Variable/Annually/English

Facilities: Direct reception of LANDSAT MSS data, image processing facilities available at various CSIR Institutes: Satellite Remote Sensing Centre, National Physical Research Laboratory, National Institute for Informatics and National Research Institute for Oceanology. The Division of Microelectronics and Communications Technology operates the Satellite Applications Centre. This facility receives, records and archives meteorological data from geostationary and polar orbiting meteorological spacecraft. Advanced image processing facilities are available for radiometric and geometric manipulation of meteorological data. In addition, image processing facilities exist in a number of other CSIR divisions

Number of trainees: Depends on programme

Entry requirements: B.Sc., M.Sc. or appropriate experience

Degree/Diploma/Certificate awarded: None

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: Funds are available to support visiting scientists to work in fields of mutual interest

4. **COLLABORATION WITH DEVELOPING COUNTRIES:** Yes  
Specific areas of interest: Agriculture, forestry, natural vegetation, hydrology, land cover mapping, oceanography, geosciences, image processing techniques, monitoring programmes (e.g., drought, vegetation, degradation, urban growth)  
Geographical preference: Southern Africa

**B. SOUTH AFRICAN BROADCASTING CORPORATION**

P.O. Box 8606, Johannesburg 2000, South Africa  
 Tel.: 714-3342  
Contact person(s): Mr. H.J. Duncan, Director, Liaison and Research

Principal function(s) of institution: Research, development, establishment and operation

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: satellite communications

Summary of courses and research activities: Establishing a satellite distribution system throughout the Republic of South Africa; atmospheric attenuation (rain/dust); Earth station sizes; digital systems; enhanced coding systems (B-MAC etc.)

Duration/Frequency/Language(s) of instruction: --

Facilities: A major broadcasting organization with full training and research laboratory facilities

Number of trainees: Between 2 and 6

Entry requirements: Engineering diploma

Degree/Diploma/Certificate awarded: None

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

4. **COLLABORATION WITH DEVELOPING COUNTRIES:** Yes

Specific areas of interest: --

Geographical preference: Neighbouring states (Lesotho, Swaziland, Botswana, Namibia, Zimbabwe and Zambia)

## S P A I N

INSTITUTO NACIONAL DE METEOROLOGIA

Paseo de las Moreras s/n Ciudad Universitaria, Madrid, Spain

Teléfono: 2443500                      Telex No.22427

Persona a contactar: --

Funciones principales de la institución: Desarrollo

## 1. PROGRAMAS ACADEMICOS Y CIENTIFICOS

Area(s) of specializaton: satellite meteorology

Lista de cursos y actividades de investigación: Está previsto en el Plan de Renovación Tecnológico del Instituto un gran desarrollo de la meteorología, adquiriendo estaciones receptoras, tanto primarias como secundarias, para la recepción de imágenes procedentes de satélites de finalidad meteorológica

Duración/Frecuencia/Idioma(s) de enseñanza: --

Tipo de servicios o instalaciones: --

Número de servicios o instalaciones: --

Calificaciones academicas (mínimas) requeridas: --

Certificados o diplomas extendidos por la institución: --

## 2. COSTO DE LOS PROGRAMAS

Costo de los cursos, de los libros de texto, y de los materiales de investigación afines: --

Gastos mensuales de alojamiento y manutención y gastos menudos: --

## 3. DISPONIBILIDAD DE ESTUDIO/BECAS

Disponibilidad de estudio/becas para participantes extranjeros: --

Otras posibilidades de ayuda financiera para participantes extranjeros: --

## 4. COLABORACION CON LOS PAISES EN DESARROLLO: Si

Esfera de interés: Meteorología mediante satélites

Region geográfica determinada: Ninguna

## S R I L A N K A

ARTHUR C. CLARKE INSTITUTE FOR MODERN TECHNOLOGIES

Katubedda, Moratuwa, Sri Lanka

Tel.: 94-1-650461

Fax: 94-1-650462

E-mail: [info@accmt.ac.lk](mailto:info@accmt.ac.lk)

Contact person(s): --

Principal function(s) of institution: Research and development

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: None

Research: Astronomy research in CCD photometry and Spectroscopy

Duration/Frequency/Language(s) of instruction: English

Facilities: 45 cm Cassagrain reflector equipped with a photometer, Spectrograph ST 7 and ST 9E  
CCD cameras and astronomical data reduction software (IRAF)

Number of trainees: 2 persons

Entry requirements: B.Sc. Degree

Degree/Diploma/Certificate awarded: None

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Astronomy

Geographical preference: None

## S W E D E N

A. SWEDISH NATIONAL SPACE BOARD

Box 4006, S-171 04 Solna, Sweden  
 Tel.: 46 8 627 64 80 Fax: 48 8 627 5014  
Contact person(s): --

Principal function(s) of institution: Central planning and funding agency for Swedish space activities

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications

Summary of courses and research activities: The Swedish space science programme concentrates on four areas: magnetospheric and ionospheric physics, study of the upper atmosphere, astrophysics and material sciences, carried out at different institutes and university groups. Remote sensing programme also is carried out at different institutes and university groups. It concentrates on digital image processing and analysis, physical background of spectral and spatial signatures and microwave technique. Areas for remote sensing applications are: forestry, geology, meteorology, oceanography and hydrology, satellite data cartography, geographical information systems. Space communications, satellite and earth terminal systems, satellite control

Duration/Frequency/Language(s) of instruction: --

Facilities: --

Number of trainees: --

Entry requirements: B.Sc., M.Sc. or Ph.D. depending on programme

Degree/Diploma/Certificate awarded: --

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: Contact Swedish Institute, Box 7434, S-103 91, Stockholm or Swedish Embassy

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Contact Board for further information

Geographical preference: --

B. CHALMERS UNIVERSITY OF TECHNOLOGY, DEPARTMENT OF RADIO AND SPACE SCIENCE

S-412 96 Göteborg, Sweden  
 Tel.: 46-3-1810100  
Contact person(s): Prof. J. Askne

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications

Summary of courses and research activities:

Courses: B.Sc. programme in space techniques. M.Sc. programme in remote sensing. M.Sc. programme in communications

Research: Radioastronomical and geodetic applications. Microwave remote sensing applied to meteorology and oceanography

Duration/Frequency/Language(s) of instruction: 4-6 hrs a week/Annually/Swedish, English

Facilities: Observatory with 20 and 25 m antennas equipped with receivers for 1-115 GHz. Co-operating group for receiver developments, radiometer 52-58 GHz, computer facilities

Number of trainees: 1-2

Entry requirements: B.Sc.

Degree/Diploma/Certificate awarded: --

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: No tuition, but the number of foreign students is limited

Monthly room and board and incidental expenses: US\$ 350

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: Contact Swedish Institute, Box 434, S-103 91, Stockholm

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Related to ongoing research activities as stated above

Geographical preference: --

C. ROYAL INSTITUTE OF TECHNOLOGY, ALFVEN LABORATORY, DEPARTMENT OF PLASMA PHYSICS

S-100 44 Stockholm, Sweden

Tel.: 46 8 790 7685

Contact person(s): --

Principal function(s) of institution: Research and Education

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: Space physics (Undergraduate course)

Research: Space plasma physics, especially auroral and magnetospheric physics

Duration/Frequency/Language(s) of instruction: 2 Weeks/Annually/English

Facilities: --

Number of trainees: --

Entry requirements: --

Degree/Diploma/Certificate awarded: --

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: --

Geographical preference: --

D. SWEDISH INSTITUTE OF SPACE PHYSICS

Box 812, SE-981 28 Kiruna, Sweden

Tel.: 46 980 79000

E-mail: irf@irf.se

Website: www.irf.se

Contact person(s): Professor Rickard Lundin

Principal function(s) of institution: Research and education

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic research in space and atmospheric physics

Summary of courses and research activities: Magnetospheric and ionospheric physics using satellite experiments for measurements of hot plasma and plasma waves; Radar measurements of the ionosphere and optical measurements of upper atmosphere emissions; Kinetic plasma theory; Measurements of CFCs, atmospheric electric fields and temperatures in the middle atmosphere using balloon instrumentation

Duration/Frequency/Language(s) of instruction: Ph.D. courses of varying duration and frequency.

Instruction in Swedish and English

Facilities: Technical departments for building satellite experiments; Calibration facilities, space simulator chamber, etc.; Incoherent scatter radar (EISCAT) nearby; Fabry-Perot interferometers and many other kinds of optical instruments including lidar; Sounding rocket range and facilities for launching stratospheric balloons (ESRANGE) nearby

Number of trainees: 10-12

Entry requirements: A 4-year university education in physics (or a closely related subject such as meteorology or geophysics), engineering physics or electronics

Degree/Diploma/Certificate awarded: Ph.D. degrees. More information: [www.irf.se/doktorand.html](http://www.irf.se/doktorand.html)

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

## 3 SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Contact the Institute for current information

Other financial support available for foreign participants: Contact the Institute for current information

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: --

Geographical preference: --

E. SWEDISH SPACE CORPORATION

P.O. Box 4207, S-171 04 Solna, Sweden

Tel.: 46 8 627 6200 Fax: 46 8 987 069

Contact person(s): Hakan Hedberg

Principal function(s) of institution: From feasibility studies to the practical applications of space-related technologies

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing, satellite communications

Summary of courses and research activities: Remote sensing - fundamentals of remote sensing (4 weeks summer school), remote sensing principles and techniques (1-5 weeks), satellites and sensors systems (1 week), ground receiving stations (6 weeks), photo lab practice (4 weeks), remote sensing applications (geology, forestry, water resources, etc.), digital image processing (3 days-2 weeks), image processing systems, geographical information systems, maritime surveillance systems. Space communications - communication systems design, satellite systems engineering, earth terminals systems engineering, satellite control, procurement and programme management of space and earth segments, zero-gravity processing, sounding rocket and balloon experiments, research satellites

Duration/Frequency/Language(s) of instruction: 3 days-6 weeks/Annually/English

Facilities: Receiving station for LANDSAT and SPOT. Pre-processing systems. Image analysis systems. GIS-systems, photolabs. On-site and "hands-on" training can be provided for all aspects of a satellite communications system

Number of trainees: Up to 30

Entry requirements: Depending on course. University degree, professional experience

Degree/Diploma/Certificate awarded: Certificates

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Separate quotations

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: To be decided on case by case basis

Other financial support available for foreign participants: To be decided on case by case basis

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes  
Specific areas of interest: All practical aspects of remote sensing. Feasibility studies of regional and/or national satellite communications systems  
Geographical preference: None

F. STOCKHOLM UNIVERSITY, DEPARTMENT OF PHYSICAL GEOGRAPHY

S-106 91 Stockholm, Sweden  
 Tel.: 46 8 162000 Fax: 46 8 164818  
Contact person(s): Mr. Dag Asvarn

Principal function(s) of institution: Education, training, research and development

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: B.Sc. level: Yearly five-week full-time courses in air photo interpretation, satellite remote sensing (digital interpretation), GIS. Ph.D. level: Yearly five-week course in digital satellite remote sensing. All remote sensing courses are tailor-made to fit various student needs according to specialization, e.g. geology, vegetation mapping, etc. Also, yearly international five-week full time course in remote sensing, under the auspices of the United Nations Programme on Space Applications and the Government of Sweden. The course is organized for university and technical college teachers from Africa, South-East Asia and Latin America

Research: Developing remote sensing methods for the inventory of natural resources and monitoring for environmental protection. Activities include: IR aerial photo interpretation, digital image analysis of TM, SPOT and other earth resources satellites, thermography from aircraft and satellites and studies of spectral and spatial signatures of various natural objects. Computer cartography and GIS development (R&D)

Duration/Frequency/Language(s) of instruction: Five weeks full time/Every year/Swedish (English - UN course)

Facilities: Ample equipment ranging from pocket stereoscopes to state-of-the-art GIS, image processing and analysis systems. Most equipment stationed in RS lab, but some equipment is mobile

Number of trainees: Courses in Swedish: 16; international course: 24

Entry requirements: B.Sc. level: one-term full-time course in Earth Science or equivalent. Ph.D. and international course: B.Sc./M.Sc. or equivalent

Degree/Diploma/Certificate awarded: International course: professional. All other courses: academic

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Free tuition; books, etc. at US\$ 50

Monthly room and board and incidental expenses: US\$ 1,000

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Yes

Other financial support available for foreign participants: Yes. Varies. Generally fellowships, if at all given, will cover expenses for everything but tuition, which is free. A typical fellowship amount is up to US\$ 1,000, which covers costs of living

4. **COLLABORATION WITH DEVELOPING COUNTRIES**: Yes

Specific areas of interest: Remote sensing for natural resources management and monitoring for environmental protection

Geographical preference: Eastern and Southern Africa

## SYRIAN ARAB REPUBLIC

GENERAL ORGANIZATION OF REMOTE SENSING (GORS)

P.O. Box 12586, Damascus, Syrian Arab Republic  
 Tel.: 963-11-2218765, 2218764 Fax: 963-11-3910700  
Contact person(s): Dr. Eng. Hussein Ibrahim, Director General

Principal function(s) of institution: Research, development, training and applications

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specialization: remote sensing, satellite meteorology

Summary of courses and research activities:

Courses: Short-term training courses on remote sensing techniques and their applications at national, regional and international levels

Research: Remote sensing applications to survey, meteorology, agriculture, geology, hydrology, agriculture, mineral deposits, oil and gas, urban planning, regional planning and environment

Duration/Frequency/Language(s) of instruction: 4-8 weeks/Annually/Arabic and English

Facilities: GORS is designed to offer facilities required for training, scientific research, living and recreational purposes. Equipment includes digital processing systems, photo labs, visual interpretation facilities, library, ground truth facilities

Number of trainees: Between 20 and 30

Entry requirements: Undergraduate

Degree/Diploma/Certificate awarded: Professional degree certificate

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 500 - 1,000

Monthly room and board and incidental expenses: US\$ 500 - 1,000

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Training specialists from Arab developing countries in implementing national projects

Geographical preference: Countries of the Arab League

## THAILAND

A. GEO-INFORMATICS AND SPACE TECHNOLOGY DEVELOPMENT AGENCY

196 Phahonyothin Road, Chatuchak, Bangkok 10900, Thailand

Tel.: (66) 02-940-6420-9

Fax: (66) 02-561-3035

E-mail: [info@gistda.or.th](mailto:info@gistda.or.th)

Contact person(s): Dr. Suvit Vibulsresth, Director

Principal function(s) of institution: Satellite data reception, processing, distribution and application; GIS standardization and application; Training, research and development in Remote Sensing and GIS

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: Training course on remote sensing and GIS

Research: Remote sensing and GIS applications; Earth observation satellite system; Marine surveillance system

Duration/Frequency/Language(s) of instruction: 2-3 weeks/Monthly/Thai; Training courses/workshops - from 1-2 week to 1-2 months/Occasionally/English or Thai

Facilities: Conference/training rooms with capacity to accommodate up to 100 participants; PCIEASI/PACE/MIPS image analysis system, SPANS GIS system, Procom 2 reflector; satellite ground receiving stations

Number of trainees: Between 20 and 40

Entry requirements: Bachelor Degree of Science or equivalent

Degree/Diploma/Certificate awarded: Certificate

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 50

Monthly room and board and incidental expenses: NA

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Joint research, share research facilities, host training courses, seminars, conferences and symposium, exchange programme

Geographical preference: None

B. KASETSART UNIVERSITY, FACULTY OF FORESTRY

Bangkhen, Bangkok 10900, Thailand

Tel.: 579-0170

Fax: 561-4761

Contact person(s): Dr. Niwat Ruangpanit

Principal function(s) of institution: Education, research and development

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: Application of remote sensing in forestry and land use studies

Duration/Frequency/Language(s) of instruction: 4 months/1 semester a year/Thai

Facilities: Up-to-date LANDSAT imageries and equipment for both visual interpretation and digital image processing

Number of trainees: Between 10 and 15

Entry requirements: B.Sc. (in forestry)

Degree/Diploma/Certificate awarded: M.Sc.

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 250 a semester

Monthly room and board and incidental expenses: US\$ 400

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: United Nations/ESCAP, FAO, UNDP and UNFP

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Application of remote sensing for national and regional vegetation mapping

Geographical preference: Asia and the Pacific region

C. CHULALONGKORN UNIVERSITY

Phya-Thai Rd., Bangkok 10330, Thailand

Tel.: 66-2218-6904

Fax: 66-2218-6912

E-mail: [tprasit@shula.ac.th](mailto:tprasit@shula.ac.th)

Contact person(s): Dr. Prasit Teekaput

Principal function(s) of institution: Education, research and development

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: satellite communications

Summary of courses and research activities: Development of communication satellites, orbit, multiple access, analog and digital satellite system, intermodulation, interference problem, earth station, system design considerations

Duration/Frequency/Language(s) of instruction: 12 weeks/3 hours per week/Thai

Facilities: --

Number of trainees: Approx. 40

Entry requirements: Certificate

Degree/Diploma/Certificate awarded: Academic certificate

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 500 per course  
Monthly room and board and incidental expenses: US\$ 2,000

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None  
Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: None

Specific areas of interest: None  
Geographical preference: None

## TRINIDAD and TOBAGO

A. INSTITUTE OF MARINE AFFAIRS

P.O. Box 3160, Carenage Post Office, Trinidad and Tobago

Tel.: 809-634-4291/4 Fax: 809-634-4433

Contact person(s): Alan Duncan, Chief Information Officer

Principal function(s) of institution: Marine research (fundamental and applied), education, training

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: Processing, analysis and interpretation of data supplied on computer compatible tapes (CCTs) for geographical areas of interest to Trinidad and Tobago. The RS facility is expected to become operational early in 1992. In due course training will be provided for suitably qualified participants from the English-speaking Caribbean countries

Duration/Frequency/Language(s) of instruction: --

Facilities: The basic computer hardware/software and CCTs have been ordered and are in varying stages of delivery

Number of trainees: To be determined

Entry requirements: An undergraduate degree in the natural sciences or mathematics

Degree/Diploma/Certificate awarded: --

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Remote sensing applications and training

Geographical preference: --

B. METEOROLOGICAL SERVICE

P.O. Box 2141, National Mail Centre, Piarco, Trinidad and Tobago

Tel.: 868-669-5465 Fax: 868-669-4009 E-mail: [dirmet@tstt.net.tt](mailto:dirmet@tstt.net.tt)

Contact person(s): Mr. Willis Mills

Principal function(s) of institution: Meteorological, climatological and agrometeorological activities for national development

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: satellite meteorology

Summary of courses and research activities: N/A

Duration/Frequency/Language(s) of instruction: No instructional programme-operational use only

Facilities: --

Number of trainees: --

Entry requirements: NA

Degree/Diploma/Certificate awarded: --

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: NA

Monthly room and board and incidental expenses: NA

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Meteorological services/warning and alerting services for severe weather occurrences

Geographical preference: Caribbean Basin and Tropical zone of Atlantic Ocean

## T U R K E Y

A. MARMARA RESEARCH CENTER OF TUBITAK-MAM

Remote Sensing Group – EMSRI, Gebze-Kocaeli, Turkey

Tel.: +90-262-641 23 00; Fax: +90-262-641 23 09

+90-262-641 43 00

E-mail:

[Ruhi.Saatcilar@posta.mam.gov.tr](mailto:Ruhi.Saatcilar@posta.mam.gov.tr)

Contact person(s): Dr. Ruhi Saatcilar

Principal function(s) of institution: Research, development and applications in satellite remote sensing, GIS, GPS

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: Satellite Remote Sensing and GIS: Theory and Applications; both in conjunction with nearby universities such as Gebze Institute of High Technology

Research: Image processing, geographic information system, image fusing, thematic mapping

Duration/Frequency/Language(s) of instruction: Usually one semester parallel to academic calendar of involved university. Instructed in either English or Turkish

Facilities: GIS Laboratory (UZALGIL), NOAA Image Reception Station (MUGAM), Satellite Images Archive of Turkey (TUGA)

Number of trainees: Up to 5

Entry requirements: B.Sc. in Sciences or Engineering

Degree/Diploma/Certificate awarded: Course grades if it is for a university degree

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: \$ 1000/semester

Monthly room and board and incidental expenses: Approx. \$ 500/month (to be supported by applicant)

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Satellite Remote Sensing, Geographic Information Systems

Geographical preference: Nearby country to Turkey

B. MIDDLE EAST TECHNICAL UNIVERSITY

(i) Geodetic and Geographic Information Technologies (GGIT)

Middle East Technical University, GGIT Dept., 06531 Ankara, Turkey

Tel.: 90-312-210-5448

Fax: 90-312-210-1002

E-mail: [nurusul@metu.edu.tr](mailto:nurusul@metu.edu.tr)

Contact person(s): Nurunnisa Usul

Principal function(s) of institution: Education, research, training

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing, satellite meteorology

Summary of courses and research activities:

Courses: Principles of remote sensing, Digital Image Analysis, Integration of Rs and GIS, Advanced GIS, Project Design in GIS, Map Projections

Research: GIS applications in any desired area (hydrology, geology, city planning, etc.); RS applications in any desired area (hydrology, geology, city planning, etc.); Change detection, earthquake damage assessment, land-use/cover mapping, snow monitoring, forest fire detection, image classification techs, DEM Generation, etc.

Duration/Frequency/Language(s) of instruction: Duration depends on the student; Instructed in English

Facilities: PC's, scanner, digitizing table, plotter, Image Analysis Software, (PCI, EASI/PACE, TNT Mips, Erdas Imagine), GIS Software (Arc/Info, ArcView with modules, MapInfo, Intergraph with modules)

Number of trainees: Approx. 10

Entry requirements: B.Sc. or B.A. in engineering, art and sciences, architecture

Degree/Diploma/Certificate awarded: M.Sc. degree (Ph.D. in near future)

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: METU tuition

Monthly room and board and incidental expenses: Depends on where trainee will stay

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: GIS applications in different areas and RS applications in various areas

Geographical preference: None

(ii) Department of Aeronautical Engineering

Middle East Technical University, 06531 Ankara, Turkey

Tel.: 90-312-210-2471

Fax: 90-312-210-1272

E-mail: [ae@ae.metu.edu.tr](mailto:ae@ae.metu.edu.tr)

Contact person(s): Prof. Nafiz Alemdaroglu

Principal function(s) of institution: Education, research and development

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: Int. To Atmospheric Physics, I, II; Inertial Navigation Systems

Research: Low Earth orbit satellite production; re-entry vehicle dynamics

Duration/Frequency/Language(s) of instruction: 2-5 years/English  
Facilities: Satellite Simulator, Satellite production facilities, Numerical Simulation Software  
Number of trainees: Approx. 5  
Entry requirements: B.Sc. in Aeronautical Engineering  
Degree/Diploma/Certificate awarded: M.Sc. or Ph.D.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: \$ 700/semester  
Monthly room and board and incidental expenses: \$ 600

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None  
Other financial support available for foreign participants: Yes, successful students are granted graduate research assistantship

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Basic Space Sciences, Satellite Navigation and Communications  
Geographical preference: None

C. ISTANBUL TECHNICAL UNIVERSITY

Itu Ucak Ve Uzay Bilimleri Fakultesi Ayazaga Kampusu 80626 Maslak Istanbul, Turkey  
 Tel.: (90) (212) 285 34 37 Fax: (90) (212) 285 31 39 E-mail: [ytulunay@itu.edu.tr](mailto:ytulunay@itu.edu.tr)  
Contact person(s): Prof. Dr. Yurdanur K. Tulunay, Dean

Principal function(s) of institution: Training, education, consulting, research and development

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities: Refer to our website: [www.uubf.itu.edu.tr](http://www.uubf.itu.edu.tr)

Courses: Aeronautical Engineering; Space Engineering; Meteorological Engineering

Research:

Duration/Frequency/Language(s) of instruction: Undergraduate: 4 years; Graduate: M.Sc.-3 semesters, Ph.D.-5 semesters (minimum). Language of instruction: Turkish and English (minimum 30% of courses are to be taken in English)

Facilities: The ITU central library, English preparatory school, computing center, Trisonic Research Center (TAM), Istanbul Aeronautic Club (IHK)

Number of trainees: Aeronautical: 47 (undergraduate), 30 (graduate); Space: 27 (undergraduate), 24 (graduate); Meteorological: 32 (undergraduate), 15 (graduate)

Entry requirements: Undergraduate: Nationwide university entrance exam; Graduate: minimum 2½ GPA on B.Sc. degree, interviews

Degree/Diploma/Certificate awarded: B.Sc., M.Sc., and Ph.D.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Undergraduate: 115.500.000 TL (Turkish students); 3 x 115.500.000 TL in US\$ (International students)

Monthly room and board and incidental expenses: 110-225 millions TL (Turkish students monthly room expenses); US\$ 200-500 (International students monthly room expenses)

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: Students from former USSR Turkish Republics receive financial aid from Ministry of Education

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Aerospace applications; academic issues; Meteorology; Aeronautical – Master of Business Administration (a-MBA) programme

Geographical preference: Between Europe and Asia; For Space Weather-Earth Weather, Turkey is in a strategic position and location

## U G A N D A

A. DEPARTMENT OF METEOROLOGY

P.O. Box 7025, Kampala, Uganda  
 Tel.: 256-41-258537 Fax: 256-41-256166  
Contact person(s): Mr. S.A.K. Magezi

Principal function(s) of institution: Research and training

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: satellite meteorology

Summary of courses and research activities: Basic and radar meteorology, cloud search, climate change studies

Duration/Frequency/Language(s) of instruction: 3 months/Annually/English

Facilities: Meteorological training school and satellite receiver equipment

Number of trainees: Up to 20

Entry requirements: Higher school certificate (Physics and Math)

Degree/Diploma/Certificate awarded: Professional

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Variable

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Study tours and research information exchange

Geographical preference: --

B. SURVEY TRAINING SCHOOL

P.O. Box 89, Entebbe, Uganda  
 Tel.: 20842  
Contact person(s): Commissioner, Dept. of S & M

Principal function(s) of institution: Training

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: Astronomy and photogrammetry (at diploma language), remote sensing

Duration/Frequency/Language(s) of instruction: 2 year/Annually/English

Facilities: --

Number of trainees: Between 15 and 20

Entry requirements: Credit passes in English, Math, Geography and Phys/Physical Science

Degree/Diploma/Certificate awarded: Diploma

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: US\$ 1,000/student/year

Monthly room and board and incidental expenses: US\$ 1,000

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Remote sensing

Geographical preference: RCSSMRS, Kenya

## U K R A I N E

A. UNIVERSITY, DEPARTMENT OF ASTRONOMY

Glushkov prospect 6, 252022, Kiev, Ukraine

Tel.: 44-2664507

Contact person(s): Prof. N. Ya. Kotsarenko

Principal function(s) of institution: Education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities: Active experiments in the ionosphere and magnetosphere with electron and plasma beams, Ba clouds, Optical observations and simulations. Space Physics course for students

Duration/Frequency/Language(s) of instruction: Year/Permanent/Russian

Facilities: Theoretical support of active space experiments. Optical observations of phenomena related to the experiments

Number of trainees: --

Entry requirements: Higher education

Degree/Diploma/Certificate awarded: --

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Active space experiments

Geographical preference: None

B. N. G. KHOLODNY INSTITUTE OF BOTANY OF THE ACADEMY OF SCIENCES OF UKRAINE

Tezeschenkowskay Str. 2, 01004 Kiev, Ukraine

Tel.: 38-044-2244041

Fax: 38-044-2123236

E-mail: [cell@svitonline.com](mailto:cell@svitonline.com)

Contact person(s):

Elizabeth L. Kordyum

Dmitzy A. Keimchuk

Principal function(s) of institution: Research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities: Space biology, gravitational biology, cell biology, space radiobiology

Duration/Frequency/Language(s) of instruction: --

Facilities: Modern equipment and methods for studying plant cell biology and for simulating microgravity

Number of trainees: Between 2 and 5

Entry requirements: --

Degree/Diploma/Certificate awarded: Yes

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Yes, 2 available

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Gravitational biology and space radiobiology. Investigations at the cellular, subcellular and molecular levels

Geographical preference: --

UNITED KINGDOM OF GREAT BRITAIN  
AND NORTHERN IRELAND

A. DUNDEE UNIVERSITY

Dundee DD1 4HN, Scotland, United Kingdom

Tel.: 382 23181 Fax: 382-202830

Contact person(s): Dr. R.A. Vaughan, Department of Applied Physics and Electronic and Manufacturing Engineering

Principal function(s) of institution: Training and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializatoin: basic space sciences, remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities: Physics, electronics and electrical engineering first degree courses. Postgraduate courses in remote sensing. Research in remote sensing, surface physics, and electronics. M.Sc. course in remote sensing, image processing and applications; Dip. Sc. course in digital mapping and remote sensing

Duration/Frequency/Language(s) of instruction: 4 years; 1 year M.Sc.; 9 months Dip. Sc./Annually/English

Facilities: Fully equipped teaching laboratories, computing facilities, image display system

Number of trainees: Between 5 and 80

Entry requirements: High school qualifications or degree depending on programme

Degree/Diploma/Certificate awarded: B.Sc., M.Sc., Dip. Sc., Ph.D.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: B.Sc.-2,500 British Pounds (home and EEC), 6,630 British Pounds (overseas); Dip.Sc. and M.Sc.-2,104 British Pounds (home and EEC), 6,630 British Pounds (overseas) (1991-92 figures)

Monthly room and board and incidental expenses: 500 British Pounds

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Yes

Other financial support available for foreign participants: ODA/British Council; must be applied for in foreign applicant's own country

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Atmospheric effects, bathymetry, underground coal fires, geological studies, sea surface temperatures, software development, environmental monitoring, mapping, education and training

Geographical preference: None

B. IMPERIAL COLLEGE, SPACE AND ATMOSPHERIC PHYSICS

Blackett Laboratory, Imperial College, London SW7 2BZ, United Kingdom

Tel.: +44-20-7594-7770

Fax: +44-20-7594-7772

E-mail: [s.balogh@ic.ac.uk](mailto:s.balogh@ic.ac.uk)

Contact person(s):

Professor A. Balogh       Professor J.E. Harries

Principal function(s) of institution: Education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing

Summary of courses and research activities:

Courses: Postgraduate training

Research: Solar physics, heliospheric physics, planetary physics, megatospheric physics and physics of the upper atmosphere from space

Duration/Frequency/Language(s) of instruction: 3 years/Annually/English

Facilities: Extensive in-house computing facilities, laboratories for space instrumentation and calibration

Number of trainees: 6

Entry requirements: B.Sc. (Honours.)

Degree/Diploma/Certificate awarded: M.Phil., Ph.D.

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Approx. £3,000 per annum (UK/EEC students), £10,500 per annum (overseas students)

Monthly room and board and incidental expenses: £650 (approx.)

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Yes, applications to the Registry, Imperial College, London SW7 2AZ, UK

Other financial support available for foreign participants: Yes (same as above)

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Atmospheric physics; remote sensing

Geographical preference: None

C. SILSOE COLLEGE

Silsoe Bedford MK 45 4DT, United Kingdom

Tel.: (0) 525-60428

Fax: (0) 525-61527

Contact person(s):

M.A. Keech       Dr. J.C. Taylor

Principal function(s) of institution: Training, education, research and development

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing

Summary of courses and research activities:

Courses: A review of the basic science and related remote sensing is provided in all land resource planning and applied remote sensing courses. Radiometric data is collected using an advanced hand held radiometer and related to satellite data

Research: Use of aerial photography, microwave and multispectral data applied to agriculture, forestry and urban development. 12 to 14 M.Sc. theses are produced on various aspects of the subjects each year

Duration/Frequency/Language(s) of instruction: Short courses 1 to 12 weeks; Diploma-9 months; Ph.D.-3 years. English with possibility of instructions in Portuguese

Facilities: Mirror stereoscope Interpretoscope, CP1 plotter, radial line plotter, 2 GEMS image analyzers and vast resources of photographic and satellite hard copy, maps - through the Regional Centre of the National Remote Sensing Centre - CCT's of Landsat data. Many desktop image analyzers. 3 Tydac-SPAN GIS system

Number of trainees: 60

Entry requirements: For Diploma - a 2ii Hon., a lower qualification is acceptable for strongly motivated students; for M.Sc.-a 1<sup>st</sup> or 2<sup>nd</sup> class Honours

Degree/Diploma/Certificate awarded: Yes

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Diploma-about 8,000 British Pounds per year, M.Sc.-about 11,000 000 British Pounds per year (excluding accommodation for non-EEC students)

Monthly room and board and incidental expenses: 240 British Pounds per month; British Council award

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Usually British Council funds overseas students

Other financial support available for foreign participants: FAO, BC, ADB awards, Ford Foundation, etc.

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Range recording, vegetation discrimination, crop survey, archaeological investigation

Geographical preference: Niger, Brazil, Kenya, Nigeria, Saudi Arabia, Zimbabwe, Ethiopia, India, Pakistan, Sudan

## D. UNIVERSITY OF LEICESTER, DEPARTMENT OF PHYSICS AND ASTRONOMY

Dept. of Physics and Astronomy, University, Leicester, LE 1 7 RH, United Kingdom

Tel.: (0) 533-523509 Fax: (0) 533 550182

Contact person(s): Prof. K.A. Pounds, FRS

Principal function(s) of institution: Education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities: Research in X-ray astronomy, earth observation, solar system

Duration/Frequency/Language(s) of instruction: 3 terms/1 or 2 years/English

Facilities: Wide range of experimental equipment, test facilities, computing and expertise, built up over 25 years as an active Space Science Group

Number of trainees: Between 8 and 10 per year

Entry requirements: Degree (1<sup>st</sup> and 2<sup>nd</sup> class Hon.) in Physics, Maths or Engineering

Degree/Diploma/Certificate awarded: Ph.D., M.Phil.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: 8,000 British pounds per year

Monthly room and board and incidental expenses: 300 British Pounds

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Research in X-ray astronomy, earth observation, solar system

Geographical preference: None

E. UNIVERSITY OF SURREY, CENTRE FOR SATELLITE ENGINEERING RESEARCH

Guildford GU 25XH, United Kingdom

Tel.: 483-509131 Fax: 483-34139

Contact person(s): Prof. B.G. Evans

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, satellite communications

Summary of courses and research activities: M.Sc. programmes in satellite engineering, telematics, and satellite communications engineering. Research in satellite communications and spacecraft engineering, including on-board processing; satellite communications studies and networks; satellite engineering/communications; antennas and propagation; coding and satellite engineering/communication; modulation; command and checkout; reduced bit rate speech; access schemes. Also one week courses on satellite communications, spacecraft engineering, introduction to advanced networks

Duration/Frequency/Language(s) of instruction: 1 year/Annually/English (M.Sc.)

Facilities: Satellite integration and testing facility; checkout and command system. Labs in DSP, speech processing, simulation, RF and digital processing

Number of trainees: Up to 40 (M.Sc. course), up to 10 (research). Special training schemes can be organized outside the M.Sc. course and possibly in collaboration with industry

Entry requirements: M.Sc., 2i B.Sc. or equivalent

Degree/Diploma/Certificate awarded: M.Sc., Ph.D. and Diploma

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Fees (overseas) 6,500 British Pounds per year; maintenance 4,000 British Pounds per year. One week course -750 British Pounds  
Monthly room and board and incidental expenses: 400 British Pounds

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: British Council; ITU fellowships; Commonwealth scholarships; University scholarships for research  
Other financial support available for foreign participants: Various

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Low cost satellites; applications of LEO satellites; domestic and regional systems; spacecraft engineering; on-board processing, speech processing  
Geographical preference: None

F. ABERDEEN UNIVERSITY

Bedford Road, Aberdeen, AB9 2VE, United Kingdom  
 Tel.: 44-224-272778 Fax: 44-224-491179  
Contact person(s): C.T. Spracklen

Principal function(s) of institution: Education, research and development

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, satellite communications

Summary of courses and research activities: --

Duration/Frequency/Language(s) of instruction: 1 semester/Yearly/English

Facilities: Workstations; satcom, simulation and experimental facilities

Number of trainees: Up to 30

Entry requirements: Appropriate first degree

Degree/Diploma/Certificate awarded: M.Sc., Ph.D.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: 6,000 British Pounds per year

Monthly room and board and incidental expenses: 300 British Pounds per month

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Yes, 10 available

Other financial support available for foreign participants: Yes. Full cost of tuition and living expenses

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Satellite communications

Geographical preference: None

G. UNIVERSITY OF BRISTOL

University Of Bristol, Bristol BS 8 1SS, United Kingdom

Contact person(s):

- ❑ Mark Hempzell, Department Of Aerospace Engineering, Tel.: 44-272-303264, Fax: 44-272-251154;
- ❑ Dr. E.C. Barrett, Director, Remote Sensing Unit, Tel.: 44-272-303745, Fax: 44-272-732657;
- ❑ Professor J.P. McGeeham, Centre for Communications Research, Tel.: 44-272-303259, Fax: 44-272-255265

Principal function(s) of institution: Education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities: Space Technology Module on B. Eng. Course. Research in small satellite production, space station architecture, space infrastructures; rocket engine nozzles, materials for advanced launchers, space station habitability, hypersonic aerodynamics (including CFD); hybrid rocket engines. Electric propulsion, spacecraft attitude sensors, spacecraft structures. M.Sc. and Ph.D. degree programmes (both by research) in remote sensing and satellite meteorology and climatology. Final year undergraduate degree course option in satellite communications. R&D activities in satellite communications technique and satellite navigation systems

Duration/Frequency/Language(s) of instruction: 1- 3years/Annually/English

Facilities: Numerous lecture theatres and well-founded research laboratories and support staff. Super computing network. Network of SUNs equipped with ERDAS, LUCID, GRAS, ARC-INFO and other RS and GIS software packages; TDS HR-48/OPUS PC digitizing system and supporting; peripheral and additional equipment: Joyce Loeb scanning microdensitometer; analytical 16-MM projector, etc.; access to University Optronics Protoscan and Magiscan systems. Meteosat PDUS, DMSP-SSM/1PB2 systems

Number of trainees: Up to 85 (depending on programme)

Entry requirements: Matriculation (undergraduate); good honours Bachelor's degree (postgraduate)

Degree/Diploma/Certificate awarded: B.Eng., M.Sc., Ph.D.

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Varies

Monthly room and board and incidental expenses: Varies

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Some fellowships may be available (should be negotiated with University of Bristol). There also are opportunities for normal ORS scholarships for non-EEC students

Other financial support available for foreign participants: Details available from British Council; World University Service, etc.

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Space technology. Satellite communications. Development of integrated algorithms for operational use to solve atmosphere-related problems at the Earth's surface with applications in meteorology, climatology, hydrology, oceanography, land use, agriculture and geology

Geographical preference: None

#### H. UNIVERSITY OF KENT, PHYSICS LABORATORY

Physics Laboratory, University of Kent, Canterbury, Kent, CT27NR, England  
 Tel.: (0)227-764000 Fax: (0)227-762616  
Contact person(s): Dr. J.C. Zarnecki

Principal function(s) of institution: Education and research

##### 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializatoin: basic space sciences, satellite communications

Summary of courses and research activities:

Courses: Undergraduate degree course "Physics with Space Science and Systems" leading to the B.Sc. degree. Some coverage of satellite communications is included within the undergraduate teaching of the Electronic Engineering Laboratories

Research: Cosmic dust and space debris; planetary bodies; participation in Giotto, LDEF, Cassini, Ulysses, Galileo, CRAF, MARS '94, EURECA, etc. missions

Duration/Frequency/Language(s) of instruction: 3 year degree course/Every year/English

Facilities: Hypervelocity Dust Impact Facility; normal laboratory support (electronic and mechanical engineering); extensive computing, networking and library facilities

Number of trainees: Up to 30

Entry requirements: For undergraduate entry, the equivalent of UK A level passes (2 minimum); for Postgraduate study a good first degree at a recognized University

Degree/Diploma/Certificate awarded: B.Sc., M.Sc., M. Phil, Ph.D.

##### 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Undergraduate: UK and EEC-2,783 p.a., Overseas-6,253 p.a.; Postgraduate: UK and EEC-1,985 p.a., Overseas-6,730 p.a.

Monthly room and board and incidental expenses: 816 - 1,040 British pounds per academic year

##### 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Yes. One fellowship

Other financial support available for foreign participants: Yes. The above refers to a specific University of Kent fellowship/scholarship. There are many other scholarships available nationally, through a large number of organizations (e.g. Royal Society, British Council, etc.)

##### 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: --

Geographical preference: None

#### I. UNIVERSITY OF MANCHESTER, NUFFIELD RADIO ASTRONOMY LABORATORIES

Jodrell Bank, Macclesfield, Cheshire, SK11 9DL, United Kingdom  
 Tel.: (44) 1477-571321 Fax: (44) 1477-571618  
Contact person(s): Dr. N. Jackson

Principal function(s) of institution: Research and education

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities:

Courses: M.Sc. course in Astronomy/Radio Astronomy (1 year) (also registration for 1 year MPhil and 3 year Ph.D. course in Astronomy/Radio Astronomy)

Research: Radio astronomical studies of stars, pulsars, the galaxy, AGN, Radio galaxies, Quasars, gravitational lenses, Cosmology and the cosmic microwave background including Planet development work. High angular resolution studies using MERLIN and VLBI (including planning for space VLBI), the development of low noise RF receivers. Interstellar and circumstellar medium. Development of echelle spectrographs and other optical instruments. Theory of stellar ejecta, gravitational lenses and galaxy dynamics

Duration/Frequency/Language(s) of instruction: 12 months/Annually/English

Facilities: 76m Lovell telescope; Merlin Array; European VLBI Network (EVN); Data processing and image analysis facilities

Number of trainees: Between 4 and 10

Entry requirements: Equivalent of UK second class honours Bachelor of Science Degree in Physics or related discipline

Degree/Diploma/Certificate awarded: M.Sc.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: EC students-2,900 British Pounds; Others-9,700 British Pounds

Monthly room and board and incidental expenses: Approx. 5,500 British Pounds/year

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: A small number of Research Studentships are available from the University of Manchester. They cover fees plus a living allowance. Competition is high. Deadlines are normally in April each year

Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Radio Astronomical research

Geographical preference: None

J. INSTITUTE OF ENGINEERING, SURVEYING AND SPACE GEODESY, UNIVERSITY OF NOTTINGHAM

University Park, Nottingham, NG7 2RD, United Kingdom

Tel.: 0115 9513880 Fax: 0115 9513881 E-mail: iessg-admissions@nottingham.ac.uk

Contact person(s): Dr. M.J. Smith, Admission Co-ordinator

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite meteorology

Summary of courses and research activities:

Courses: M.Sc./PG Diploma (Full-time 1 year, part-time 2 years) in Satellite Positioning Technology; Navigation Technology; Geodetic Surveying; Environmental Management and Earth Observation (FT only). One week specialized short courses on satellite navigation, surveying and geodesy

Research: Satellite navigation and positioning systems; GPS; GNSS, laser ranging to satellites; satellite orbit determination; remote sensing; image processing; environmental impact assessment; artificial intelligence; land use planning; coastal and marine applications

Duration/Frequency/Language(s) of instruction: --/Yearly/English

Facilities: GPS receivers (geodetic); computer facilities and software (in-house and commercial); engineering and land surveying equipment; and photogrammetric equipment

Number of trainees: Between 4 and 10

Entry requirements: M.Sc./PG Diploma – at least a 2<sup>nd</sup> class honours degree (B.Sc.) or equivalent, industrial experience considered; Research – good first degree

Degree/Diploma/Certificate awarded: M.Sc., M.Phil., P.G. Diploma, Ph.D.

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: For 2001-2002 session: M.Sc., PG Diploma and research programmes: 2805GBP for Home and EC students, 9660GBP for overseas students; short courses about 140GBP per day

Monthly room and board and incidental expenses: --

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: Yes, varies

Other financial support available for foreign participants: Yes, some funding might be available for EU students

4. **COLLABORATION WITH DEVELOPING COUNTRIES:** Yes

Specific areas of interest: Satellite positioning technology; space geodesy; engineering surveying; geomatics; remote sensing; GIS

Geographical preference: --

K. **SOUTHAMPTON UNIVERSITY**

Highfield, Southampton, United Kingdom

Tel.: (0)-703-593516

Contact person(s): Dr. A. R. L. Tatnall

Principal function(s) of institution: Education and research

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: basic space sciences

Summary of courses and research activities: Space system and technology - 2 or 1 week course for representatives of industry. It gives a broad view of the spacecraft as a system made up of a number of subsystems working in harmony. Lectures on all aspect of spacecraft are given by University staff and outside speakers. A project is a major element of the 2 weeks course

Duration/Frequency/Language(s) of instruction: 2 weeks/2 courses every year/English

Facilities: --

Number of trainees: Between 15 and 45

Entry requirements: Graduates

Degree/Diploma/Certificate awarded: Certificate

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Varies on response/course type

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: --

Geographical preference: --

L. BRITISH GEOLOGICAL SURVEY

Nicker Hill, Keyworth, Nottingham NG 12 5 GG, United Kingdom

Tel.: (0)-6077-6111 Fax: (0)-6077-2193/6602

Contact person(s): Dr. D. Greenbaum

Principal function(s) of institution: Geological surveying and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: --

Duration/Frequency/Language(s) of instruction: 3 to 6 weeks/2 per year (according to demand).

Longer, individual training/research by arrangement/English

Facilities: I2S and ERDAS interactive image processing systems; photogeological instruments

Number of trainees: Between 6 and 12

Entry requirements: Degree in geology

Degree/Diploma/Certificate awarded: Professional

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Dependent on numbers. Course texts provided

Monthly room and board and incidental expenses: Does not usually arise as courses are given in the developing country

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None  
Other financial support available for foreign participants: Funding may be available via ODA and British Council

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes  
Specific areas of interest: All aspects of geological remote sensing (including photogeology)  
Geographical preference: All regions

M. INSTITUTE OF OCEANOGRAPHIC SCIENCES

Wormley, Godalming, Surrey GU8 5UB, United Kingdom  
 Tel.: (0)-42-879-4141  
Contact person(s): Dr. T.D. Allan

Principal function(s) of institution: Research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: No formal teaching. Research scientists or post-graduates can be accommodated at the Institute for short stays

Duration/Frequency/Language(s) of instruction: --

Facilities: Image processors, computer programmes, plotters, etc.

Number of trainees: Between 1 and 2

Entry requirements: Prefer Ph.D. in physics, geology and oceanography

Degree/Diploma/Certificate awarded: None

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: None

Monthly room and board and incidental expenses: 100 British Pounds per week

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Remote sensing, especially over the North Atlantic and/or Mediterranean Sea

Geographical preference: North Atlantic, Mediterranean Sea

N. NATIONAL REMOTE SENSING CENTRE LTD

North Gate Road, Farnborough, Hampshire, GU14 6TW, United Kingdom  
 Tel.: (0)-252-541464  
Contact person(s): Mr. Neil Pattie

Principal function(s) of institution: Supply of products and services based on information derived from data acquired by earth observation satellites and sensors

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: Research and development in all aspects of remote sensing of the Earth, including image processing, image classification techniques and applications of all types of satellite remote sensing data. Research into applications of GIS and integration of remotely sensed data into GIS

Duration/Frequency/Language(s) of instruction: --

Facilities: Data archives, image processing equipment, computer systems

Number of trainees: --

Entry requirements: --

Degree/Diploma/Certificate awarded: None

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Possible

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: None

Specific areas of interest: --

Geographical preference: --

O. NATURAL ENVIRONMENT RESEARCH COUNCIL, INSTITUTE OF TERRESTRIAL ECOLOGY

Environmental Information Centre, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, Cambs PE17 2LS, United Kingdom

Tel.: (0)-48-73-381

Contact person(s): Dr. B.K. Wyatt

Principal function(s) of institution: Research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: Use of remote sensing for land-cover mapping and monitoring; vegetation community mapping and habitat studies; biomass estimation; grassland ecosystem studies; rangeland management

Duration/Frequency/Language(s) of instruction: --

Facilities: Image analysis equipment (I2S Model 75); local area network based on micro VAX processors, with network connection to various mainframes; photographic processing facilities; access to United Kingdom Image Archives; photointerpretation facilities; ecological research laboratories; arrangements for joint training with Silsoe College and with Department of Geography at Cambridge University

Number of trainees: Between 1 and 3

Entry requirements: First degree in an environmental science

Degree/Diploma/Certificate awarded: M.Sc. or Ph.D.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Between 1,600 British Pounds and 4,000 British Pounds per year

Monthly room and board and incidental expenses: Between 3,000 British Pounds and 3,500 British Pounds per year

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Variable (British Council)

Other financial support available for foreign participants: Various aid agencies

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: See above

Geographical preference: Africa

P. UNIVERSITY COLLEGE LONDON, DEPARTMENT OF GEOMATIC ENGINEERING

Gower Street, London WC1E 6BT, United Kingdom

Tel.: +44 020 7679 2740 or Fax: +44 020 7380 0453

+44 020 7679 7315

E-mail: [secretary@ge.ucl.ac.uk](mailto:secretary@ge.ucl.ac.uk) Website: [www.ge.ucl.ac.uk](http://www.ge.ucl.ac.uk)

Contact person(s): Prof. I.J. Dowman

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: M.Sc. in Remote Sensing; M.Sc. in Photogrammetry with Remote Sensing, M.Sc. in Geographic Information Science, M.Sc. in Surveying, M.Sc. in Hydrographic Surveying

Research: All aspects of application of EO data: mapping, feature extraction, modelling, image processing, GPS

Duration/Frequency/Language(s) of instruction: 1 year/Annually/English

Facilities: Image processing and GIS software packages, PC and UNIX hardware

Number of trainees: Remote sensing - between 10 and 20; Photogrammetry with Remote Sensing - between 4 and 12; GIS – between 20 and 30; Surveying – between 10 and 15; Hydrographic Surveying – between 5 and 10

Entry requirements: A first degree with a minimum 2ii class

Degree/Diploma/Certificate awarded: M.Sc. and diploma (Academic)

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: £2,805 sterling (home and EU students), £12,860 sterling (overseas students)

Monthly room and board and incidental expenses: Between £500 and £600 sterling

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: UCL Graduate School Awards

Other financial support available for foreign participants: Open Research Scholarship

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Mapping, GIS, GPS

Geographical preference: Middle East, Malaysia, Africa

Q. UNIVERSITY OF ASTON, REMOTE SENSING UNIT

Dept. of Civil Engineering, Aston University, Birmingham B4 7ET, United Kingdom

Tel.: (0)-21-359-3611 Fax: (0)-21-333-3389

Contact person(s): Dr. W. Gordon Collins

Principal function(s) of institution: Research, education, training, consultancy

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: (i) specialized training in remote sensing, 1 month to 1 year; (ii) post graduate research for higher degrees

Research: Remote sensing applications to land and water resources, natural resources

Duration/Frequency/Language(s) of instruction: Training: 1-12 months/On demand/English; Research: 2-4 years/Every year/English

Facilities: Adequate equipment for using aerial photographs and digital satellite images, for Earth and environmental sciences and GIS

Number of trainees: Between 1 and 10

Entry requirements: Training - none; Research - first degree in relevant subject

Degree/Diploma/Certificate awarded: M.Phil. or Ph.D. degree

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Training - 1,200 British Pounds per month; Research - 650 British Pounds per month

Monthly room and board and incidental expenses: 300 British Pounds

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Land and water resources, forestry, agriculture

Geographical preference: Tropical countries

R. UNIVERSITY OF LONDON, SCHOOL OF ORIENTAL AND AFRICAN STUDIES

Thornhaugh St., London WC1H OXG, United Kingdom

Tel.: 01-6372388 Fax: 071-4363844

Contact person(s): Dr. J.A. Allan

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: Undergraduate course in remote sensing; M.Sc. programmes in remote sensing and GIS

Research: Remote sensing applied to land and water inventory and monitoring especially in the Middle East and North Africa; data capture, data processing, terrain modelling, RS data applications

Duration/Frequency/Language(s) of instruction: 9 months/Annually/English; M.Sc. programmes: 12 months/Annually/English

Facilities: Equipment for photo-interpretation, stereoscopes; access to I2S digital image processing equipment; SUN workstations; IBM and Apple PCs

Number of trainees: Between 10 and 25

Entry requirements: Must be a member of a second or third course in London University; M.Sc. programme - good first degree in science or environmental sciences

Degree/Diploma/Certificate awarded: The course is a unit (Approx. 1/10) of a London degree; M.Sc.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Part of fees, approx. 300 British Pounds; M.Sc. programmes - 6,500 British Pounds (1991)

Monthly room and board and incidental expenses: M.Sc. - 500 British Pounds

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Through British Council

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Renewable resource monitoring in Asia and Africa

Geographical preference: Middle East and North Africa

S. UNIVERSITY OF BRADFORD

University of Bradford, BD7 IDP, United Kingdom

Contact person(s):

Prof. J. Stephenson, Department Of Computing, Tel.: 44-274-383951, Fax: 44-274-383920;

Dr. P.S. Excell, Prof. S.K. Barton, Department Of Electrical Engineering, Tel.: 44-274-733466

Principal function(s) of institution: Education, research, development

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities:

Courses: PC-based low cost reception systems for METEOSAT/GOES/NOAA-AVARR, etc. Real time capture and image processing. Rainfall estimation from METEOSAT, MDD/DCP. Remote sensing is also included in Senior year undergraduate courses on Imaging Radar. Satellite communications is a part of an M.Sc. course in RF Communication Systems

Research: Image processing tools; reliable fault tolerant capture software; automatic alarm software from series of images (storms, fires) from Meteosat/NOAA; database systems (temporal) for images. Detection and quantification of sand and dust storms using LANDSAT/ERS-1, etc. Research in basic scattering properties (microwave to optical) of atmospheric particulates. Research in design of receivers and image segmentation algorithms for NOAA/AVHRR and METEOSAT/GOES. Research in slant-path propagation for Fixed and Land mobile Satellite Services; in modulation, coding and access techniques for satellite communications

Duration/Frequency/Language(s) of instruction: 1-2 weeks/Yearly/English

Facilities: Real time capture of Meteosat/NOAA digital data. Also of DCP/MDD data from Meteosat. Extensive PC based image processing systems. Many SUN-UNIX systems. Archive of LANDSAT images. Optical propagation software. Airborne transmitter, vehicle equipped as receiver. Microwave laboratories. Anechoic chambers. Simulation software. Oxenhope Moor Experimental Station. Satellite receivers

Number of trainees: Variable

Entry requirements: B.Sc.

Degree/Diploma/Certificate awarded: M.Sc., M.Phil., Ph.D.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Approx. 6,500 British Pounds per annum for non-EC students

Monthly room and board and incidental expenses: Approx. 1,000 British Pounds

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Yes

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: --

Geographical preference: None

T. UNIVERSITY OF EDINBURGH, DEPARTMENT OF METEOROLOGY

King's Buildings, Edinburgh, EH9 3JZ, United Kingdom

Tel.: 44-131-650 5001

Fax: 44-131-650 4780

E-mail: [metdept@ed.ac.uk](mailto:metdept@ed.ac.uk)

Contact person(s): Prof. R.S. Harwood

Principal function(s) of institution: Education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing, satellite meteorology

Summary of courses and research activities:

Courses: M.Sc. in Remote Sensing and Image Processing Technology

Research: Research into atmospheric dynamics and composition using satellites; observation of ocean surface temperature and other properties; assimilation of satellite data into dynamical models

Duration/Frequency/Language(s) of instruction: 12 months/Annually/English

Facilities: Extensive computer hardware and data links, image processing systems

Number of trainees: 15

Entry requirements: Honours degree in Physical Science or Mathematics

Degree/Diploma/Certificate awarded: M.Sc. or diploma for taught programme; Ph.D. or M.Phil. for research

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: £10,000

Monthly room and board and incidental expenses: £300

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: Yes. ORS (difference between overseas and home fees)

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Research and education

Geographical preference: None

U. UNIVERSITY OF GLASGOW, DEPARTMENT OF GEOGRAPHY & TOPOGRAPHIC SCIENCE

Glasgow G12 8QQ, United Kingdom

Tel.: 44-41-339-8855

Contact person(s):

David A. Tout (Undergraduate Programme);

John W. Shearer (Postgraduate Programme)

Principal function(s) of institution: Education

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: Part of undergraduate Degree in Topographic Science; Postgraduate diploma in Photogrammetry and Remote Sensing

Research: Use of Remote Sensing in Topographic mapping, especially in developing countries

Duration/Frequency/Language(s) of instruction: UG-4 year degree/Annually/English; PG-1 year Diploma/Annually/English

Facilities: Photogrammetric plotting instruments, Image Processing, extensive computing equipment

Number of trainees: --

Entry requirements: University Entrance or Previous Degree

Degree/Diploma/Certificate awarded: --

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Variable

Monthly room and board and incidental expenses: Variable

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Yes

Other financial support available for foreign participants: Yes. Variable

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Remote Sensing

Geographical preference: --

V. KEELE UNIVERSITY

Keele, Staffordshire, United Kingdom

Tel.: (0)-782-621111

Contact person(s): Dr. A.J. Parsons

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: Remote sensing is taught within Geography course in 2<sup>nd</sup> and 3<sup>rd</sup> years for Post Graduate Students. Research in applications of remote sensing to urban land-use studies, archaeological studies, agricultural studies

Duration/Frequency/Language(s) of instruction: 12-18 weeks/Yearly/English

Facilities: Image Processing Software

Number of trainees: Up to 10

Entry requirements: Matriculation

Degree/Diploma/Certificate awarded: Bachelor's, Master's & Doctoral Degrees

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: 300 British Pounds

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes  
Specific areas of interest: Urban land-use and archaeological studies, agricultural studies  
Geographical preference: None

W. UNIVERSITY OF READING, DEPARTMENT OF METEOROLOGY

P.O. Box 243, Earley Gate, Reading, RG6 6BB, United Kingdom  
 Tel.: 0118 931 8954 Fax: 0118 931 8905 E-mail: [d.i.f.grimes@reading.ac.uk](mailto:d.i.f.grimes@reading.ac.uk)  
Contact person(s): Dr. David Grimes

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializatoin: remote sensing, satellite meteorology

Summary of courses and research activities:

Courses: Undergraduate – remote sensing and meteorological applications; Postgraduate – short courses on rainfall monitoring

Research: Research in tropical rainfall and climate change

Duration/Frequency/Language(s) of instruction: 20 hours over 10 weeks/Annually/English

Facilities: Usual lecture room facilities, OHP, computer display, etc.

Number of trainees: 20

Entry requirements: Undergraduate – enrolment in degree programme; Postgraduate – 1<sup>st</sup> degree in appropriate/relevant area

Degree/Diploma/Certificate awarded: Both courses form part of degree programmes. The postgraduate course can be taken individually with the award of a diploma

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: £2,000 sterling

Monthly room and board and incidental expenses: £600 sterling

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Satellite-based rainfall monitoring and applications to agriculture and hydrology

Geographical preference: Mainly Africa

X. UNIVERSITY OF SHEFFIELD, DEPARTMENT OF GEOGRAPHY

University of Sheffield, 510 2TN U.K.  
 Tel.: (0)-742-768555 Fax: (0)-742-722199  
Contact person(s): Dr. C.D. Clark

Principal function(s) of institution: Education and Research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities: Two taught courses, aimed at 2nd and 3rd year undergraduates, but also available as a diploma course. Research activity in a large-scale geography, particularly glacial, and in marine applications. Any research activity considered

Duration/Frequency/Language(s) of instruction: 6 months/Every year/English

Facilities: Remote Sensing/GIS laboratory including Sun workstations running ERDAS and ARC/INFO. Two teaching/ research staff

Number of trainees: Up to 20

Entry requirements: Degree in Science, Earth Science or similar

Degree/Diploma/Certificate awarded: Diploma, M.Phil., Ph.D.

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Costs available upon application

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: --

Geographical preference: --

Y. UNIVERSITY OF ESSEX, DEPARTMENT OF MATHEMATICS

Wivenhoe Park, Colchester C043SQ, United Kingdom

Tel.: 44-206-873040 Fax: 44-206-873598

Contact person(s): Professor A.R. Holt

Principal function(s) of institution: Education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: satellite communications, satellite meteorology

Summary of courses and research activities: Modelling of attenuation and depolarisation on earth-satellite links; modelling of rain scatter interference between terrestrial and satellite microwave links. Analysis of propagation data from satellite experiments. Modelling of scattering from precipitation and ice particles across the microwave/millimetre wave frequency range

Duration/Frequency/Language(s) of instruction: --

Facilities: excellent library facilities; access to colour graphics workstations. Software for calculation, scattering from hydrometers and various propagation parameters

Number of trainees: 1

Entry requirements: Good first degree qualification in applied maths, or in electrical engineering or physics with good mathematical content

Degree/Diploma/Certificate awarded: M.Sc. by dissertation or Ph.D.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: 6,630 British Pounds (2,104 (for EC students) (1991/92)

Monthly room and board and incidental expenses: Approx. 370 British Pounds for first year; 450 British Pounds subsequently (1<sup>st</sup> year normally given university accommodation)

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: This University has no fellowships or scholarships available to persons from outside (occasionally scholarship is available to graduates of this university). There are awards available through the ORS scheme which reduces the fee from 6,630 British Pounds to 2,104 British Pounds. Such awards are available through national competition

Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: --

Geographical preference: --

## UNITED STATES OF AMERICA

A. NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

Washington, DC 20546, USA

Tel.: 202-453-1000 Website: [www.nasa.gov/](http://www.nasa.gov/)

Contact person(s): Director, Associateship and Fellowship Programs, National Research Council (NRC), 2101 Constitution Avenue, Washington, DC 20418

Principal function(s) of institution: Scientific and technical research in the fields of aeronautics and space exploration

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications, satellite meteorology

Summary of courses and research activities: Resident Research Associateships (RRA) as guest investigators in laboratories at seven NASA Research Centers and the Jet Propulsion Laboratory. Advanced basic research is in all areas of space science and technology, with particular topics identified in yearly brochures published by and available from the NRC

Duration/Frequency/Language(s) of instruction: 1 year/Continuous/English

Facilities: Full range of laboratory, field and space equipment

Number of trainees: Approximately 200 U.S. and foreign trainees per year for all areas of aeronautical and space research

Entry requirements: Ph.D. or equivalent

Degree/Diploma/Certificate awarded: None

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: None

Monthly room and board and incidental expenses: Stipend for self support paid to cover all living expenses

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Available through NRC. Number varies, but approximately 80 per year in last few years

Other financial support available for foreign participants: None

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: All areas of space science

Geographical preference: None

B. COLUMBIA UNIVERSITY, GODDARD INSTITUTE FOR SPACE STUDIES

Institute for Space Studies, 2880 Broadway, N.Y., N.Y. 10025, United States of America

Tel.: (212) 678-5500

Contact person(s): --

Principal function(s) of institution: Education and academic research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, satellite meteorology

Summary of courses and research activities:

Courses: Graduate programme in atmospheric and planetary science leading to the Ph.D. degree

Research: Broad studies of global climate and climate changes, biogeo-chemical cycles, planetary atmospheres, Earth observations including Global Processing Center for the International Satellite Cloud Climatology Project, instruments on planetary and Earth-orbiting spacecraft

Duration/Frequency/Language(s) of instruction: 4-6 years/--/English

Facilities: Computer facilities (Amdahl 470/V6, IBM 4341 computers, IBM RISC 6000 workstations, IBM 7350 image display system); library of visible/infra-red imagery from geostationary and polar-orbiting satellites, library of Pioneer Venus, Voyager Jupiter tapes, data from other planetary and Earth-orbiting spacecraft

Number of trainees: Up to 2

Entry requirements: Background in physics and mathematics (advanced)

Degree/Diploma/Certificate awarded: M.Sc.; Ph.D.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: None

Other financial support available for foreign participants: Graduate research assistantships

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: --

Geographical preference: None

C. UNIVERSITY OF WASHINGTON

Seattle, WA 98195, United States

Contact person(s):

Prof. A. Hertzberg, Aeronautics and Astronautics Research Laboratory FL-10, Tel.: (206) 543-1950;

Dr. Thomas A. Seliga, Professor and Chair, Department Of Electrical Engineering, Tel.: (206) 543-2150, Fax: (206) 543-3842

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications

Summary of courses and research activities:

Courses: Undergraduate courses (towards BSSA): orbit mechanics, gas physics, space system design, control theory, propulsion. Graduate courses (towards Master of Science, Master of Engineering, Ph.D.) radiation gas dynamics, space manufacturing, energy conversion, space propulsion, composite materials, gas lasers. Courses on Electronic and Computers; Control Systems & Circuits; Electric Energy; Electromagnetics, Optics & Acoustics; Materials and Devices; Signal Processing & Communications

Research: Sponsored research: energy conversion systems in space (NASA), solar pumped lasers (NASA), ultra high speed projectiles (USAF), free electron lasers (ONR). Wave propagation and scattering; remote sensing; acoustics; photonics and fiber optics; signal, speech and image processing; computer vision; communications and information theory; automatic control systems; robotics; electronic materials, devices and sensors; microelectronics processing and fabrication; electronic systems; VLSI design; simulation and testing; computer networks; multiprocessor systems; computer engineering; power and energy system dynamics and control; power electronics; electric drives; artificial neural networks; expert systems

Duration/Frequency/Language(s) of instruction: 1-5 years/Annually/English

Facilities: Well-equipped laboratories including state-of-the-art computer facilities, anechoic chamber, radar systems, test instrumentation, robotic systems, microelectronics facilities, electro-optic facilities, microsensor laboratory, etc.

Number of trainees: Between 6 and 12

Entry requirements: Engineering/Science degree

Degree/Diploma/Certificate awarded: B.Sc. in Aeronautics and Astronautics; M.Sc. in Aeronautics and Astronautics; Master of Engineering; Ph.D.

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: University of Washington tuition varies with residency status and level of study

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Very few besides teaching and research assistantships

Other financial support available for foreign participants: Teaching assistantships, research assistantships

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Same areas as listed above

Geographical preference: None

## D. UNIVERSITY OF ALASKA, GEOPHYSICAL INSTITUTE AND PHYSICS DEPARTMENT

University of Alaska, Fairbanks, Alaska 99775-0800, United States

Tel.: (907) 474-7282

Contact person(s): Roger Smith, Director, Geophysical Institute

Principal function(s) of institution: Research and education

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializatoin: basic space sciences, remote sensing

Summary of courses and research activities: Magnetospheric physics; atmospheric dynamics; space physics; methods of numerical simulation; plasma physics; auroral physics; aeronomy. Courses and research pertaining to remote sensing in geology, geologic mapping, radiometric analysis, natural resources, glaciology, sea ice, etc.

Duration/Frequency/Language(s) of instruction: One semester/Annually/English

Facilities: Condensed Matter Physics Lab, Arctic Region Supercomputing Center, Poker Flat Research Rocket Range, Poker Flat Optical Observatory, Synthetic Aperture Radar (SAR) Ground Facility

Number of trainees: Up to 5

Entry requirements: B.Sc. in Physics, Space Physics, Atmospheric Sciences, Geology or Geophysics, depending on programme

Degree/Diploma/Certificate awarded: M.Sc. and Ph.D. degrees

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material:

In-state residents: Full-time - US\$ 1,602 per semester  
Part-time - US\$ 178 per credit

Out-of state residents: Full-time - US\$ 3,123 per semester  
Part-time - US\$ 347 per credit

Monthly room and board and incidental expenses: US\$ 2,500 per semester

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: Research and teaching assistantship

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: All aspects of space physics, atmospheric sciences and remote sensing

Geographical preference: Most aspects of interest deal with high-latitude problems (Arctic and Antarctica)

## E. UNIVERSITY OF IOWA, DEPARTMENT OF PHYSICS AND ASTRONOMY

Iowa City, Iowa 52242, United States

Tel.: (319) 335-1689 Fax: (319) 335-1753

Contact person(s): Dwight Nicholson

Principal function(s) of institution: Education and basic research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities: Magnetospheric physics of the Earth and other planets, space plasma physics, cosmic rays and solar energetic particles, interplanetary medium, ionosphere of the Earth

Duration/Frequency/Language(s) of instruction: 2 semesters/Alternate years/English

Facilities: Extensive facilities (a) for design, construction, and testing of space qualified scientific instruments and complete satellites; and (b) for computer processing, analysis and display of space data, including national computer network

Number of trainees: Up to 20

Entry requirements: B.Sc. or B.A. in physics, astronomy, mathematics and personal references

Degree/Diploma/Certificate awarded: M.Sc. or Ph.D.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: 20 research assistantships available at US\$ 12,000 per academic year

Other financial support available for foreign participants: Foreign student scholarships at about US\$ 2,000 a year in addition to research assistantship

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Same areas mentioned as in summary of courses and research activities

Geographical preference: --

F. CITY UNIVERSITY OF NEW YORK (CUNY), HUNTER COLLEGE, GEOLOGY AND GEOGRAPHY DEPARTMENT

695 Park Avenue, New York, N.Y. 10021, United States

Tel.: (212) 772-5265 Fax: (212) 772-5268

Contact person(s): Graduate advisor

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses: Photogrammetry and air photo-interpretation, principles of remote sensing, digital image processing, spatial modelling and geographic information systems

Research: Geometric-optical modelling, information storage and retrieval systems; digital terrain data; economic, physical and regional geography; environmental issues

Duration/Frequency/Language(s) of instruction: 14 weeks/Annually/English

Facilities: The Department has access to the CUNY Computing Center IBM mainframe computers via direct link and dial-up lines along with its own minicomputer, SUN Network, ERDAS work stations, large co-ordinate digitizer and assortment of microcomputers with a variety of functions. Computers at all levels are networked together, thus providing great flexibility to the computing environment. The Remote Sensing and Spatial Analysis Laboratory is fully equipped with terminals, plotters and printers; it also has a number of optical remote sensing and surveying instruments. Many software packages are supported, as is a library of image and cartographic data

Number of trainees: Between 1 and 5

Entry requirements: Equivalent to United States B.A. in Geography, related fields, college physics, mathematics, calculus, statistics and TOEFL examination  
Degree/Diploma/Certificate awarded: Master degree

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: New York State residents: per credit -US\$ 112; per excess contact hour US\$ 37; Maximum per term - US\$ 1,302; out-of-state residents: per credit - US\$ 215, per excess contact hour US\$ 52.00; Maximum for term -US\$ 2,550; Estimated cost of textbooks: US\$ 200 per semester  
Monthly room and board and incidental expenses: Variable US\$ 1,500-2,500

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: The Dept. has 2-5 teaching/research assistantships awarded for all applicants  
Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: All research areas mentioned above  
Geographical preference: None

G. UNIVERSITY OF ARIZONA, ARIZONA REMOTE SENSING CENTER

Office of Arid Lands Studies, 845 N. Park Ave., Tuscon, Arizona 85719, United States  
 Tel.: (602) 621-7896 Fax: (602) 621-3816  
Contact person(s): Director

Principal function(s) of institution: Education, research and training

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing, satellite meteorology

Summary of courses and research activities: The Arizona Remote Sensing Center (ARSC) is the central applied remote sensing facility for the University of Arizona. Activities center around research for applications, particularly dealing with agriculture and natural resources management; systems evaluations; resource map production; and training in remote sensing through formal university course instruction and customized management workshops. The Center also employs meteorological satellite data for multi-temporal evaluation of land resources and study of precipitation/runoff relationships in arid/semi-arid watersheds

Duration/Frequency/Language(s) of instruction: Semester/Every semester/English

Facilities: Mainframe, mini- and microcomputer-based image processing and geographic information system hardware; photographic laboratory; aerial video camera and processing system; archive of selected high-altitude and global-coverage photographic LANDSAT imagery

Number of trainees: Between 1 and 30

Entry requirements: Prefer currently-enrolled university-level students or graduates

Degree/Diploma/Certificate awarded: University of Arizona offers a doctoral minor in remote sensing. Certificate of completion of workshop attendees

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Course work US\$ 3,500 per semester/workshop: US\$ 500 per person per week

Monthly room and board and incidental expenses: US\$ 350-500

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: --

Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Resource mapping/desertification monitoring using integrated satellite and aerial systems to accompany ground sampling methodology; agricultural potential assessment; agricultural yield/yield production; integrations of small image processing facilities to resource management

Geographical preference: Arid/semi-arid lands preferred

H. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA), NATIONAL ENVIRONMENTAL SATELLITE, DATA AND INFORMATION SERVICE (NESDIS)

Washington DC 20233

Tel.: 301-763-4586

Contact person(s): International and Interagency Affairs Office, Code E/IA

Principal function(s) of institution: NESDIS administers an integrated program for the development and use of operational civilian satellite-based environmental remote sensing systems, as well as the acquisition, processing, archiving, analysis, and dissemination of environmental data from satellites and other services

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specialization: remote sensing, satellite meteorology

Summary of courses and research activities:

Courses: NESDIS provides meteorological satellite and data information training opportunities to scientists and other trained practitioners in the interest of fostering international co-operation in weather data exchanges and in promoting similar programs in developing countries. The training form varies and is provided according to the availability of NESDIS personnel and resources. Much of its international training activity is conducted in collaboration with the World Meteorological Organization and the National Weather Service. Several regional courses have been conducted, with the objective of training operational meteorologists in basic and advanced techniques of using satellite imagery for forecasting purposes. In addition, NESDIS periodically participates in United Nations and other training programs, with scientists studying at NESDIS facilities and training courses. In co-operation with the U.S. Agency for International Development and the UN Economic and Social Commission for Asia and the Pacific (ESCAP), NESDIS has conducted training courses on satellite crop monitoring and drought early warning. In 1991, a training course on remote sensing applications for environmental assessment and monitoring organized in co-operation with the UN Space Applications Programme was held at the EROS Data Center in Sioux Falls, South Dakota

Research: The Resident Research Associateships (RRA) Program is administered by the National Research Council and sponsors selected scientists and engineers for tenure as guest investigators in NESDIS laboratories, among others. Research opportunities are offered in NOAA activities as they relate to the oceans, atmosphere, and in some areas, the solid earth, with specific projects identified in yearly brochures published by and available from the NRC

Duration/Frequency/Language(s) of instruction: Varies/Varies/English

Facilities: Full range of laboratory, field and space equipment

Number of trainees: Training number/courses vary from year to year. The NOAA Resident Research Associateship Program usually accommodates 1-3 fellowships a year at NESDIS, depending on funding availability

Entry requirements: Training - variable; NOAA Resident Research Associateship Program - Ph.D.

Degree/Diploma/Certificate awarded: None

2. **COST OF PROGRAMMES**

Cost of tuition, texts and related research material: None

Monthly room and board and incidental expenses: Varies with location

3. **SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES**

Scholarship/Fellowship opportunities for foreign participants: Available through National Research Council

Other financial support available for foreign participants: None

4. **COLLABORATION WITH DEVELOPING COUNTRIES**: Yes

Specific areas of interest: Meteorological satellite and data information training as shown above

Geographical preference: None

I. **UNITED STATES GEOLOGICAL SURVEY (USGS)**

104 National Center, Reston, VA 22092

Tel.: 703-648-6064

Contact person(s):

General Remote Sensing Applications: Chief, Science and Applications Branch, U.S. Geological Survey, EROS Data Center, Sioux Falls, SD 57198;

Water Resources: Water Resources Division, U.S. Geological Survey, 436 National Center, Reston, VA 22092;

Mineral Resources: Office of International Geology, U.S. Geological Survey, 917 National Center, Reston, VA 22092

Principal function(s) of institution: Earth science research and education

1. **ACADEMIC AND SCIENTIFIC PROGRAMMES**

Area(s) of specializaton: remote sensing, satellite meteorology

Summary of courses and research activities: The USGS offers a number of training courses. Specific offerings include:

- ❑ The USGS and the University of Hawaii, in co-operation with the United Nations Development Programme, are offering training in marine geology that will be helpful to maritime countries in training personnel in the assessment, exploration and management of their offshore resources.
- ❑ The USGS and the University of Hawaii's Center for the Study of Volcanoes are offering training in volcano monitoring.
- ❑ The USGS and the University of Idaho, in cooperation with the Foundation for Glacier and Environmental Research, are presenting a training program in Polar and Alpine Geosciences.
- ❑ The USGS offers an 8 week course in hydrologic data collection and interpretation to prepare participants to evaluate the water resources of an area or region.
- ❑ The National Earthquake Information Center of the USGS is presenting a program on understanding earthquakes and mitigating their effects.
- ❑ Postgraduate, on-the-job training opportunities are available through the USGS. International participants work with the USGS hydrologists, geologists, geochemists, geophysicists, and other scientists to learn current technologies to help scientists from overseas become better qualified to assist their countries in establishing or improving their own Earth-science programs.

Duration/Frequency/Language(s) of instruction: 2-10 weeks/Annually/English

Facilities: Numerous photographic laboratories, computers, video displays, optical scanners, film recorders and paper printers/plotters

Number of trainees: Between 8 and 30

Entry requirements: Knowledge of fundamentals of remote sensing and knowledge of the English language

Degree/Diploma/Certificate awarded: Certificate of completion

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Varies

Monthly room and board and incidental expenses: US\$ 1,500 - 2,000

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Yes

Other financial support available for foreign participants: Assistance is sometimes available through co-operative programs with the U.S. Agency for International Development

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Wide variety of topics related to Earth science studies

Geographical preference: None

## J. ZONTA INTERNATIONAL (AMELIA EARHART FELLOWSHIPS)

557 W. Randolph St., Chicago IL 60661-2206

Tel.: (312) 930-5848 Fax: (312) 930-0951

Contact person(s): Bonnie Koenig, Exec. Dir.

Principal function(s) of institution: Zonta International is a world-wide classified service organization of over 40,000 executive women in business and the professions (in Zonta Clubs in 53 countries) with commitment to the development and training of women for leadership positions. In this connection, it grants annually ZONTA Amelia Earhart Fellowship Awards to women for graduate studies. Zonta International has consultative status with UNICEF, ECOSOC, UNESCO, ILO and the Council of Europe

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences

Summary of courses and research activities: The fellowships are awarded for graduate studies in aerospace related science and engineering including aspects of natural and physical sciences. The courses to be followed will depend on both the background and interest of fellow and available opportunities at the institution accepting fellow

Duration/Frequency/Language(s) of instruction: Vary. This depends on the academic institution where the fellowship recipient will pursue her studies as well as the programme of studies

Facilities: --

Number of trainees: From 25 to 30 each year

Entry requirements:

- a) Minimum of Bachelor's degree in a science (natural or physical) for advanced study and research as described under summary of courses above;
- b) A superior academic record and evidence of potential;
- c) An acceptance by an institution offering fully accredited courses and degrees in areas described under summary of courses above

Degree/Diploma/Certificate awarded: --

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: --

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Each of the fellowship awards amount to US\$ 6,000 for use for the recipients' studies

Other financial support available for foreign participants: --

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: --

Geographical preference: Applications for the fellowship awards for graduate studies may be made by women world-wide and must be completed and submitted with requested materials before 1 January of any year. Fellowships may be used at any institution offering accredited courses in the applicant's area of study in the following year's term

## Z I M B A B W E

A. NATIONAL REMOTE SENSING FACILITY

P.O. Box 8039, Causeway, Zimbabwe

Tel.: 790701

Contact person(s): A.B. Made, Box 8039, Causeway, Harare, Zimbabwe

Principal function(s) of institution: Education, research, development, teaching and project execution

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializatoin: remote sensing, satellite meteorology

Summary of courses and research activities:

Courses: Basic remote sensing courses for agriculture, vegetation and mineral exploration using satellite data

Research: Crop monitoring, environmental monitoring and mineral exploration using satellite data. Geographic information systems applications

Duration/Frequency/Language(s) of instruction: 2 semesters/Annually/English

Facilities: Mirror stereoscopes, ERDAS digital image processing system, Zoom transferscope (Baush & Lomb), Wild/LEITZ Aviopret, fully equipped photolaboratory, specialized printing press, PROCOM-2 overhead projectors, slide projectors

Number of trainees: 15 - 25

Entry requirements: 1<sup>st</sup> year University

Degree/Diploma/Certificate awarded: Degrees

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: By State

Monthly room and board and incidental expenses: Provided by State

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: State fellowships are available

Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Application of remote sensing to crop monitoring and mineral exploration

Geographical preference: SADCC

B. UNIVERSITY OF ZIMBABWE

M.P. 167, Mount Pleasant, Harare, Zimbabwe

Tel.: 303211

Contact person(s): Dr. M. Zinyowera, Box BE150, Belvedere, Harare

Principal function(s) of institution: Education, research, development and teaching

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: satellite communications

Summary of courses and research activities: Satellite communications at the Post and Telecommunications Co-operation

Duration/Frequency/Language(s) of instruction: In service/Annually/ English

Facilities: Earth satellite station

Number of trainees: Between 4 and 10

Entry requirements: General certificate of education - advanced level

Degree/Diploma/Certificate awarded: Degree, certificate

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Funded by the State

Monthly room and board and incidental expenses: Provided

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: State fellowships are available

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: --

Geographical preference: None

INTERNATIONAL AND REGIONAL INSTITUTIONS

REGIONAL CENTRES FOR SPACE SCIENCE AND TECHNOLOGY EDUCATION,  
AFFILIATED TO THE UNITED NATIONS

A. CENTRE FOR SPACE SCIENCE AND TECHNOLOGY EDUCATION IN ASIA AND THE PACIFIC (CSSTEAP)

IIRS Campus, P.B. No. 222, 4 Kalidas Road, Dehra Dun - 248 001. India  
Tel.: 91-135-740737 Fax: 91-135-740785 E-mail: [cssteap@del2.vsnl.net.in](mailto:cssteap@del2.vsnl.net.in)  
Contact person(s): Prof. B.L. Deekshatulu, Director of CSSTEAP

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: Remote sensing and GIS, satellite communications, satellite meteorology and global climate, space and atmospheric sciences

Summary of courses and research activities:

Courses: Post Graduate programmes in the above disciplines (1<sup>st</sup> phase of nine months at the Centre followed by 2<sup>nd</sup> phase of 1 year at the home country). Short-term workshops in the above disciplines.

Research: research and applications projects associated with training programmes

Duration/Frequency/Language(s) of instruction: 9 months/Annually/English

Facilities: Modern teaching and research facilities provided by the Department of Space of the Government of India at Indian Institute of Remote Sensing in Dehra Dun (training programme in remote sensing and GIS), Space Applications Centre in Ahmedabad (programmes in satellite communications and satellite meteorology and global climate) and at Physical Research Laboratory in Ahmedabad (programme in space and atmospheric sciences).

Number of trainees: 15 - 25 in each programme

Entry requirements: Master's degree in science or Bachelor's degree in engineering in relevant disciplines

Degree/Diploma/Certificate awarded: Completion of the first phase leads to the award of post graduate diploma/certificate from the Centre, and completion of both phases leads to the award of Master's degree from Andhra University, India.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: No fees charged

Monthly room and board and incidental expenses:

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: some fellowships may be available

Other financial support available for foreign participants: Yes

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Remote sensing and GIS, satellite communications, satellite meteorology and global climate, space and atmospheric sciences

Geographical preference: Asia and the Pacific

B. CENTRE REGIONAL AFRICAIN DES SCIENCES AT TECHNOLOGIES DE L'ESPACE EN LANGUE FRANCAISE (CRASTE-LF)

Ecole Mohammadia d'Ingenieurs (EMI), Avenue Ibn Sina, BP 765, Agdal - Rabat, Maroc  
 Tel.: 212-37-681826 Fax: 212-37-681824 E-mail: [craste@emi.ac.ma](mailto:craste@emi.ac.ma)  
 Contact person(s): Prof. A. Touzani, Le Directeur du Centre

Principal function(s) of institution: Education and research

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: Remote sensing and GIS, satellite communications, satellite meteorology and global climate, space and atmospheric sciences

Summary of courses and research activities:

Courses: Post -graduate training programmes in the above disciplines. Short-term workshops in the above disciplines.

Research: research and applications projects associated with training programmes

Duration/Frequency/Language(s) of instruction: 9 months/Annually/French

Facilities: teaching and research facilities available at the centre and at EMI.

Number of trainees: 10 - 15 in each programme

Entry requirements: Master's degree in science or Bachelor's degree in engineering in relevant disciplines

Degree/Diploma/Certificate awarded: Diploma/certificate from the Centre.

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: No fees charged

Monthly room and board and incidental expenses: --

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: some fellowships may be available

Other financial support available for foreign participants: Yes

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Remote sensing and GIS, satellite communications, satellite meteorology and global climate, space and atmospheric sciences

Geographical preference: Regional

C. AFRICAN REGIONAL CENTRE FOR SPACE SCIENCE AND TECHNOLOGY EDUCATION - ENGLISH (ARCESSTE-E)

P. O. Box 019, Obafemi Awolowo University, Ile-Ife, Nigeria  
 Tel.: 234-36-2304542 Fax: 234-36-232401 E-mail: [ebalogun@ouife.edu.ng](mailto:ebalogun@ouife.edu.ng)  
 Contact person(s): Prof. E.e. Balogun, Director of the Centre

Principal function(s) of institution: Education and research

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: Remote sensing and GIS, satellite communications, satellite meteorology and global climate, space and atmospheric sciences

Summary of courses and research activities:

Courses: Post -graduate training programmes in the above disciplines. Short-term workshops in the above disciplines.

Research: research and applications projects associated with training programmes

Duration/Frequency/Language(s) of instruction: 9 months/Periodically/English

Facilities: teaching and research facilities available at the centre and at Obafemi Awolowo University.

Number of trainees: 10 - 15 in each programme

Entry requirements: Master's degree in science or Bachelor's degree in engineering in relevant disciplines

Degree/Diploma/Certificate awarded: Diploma/certificate from the Centre.

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: No fees charged

Monthly room and board and incidental expenses: --

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: some fellowships may be available

Other financial support available for foreign participants: Yes

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Remote sensing and GIS, satellite communications, satellite meteorology and global climate, space and atmospheric sciences

Geographical preference: Regional

ASIAN INSTITUTE  
OF TECHNOLOGY

NATURAL RESOURCES PROGRAMME

P.O. Box 2754, Bangkok 10501, Thailand  
Tel.: 66-2-524-5577 Fax: 66-2-524-5597  
Contact person(s): Co-ordinator

Principal function(s) of institution: Training and education

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses:

- (a) 13 week training course: basic electromagnetic theory, visual and digital airphoto and satellite data interpretation, fieldwork for verification of maps produced using remote sensing data. Team projects focus on use of remote sensing for mapping natural and cultural resources in rural areas of the region;
- (b) 13 week training course: geographic data: spatial and thematic characteristics, structures, and processing; databases: information sources, integrity and accuracy; construction of landscape models; current GIS descriptions and evaluation. Team projects focus on uses of GIS for development and management of natural resources in the region;
- (c) 13-week training course in Environmental Planning: communications & team planning, project planning & management, photo-interpretation, terrain analysis, GIS basics, bio-physical suitability analysis, socio-economic suitability analysis, and EIA basics. Team projects use the "Project CaseWork" approach to focus on comprehensive action plan for development within the region;
- (d) Workshop in remote sensing image processing using micro-computers: stresses practical (laboratory) work;
- (e) Workshop in GIS using micro-computers: stresses practical (laboratory) work

Research: Integration of systems dynamics modelling with GIS static spatial models for spatial analysis of statistical output from dynamic simulations

Duration/Frequency/Language(s) of instruction: Certificate: 3½ months/Once per year/English; Workshops: 3 weeks/1 per year/English (for remote sensing and GIS each)

Facilities: A number of workstations with a wide array of input-output devices (including tape and disk drives, digitizing tables, printers and ink-jet plotters, and a stand-alone Optronics scanner-plotter system). In addition, PAMAP (GIS), ARC/INFO (GIS), IDRISI (GIS) and DRAGON (IPS), plus GIS and IPS tutorial systems developed at AIT are installed on the eight NEC APC-IV Powermate I (80287 math coprocessor) workstations in the INRDM/RSL microcomputer classroom. The workstations use VGA graphics cards with NEC Multisync RGB monitors

Number of trainees: Between 10 and 30 in each Certificate Course or Workshop (for remote sensing and GIS)

Entry requirements: Undergraduate degree or diploma

Degree/Diploma/Certificate awarded: Certificate of Attendance (3½ month programme and workshop)

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Certificate programme -US\$ 3,600; Workshop - US\$ 2,000

Monthly room and board and incidental expenses: US\$ 383 (US\$ 1,530 per programme); Workshop: NA (included in tuition)

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Up to 6 per year for remote sensing and GIS courses; 20 per year for Environmental Planning course. More for workshop

Other financial support available for foreign participants: Some travel scholarships may also be available

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Remote sensing, geographic information systems, digital cartography, and DEM

Geographical preference: Asia and the Pacific

## EUROPEAN SPACE AGENCY (ESA)

8-10, rue Mario Nikis, 75738 Paris Cedex 15, France  
 Tel.: (33-1) 53697459 Fax: (33-1) 53697627  
Contact person(s): Head, International Affairs

Principal function(s) of institution: Research and development

## 1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: basic space sciences, remote sensing, satellite communications

Summary of courses and research activities:

Courses: International training courses mainly cosponsored by ESA with the UN, FAO, E.C., CNES, DLR.

- Asia: AIT, Asian Development Bank, ESCAP;
- Africa: RCCMRS.
- Latin America: INPE, CONAE, UNAM, CLIRSEN, Augustin Codazzi

Research: Space science and earth observation

Duration/Frequency/Language(s) of instruction: 1-3 weeks training courses/--/English, French and Spanish; 6-12 months fellowships

Facilities: Broad range of facilities is available

Number of trainees: 20-25 participants for each training course; 2-3 participants for each fellowship programme

Entry requirements: Postdoctoral - experienced scientists, engineers, technicians

Degree/Diploma/Certificate awarded: Certificate of attendance

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: None

Monthly room and board and incidental expenses: None

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: 10 - 12 per year. 5 fellowships are offered through the United Nations Space Applications Programme. The others are on a bilateral basis through government request

Other financial support available for foreign participants: None

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Space sciences, remote sensing, satellite communications

Geographical preference: None

FOOD AND AGRICULTURE ORGANIZATION  
OF THE UNITED NATIONS (FAO)

REMOTE SENSING CENTRE (AGRT)

Via delle Termi di Caracalla, 00100 Rome, Italy  
Tel.: 57975583 Fax: 57826101, 57973152  
Contact person(s): Chief, Remote Sensing Centre

Principal function(s) of institution: Remote sensing technology transfer; Environmental monitoring by satellites; Agricultural, forestry and fisheries applications of remote sensing; Remote sensing inputs to global (FAO), regional and national early warning systems on food security; Technical backstopping of remote sensing components of FAO executed field projects; Information and advisory services on remote sensing applications to development and management of renewable natural resources

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializatoin: remote sensing, satellite meteorology

Summary of courses and research activities:

Short Courses: (2-4 weeks duration) on remote sensing applications at inter-regional, regional/sub-regional and national level in co-operation with UN (OOSA), WMO, UNDRO, UNESCO, UNEP, ESCAP, ECA, WHO, ESA, Member States (e.g. Italy, Federal Republic of Germany, France) and Regional Remote Sensing Centres; workshop for decision makers (1 week duration) to provide appraisal of the state-of-the-art of remote sensing inputs to development and management of renewable natural resources, including briefings on appropriate institutional infrastructures, projects development, cost/benefit analysis, educational and training opportunities

Specialized on-the-job training: Analog and digital image analysis techniques; land-use mapping based on remote sensing data; environmental monitoring by satellite

Development and testing of appropriate remote sensing techniques: For application in developing countries (pilot action studies)

Duration/Frequency/Language(s) of instruction: 2-4 weeks/4-5 courses per year/English, French and Spanish; 1 week/1-2 workshops for decision makers per year/English and French

Facilities: Comprehensive range of equipment for analog and digital analysis of remote sensing data, reproduction of imagery and thematic mapping; complete training facilities for 24 participants. Primary data use station for Meteosat

Number of trainees: Between 15 and 24

Entry requirements: University degree in relevant discipline, present work responsibilities relevant to the theme of the training course. In case of workshops for decision makers, the only entry requirement is a senior government position with responsibilities including renewable natural resources

Degree/Diploma/Certificate awarded: Attendance certificate

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Free (no stipend paid)

Monthly room and board and incidental expenses: Provided unless in host country

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Several a year. FAO provides fellowships under its executed field projects in developing countries

Other financial support available for foreign participants: Return travel covered for selected participants

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: Since 1972, the FAO Remote Sensing Centre has been assisting developing countries in establishing or strengthening their remote sensing institutional infrastructures and in developing indigenous capacities for operational applications of remote sensing in agriculture, forestry and fisheries sectors

Geographical preference: Developing countries with priorities assigned according to their needs

UNITED NATIONS ECONOMIC COMMISSION  
FOR AFRICA (ECA)

A. CENTRE REGIONAL DE TELEDETECTION DE OUAGADOUGOU, BURKINA FASO

B.P. 1762, Place du Centre, OUAGADOUGOU-01, Burkina Faso

Tel.: 30 01 99, 30 06 35, 30 03 96

Responsable: Chef de Service Formation

Vocation(s) principale(s) de votre Etablissement: Formation/assistance aux Utilisateurs/Gestion-Diffusion et Promotion des données

1. PROGRAMMES DE CULTURE GENERALE ET SCIENTIFIQUES

Area(s) of specializaton: remote sensig

Description des cours et activités de recherche:

Cours: Cycle Régulier de Télédétection (CYRETEL), Cycle Post-Universitaire DESS/DEA:

(a) Bases et méthodes; bases physiques de la Télédétection, Capteurs/Vecteurs, restituion de l'information;

(b) Traitement de données; traitements photographiques et numériques, méthodes d'analyses, statistiques, informatique;

(c) Applicatons; exposés de méthodes dans divers domaines d'application des sciences de la terre, étude de cas, Travaux Pratiques et Travaux Dirigés de traitement d'image et Système d'Information Géographique. (TI/SIG) - Stage terrain

Activites recherche: Divers thèmes sont couverts: Evolution de la réponse spectrale des végétaux, Statistiques agricole, Mobilisation des ressources en eau, pâturages, cartographie de précision

Durée/Fréquence/Langue(s) d'enseignement: 10 mois/2 fois par an/Anglais, Français

Moyens dont dispose l'établissement pour exécuter les programmes: Laboratoire photographique; documentations, cartes, images, archives, une unité de traitement et bientôt intégrtion du SIG

Nombre de participants: Entre 10 à 20

Critères régissant l'admission: Pour le CYRETEL (cycle long): Diplome d'Ingénieur/Maitrise; pour les stages courts: Techniciens supérieurs et/ou Techniciens selon les stages

Certificats ou diplômes obtenus: Cycle Post-Universitaire : DESS/DEA; Attestation de stage pour les stages de courte durée

2. COUT DES PROGRAMMES

Frais de scolarité, manuels et autres matériaux de recherche: CYRETEL: 1.800.000 FCFA (membres), 2.700.000 (non membres); Stage spécialisés: 1.500.000 FCFA (membres), 2.500.000 (non membres); Stage court: 250.000 à 500.000 FCFA/mois selon le type de stage (membres), 700.000 à 1.000.000 FCFA/mois (non-membres); Stage à la carte (2 à 3 semaines): 250.000 FCFA (membres), à étudier selon les cas (non membres)

Frais mensuels de logement et de subsistance et faux frais: Selon les Institutions de financement de 75.000 à 175.000 francs FCFA/mois

3. POSSIBILITES DE BOURSES D'ETUDES OU DE PERFECTIONNEMENT

Possibilités de bourses d'études ou de perfectionnement pour des participants étrangers: Non

Existence d'autres possibilités d'octroi d'une aide financière pour participants étrangers: Oui. Agences de cooperation multilaterales et/ou bilaterales selon les projects

4. COLLABORATION AVEC PAYS EN DEVELOPPEMENT: Oui  
Domaines qui vous intéressent: Technologie spatiale et ses applications
- B. REGIONAL CENTRE FOR SERVICES IN SURVEYING, MAPPING AND REMOTE SENSING, KENYA
- P.O. Box 18118, Nairobi, Kenya  
 Tel.: 803320 Fax: 802767  
Contact person(s): Director of Remote Sensing
- Principal function(s) of institution: Training, research, development and technical services
1. ACADEMIC AND SCIENTIFIC PROGRAMMES
- Area(s) of specializaton: remote sensing
- Summary of courses and research activities:  
Training: Applications of remote sensing to agriculture, forestry, hydrology, geology and minerals, oceanography, cartography, highway road construction, soils environmental monitoring, natural and man-made disasters, pests; teaching with remote sensing; consultancy services and project design, GIS  
Research: Use of geographical information; system of land use in East and Southern Africa; photo-mapping techniques; digital techniques and analysis; food yield prediction techniques
- Duration/Frequency/Language(s) of instruction: 3-6 weeks/6 times a year/English; 3-6 weeks/2 times a year/French
- Facilities: Photo laboratory for colour and B&W imagery processing; continuous processor; digital image processing; servicing and repairing of survey equipment
- Number of trainees: Between 15 and 25
- Entry requirements: 1<sup>st</sup> or 2<sup>nd</sup> degree in natural resources sciences
- Degree/Diploma/Certificate awarded: Certificate of attendance
2. COST OF PROGRAMMES  
Cost of tuition, texts and related research material: Approximately US\$ 3,500 per participant per course  
Monthly room and board and incidental expenses: Included above
3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES  
Scholarship/Fellowship opportunities for foreign participants: None  
Other financial support available for foreign participants: UN agencies, international donor agencies (e.g. USAID, SIDA, NORAD)
4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes  
Specific areas of interest: Natural resources, GIS, aerial photography, geodesy, cartography, digital electronics, remote sensing  
Geographical preference: East and Southern Africa subregion

C. REGIONAL CENTRE FOR TRAINING IN AEROSPACE SURVEYS (RECTAS)

O.A.U. Campus, ILE-IFE, Nigeria

Tel.: 036-230-225, 036-320-050

Contact person(s): Director

Principal function(s) of institution: Training, research and consultancy

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Training:

- 1) Technicians Course (9-12 months) in Image Interpretations;
- 2) Technologist Course (12 months) in Image Processing (digital and analogue images);
- 3) Postgraduate course (12 months) in Remote Sensing Applications

Research: Remote sensing application to natural resources surveys, and environmental monitoring; space maps; applications in Photogrammetry; Methodology in Remote Sensing Education

Duration/Frequency/Language(s) of instruction: --/--/English and French

Facilities: Micro computers for image and word processing; print-out peripherals; Digital Images in CCTs; Analog interpretation equipment; mirror and pocket stereoscopes, optical transfer devices such as zoom, stereosketch, stereopret, optical sketchmaster, etc.; photographic processing laboratory; photogrammetric equipment; library and documentation; GIS system (APY System for map revision); Near future availability of ARC INFO and ILWIS

Number of trainees: Technicians: 10 per year; Technologists: 10 per year; Postgraduates: 10 per year

Entry requirements: --

Degree/Diploma/Certificate awarded: Technician's Certificate or Diploma; Technologists Diploma; Postgraduate Diploma; Workshop Certificate of Attendance

2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Costs of tuition, text and related materials to be obtained by writing to the Director of Centre

Monthly room and board and incidental expenses: As per stipulation by the Obafemi Awolowo University, other accredited hotels in town and RECTAS hostel

3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Yes, for nationals of Member States of RECTAS and ECA

Other financial support available for foreign participants: --

4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: (i) As indicated in the summary above; (ii) Professional and Technical training in Remote Sensing

Geographical preference: (i) Member States of RECTAS (At the moment 8 West/Central African States); (ii) Member States of Economic Commission for Africa

UNITED NATIONS EDUCATIONAL,  
SCIENTIFIC AND CULTURAL  
ORGANIZATION (UNESCO)

7, Place de Fontenoy, 75700 Paris, France  
Tel.: (33)(1) 4568 1000 Fax: (33)(1)46031122  
Contact person(s): Robert Missotten, Division of Earth Sciences

Principal function(s) of institution: --

1. ACADEMIC AND SCIENTIFIC PROGRAMMES

Area(s) of specializaton: remote sensing

Summary of courses and research activities:

Courses:

- ❑ The following post-graduate training courses sponsored by UNESCO and dealing with the application of remote sensing to integrated natural resources research, management and development will continue for the next few years:
  - Post-graduate courses in integrated study and rational use of natural resources at the universities of Paris, Montpellier and Toulouse, France;
  - International post-graduate training courses on remote sensing applications, digital image processing and aerospace surveys for applied geomorphology and engineering geology at the International Institute for Aerial Survey and Earth Sciences (ITC), Enschede, The Netherlands;
  - International post-graduate training course on photo-interpretation applied to civil engineering and geology at the Intituto Geografica Agusten Codazzi (IGAC), Bogota, Colombia
- ❑ In cooperation with FAO, UNESCO organizes post-graduate training on the use of remote sensing images in water resources studies.
- ❑ The Intergovernmental Oceanographic Commission (IOC) of UNESCO is planning to continue a series of regional training courses on the application of satellite remote sensing to marine studies, making use of the aforementioned computer-based learning modules

Research:

- (a) In the framework of the UNESCO/International Union of Geological Sciences (IUGS) programme "Geological Applications of Remote Sensing" (GARS), two research projects are being implemented in Africa and in Latin America. The first focuses on the comparative use of remote sensing data from different sensors in the geological mapping of the Kibaran terranes in East and Central Africa, whereas the second consists of evaluating the use of airborne and spaceborne remote sensing data for monitoring of landslides in the Andean region;
- (b) An Intergovernmental Oceanographic Commission (IOC)/World Meteorological Organization (WMO) ad hoc Group on Ocean Satellites and Remote Sensing has been established to analyze the requirements of marine meteorology and operational physical oceanography for remote sensing data, related to (i) polar-orbiting earth observation satellites; (ii) geostationary satellites; (iii) ground-based HF and radar systems; (iv) data access to the systems;
- (c) The IOC/WMO Committee for Integrated Global Ocean Services Systems (IGOSS) is presently studying the operational exchange of remotely sensed oceanographic data as part of the IGOSS data processing and services system;
- (d) Archiving and the exchange of non-operational remotely sensed oceanographic data are being studied by the IOC Commission on International Oceanographic Data and Information Exchange (IODE). At the same time, they are trying to find an answer to such problems as the absence of standard format for oceanographic satellite data products, the lack of compatibility between the satellite data products from different centres, etc.;
- (e) Within the framework of the IOC Global Investigation of Pollution in the Marine Environment (GIPME), the possibility of using remotely sensed data to monitor marine pollution, i.e. applications of remote sensing in coastal zone and shelf seas dynamic, is being studied;
- (f) UNESCO assists in UNEP's Earthwatch activity, and the Swiss Federal Institute of Technology in a World Glacier Inventory. Reports have been published in 1991 and will continue to 1993 and beyond

Duration/Frequency/Language(s) of instruction: The UNESCO National Commissions are provided annually with detailed information on the above-mentioned courses

Facilities: Assistance to facilitate the exchange of scientists and information, and limited assistance for the development of the scientific infrastructure

Number of trainees: Number varies, but usually not more than 25

Entry requirements: In general, B.Sc. in geology, hydrology or marine sciences is required, unless other requirements are given in the information/application sheets

Degree/Diploma/Certificate awarded: Certificates are issued upon successful completion of the short courses. Diplomas are awarded at the end of the long-term programmes

## 2. COST OF PROGRAMMES

Cost of tuition, texts and related research material: Normally, tuition fees or textbook costs are borne by UNESCO or cooperating host organization

Monthly room and board and incidental expenses: Vary according to the programme. More details can be obtained from cooperating institutes via the UNESCO National Commissions

## 3. SCHOLARSHIP/FELLOWSHIP OPPORTUNITIES

Scholarship/Fellowship opportunities for foreign participants: Fellowships are available for training programmes listed above

Other financial support available for foreign participants: Further information may be found in the course information notes available at UNESCO National Commissions

## 4. COLLABORATION WITH DEVELOPING COUNTRIES: Yes

Specific areas of interest: The above activities are oriented towards strengthening the use of remote sensing in developing countries

Geographical preference: --

INSTITUTIONS PROVIDING EDUCATIONAL OPPORTUNITIES  
IN SPACE LAW AND POLICY

- |  |  |
|--|--|
| <p>1. Institute of Air and Space Law<br/>McGill University<br/>3690 Peel Street<br/>Montreal, Quebec<br/>Canada H3A 1W9<br/>Tel.: (+1-514) 398-6621<br/>Fax: (+1-514) 398-4659</p>             | <p>2. International Institute of Air and Space Law<br/>University of Leiden<br/>Hugo de Grootstraat 27<br/>P.O. Box 9520<br/>2300 RA Leiden<br/>The Netherlands<br/>Tel.: (+31-71) 52 77 724<br/>Fax: (+31-71) 52 77 600</p> |
| <p>3. Institut für Luft- und Weltraumrecht<br/>University of Cologne<br/>Albertus-Magnus-Platz<br/>D-50923 Cologne<br/>Germany<br/>Tel.: (+49-221) 470 23 37<br/>Fax: (+49-221) 470 49 68</p>  | <p>4. Law Center<br/>University of Mississippi<br/>University, MS 38677<br/>United States of America<br/>Tel.: (+1-601) 232 73 61<br/>Fax: (+1-601) 232 77 31</p>  |
| <p>5. Law Center<br/>Georgetown University<br/>600 New Jersey Avenue N.W.<br/>Washington, D.C. 20001<br/>United States of America<br/>Tel.: (+1-202) 662 92 20<br/>Fax: (+1-202) 662 92 35</p> | <p>6. Law School<br/>The George Washington University<br/>2000 H Street, N.W.<br/>Washington, D.C. 20052<br/>United States of America<br/>Tel.: (+1-202) 994 62 60</p>   |
| <p>7. Centro de Investigación y Difusión<br/>Aeronáutico-Espacial<br/>Yi 1182<br/>11.100 Montevideo<br/>Uruguay<br/>Tel.: (+598-2) 98 16 27<br/>Fax: (+598-2) 92 12 58</p>                     | <p>8. The Council of Advanced International Studies<br/>Lavalle 1527, piso 10<br/>1048 Buenos Aires<br/>Argentina<br/>Fax: (+54-1) 372 82 17</p>   |
| <p>9. Law School<br/>Padiadاران University<br/>Jalan Dipati Ukur 35<br/>Bandung 40132<br/>Indonesia</p>  | <p>10. Faculty of Law<br/>Monash University<br/>Wellington Road<br/>Clayton, Victoria<br/>Australia 3168<br/>Tel.: (+61-3) 9905 3356<br/>Fax: (+61-3) 9905 5305</p>  |

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