

GNSS Training, Course T-151 and GNSS for Policy and Decision Makers, Course T-131

14 – 18 January 2019
AIT Conference Center, AIT, Thailand



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GNSS Training : Facts and Figures

Contact:

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Training Courses

- **GNSS Training, Course T151-30**
 - Five days intensive course on GNSS technologies, applications, field survey, data processing for real-time and post-processing

- **GNSS for Policy and Decision Makers, Course T131-18**
 - Three days intensive course on GNSS focusing GNSS applications, its importance, familiarization of technical terminologies and hands-on exercises

Objectives of the Training Courses

- **Course T151-30**
 - The participants shall be able to
 - Understand the basics of GNSS and its applications
 - Conduct GNSS field survey for RTK or Post-processing
 - Process GNSS Data for RTK or Post-processing
- **Course T131-18**
 - The participants shall be able to
 - Understand the basics of GNSS and its applications
 - Know about various types of GNSS receivers, antenna and software
 - Understand GNSS technical and commercial terminologies

GNSS Training, Course T-151

GNSS Applications

- Surveying, Mapping and Geodesy
- Transportation
- Legal and Law Enforcement
- Taxation
- Insurance
- Vehicle Accidents
- Emergency Services
- Time Stamping
- Space Weather
- Agriculture
- Personal Navigation
- Location Based Applications
- Warning during Disasters
- Geo-Fencing / Geo-Security
- Robotics
- Telecommunication
- Power Grid
- Scientific Timing Applications

How to improve accuracy from 10m to 10cm?

Training on GNSS - Course: T151 - 30
Jointly Organized by GIC/AIT, CSIS/UT and ICG

Introduction

The Global Positioning System (GPS) is widely used in almost all systems that require absolute position and time. It is due to its accuracy, availability and reliability. In addition to GPS of the United States, several other systems such as GLobal Navigation Satellite System (GLONASS) of the Russian Federation, the European global navigation system (Galileo) of the European Union, the BeiDou Navigation Satellite System (BDS) of China, the Indian Regional Navigation Satellite System (NavIC), India and the Quasi-Zenith Satellite System (QZSS), Japan are now available. Collectively, they are called GNSS (Global Navigation Satellite System). Today, a GNSS receiver can provide centimeter level accuracy even with a low-cost receiver, if an error correction technique is used. Thus, availability of low-cost and high-accuracy receivers will eventually increase GNSS related applications and its market. In order to keep the pace with these new applications and technological developments, it is necessary to develop human resources and skills.

Geoinformatics Center of Asian Institute of Technology (GIC/AIT) together with the Center for Spatial Information Science of The University of Tokyo (CSIS/UT) and International Committee on GNSS (ICG) are taking initiatives to create awareness on GNSS and its applications in Asia and the Pacific region. This training course is a part of this initiative.

Course Schedule : 14 – 18 JAN 2019

Training Place :
Geoinformatics Center, Asian Institute of Technology,
Pathumthani, Thailand

Objectives

This course is designed to give the participants:

- An introduction to GNSS, comprised of GPS, GLONASS, GALILEO, BDS, QZSS and NavIC
- General overview of signal processing in receiver, receiver performances (low-cost receiver vs. high-end survey-grade receiver).
- Introduction to RTKLIB and related software for High-Accuracy GNSS Data Processing (RASPI, RTKDROID, SW MAPS etc)
- Field Survey using Low-Cost receiver for High-Accuracy positioning
- GNSS Data Processing for real-time and Post-processing RTK and PPP
- GNSS Raw Data Processing logged by Android Device

Course Contents:

- Introduction to GNSS
- GNSS Signal Structure
- Signal Processing in Receiver
- Data Formats, Coordinate Systems etc
- Importance of Base Station
- GNSS Errors
- Applications of GNSS
- Survey Procedures – DGPS, RTK, PPP
- Use of Android Devices for GNSS Survey
- Hands on Training for RTK using RTKLIB, R KUDROID etc
- Field Survey and Data Processing

Participants

This course is designed to those who would like to learn about GNSS from the basics. We recommend to attend this course if your work is related with one of the following fields - Surveying, Mapping, GIS, Remote Sensing, Telecommunications, Safety and Security Services, Geodesy, Transport, Logistics, Agriculture, Marine, Fishery, Aviation, Census Data Analysis, Health Data Analysis, Location Based Services (LBS) or APP developers.

Benefits

Upon completion of this course, participants will be able to understand about how a GNSS receiver works, its applications, survey methods and data processing for high accuracy in real time or post processing modes.

Course Schedule
14 – 18 January 2019 (5 days, 40 hours)

Training Costs:
The training fee is free for all participants.
The participants have to bear the following costs:

1. Travel costs from the participant's home-town to AIT, Thailand and back to home-town.
2. Hotel accommodation at AIT Center Hotel for the whole seminar/workshop period
3. All expenses for food, insurance, medical emergencies etc.
4. Any other expenses if any not listed here to cover the participant's expenses.

Funding

Co-organizers have kindly agreed to provide limited financial assistance for travel for eligible participants and preference given to participants from the developing countries. Financial assistance will **cover the travel costs only**, and will NOT include expenses such as accommodation, food, insurance, medical emergencies etc. Please see below for an estimation of cost at AIT for Accommodation and food. The organizers reserve the right to selecting the participants for granting the financial assistance for travel.

Deadline for Applications
Requesting for travel funding : 31st October 2018
Self-funding : 17th December 2018

Accommodation and Logistics

Participants can stay at the AIT Conference Center with a tariff of US\$ 40-60/night/person. Travel time from the Suvarnabhumi International Airport to AIT is usually one hour. Living cost inside the AIT campus is very reasonable and lunch/dinner cost may vary from 2 USD to 5 USD per meal.

Insurance

Participants are requested to obtain travel and medical insurance before entering in to Thailand.

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www.geoinfocenter.asia, www.facebook.com/gicait, www.aitsite.com/gicait
For further information please contact
Training Coordinator, Geoinformatics Center, Asian Institute of Technology
P.O.Box 4, Klong Luang, Pathumthani 12120, Thailand
T : +66 2524 5650, E : geoinfocenter@ait.ac.th
Applications can be downloaded from
www.geoinfocenter.asia/downloads/GNSS_Application_131.pdf
Pass: Training and Additional Information :
http://www.csis.u-tokyo.ac.jp/~dinesh

GNSS for Policy & Decision Makers, Course T-131

GNSS for Policy and Decision Makers - Course: T131-18
A Seminar and Workshop Program
 Jointly Organized by GIC/AIT, CSIS/UT and ICG

GNSS Applications

- Surveying, Mapping and Geodesy
- Transportation
- Legal and Law Enforcement
- Taxation
- Emergency Services
- Time Synchronization
- Space Weather
- Agriculture
- Personal Navigation
- Location Based Applications
- Warning during Disasters
- Disaster Warning / Geo-Security
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- Telecommunication
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Introduction

The Global Positioning System (GPS) is widely used in almost all systems that require absolute position and time. It is due to its accuracy, availability and reliability. In addition to GPS of the United States, several other systems such as Global Navigation Satellite System (GLONASS) of the Russian Federation, the European global navigation system (Galileo) of the European Union, the BeiDou Navigation Satellite System (BDS) of China, the Indian Regional Navigation Satellite System (NavIC), India and the Quasi-Zenith Satellite System (QZSS), Japan are now available. Collectively, they are called GNSS (Global Navigation Satellite System). Today, a GNSS receiver can provide centimeter level accuracy even with a low-cost receiver, if an error correction technique is used. Thus, availability of low-cost and high-accuracy receivers will eventually increase GNSS related applications and its market. In order to keep the pace with these new applications and technological developments, it is necessary to develop human resources and skills.

Geoinformatics Center of Asian Institute of Technology (GIC/AIT) together with the Center for Spatial Information Science of the University of Tokyo (CSIS/UT) and International Committee on GNSS (ICG) are taking initiatives to create awareness on GNSS and its applications in Asia and the Pacific region. This program is a part of this initiative.

Course Schedule : 14 – 16 JAN 2019

The participants may also join the last 2 days of GNSS Training (Course: T151-30) on 17 – 18 JAN 2019. These two days are dedicated for GNSS Field Survey, Data Analysis, and Accuracy Estimation etc. This will provide the participants more field experience on GNSS data logging and processing.

Seminar Place:
 Geoinformatics Center, Asian Institute of Technology,
 Pathumthani, Thailand

Why you should attend this program?

GNSS is not only for Surveying, Mapping and Car Navigation. It's used in many systems where position data are required. For example, analyzing traffic congestion data, monitoring public transport for security and safety, automation in agriculture, dynamic population census, timing services in banking sectors and telecommunication systems, security and safety related applications, law-enforcement, toll-free charging, aviation as well as space weather.

If you are involved in the policy and decision making level of any infrastructure project, or any of the above mentioned working field or even if you would like to learn how GNSS can be utilized in various applications, then you are invited to attend this course in order to enhance your knowledge of GNSS and its applications.

Objectives

This course is designed to give the participants:

- An Introduction to GNSS, comprised of GPS, GLONASS, GALILEO, BDS, QZSS and NavIC
- Introduction to GNSS Applications and Application Samples
- An Introduction to GNSS Receivers, Antennas, Base-stations, RTK & PPP Services
- GNSS Survey procedures and achievable accuracies
- Introduction to GNSS related Software
- GNSS Data logging using Android devices for GIS Applications
- Field Survey experience using Low Cost receiver for High-Accuracy positioning
- General Budget estimation to implement an in-house GNSS system for high accuracy
- Interpreting GNSS Technical Specifications

Benefits

Upon completion of this course, the participants will be able to understand about how a GNSS system works, its applications, survey methods, interpretation of technical specifications, approximate budget and manpower estimation to implement GNSS. The participants will also have half-day GNSS field survey experience using low-cost receiver for high-accuracy.

Costs:

The course registration fee is free for all participants. The participants have to bear all the following costs as listed below:

1. Travel costs from the participant's home town to AIT, Thailand and back to home-town.
2. Hotel accommodation at AIT Center Hotel for the whole seminar/workshop period
3. All expenses for food, insurance, medical emergencies etc.
4. Any other expenses if any not listed here to cover the participant's expenses

Deadline for Applications : 17th December 2018

Accommodation and Logistics

Participants can stay at the AIT Conference Center with a limit of US\$ 40/night/person. Travel time from the Suvarnabhumi International Airport to AIT is usually one hour. Living cost inside the AIT campus is very reasonable and lunch/dinner cost may vary from 3 USD to 5 USD per meal.

Insurance

Participants are requested to obtain travel and medical insurance before enrolling in the training.

FIND US

www.geoinfo.aist.ac.jp, www.facebook.com/geoinfoait, [www.twitter.com/geoinfoait](https://twitter.com/geoinfoait)

For further information please contact
 Training Coordinator, Geoinformatics Center, Asian Institute of Technology
 P.O.Box 4, King I-Iang, Pathumthani 12120, Thailand
 T : +66 2524 5380, E : geoinfo@ait.asia

Applications can be downloaded from:
www.geoinfo.aist.ac.jp/downloads/GNSS_Application_T131.pdf

Past Training and Additional Information:
<http://www.csis.u-tokyo.ac.jp/~dinesh/>

GNSS Training 2019 : Participants Statistics

Number of Participants	JAN 2019		JAN 2018
	T-151	T-131	T-141
ICG Funded International (travel only)	23 (28)	No funding is provided for T-131	14
UN-ESCAP Funded International (travel only)	4 (5)		x
Self Funded International	30	10	11
Participants from Thailand	20	7	42 (24 + 18)
Total	78	17	67
Applicants	180+		80+
Number of Resource Persons	11 (Int.) + 9 (GIC) = 20		7 (Int.) + 6 (GIC) = 13
Number of Countries	15		15
Resource Persons Countries	7		4

There are NO training fees for these courses

Resource Persons (International)

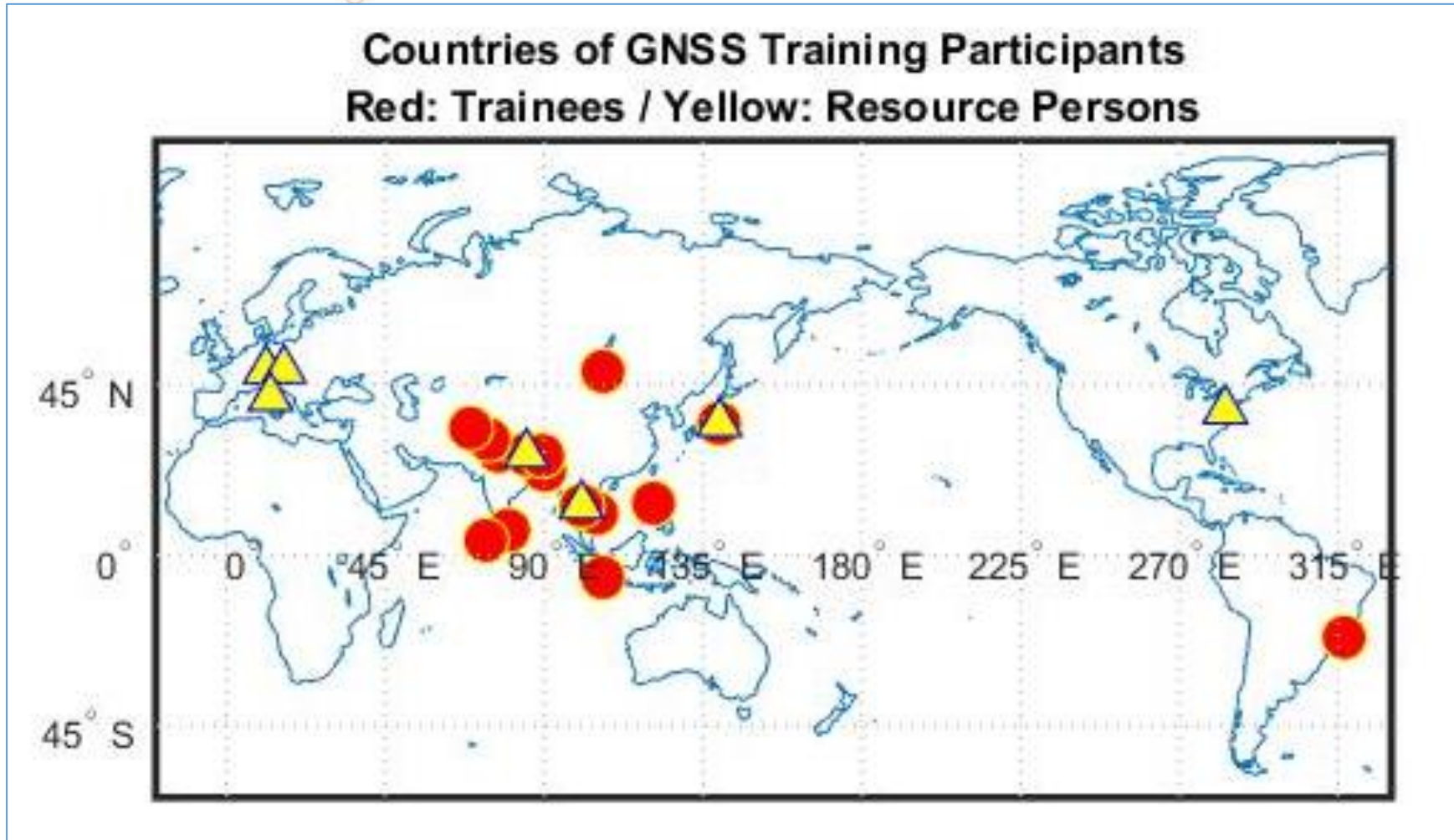
	Name	Affiliation	Country
1	Sharafat Gadimova	UNOOSA/ICG	Austria
2	Martin Sunkevic	GNSS Space Agency (GSA)*	Czech Republic
3	Andreas Schutz	FAF University, Munich, Germany	Germany
4	Gabriella Povero	Istituto Superiore Mario Boella/Fondazione LINKS	Italy
5	Benjamin Ashman	NASA, Goddard Space Flight Center (GSFC) **	USA
6	Dinesh Manandhar	CSIS, The University of Tokyo	Japan
7	Shunji Murai	Professor Emeritus, The University of Tokyo	Japan
8	Nobuaki Kubo	Tokyo University of Marine Science and Technology	Japan
9	So Takahashi	Tokyo University of Marine Science and Technology	Japan
10	Yize Jhang	Tokyo University of Marine Science and Technology	Japan
11	Avinab Malla	SSAGE	Nepal

Resource Persons (GIC/AIT)

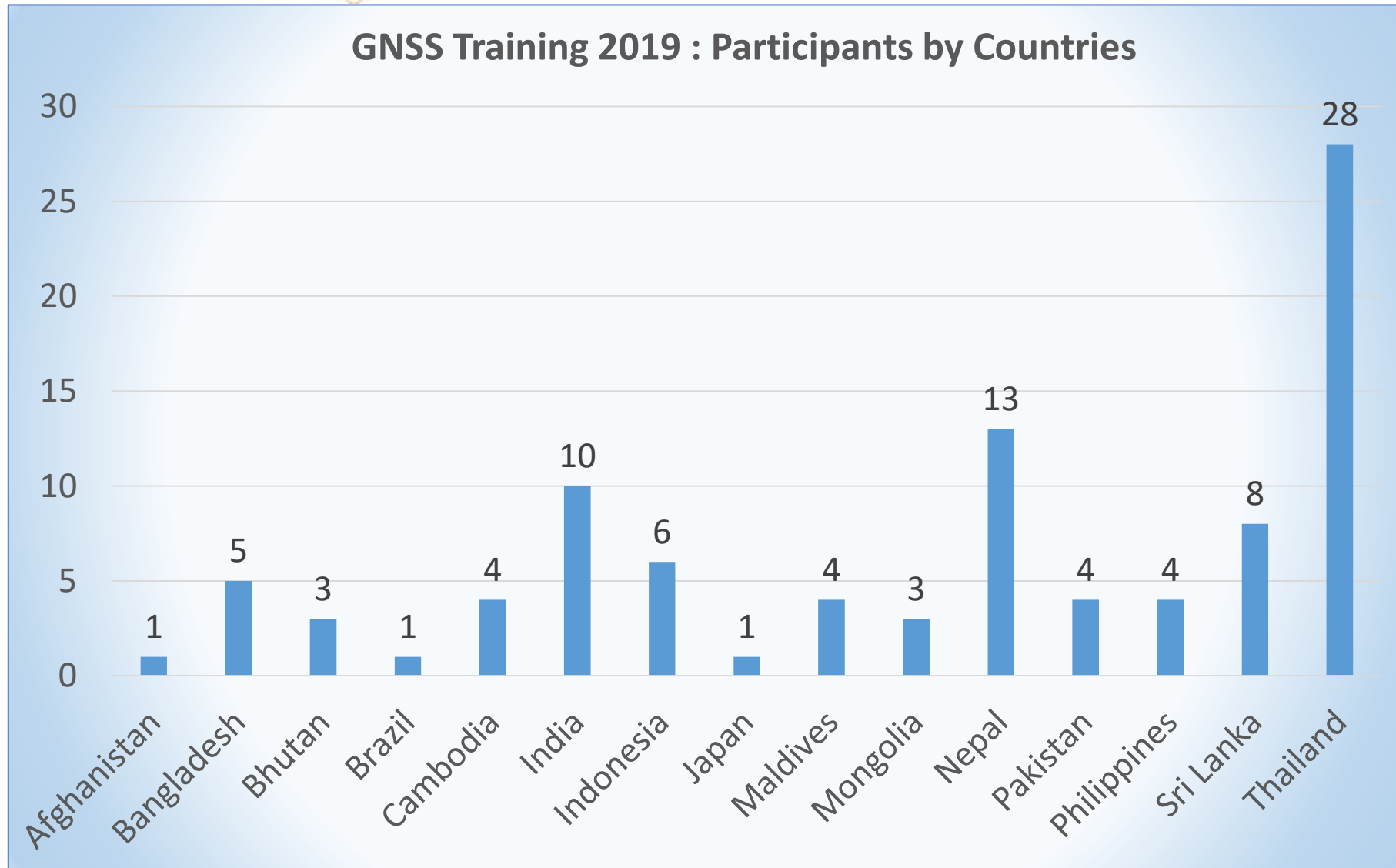
	Name	Affiliation	Country
1	Manzul Hazarika	Geo-Informatics Center (GIC), AIT	Thailand
2	Kavinda Gunasekara	Geo-Informatics Center (GIC), AIT	Thailand
3	Rishiraj Dutta	Geo-Informatics Center (GIC), AIT	Thailand
4	Sasanka Madawalagama	Geo-Informatics Center (GIC), AIT	Thailand
5	Ashok Dahal	Geo-Informatics Center (GIC), AIT	Thailand
6	Tanidpon Jaroenpod	Geo-Informatics Center (GIC), AIT	Thailand
7	Sudchai Naikaset	Geo-Informatics Center (GIC), AIT	Thailand
8	Sinath Nop	Geo-Informatics Center (GIC), AIT	Thailand
9	Chathumal Madhuranga	Geo-Informatics Center (GIC), AIT	Thailand

Funding and Supports

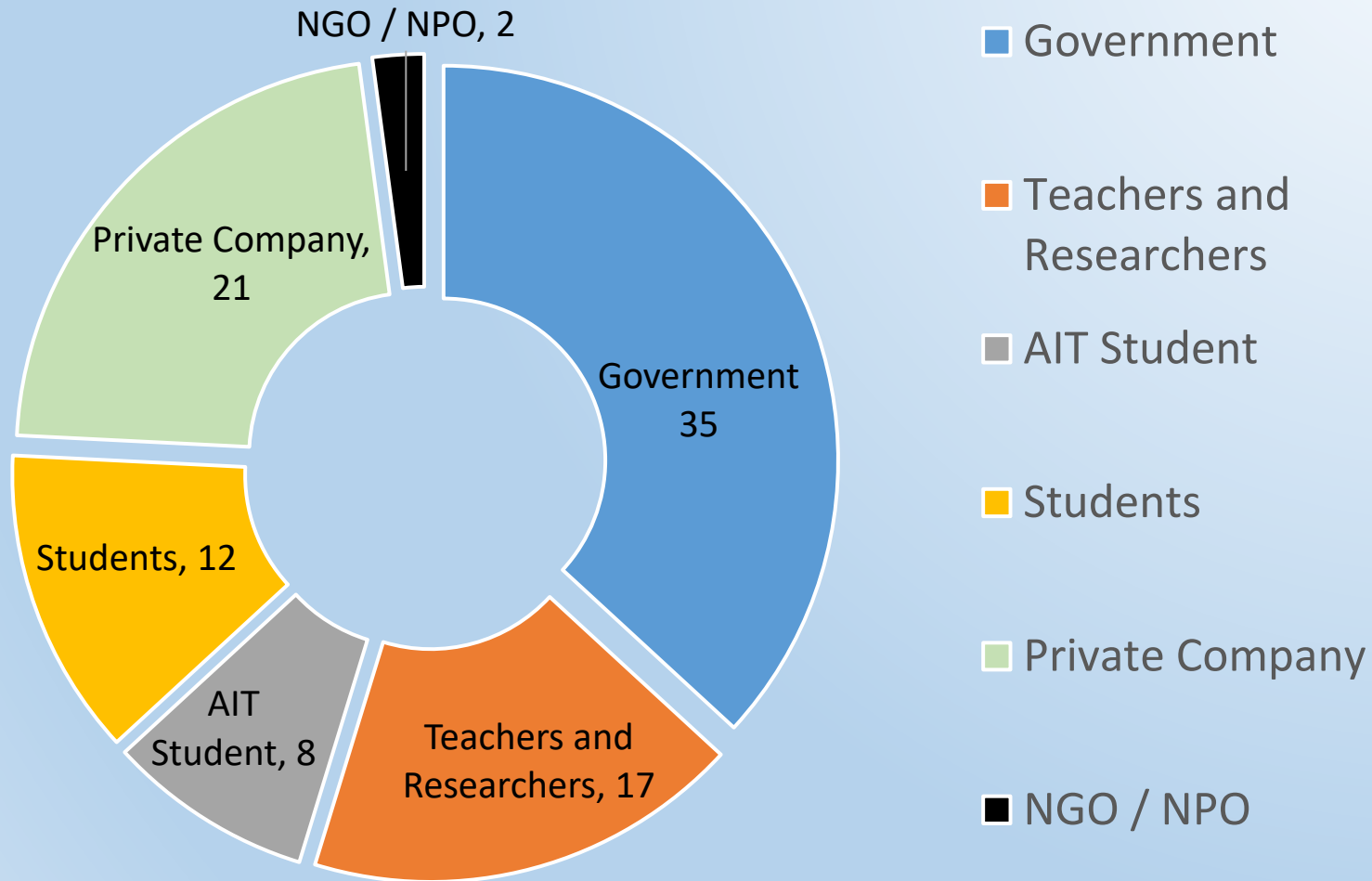
Funding Organization or Sponsors	Funding Type or Sponsorship
ICG/UNOOSA International Committee on GNSS UN Office for Outer Space Affairs	<p style="text-align: center;">23 (28) Participants</p> <p style="text-align: center;">Funding provided for 28 but 5 participants could not attend either due to visa or personal issues</p>
UN-ESCAP	<p style="text-align: center;">4 (5) Participants</p> <p style="text-align: center;">Funding provided for 5 but 1 participant could not attend due to personal issues</p>
Tokyo University of Marine Science & Technology Japan	<p style="text-align: center;">Resource Persons from Japan</p>
Center for Spatial Information Science The University of Tokyo, Japan	<p style="text-align: center;">Resource Persons from Japan</p>
U-blox	<p style="text-align: center;">19 sets of GNSS Receivers for Training purpose</p>
Septentrio	<p style="text-align: center;">Silver Sponsor</p>
MITR PHO Group	<p style="text-align: center;">Silver Sponsor</p>



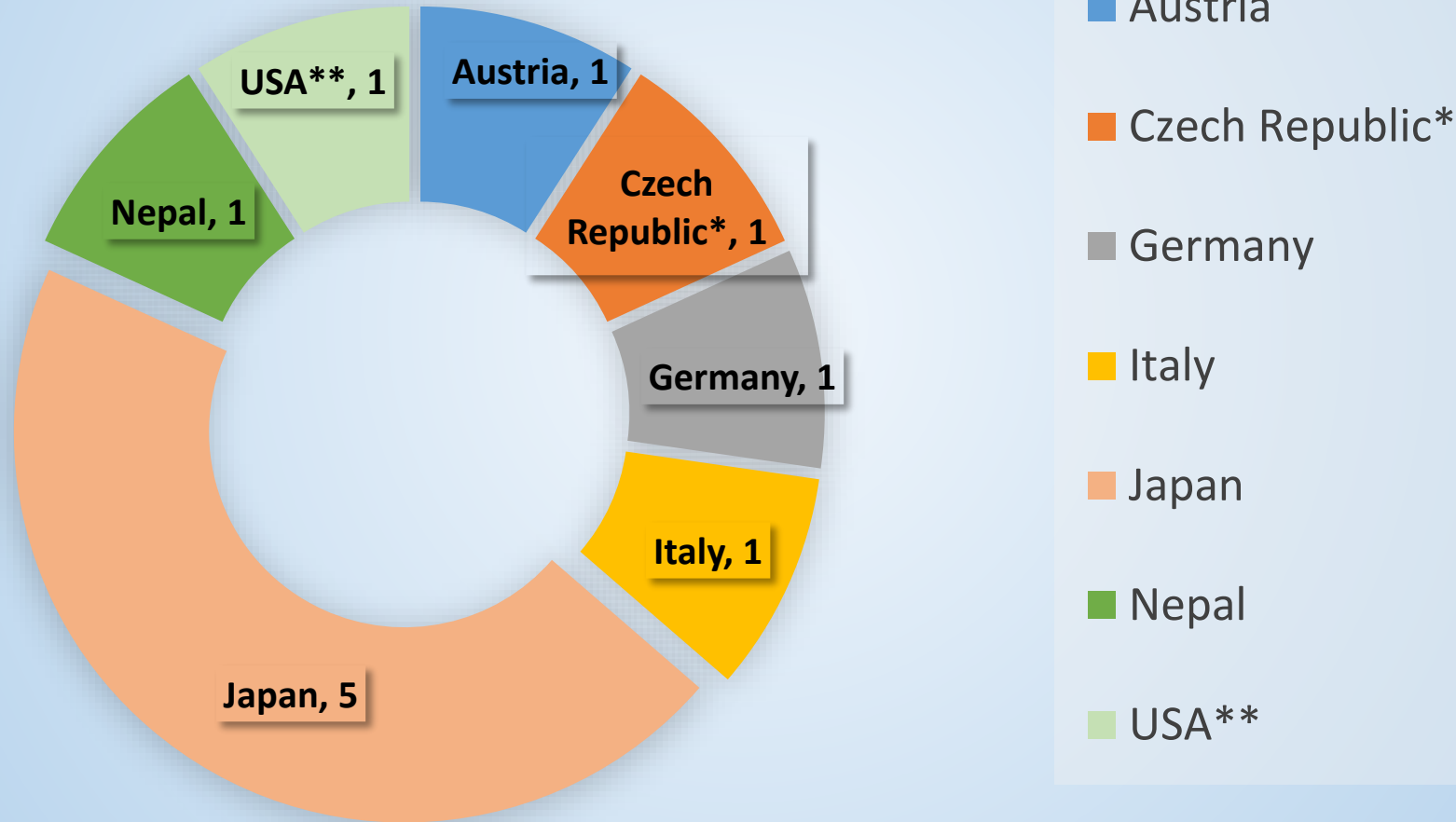
Trainees, 15 Countries
 Resource Persons, 7 Countries



Participants by Institution



Trainers by Country



Gender Balance

