Introduction of United Nations/Japan Long-term Fellowship Programme on Nano-Satellite Technologies Hosted by Kyushu Institute of Technology, Japan ~Doctorate in Nano-Satellite Technologies (DNST)~

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Introduction of KIT

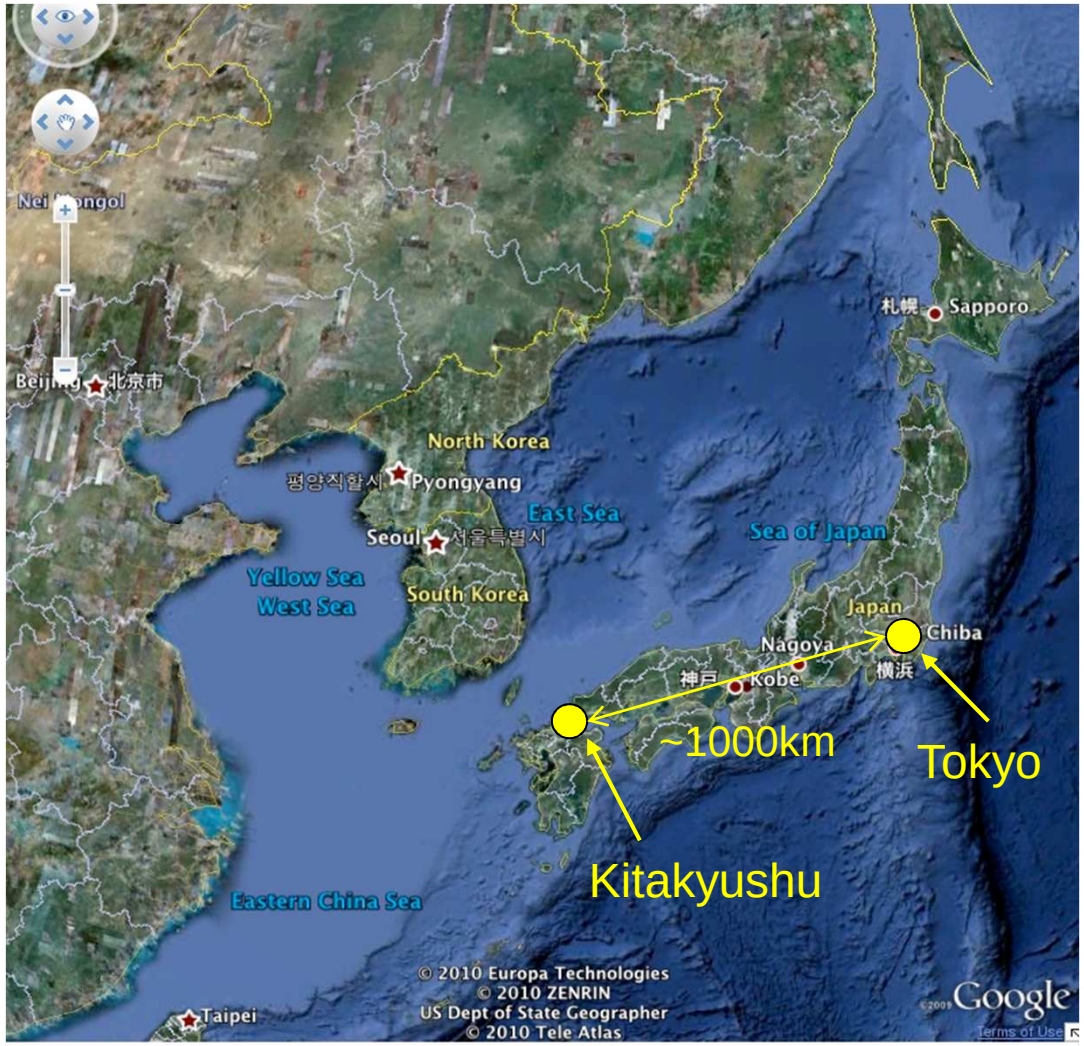
Kyushu Institute of Technology (KIT)

1909	Founded as Meiji College of Technology (4-year, private)
1921	Became a national institution
1949	Renamed as Kyushu Institute of Technology
1986	Addition of Faculty of Computer Science and Systems Engineering
2000	Addition of Graduate School of Life Science and Systems Engineering
2004	Became a National University Corporation
2009	Celebration of 100th anniversary

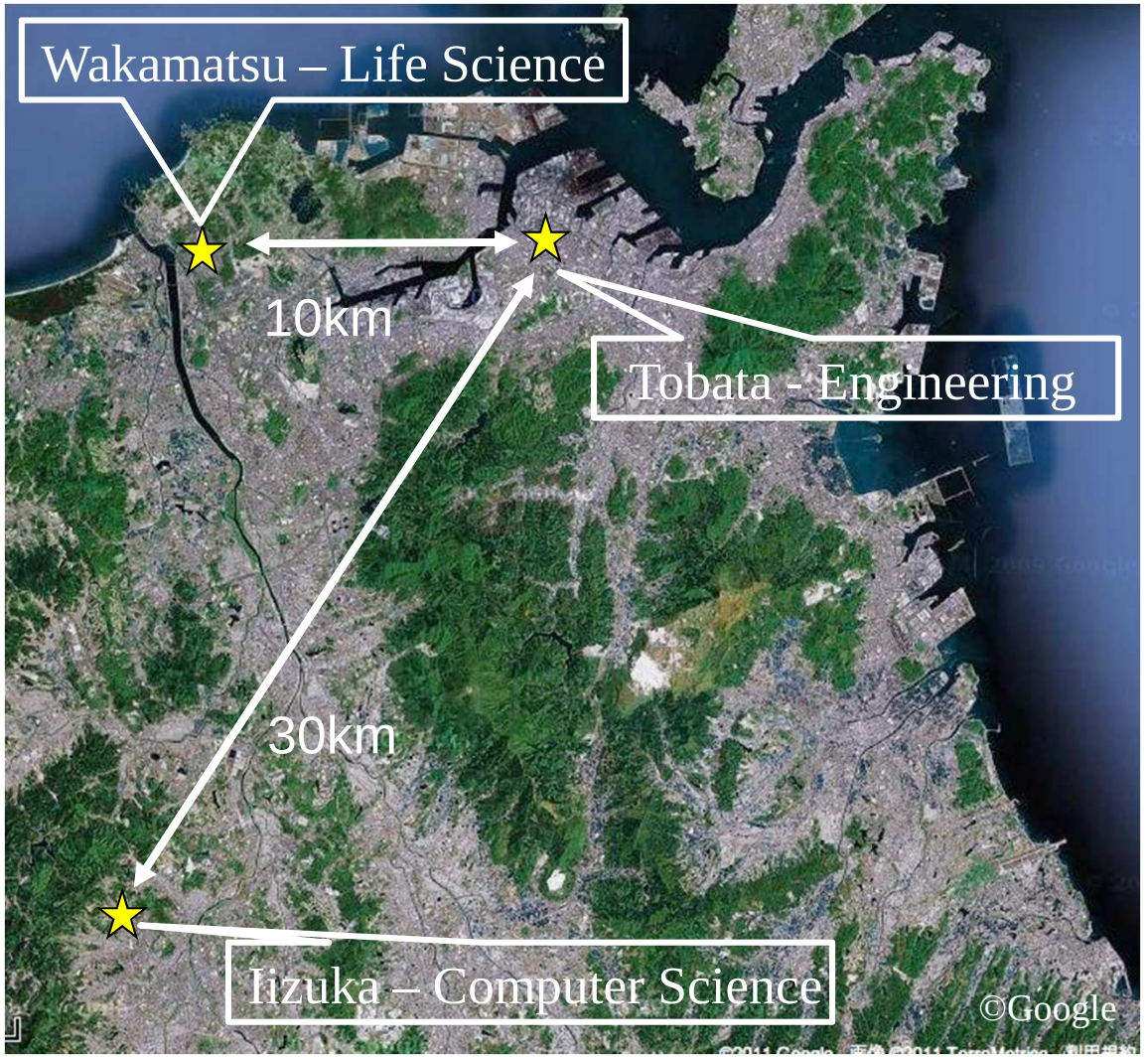
4,400 Undergraduate students
1,700 Graduate students
370 Academic staffs

Kyushu Institute of Technology

- Located at Kitakyushu region
  - Population of more than 1million
  - Cost of living is much lower than Tokyo



Kyushu Institute of Technology



Tobata Campus (Engineering)

- Mechanical and Control Engineering
- Civil Engineering
- Electrical and Electronic Engineering
- Applied Chemistry
- Material Engineering
- Systems Engineering

Iizuka Campus (Computer Science)

Computer Science and Electronics

Systems Innovation and Informatics

Mechanical Information Science & Technology

Bioscience and Bioinformatics

Artificial Intelligence

Wakamatsu Campus (Life Science)

Biological Functions Engineering

Brain Science

International Exchange Partnerships

with 23 countries/regions and 61 universities/institutions

Countries (Regions)	# of partner institutions	Countries (Regions)	# of partner institutions
China	14	Taiwan	1
U.S.A.	5	Malaysia	1
Korea	4	Bangladesh	1
Thailand	4	Pakistan	1
Vietnam	4	Sri Lanka	1
Indonesia	3	Philippines	1
India	3	New Zealand	1
Australia	3	Italy	1
U.K.	3	Poland	1
France	4	Norway	1
Mongolia	2	Spain	1
Germany	2	Total	61

International Students at KIT

Country (Region)	Number of Int'l students	Country (Region)	Number of Int'l students
China	118	U.S.A.	1
Korea	23	Taiwan	1
Malaysia	12	Myanmar	1
Indonesia	11	Syria	1
Vietnam	9	Mexico	1
India	9	Iran	1
Bangladesh	8	Honduras	1
Thailand	6	Philippines	1
France	5	Sri Lanka	1
Laos	3	Liberia	1
Nepal	2	Peru	1
Brazil	2	Tolal	219

Total of 219 international students as of October 2010

Housing of international students

	Rent (per month)	Tobata	Iizuka	Total
For singles	JPY 5,900 (€55)	38	12	50
For couples	JPY 9,500 (€87)	6	3	9
For Families	JPY 14,200 (€129)	6	3	9

Iizuka

Tobata

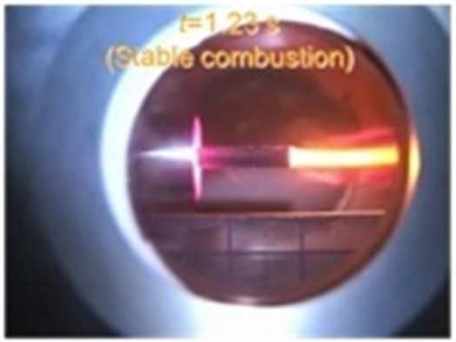
Motivation

- KIT’s motivation for UN/Japan Long Term Fellowship
  - Contributing to humanity through space engineering education to international students and promotion of peaceful use of outer space
  - Recruiting excellent students from all over the world
  - Providing a multicultural learning environment to Japanese students
  - Strengthening Space Engineering researches

Introduction of Doctorate in Nano-Satellite Technologies (DNST) program

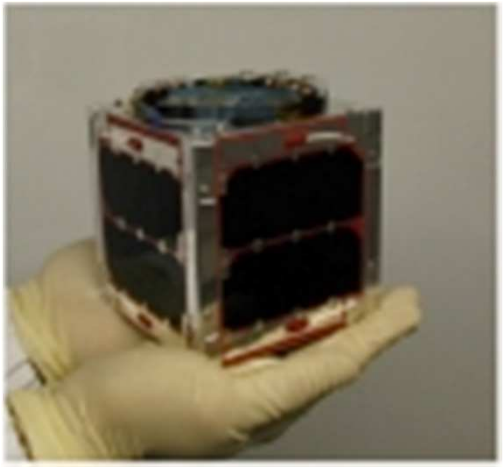
Space Engineering Research and Educations at KIT

- Space Engineering Education at Tobata Campus since 1993
  - Undergraduate (30 students/class) and graduate levels
- Laboratory of Spacecraft Environmental Interaction Engineering
  - Established in 2004
- Center for Nanosatellite Testing
  - Established in 2010

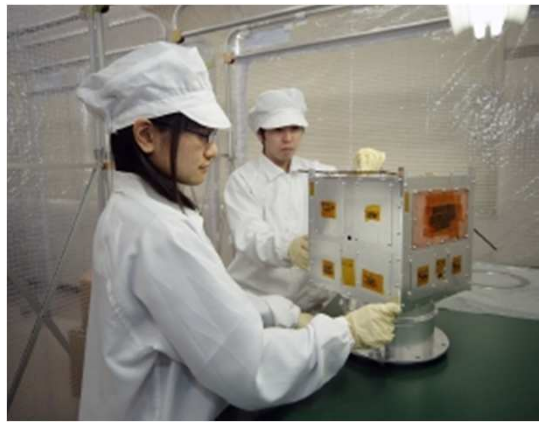


KIT satellite project

- KIT nanosatellite project
  - 20 graduate and undergraduate students working together
    - Responsible for all the processes
      - Conceptual study, design, fabrication, testing and operation
- Official educational program for graduate student
  - Learn systems engineering and project management
  - Writing a Ph.D thesis
    - Extract a state-of-the-art research element from the project work



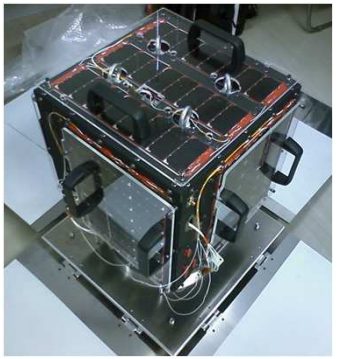
HORYU-I

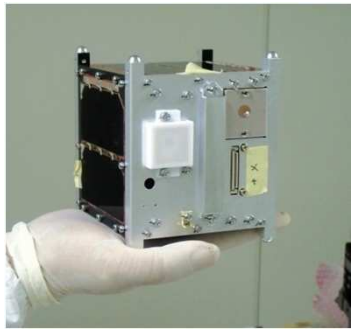


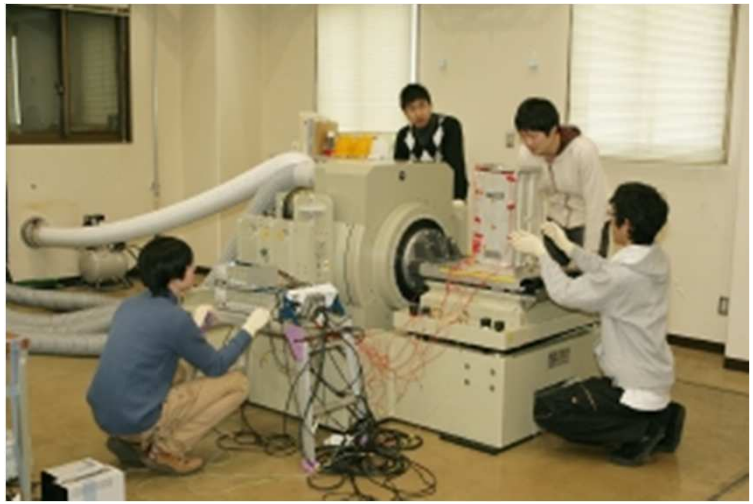
HORYU-II
(to be launched 2011)

Center for Nanosatellite Testing

- Established in 2010
- Provides all the environmental test services except radiation for
  - Nanosatellite up to 50cmx50cmx50cm and 50kg
  - More than 2 million US$ worth equipments
- Reduce the development cost of nano-satellites while ensuring the reliability of the system

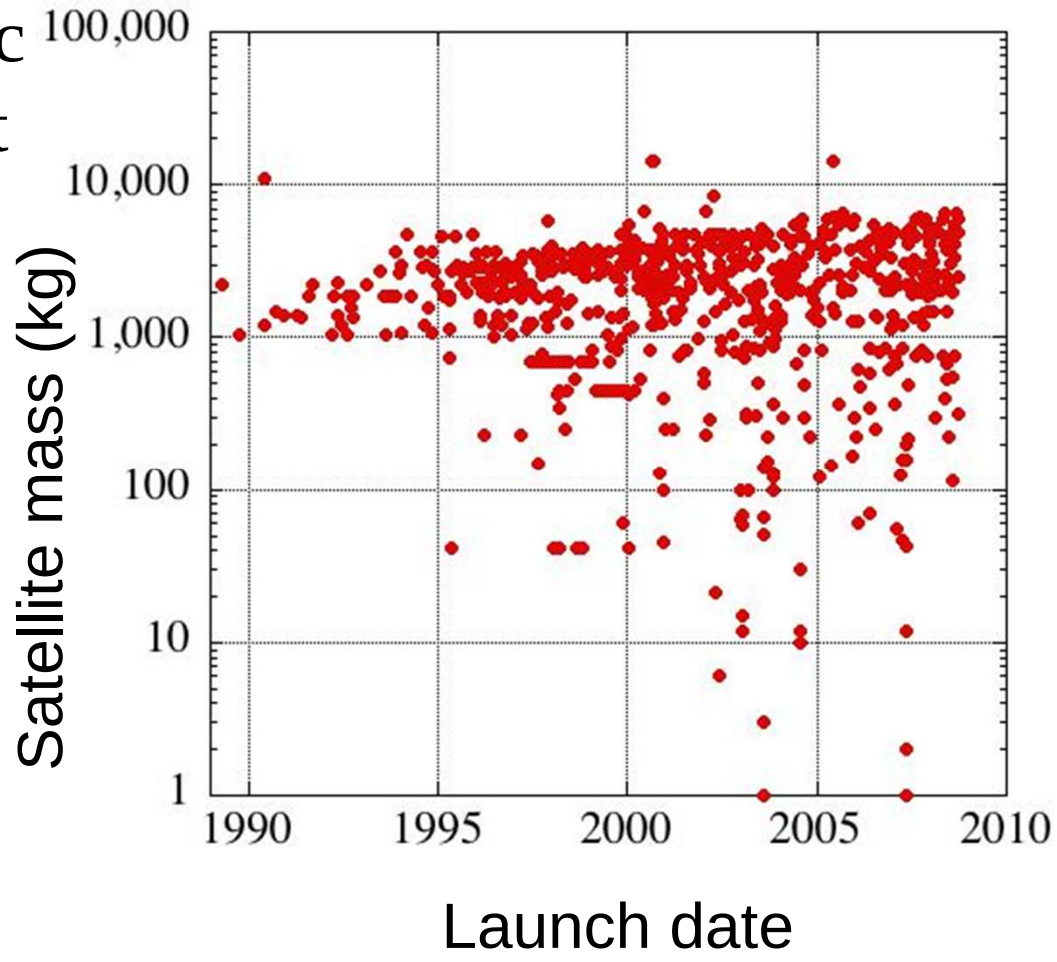






Background

- Interest in capabilities for basic space technology development
- Satellites affordable even to universities and smaller institutions
- Small space enterprises from University-based satellite projects



Background

- Presentation of UN Basic Space Technology Initiative (BSTI) at 27th International Symposium on Space Technology and Sciences, Tsukuba, Japan in 2009
- **Mission**
  - To enhance access to space application tools for sustainable development through building capacity in basic space technology
- **Objectives**
  - Respond to the growing **interest in many countries to establish indigenous capacities in basic space technology**
  - Promote **international cooperation and information exchange** in capacity building in basic space technology
  - Others

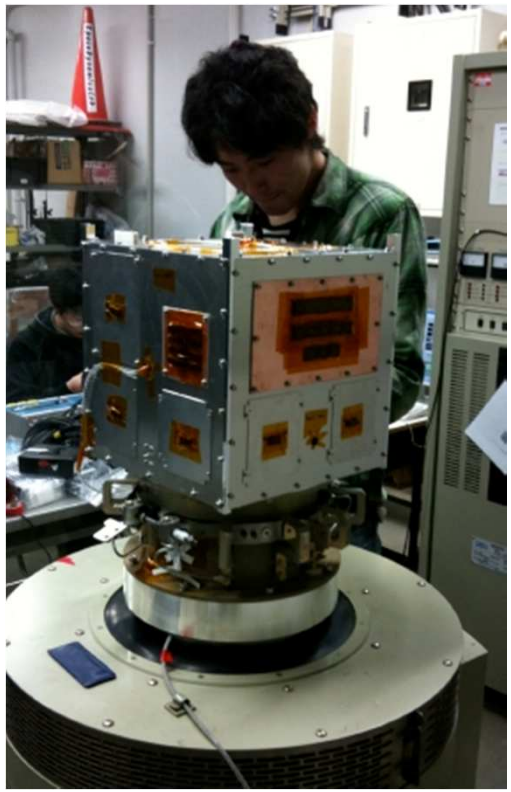
KIT answered the call for collaborations made by UN

Long-term Fellowship Programme

- Long-term fellowship to support students studying abroad and gaining experience through *on-the-job training (OJT)* .
- Reading books or attending lectures is not enough
- Experience the complete cycle of designing, building and testing a satellite
  - Even better with launching and operating
- Learn through the failures during the tests and the efforts necessary to correct the defects
- Learn to *think and be innovative*
  - Participate in a satellite project *as a team member not as a guest*
  - Experience necessary to *build a facility from scratch* in home country
  - University-like environment is more suitable than well-prepared comfortable institutions, such as space agencies or industries

On-the-Job Training

KIT can offer on-the-job training opportunities to those who want to start their own space program in their home country



UN/Japan long-term fellowship

- United Nations/Japan Long-term Fellowship Programme on nano-satellite technologies
  - Doctorate in Nano-satellite Technologies (DNST)
- KIT provides financial support to students entering Doctorate programme (3 years) from developing countries or countries in economic transition
  - Extensive research opportunities in core technologies for nanosatellie system development
    - Especially infrastructure, such as testing
  - Participate in the KIT satellite project
    - Find a research topic for Ph.D. thesis
  - Doctorate degree (Doctor of Engineering) after completion of 3 year course work/research and successful defense of the Ph.D. thesis
- **The first student to enroll in KIT on October 1, 2011**

UN/Japan long-term fellowship

- Support by KIT
  - 2 students each year, 3 years for each student
  - Enrolment as a full-time Ph.D. candidate student after passing an examination by KIT faculties.
  - Exemption from the tuition and entrance fees
  - Room in on-campus dormitory (5,900 yen/month = 55 euro/month)
  - Living expense of 80,000 yen per month
- Support by UN
  - Presentation of the DNST programme to the UN Member States
  - Promotion of the DNST programme on the UNOOSA web site
  - Pre-selection of the candidate student (KIT will make the final selection.)
  - Payment of the travel expenses to KIT

How to apply?

- Application package is at
- For UN
- http://www.unoosa.org/oosa/en/SAP/bsti/fellowship.html
- Or Google “UN Japan space fellowship”
- For KIT
- http://cent.ele.kyutech.ac.jp/unitednations.html

The application deadline is April 30, 2011

For further detail

cho@ele.kyutech.ac.jp (KIT)

werner.balogh@unoosa.org (UN)

Conclusions

- United Nations/Japan Long-term Fellowship Programme on nano-satellite technologies
  - Provide the hands-on experience necessary to build capabilities in basic space technology, especially infrastructure building through testing of nano-satellites
  - Further worldwide nano-satellite development efforts

Goal

Promote the peaceful and innovative use of outer space with the participation of a larger number of countries for the benefit of humanity