

GNSS Education Activities The University of Tokyo

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Fourteenth Meeting of the International Committee on Global Navigation Satellite Systems (ICG)

Meeting of the Working Group C on Information Dissemination and Capacity Building

8 - 13 December 2019

Bangalore, India

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Overview

- Conducts GNSS Trainings, Workshops and Seminars
 - Basically in Asian countries
 - Indonesia, India, Laos, Malaysia, Myanmar, Nepal, Thailand, The Philippines, Singapore, Vietnam
 - Bangladesh (planned in 2020), Egypt (JAN 2020)
 - Also, Some African Countries
 - Mozambique, Rwanda
- Conducts Webinars
 - Conduct webinars under MGA (Multi-GNSS Asia)
 - Global Access, Anybody can attend and free
 - Upto 100 participants online webinar at a time
 - Please register at <http://gnss.peatix.com>
- Conducts Joint Research and Pilot Projects
 - Low-Cost High-Accuracy GNSS Systems
 - Traffic Congestion Management
 - Traffic Monitoring
 - GNSS Signal Authentication
 - Supply-Chain Value Analysis
 - Illegal Fishing Monitoring
 - Any GNSS-based Application of your interest
- Installation of GNSS CORS
 - Install GNSS CORS in the Universities around the world for joint research, GNSS technology promotion and capacity building
- RPD (Rapid Prototype Development) Challenge during MGA (Multi-GNSS Asia)
 - Encourage students and researchers to bring solutions and business values by solving real-life problems
 - The 1st RPD Challenge was done during MGA 2018 in Melbourne, Australia on 24th OCT 2018
 - The 2nd RPD Challenge was done during MGA 2019 in Bangkok, Thailand on 27 – 29 AUG 2019
 - The 3rd RPD Challenge will be held during MGA 2020 in Bangkok, Thailand on XX AUG 2020
- Develop Low-Cost High-Accuracy Positioning Systems (L-CHAPS)
 - Integrate low-cost receivers for RTK, PPK or PPP processing
 - Android or Raspberry Pi versions
 - Based on QZSS MADOCA Signals
 - RTKDROID : An android APP for RTK with external GNSS receiver

Training on GNSS, Jointly Organized by GIC/AIT, UTokyo and ICG

Training on GNSS - Course: T151-40



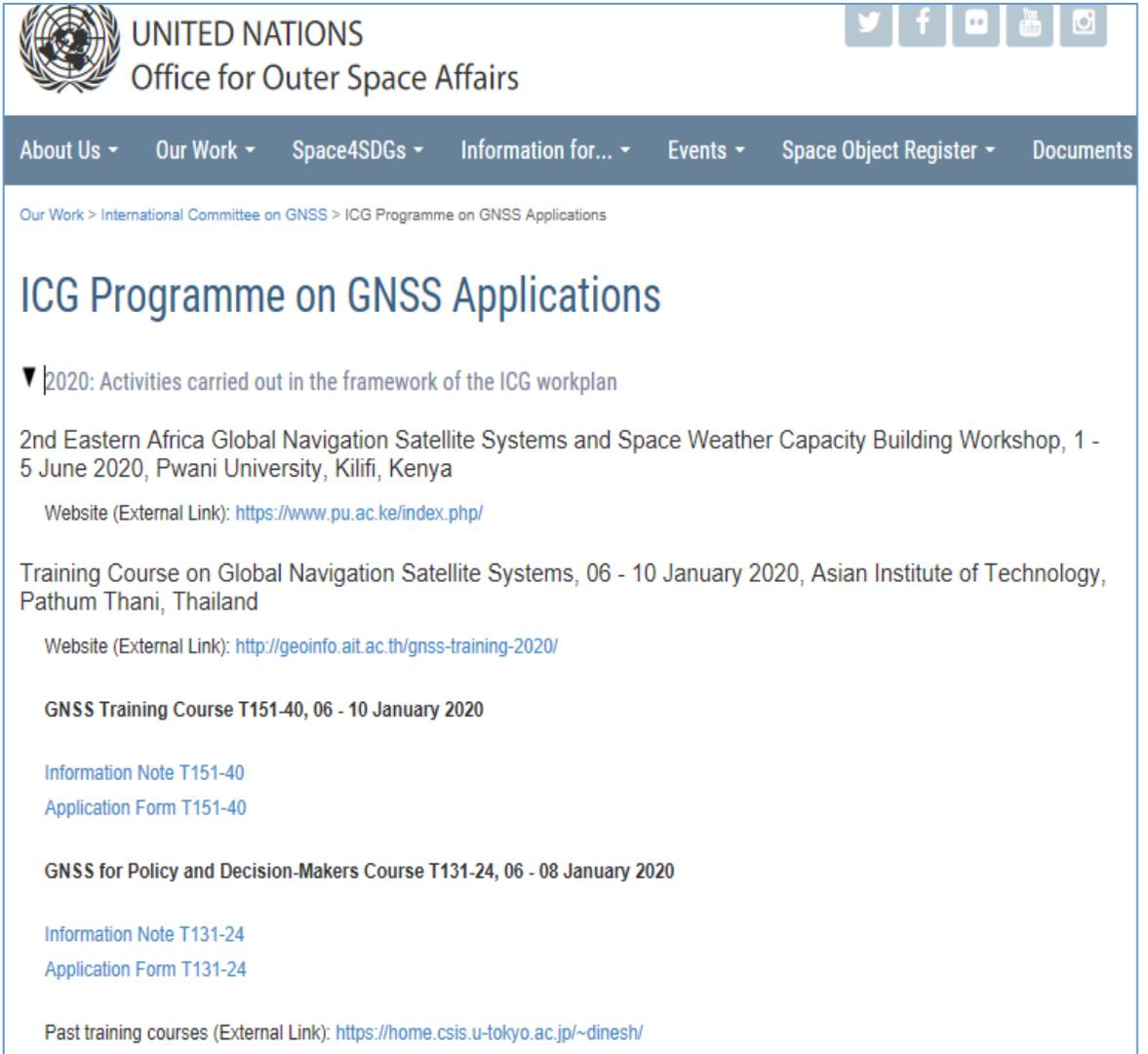
Brochure

Application Form

GNSS Course for Policy and Decision Makers - Course: T131-24



Brochure



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ICG Programme on GNSS Applications

▼ |2020: Activities carried out in the framework of the ICG workplan

2nd Eastern Africa Global Navigation Satellite Systems and Space Weather Capacity Building Workshop, 1 - 5 June 2020, Pwani University, Kilifi, Kenya
Website (External Link): <https://www.pu.ac.ke/index.php/>

Training Course on Global Navigation Satellite Systems, 06 - 10 January 2020, Asian Institute of Technology, Pathum Thani, Thailand
Website (External Link): <http://geoinfo.ait.ac.th/gnss-training-2020/>

GNSS Training Course T151-40, 06 - 10 January 2020

[Information Note T151-40](#)
[Application Form T151-40](#)

GNSS for Policy and Decision-Makers Course T131-24, 06 - 08 January 2020

[Information Note T131-24](#)
[Application Form T131-24](#)

Past training courses (External Link): <https://home.csis.u-tokyo.ac.jp/~dinesh/>

GNSS Training at GIC/AIT, Thailand, 23 – 26 JAN 2018 Jointly organized by CSIS/UT, GIC/AIT and ICG



Afghanistan, Australia, Austria, Bangladesh, Bhutan, Cambodia, India, Indonesia, Japan,
Maldives, Mongolia, Nepal, The Philippines, Sri Lanka, Tajikistan, Thailand,
The United States of America, Vietnam
64 Participants from 15 Countries

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

14 – 18 January 2019

AIT Conference Center, AIT, Thailand



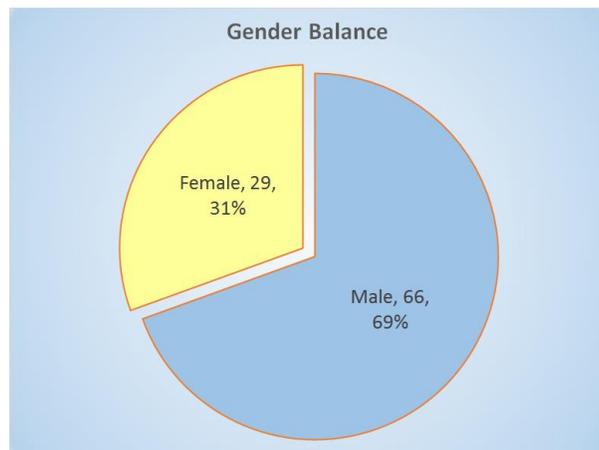
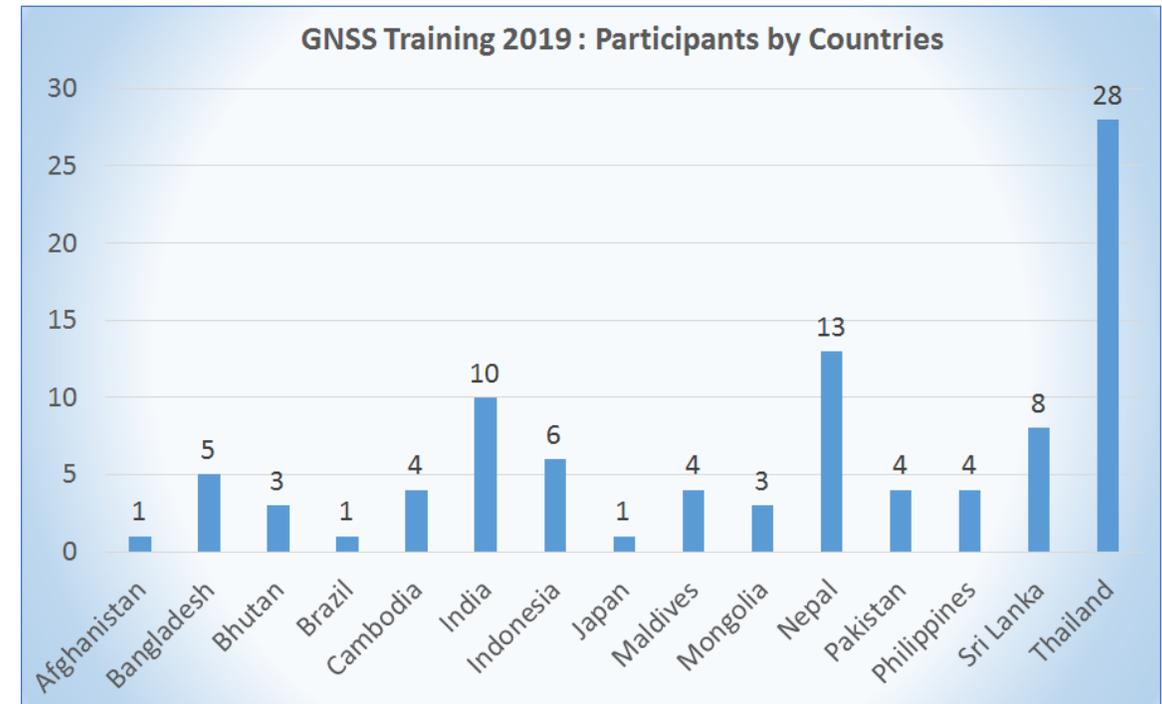
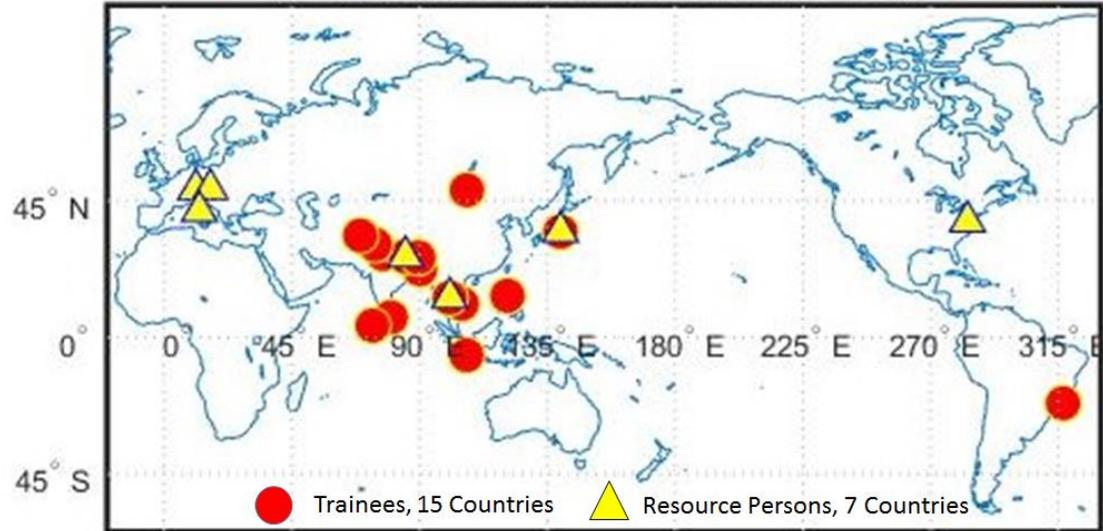
GNSS Training 2019 : Participants Statistics

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

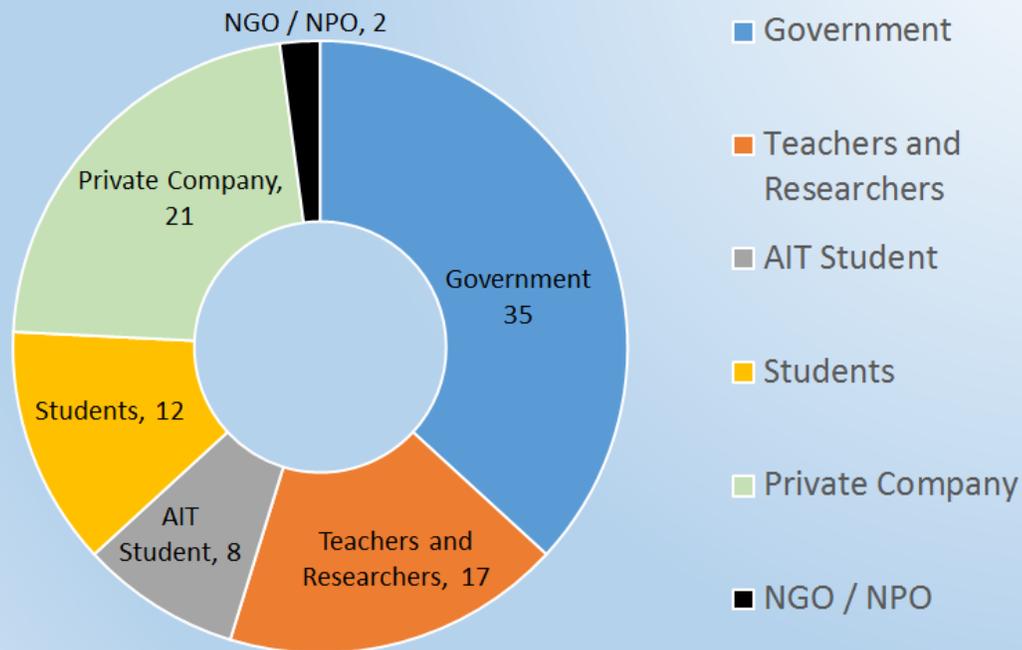
GNSS Training 2019 : Participants Statistics

Countries of GNSS Training Participants
Red: Trainees / Blue: Resource Persons

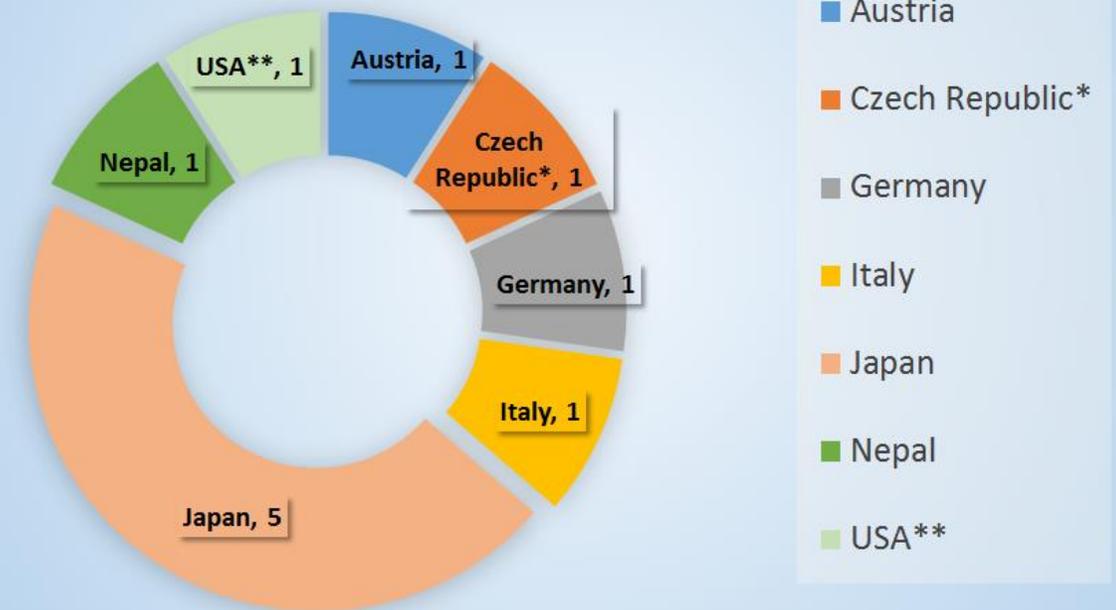


GNSS Training 2019 : Participants Statistics

Participants by Institution



Trainers by Country



GNSS Training, Course: T151



GNSS for Policy and Decision Makers, Course: T131



GNSS Field Survey and Data Processing

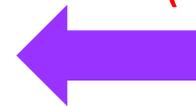


GNSS Field Survey and Data Processing

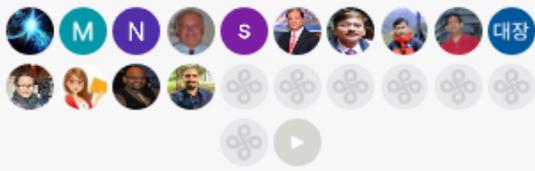
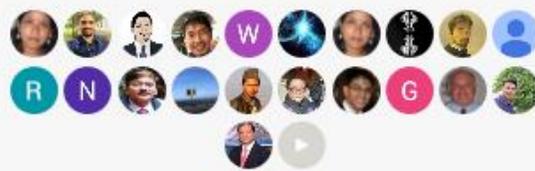
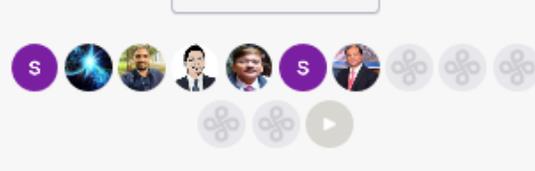


MGA (Multi-GNSS Asia) Activities

- We organize the following programs in MGA
 - Webinars
 - Regular webinars by inviting experts in the field
 - Please accept our requests to become a resource persons to give webinars
 - RPD Challenges
 - Rapid Prototype Development Challenge is held under Young Professionals' Forum session of MGA
 - Students, Researchers or Enthusiasts who would like to challenge with their ideas related with GNSS applications are welcome to attend
 - Forthcoming MGA Programs
 - MGA 2020 in Singapore : 6 – 7 FEB 2020
 - MGA 2020 in Thailand : xx AUG 2020 (During Thailand Space Week)
 - Refer : <https://www.multignss.asia/>



MGA Webinars

MGA Webinar # 08	MGA Webinar #09	MGA Webinar # 10	MGA WEBINAR # 12
by GNSS	by GNSS	by GNSS	by GNSS
Tokyo Dec 6, 2018 (Thu)	Tokyo Jul 16, 2019 (Tue)	Tokyo Aug 6, 2019 (Tue)	Surat, Gujarat, India Dec 6, 2019 (Fri)
Invitation Ticket (Free)	By Registration Only	By Registration Only (Tickets are Free)	Free Invitation
Tickets closed	Tickets closed	Tickets closed	Tickets closed
			
33 ATTENDING	37 ATTENDING	12 ATTENDING	30 ATTENDING

Please Refer the following sites for details (Past presentation files, video files and data are available):

<https://gnss.peatix.com/>

<https://home.csis.u-tokyo.ac.jp/~dinesh/WEBINAR.htm>

MGA: RPD Challenge



RPD Challenge during MGA, 2019, Bangkok



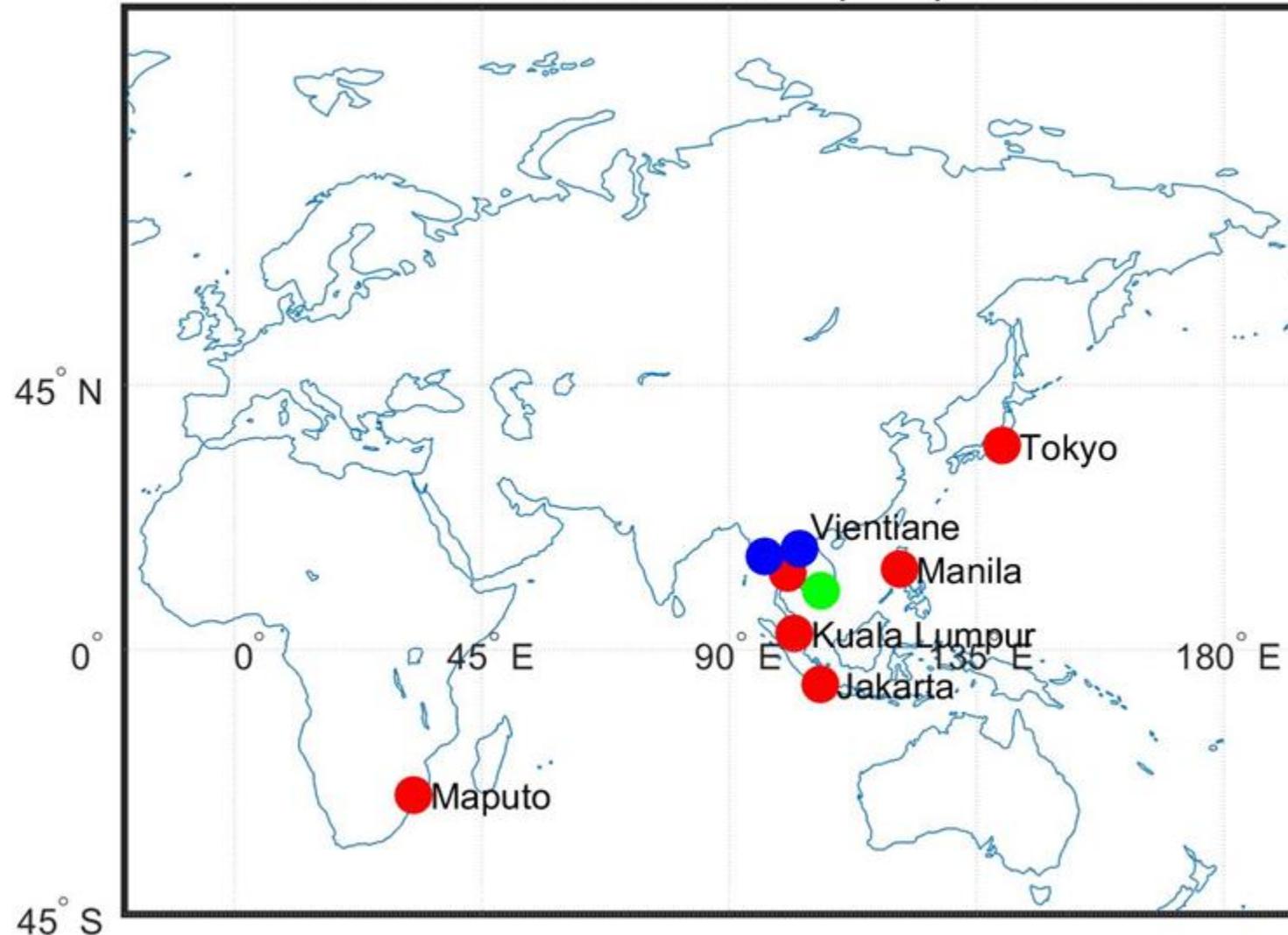
RPD Challenge Participants, MGA 2019, Bangkok



RPD Challenge Participants during MGA 2019 held in Bangkok in AUG 2019

Installation of Base-Station in Universities for Capacity Building

Asian Base-Station Network (ABN) Locations

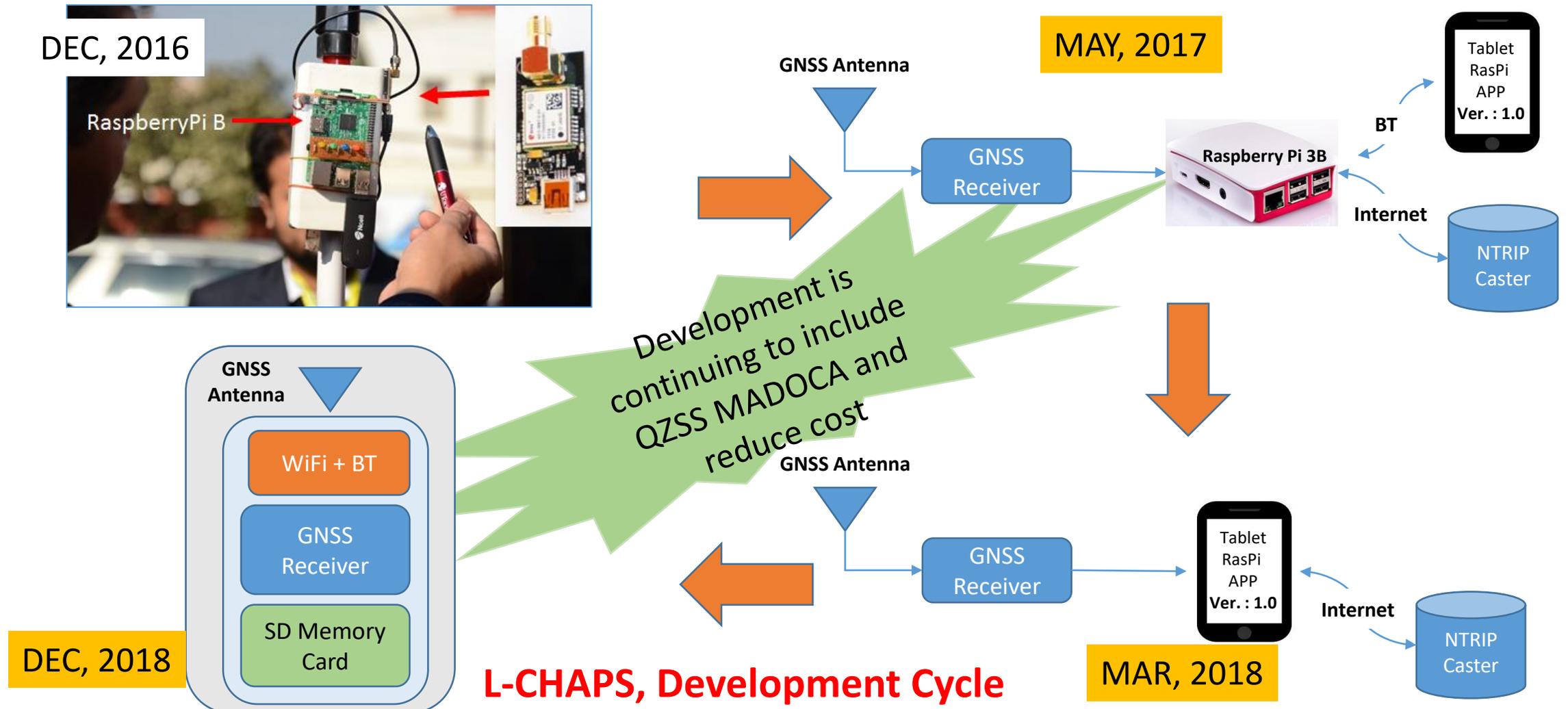


Installation of Base-Stations in Universities for Capacity Building

Country	Place	University	Receiver Type
Indonesia	Jakarta	University of Indonesia	GNSS (1) / GNSS + MADOCA (1)
Japan	Tokyo-A	The University of Tokyo	GNSS (1) / GNSS + MADOCA (1)
Japan	Tokyo-B	Tokyo University of Marine Science & Tech.	GNSS (1) / GNSS + MADOCA (1)
Japan	Tokyo-C	KEIO University	GNSS (1)
Laos	Vientiane	National University of Laos	GNSS (1)
Malaysia	Kuala Lumpur	Malaysia Japan International Institute of Tech.	GNSS (1) / GNSS + MADOCA (1)
Myanmar	Yangon	Yangon Technological University	GNSS (1)
Thailand	Bangkok	Chulalongkorn University	GNSS (1) / GNSS + MADOCA (1)
Thailand	Pathumthani	Asian Institute of Technology	GNSS(1)
Philippines	Manila	University of the Philippines	GNSS (1) / GNSS + MADOCA (1)
Vietnam	Ho Chi Minh City	International University Vietnam National University	GNSS (1) GNSS + MADOCA (Feb 2020)
Mozambique*	Maputo	Universidade Eduardo Mondlane	GNSS (1)
Singapore	Singapore	TBD	GNSS + MADOCA (1)
Australia	Perth	Curtin University	GNSS + MADOCA (1)

Low-Cost High-Accuracy Positioning System(L-CHAPS),Development Cycle

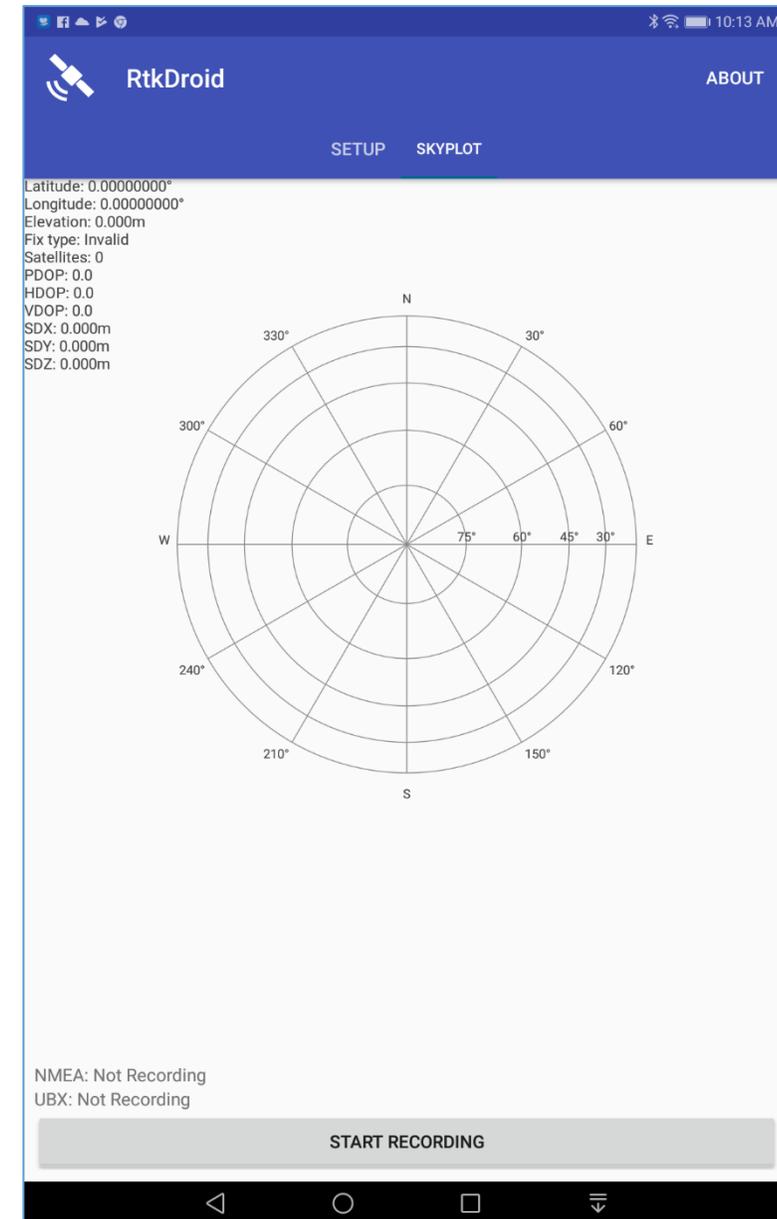
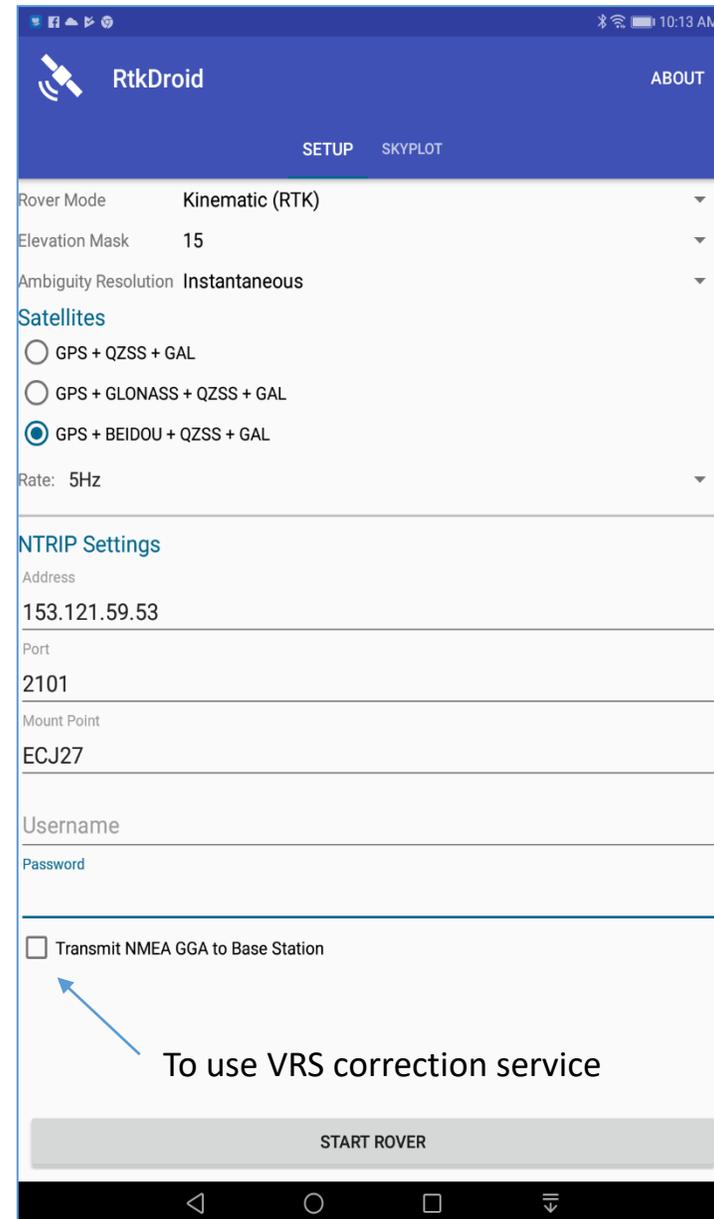
Definition of Low Cost : Cost Less than \$100, Accuracy Better than 100cm, Weight Less than 100gm



Android APPs for GNSS Data Logging & Processing

- **RTKDROID**
 - Real-Time RTK for Android devices
 - Based on RTKLIB
 - Already Released – Distribution by Request
 - Send e-mail to dinesh@csis.u-Tokyo.ac.jp
- **MADROID**
 - Real-Time PPP based on MADOCA correction data through MADOCA server
 - Based on u-blox F9 dual frequency receiver
 - Under Developed – will be released Q1 2019
 - **Development Delayed / New Plan is Q2 2020**

RTKDROID APP



Link for Reference Materials

- Lab Home Page
 - <https://home.csis.u-tokyo.ac.jp/~dinesh/>
- GNSS Training Materials, Data etc
 - 2019: https://home.csis.u-tokyo.ac.jp/~dinesh/GNSS_Train.htm
 - 2018: https://home.csis.u-tokyo.ac.jp/~dinesh/T141_30.htm
- GNSS Webinar
 - <https://home.csis.u-tokyo.ac.jp/~dinesh/WEBINAR.htm>
 - <https://gnss.peatix.com>
- Link to Documents, Software, Android APP etc.
 - <https://home.csis.u-tokyo.ac.jp/~dinesh/Download.htm>
- Facebook : <https://www.facebook.com/gnss.lab> (GNSS Related)
- Contact : dinesh@csis.u-tokyo.ac.jp