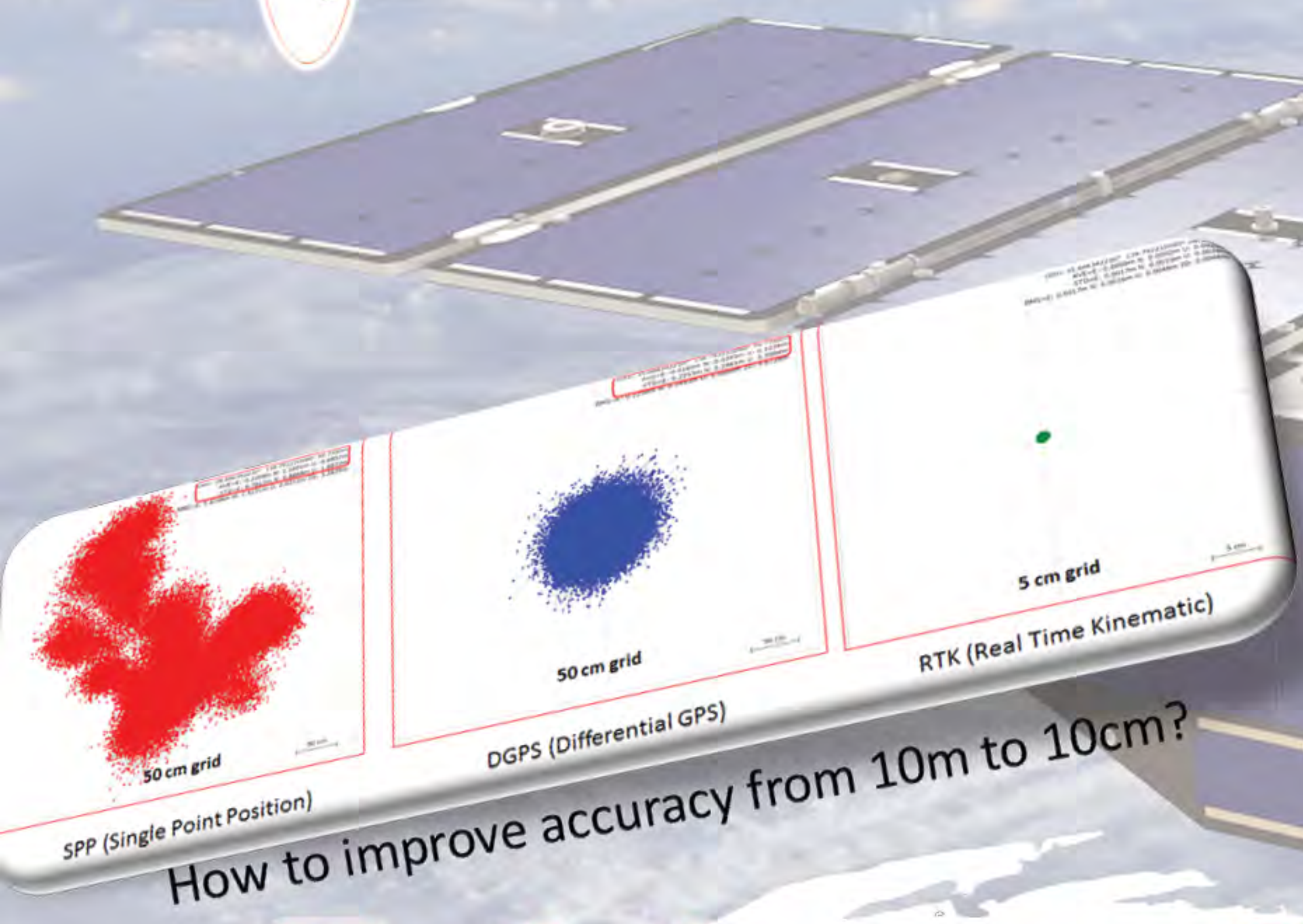


### GNSS Applications

- 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-Securities
- Robotics
- Telecommunication
- Power Grid
- Scientific Timing Applications



# 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 program 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, RTKDROID 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 Analyst, Health Data Analyst, 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**

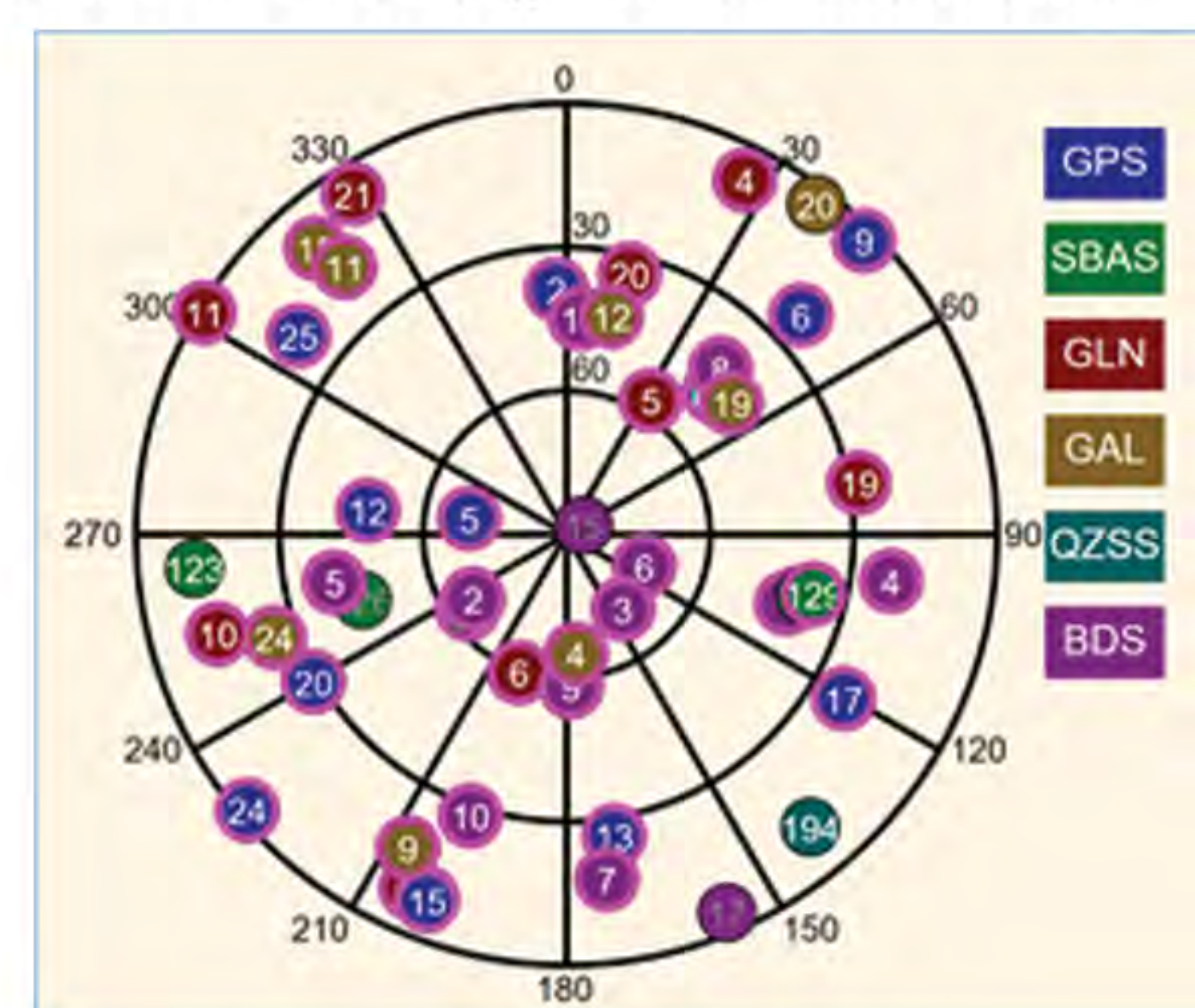
**Self-funding : 17th December 2018**

## Accommodation and Logistics

Participants can stay at the AIT Conference Center with a tariff of US\$ 40-50/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 entering in to Thailand.



## FIND US

[www.geoinfo.ait.asia](http://www.geoinfo.ait.asia), [www.facebook.com/gicait](https://www.facebook.com/gicait), [www.twitter.com/gicait](https://www.twitter.com/gicait)

***For further information please contact***

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P.O.Box 4, Klong Luang, Pathumthani 12120, Thailand  
T : +66 2524 5580, E : [training.gic@ait.asia](mailto:training.gic@ait.asia)

Applications can be downloaded from:

[www.geoinfo.ait.asia/downloads/GNSS\\_Application\\_151.doc](http://www.geoinfo.ait.asia/downloads/GNSS_Application_151.doc)

Past Training and Additional Information :

<http://www.csis.u-tokyo.ac.jp/~dinesh/>