

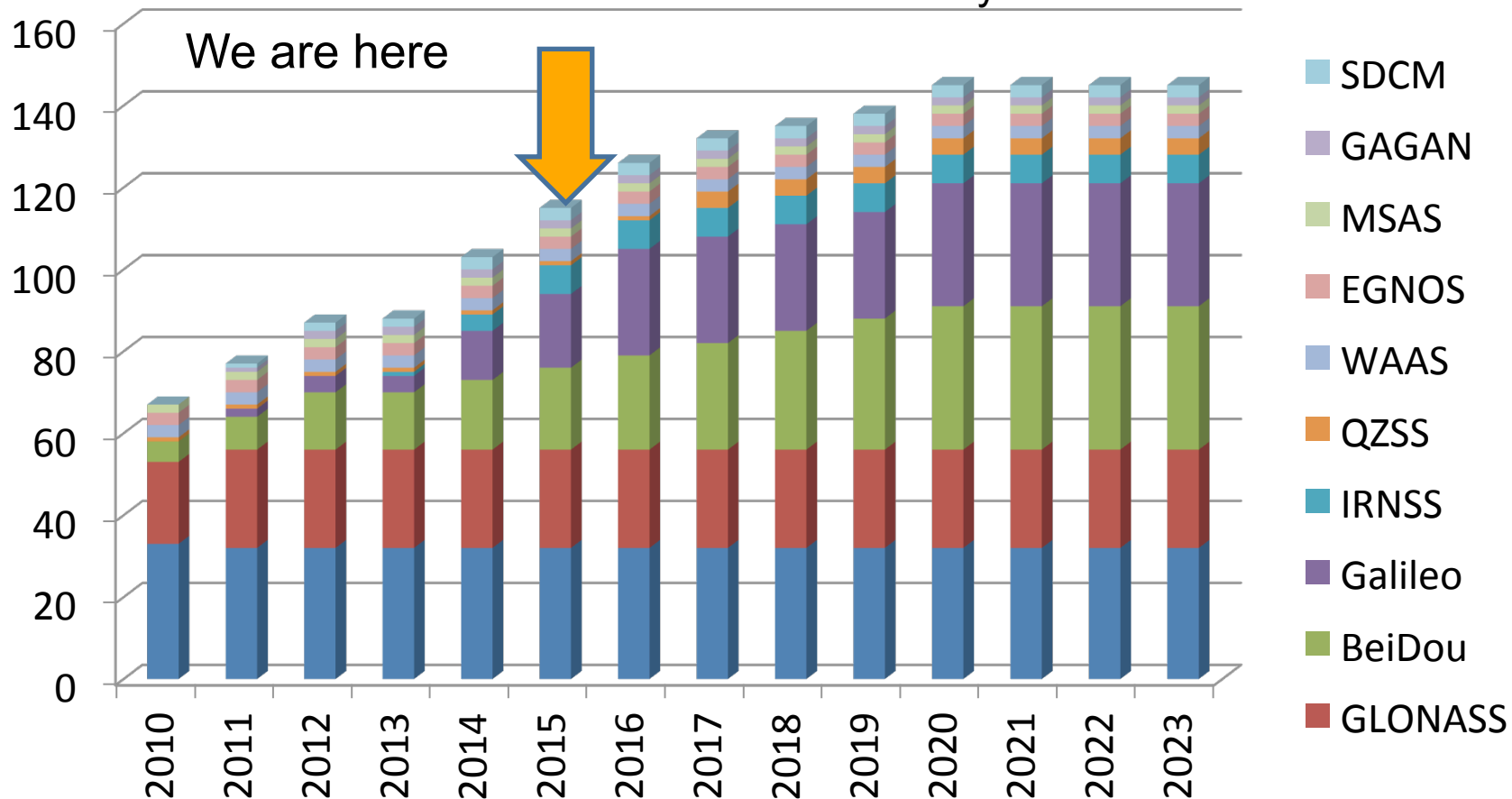
REPORT ON A MULTI-GNSS DEMONSTRATION PROJECT IN THE ASIA/OCEANIA REGION

Multi-GNSS Asia (MGA) Secretariat
Satoshi Kogure
November 1, 2015@UCAR, Boulder USA

Background - Multi GNSS Era-

Multi-GNSS Demonstration Campaign

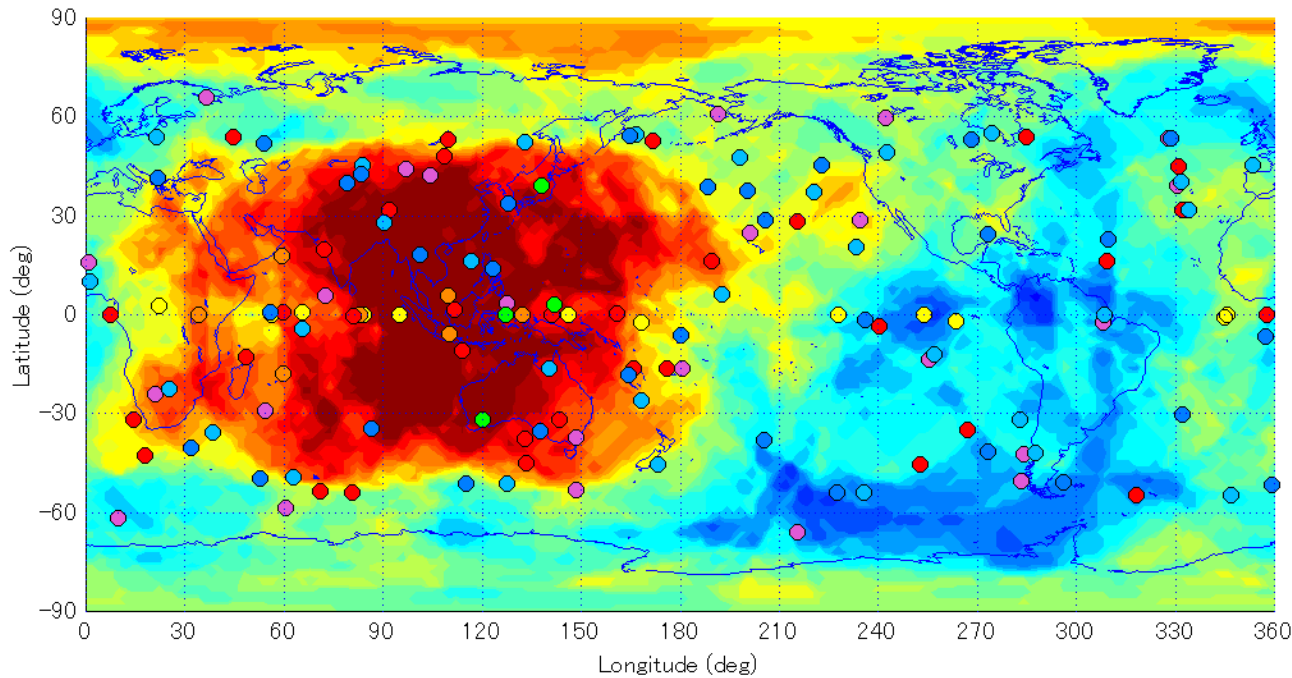
The number of SVs in multi GNSS systems



Asia Oceania Region is showcase of Multi-GNSS Application

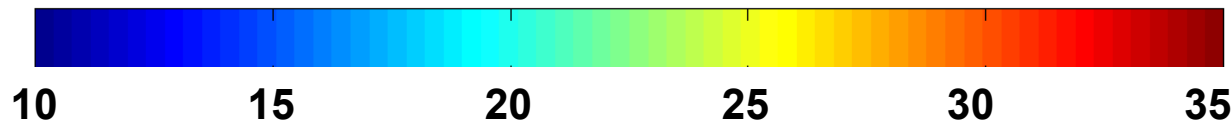
Multi-GNSS Demonstration Campaign

Visible satellite number (mask angle 30 degrees)



2020:

● GPS(32)+ ● Glonass(24)+ ● Galileo(30)+ ● BeiDou(35)+ ● QZSS(4)+ ● IRNSS(7)+ ● SBAS(13)



Organization: What is MGA?

Multi-GNSS Demonstration Campaign

- “Multi GNSS Asia (MGA)” is an international organization to promote and support activities of the “Asia Oceania Multi-GNSS Demonstration Campaign” under United Nation International Committee on GNSS (UN-ICG).
 - MGA was established in September 4th, 2011 in Tokyo as a host organization to promote this campaign.
 - Activity progress has been reported in the ICG provider’s forum which held every year.



public website: www.multignss.asia



1st meeting of MGA Steering Committee



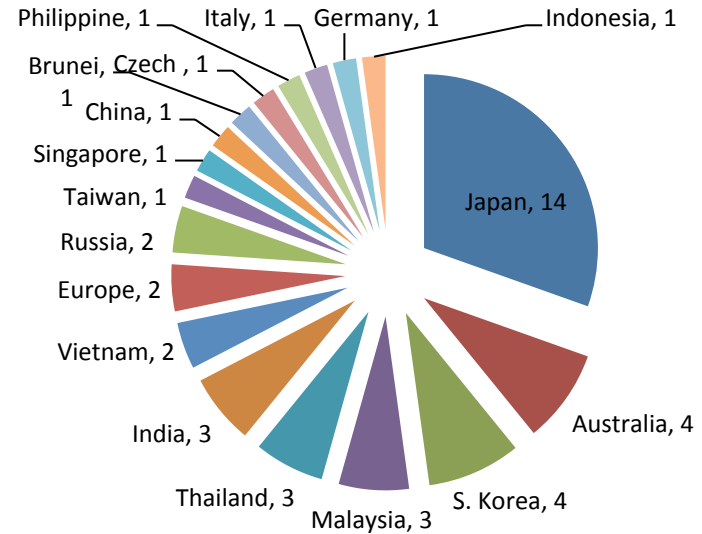
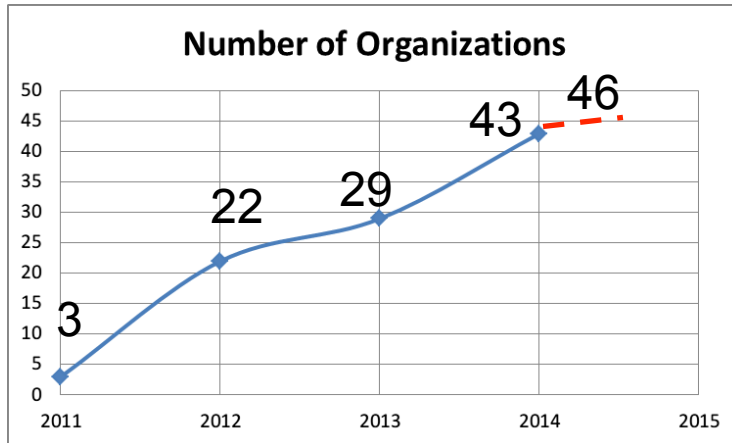
The Main Objective of MGA (Multi-GNSS Asia)

Multi-GNSS Demonstration Campaign

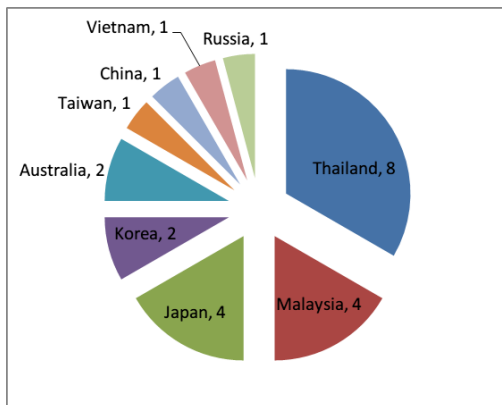
- Encourage GNSS signal and service providers and user communities in the Asia Oceania region to develop new applications, and to carry out experiments or demonstrations by using all available “Multi-GNSS” systems whose interface control documents are public, on a best efforts basis in the spirit of international cooperation.

MGA Participating Organizations

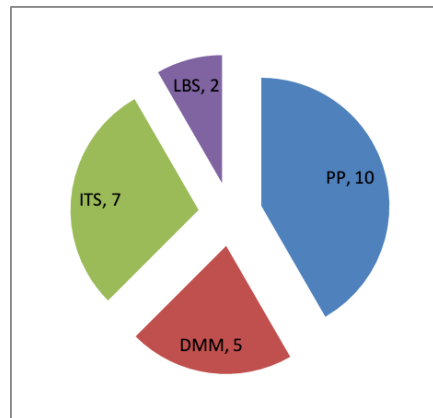
Multi-GNSS Demonstration Campaign



Proposal Countries



Proposal Themes



PP: Precise Positioning
 DMM: Disaster Mitigation / Management
 ITS: Intelligent Transportation System
 LBS: Location Business System

Asia Oceania Multi-GNSS Demonstration Campaign

Multi-GNSS Demonstration Campaign



Establishment of Multi-GNSS Monitoring Network

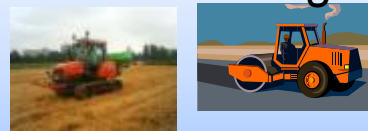


Application Demonstration

Disaster Mitigation



Precise Positioning



ITS



LBS



Other, ionospheric observation etc

Regional Workshop

6th Workshop,
Oct. 2014 @
Phuket, Thailand



5th Workshop,
Dec. 2013 @
Hanoi, Vietnam



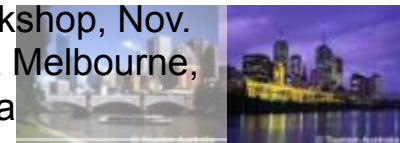
4th Workshop,
Dec. 2012 @
Kuala Lumpur,
Malaysia



3rd Workshop,
Nov. 2011 @
Jeju, Korea:



2nd Workshop, Nov.
2010 @ Melbourne,
Australia

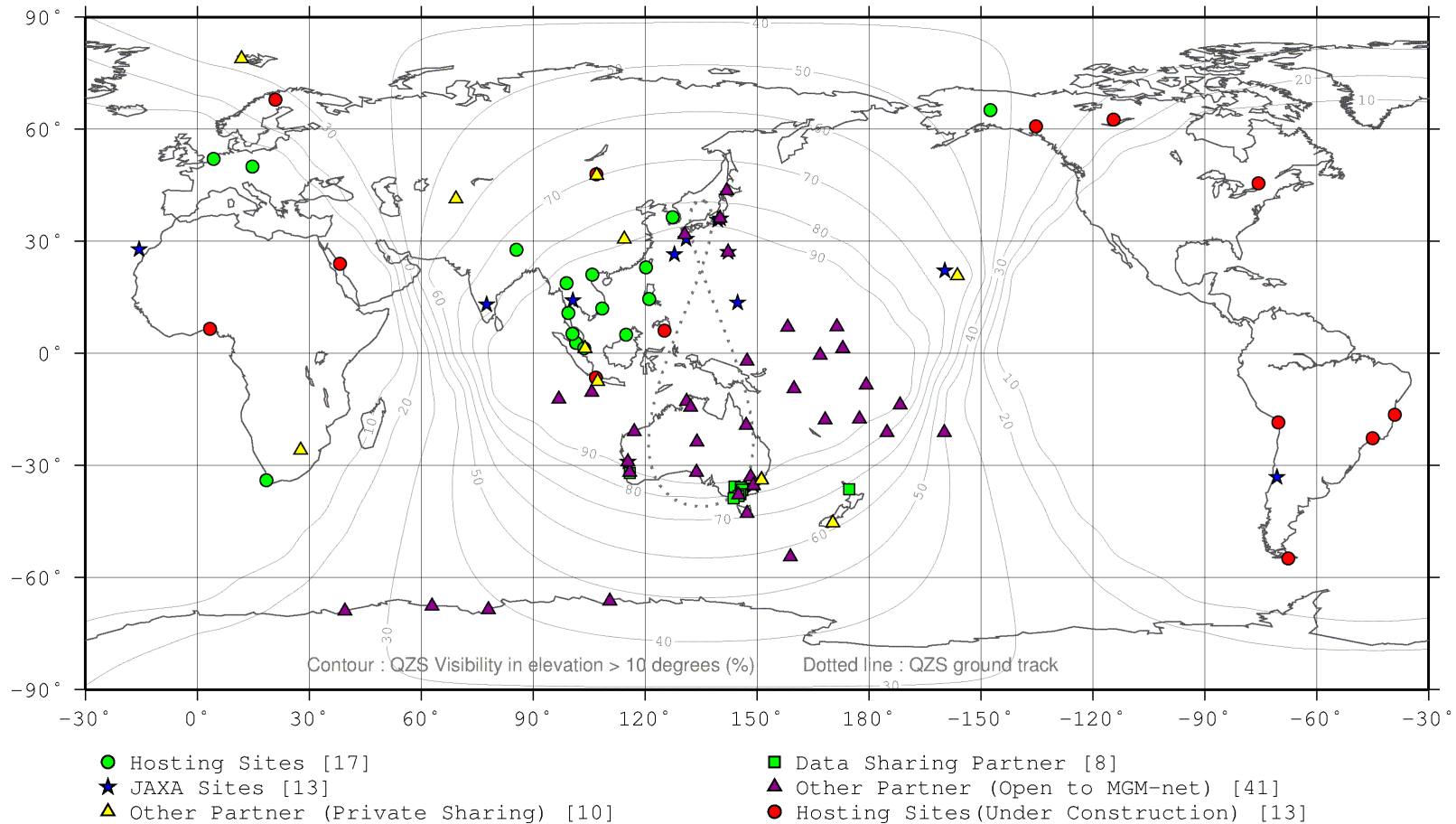


1st Workshop, JAN.
2010, @ Bangkok,
Thailand



MGM-Net has been deployed globally under collaboration with many organizations.

As of end of March, 2015

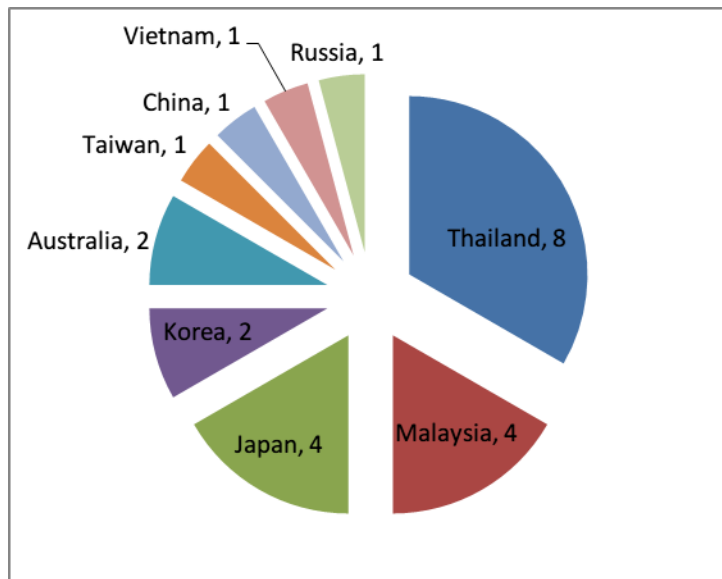


- 89 sites are operating including sites owned by data sharing organizations.
- 13 sites are expected to be available in 2015.

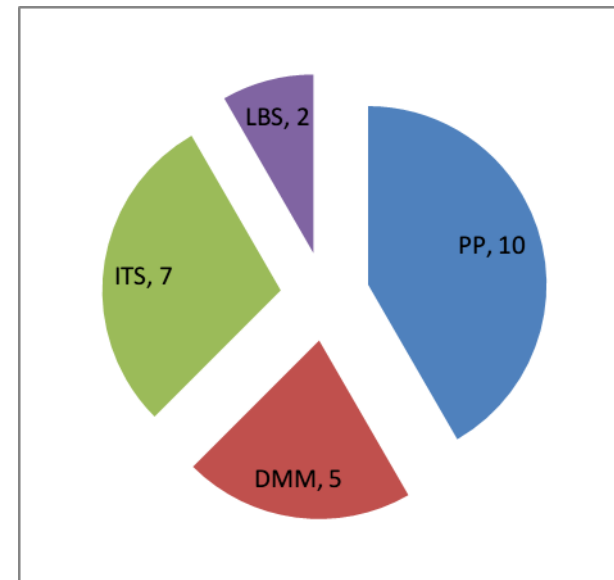
Asia Oceania Multi-GNSS Demonstration Campaign

Multi-GNSS Demonstration Campaign

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Totally 24 proposals were endorsed by MGA and were conducted or now under going.

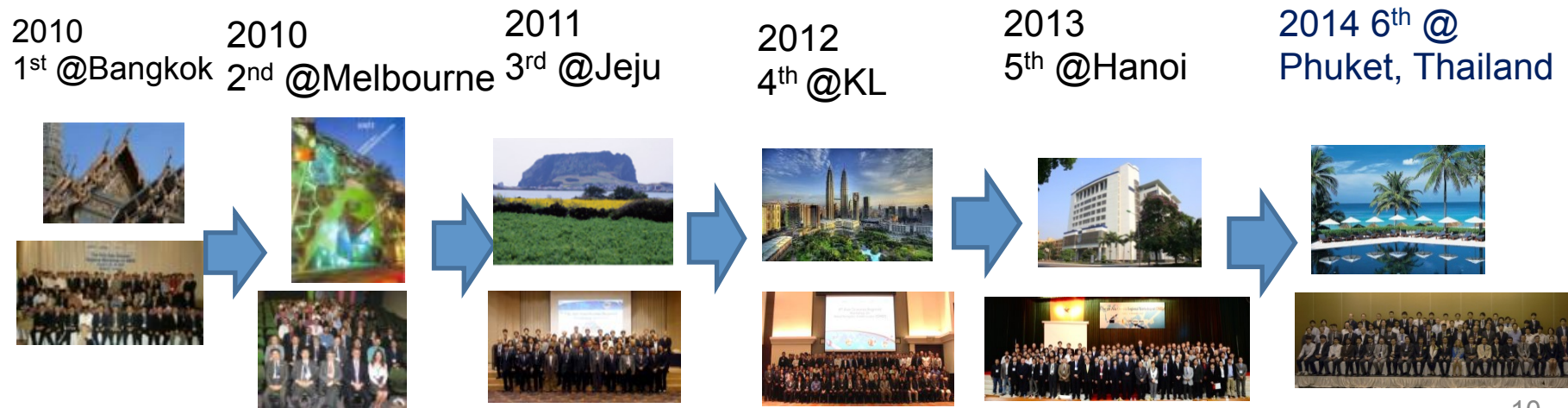
Asia Oceania Regional Workshop on GNSS



Multi-GNSS Demonstration Campaign



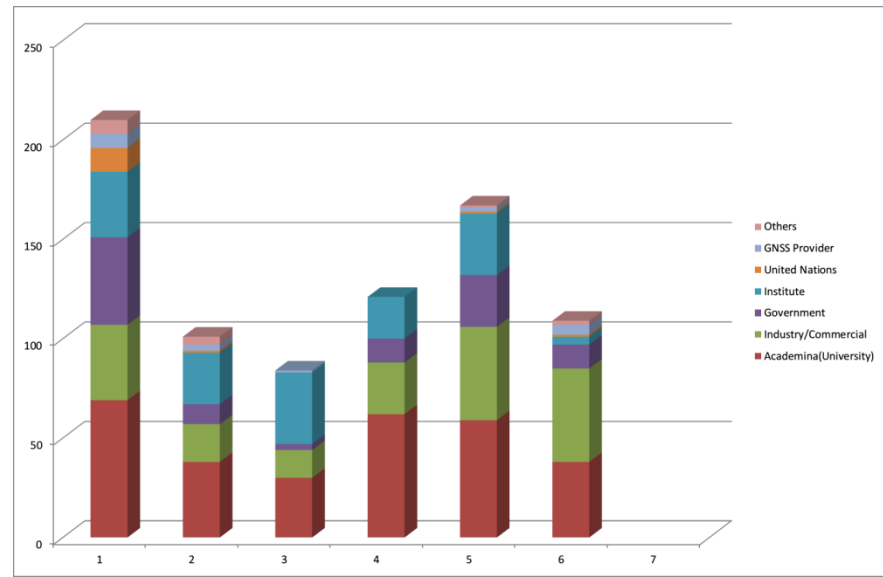
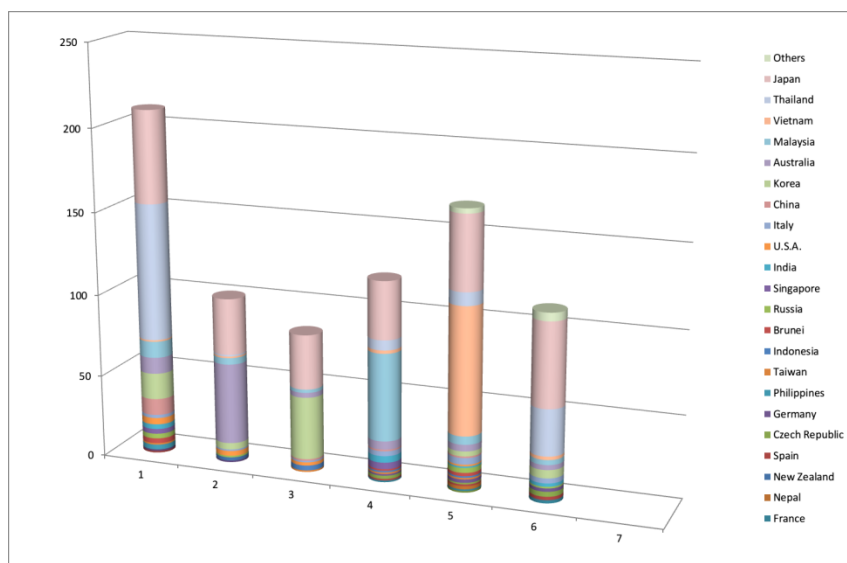
- ◆ Aim is to discuss the future joint project and share the status and the results of the existing projects annually.
- ◆ Contents
 - Current status of GNSS
 - Applications, introductions for the planned joint activities
 - Application working group discussion





Asia Oceania Regional Workshop on GNSS

Multi-GNSS Demonstration Campaign



Participants

Japan, Thailand, Vietnam, Malaysia, Australia, Korea, Italy, China, U.S.A., India, Russia, Singapore, Brunei, Czech Republic, Indonesia, Germany, Taiwan, Spain, France, Philippine, New Zealand, Nepal, Australia, Israel, Fiji

Category

- Academia (University)
- Industry / Commercial
- Government
- Institute
- United Nations
- GNSS Provider
- Others



The 6th Asia Oceania Regional Workshop on GNSS

Multi-GNSS Demonstration Campaign



- was held on October 9-11th, 2014 at The Royal Paradise Hotel & Spa, Phuket, Thailand
- Great honor to welcome his excellency Dr. Phichet, Minister of Science and Technology, Thailand
- about 100 participants from many organizations including universities, related research institutes, government agencies, International organizations and companies gathered from 14 countries.

1 st day	<ul style="list-style-type: none"> • GNSS Tutorial Session by G-NAVIS, GSI and JAXA
2 nd day	<ul style="list-style-type: none"> • Welcome and Keynote Speech • What's New about GNSS • Status Report of the Multi-GNSS Joint Experiments • GNSS Applications/ Network Session
3 rd day	<ul style="list-style-type: none"> • Discussion Session • QZSS Demonstration • Closing Session





7th Multi-GNSS Asia (MGA) Conference



Multi-GNSS Demonstration Campaign



@ Brunei Darussalam

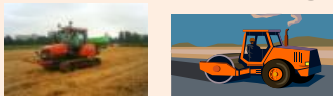
7th to 10th December, 2015

- Network with industry and academia from Asia Oceania Regional and beyond
- Discuss and showcase the latest results of Multi-GNSS Applications' Demos.

Disaster Mitigation



Precise Positioning



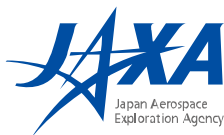
ITS



LBS



Visit MGA website: www.multignss.asia



Tentative Program Agenda



Date	Time	Session	Responsibility	
Dec. 7	13:00-17:00	<ul style="list-style-type: none"> Industrial Session Latest trends in GNSS Technology (parallel session) 	GNSS.asia BELS	
Dec. 8	08:30-10:00	<ul style="list-style-type: none"> Opening Session <Welcome Speech> Dato Ali , Chairperson of BEDB (TBD) GSA (TBD) , CAO (TBD) <Keynote Speech> Dr. Rui Fernandez, SEGAL 	Brunei	
	10:30-12:00	<ul style="list-style-type: none"> What's New about GNSS <GPS, GLONASS, Galileo, BeiDou, QZSS, IRNSS> 	JAXA/GSA	
	12:00-14:00	<ul style="list-style-type: none"> Lunch Poster & Exhibition (Core Time) 	SPAC	
	14:00-15:30	<ul style="list-style-type: none"> Multi-GNSS Network Session GNSS Application Session 	MGA(JAXA)	
	16:00-18:00	<ul style="list-style-type: none"> Status Report of the Multi-GNSS Joint Experiments 	MGA(JAXA)	
	20:00-22:00	<ul style="list-style-type: none"> Reception 	QSS GNSS.asia	14

Program Agenda



Date	Time	Session	Responsibility	
Dec.9	08:00-08:30	<ul style="list-style-type: none"> MGA Membership Forum (Only MGA members) 	MGA(JAXA)	
	08:30-09:00	<ul style="list-style-type: none"> Guidance (Furuno) 	MGA(JAXA)	
	09:00-11:30	<ul style="list-style-type: none"> Discussion Session PP & ITS DMM & LBS 	MGA(JAXA)	
	13:00-16:30	<ul style="list-style-type: none"> Geospatial Challenges in the Asia-Pacific Region 	GNSS.asia SPAC	
	16:30-17:30	<ul style="list-style-type: none"> Closing Session 	MGA(JAXA)	
Dec. 10	09:00-16:00	<ul style="list-style-type: none"> Excursion to the tropical rainforest 	Survey Department	