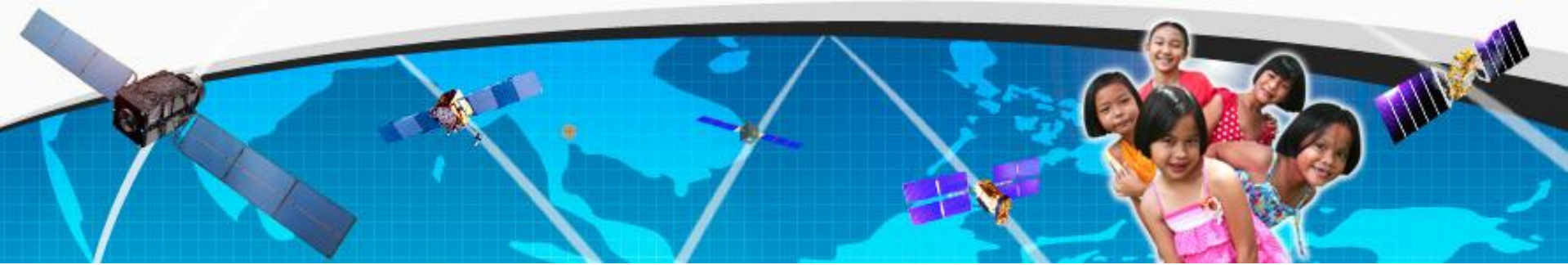




Report of the the 1st Asia Oceania Regional Workshop on **GNSS**

January 27, 2010
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The First Asia Oceania Regional Workshop on **GNSS**

- Asia Oceania is the “Showcase of New GNSS Era” -

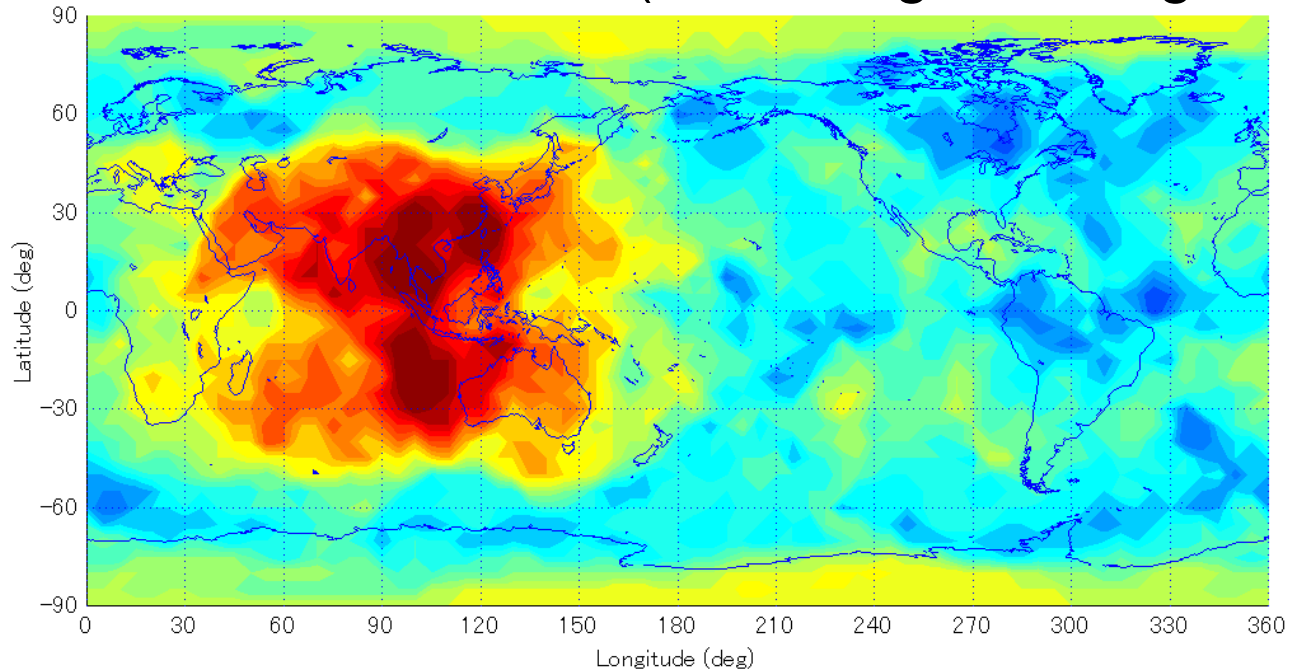
Jan 25-26, 2010 @ Bangkok, Thailand



Background

Showcase of New GNSS Era

Visible satellite number (mask angle 30 degrees)



2020:

GPS(27)+Glonass(24)+Galileo(30)+COMPASS(35)+IRNSS(7)+QZSS(3)+SBAS(7)



The first Asia Oceania Regional Workshop on GNSS

- Was held on January 25 and 26 at Sofitel Centara Grand Bangkok, Thailand hosted by SPAC, JAXA and GISTDA as well as supported by United Nations International Committee on GNSS (UN ICG)
- 195 participants from 95 organizations including GNSS providers, universities, related research institutes and agencies gathered from 18 countries.





Workshop Agenda

- The workshop agenda includes;
 - Keynote speech
 - Overviews of GNSS systems
 - Introduction of "Asia Oceania Multi-GNSS Demonstration Campaign"
 - Applications presentations
 - GNSS infrastructure and Augmentation technologies
 - Precise Positioning
 - Ionospheric Observation
 - Disaster Mitigation and Management
 - ITS, Mapping and LBS
 - Timing, GIS and Space Applications
 - Group Discussion for project planning

GNSS overview

- Four global GNSS systems and two regional ones are introduced.
 - GPS, Glonass, Galileo and COMPASS
 - QZSS and IRNSS
- Adding to briefing of each system and current status, following topics are presented;
 - Russia proposed a collaborative activity in the multi-GNSS campaign.
 - Science R&D and applications development
 - Data exchange between their augmentation system, SDCM and other augmentation system
 - The combining usage GNSS with COMPASS communication function was introduced by China



Introduction of Multi-GNSS Demonstration Campaign

- The concept of the Asia Oceania multi-GNSS Demonstration Campaign was introduced.
 - Objectives
 - Proposed Activities
 - Planned Schedule
 - Organizing structure etc.
- As an organization to manage the campaign activity, Multi GNSS Asia (MGA) was proposed to be established.
 - Voluntary and no fund exchange based
 - Sharing resources and knowledge among participants
 - Similar organization to “Sentinel Asia”



Applications Presentation

- 32 presentation were provided in the serial 6 applications sessions.
- Several applications were presented and valuable information exchanges were done through Q&A session and coffee break time.
- Those presentations provide good seeds for the group discussions.

Group Discussion

- Four groups were formed depending on applications category
 - Multi-GNSS network establishment
 - Precise Positioning
 - Disaster Mitigation and management
 - ITS, Mapping and LBS
- Summary of discussion was reported by moderators.



Group Discussion (Cont.)

- Group A: Multi-GNSS network (Shin'ich Nakamura)
 - Launching a project to establish multi GNSS network in collaboration with International GNSS Service was agreed.
 - Dr. S. Nakamura, JAXA took a responsibility to lead the activity.
 - Korean and Australian institute/university expressed their intention about contribution.
 - Issues to be solved for realization were discussed;
 - Multi-GNSS receivers
 - Data exchange format
 - Analysis tools for precise orbit and clock estimation
 - Discussion will be continued by corresponding manner.





Group Discussion (Cont.)

○ Group B:

Precise Positioning (Prof. Noboru Noguchi)

- Launching two project to establish future joint demonstration of multi GNSS usage was agreed.
- **Project -1 Site-specific management for crop production using multi-GNSS**
 - Project leader: Dr. Takashi Kataoka
 - Co-leaders: Dr. Nitin Kumar Tripathi and Dr. Jun Chen
 - Participants: Institutes in Thailand, Korea, China, Malaysia, Japan and SPAC WG
- **Project -2 Automatic guidance using multi-GNSS–Field robotics**
 - Project leaders: Prof. Sun-Ok Chung and Prof. Noboru Noguchi
 - Participants : Institutes in Korea, China, Malaysia, Japan and SPAC WG
- Several further discussion opportunities were defined in academic conferences in the region.





Group Discussion (Cont.)

- Group C:

Disaster Mitigation and Management (Prof. Teruyuki Kato)

- Four specific teams were built up to investigate future joint demonstration of multi GNSS usage on the disaster mitigation & management.
 - **Group leader: Teruyuki Kato**
 - **Geological hazards (earthquake, tsunami..)**
 - **Kato**
 - **Atmospheric & climatological hazards**
 - **Juang (sub)**
 - **Shoji (main)**
 - **Landslides**
 - **Tsuno**
 - **Technological aspects**
 - **Yang**





Group Discussion (Cont.)

○ Group C (Cont.):

- Seven candidates for projects were picked up and proposed;
 - #1 Validation of impact of multi-GNSS on positioning accuracy of GPS buoy data
 - #2 Validation of GNSS impact on atmosphere research and on weather prediction
 - #3 Impact of QZSS on radio occultation observation
 - #4 Degradation in steep slopes and forests requires multi-GNSS: experiment
 - #5 QZSS L1-SAIF usage for system test
 - #6 More general application for disasters
 - #7 GNSS-R(reflection)
- Discussion will be continued by corresponding manner.



Group Discussion (Cont.)

○ Group D:

ITS, Mapping and LBS (Prof. Takayuki Morikawa)

- Interest topics were defined
 - Traffic Control and Management
 - Travel Demand Management
 - Commercial Vehicle Management
 - Safety and Security
 - Automated Highway
 - Navigation
 - Telematics
 - Surveying & Infrastructure Management
 - Intra-Regional Trade
 - Other modes than auto
- Benefits from multi-GNSS and issues to be addressed were discussed.
- Future discussion opportunities for each interest group/team were planned.



Conclusion

- The first workshop was successfully implemented
 - Establish network and relationship among participants
 - Common understanding for the coming “Asia Oceania Multi-GNSS Demonstration Campaign” could be shared
- Workshop should be held continuously
- MGA will launch to encourage joint activities in Asia Oceania region.
- Co-chair of the workshop asked participants to join MGA and contribute to the future joint collaboration in the region.



Next Step

- MGA is to be launch in early 2010, secretariat of MGA, JAXA, will circulate the letter of invitation to participants of the WS.
- Four groups have established working structure to investigate future joint collaborations. Discussions are to be done via web-based communications tool by the next WS.
- Next WS will be held in late 2010. Location and co-hosting organization will be decided.
- MGA seeks a support from APRSAF to deploy the “Asia Oceania Multi-GNSS Demonstration Campaign”.



Thanks a lot for your attention.



The First Asia Oceania Regional Workshop on GNSS

January 25-26, 2010

Bangkok, Thailand

