



Outcomes of the WG-B Application Subgroup Meeting

Nov 12th, 2013

SG co-chairs

X.ZHAN & H.KOYAMA

Nov 12th 2013

ICG-8 WG-B meeting, Dubai



International Committee on
Global Navigation Satellite Systems

Baseline for Subgroup

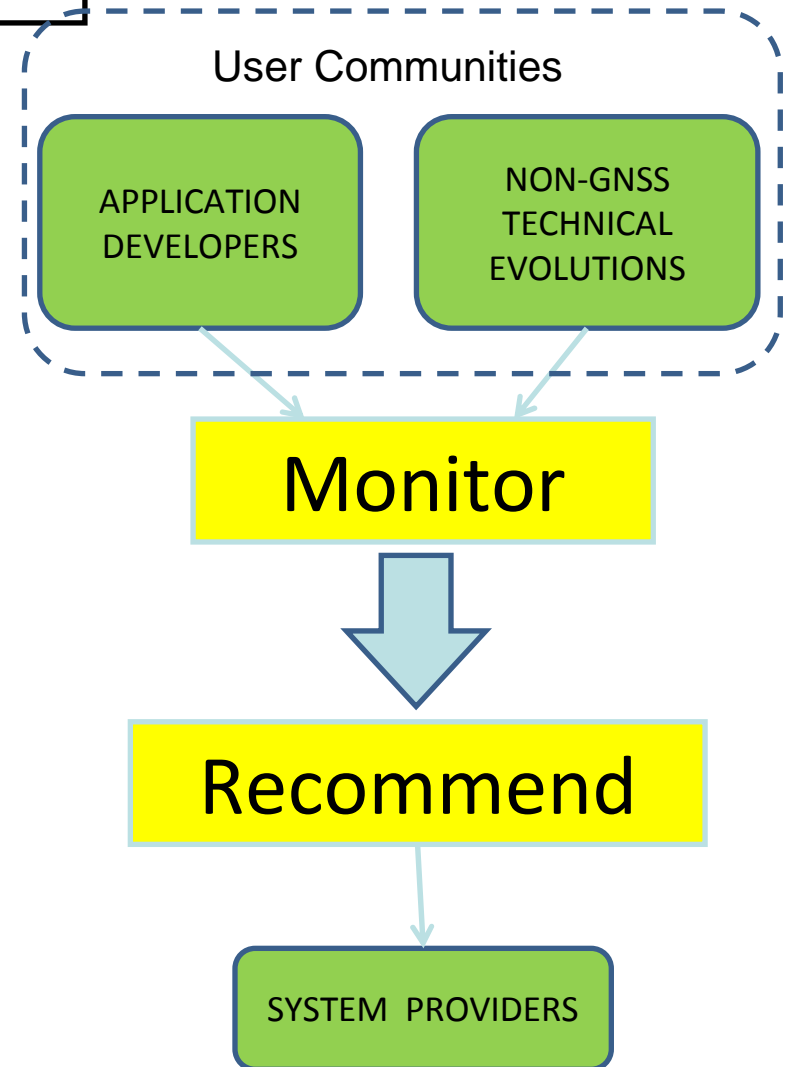
ICG/WGB/2011 "Report of Working Group B"

ATTACHIMENT 2.4/ Recommendation of Committee Action:

ICG is invited to take note that WG-B considers the establishment of a WG-B sub-group oriented on 'application'. This sub-group is tasked to **support the work identified under Action B4 of the Work Plan of WG-B**, and report its findings on yearly basis to WG-B. For the first 2 years this sub-group shall be co-chaired by China and Japan.

Action B4:

Monitor the techniques proposed by applications developers and external augmentation service providers of enhancement of GNSS performance with a view to **recommend any required system enhancements or actions** that may support the realization of such techniques. The work on action B4 will be supported by the dedicated sub-group of WG-B on Applications



Nov 12th 2013

ICG-8 WG-B meeting, Dubai



International Committee on
Global Navigation Satellite Systems

Objectives of the SG

1. To monitor and review technique improvements;
2. To identify additional and/or potential requirements from user/application side;
3. To identify current GNSS shortcomings on services and performances;
4. To recommend GNSS performance enhancements to system providers;
5. To promote multi-GNSS applications by cooperating with user communities.



Procedure of Work

1. For the first 2 years, the Subgroup will be co-chaired by China and Japan.
2. The Subgroup shall convene twice per year.
3. Any SG recommendation will be discussed in the sub-group meeting before its submission to the WG-B.
4. The App SG workplan will be examined every two years on the basis of proposals made by members.

Summary of 2nd SG meeting

- The 2nd meeting of Application Subgroup on “Enhancement of Global Navigation Satellite Systems (GNSS) Services Performance” was held on May 14th, 2013 in Wuhan, China.
- 13 persons from 5 different countries and organizations.
- 7 technical presentations.

Summary of 2nd SG meeting

1. Lei HUANG, Unicore, China on “**High Accuracy Applications with BeiDou**”
2. Naohiko KOHTAKE, Keio University, Japan on “**Emergency Services using Global Navigation Satellite System**”*
3. Jianyao LIANG, Hughes Network Systems Asia Pacific, U.S.A. on “**Public Safety Network in America**”**
4. Zhou CAO, Shanghai Ubiquitous Navigation Co., China on “**Marine Applications of GNSS**”

* presented by Hiroshi KOYAMA (SPAC)

** presented by Xin ZHANG (SJTU)



Summary of 2nd SG meeting

5. Sang Jeong LEE, National GNSS Research Center, Korea on “GNSS Vulnerability Issues in Korea”
6. Hongliang XU, Shanghai Jiao Tong University, China on “GNSS Vulnerability Analysis and Monitoring”
7. Shaojun FENG, Imperial College London, U.K. on “GNSS Integrity Monitoring for the Detection and Mitigation of Interference”

Summary of 2nd SG meeting

- The following conclusions were drawn on the meeting
 - ✓ Novel GNSS applications require participation and cooperation of both system providers and users communities.
 - ✓ Vulnerability is a general concern of any GNSS based service and need to be addressed and mitigated in order to come up with **more robust and reliable GNSS-based applications**. More attention and international cooperation on the vulnerability issue is necessary.

Summary of 3rd AppSG meeting

- The third meeting of Subgroup was held on July 18th, 2013 in Daejeon, Korea.
- 70+ persons from 4 different countries and organizations.
- 10 technical presentations.

Summary of 3rd SG meeting

- WG-B App SG co-chair made the presentation on “Introduction to WG-B Meeting”
 - gave a comprehensive introduction to Application Subgroup and WG-B Meeting
 - including the Work Plan of WG-B, the background of the formation of the Application Subgroup and its first and second meetings.

Summary of 3rd SG meeting

1. Moon Beom Heo, KARI, Korea on “**Jamming locating technology**”
2. Jun Shen, BD Star Technology, China on “**BD applications**”
3. Wan Sik Choi, ETRI, Korea on “**Toward seamless positioning for LBS**”
4. Jong Hoon Won, Univ. of FAF Munich, Germany on “**Vector-tracking technology**”
5. Sang Wook Lee, ETRI, Korea on “**Search and rescue technology**”

Summary of 3rd SG meeting

6. Noboru Noguchi, Hokkaido University, Japan on “Application of QZSS to IT agriculture”*
7. Gyu In Jee, KGU, Korea, on “Location and tracking for fire fighter”
8. Hyung Keun Lee, KAU, Korea on “A decentralized approach to generate high-resolution ionospheric map by GNSS”
9. Maolin Chen, SJTU, China on “Shanghai BD/GPS CORS”
10. Sang Hyun Park, KIOST/MOERI, Korea on “Precise positioning for early detection of tsunamis”

*presented by Hiroshi Koyama(SPAC)

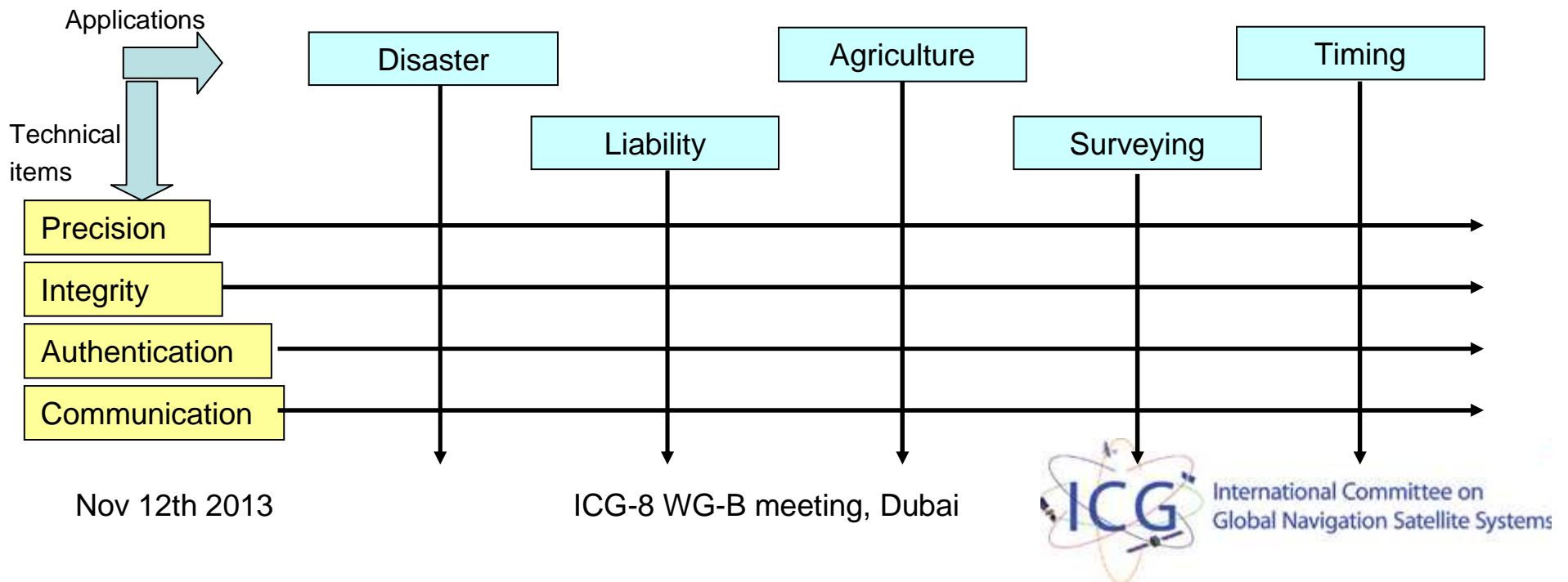
Outcomes from 1st ~3rd App SG meetings

- Some core application areas were identified by SG to monitor, such as, **Personal Navigation, Transportation, Disaster management, Liability Applications, Agriculture, Timing, Surveying;**
- Some enabling technology aspects were identified by SG, that is, **Precision , Integrity , Authentication , Communication**
- Monitoring **fields & schedule have been fulfilled**



Monitoring fields for next 2 years

	2013/14	2014/15
Classification	Mass-market	<i>Professional</i>
Applications	■ Disaster Management	■ Agriculture
	■ Liability	■ Surveying
		■ Timing



The way forwards

- Following logic is proposed for the near future:
 1. SG updates the monitoring fields of applications & schedule for the next 2 years
 2. Next App SG meeting is proposed to be held in Vienna in July, 2014

Thanks for your kind attention!

Full information on website:

<http://www.unoosa.org/oosa/en/SAP/gnss/icg.html>

Nov 12th 2013

ICG-8 WG-B meeting, Dubai



International Committee on
Global Navigation Satellite Systems