

Report of Working Group C: Information Dissemination and Capacity Building

1. The Working Group C on Information Dissemination and Capacity Building (WGC) held its eighth meeting in Prague, Czech Republic, on 11 and 12 November 2014 in conjunction with the ninth meeting of the International Committee on Global Navigation Satellite Systems (ICG), 10 – 14 November 2014 under the chairmanship of the United Nations Office for Outer Space Affairs and the European Commission.
2. The meeting was attended by representatives of China, Italy, Japan, Malaysia, Russian Federation, United States of America and the European Commission. The representatives of Civil Global Positioning System (GPS) Service Interface Committee (CGSIC), International Federation of Surveyors (FIG) and the Space Generation Advisory Council (SGAC) also participated in the meeting.
3. The Working Group, in the course of its deliberations, reviewed progress made in the implementation of and follow-up to its recommendations and the activities carried out by the Office for Outer Space Affairs in the framework of its Programme on Global Navigation Satellite Systems (GNSS) Applications.
4. The Working Group noted that the Programme for 2014 had been carried out satisfactorily.
5. After brief introductory remarks focused on the expectations of the meeting, the co-chairs invited the presentations. Details of the meeting agenda and the presentations made are available at the ICG Information Portal at:

<http://www.unoosa.org/oosa/en/SAP/gnss/icg/icg09/wgc/wgc.html>
6. The Working Group heard the following presentations:
 - “The NAVIS Centre: a bridge between South East Asia and Europe in the field of Global Navigation Satellite Systems”, by Gabriella Povero of Italy;
 - “Reference Frames in Practice Manual”, by Mikael Lilje of the International Federation of Surveyors (FIG);
 - “Template for Service Centre Cooperation”, by Rick Hamilton, CGSIC;
 - “Status report on BeiDou/GNSS Education and Training”, by Yang Dongkai of Beihang University, China;
 - “Russian International Education Centre: Informing about GLONASS technologies and system applications”, by Pavel Kazakov, Russian Federation;
 - “YGNSS Project”, by Stephanie Wan, SGAC;
 - “Capacity Building Activities on GNSS in Japan”, by Akio Yasuda, Laboratory of Satellite Navigation, Graduate School of Tokyo University of Marine Science and Technology, Japan;
 - “The Moscow State University of Geodesy and cartography is the education centre for graduation of international specialists in applications of GNSS, by Andrey Kupriyanov¹, Association GLONASS/GNSS-Forum, Victor Savinuch, the Moscow State University of Geodesy and Cartography, and Andrey Maiorov, the Moscow State University of Geodesy and Cartography, Russian Federation;
 - “GLONASS association’s activities on dissemination information on GNSS, Igor Lissovoy, Association GLONASS/GNSS-Forum, Russian Federation.
7. At the conclusion of the presentations, the Working Group discussed the following proposals prepared by the members of the Working Group:

¹ The presentation was given by Andrey Kupriyanov of Association GLONASS/GNSS Forum, Russian Federation

- (a) Capacity building on GNSS and outreach activities in South-East Asia;
- (b) United Nations-affiliated Regional Centres for Space Science and Technology Education, as Information Centres of ICG;
- (c) Cooperation between GNSS user information centers.

A. Capacity building on GNSS and outreach activities in South-East Asia

8. The Working Group noted that with regard to GNSS field, South East Asia will greatly benefit from the GNSS multi-constellation that would become available during the next few years. In this context, the activities of the International Collaboration Centre for Research and Development on Satellite Navigation Technology in South East Asia (NAVIS) and FIG carried out in South East Asia were highlighted. It was noted that NAVIS had successfully enlarged its links and activities in South East Asia in the framework of satellite navigation and related applications, in particular focusing on technology transfer, research and education activities.
9. The Working Group placed emphasis on improving the availability of accessible information about reference frames matters, especially for surveyors and decision makers in developing countries. In this regard, a series of workshops on “Reference frames”, carried out by FIG and the International Association of Geodesy (IAG) were highlighted. It was noted that within the scope of its activities as the executive secretariat of ICG and its Providers’ Forum, the Office for Outer Space Affairs supported the participation of the experts from developing countries in the seminars “Reference frames in practice” organized by FIG and IAG.
10. The Working Group noted that a multi-GNSS demonstration campaign/project in the Asia/Oceania region was continued to be implemented by Multi-GNSS Asia (MGA) to promote multi-GNSS utilization and new applications. The Working Group also took note of the international cooperation plans of several long-term activities in the framework of the “BeiDou/GNSS Application Demonstration and Experience Campaign (BADEC).

B. United Nations-affiliated Regional Centres for Space Science and Technology Education, as Information Centres of ICG

11. The Working Group noted that negotiations with the regional centres were on-going in order to utilize them as “hubs” for training and information dissemination on global applications of GNSS and their benefits for humanity. It was noted that by using the existing infrastructure of the regional centres, GNSS service providers may save significant effort and resources by taking advantage of the operational regional centres, located in Morocco and Nigeria for Africa, in India for Asia and the Pacific, Brazil and Mexico for Latin America and the Caribbean, and in Jordan in the Western Asia, for information dissemination.
12. The Working Group noted with appreciation the contribution of educational materials on GPS to the regional centres by CGSIC. It was noted that CGSIC had received the materials from Trimble Navigation Ltd. The Working Group encouraged the providers to strengthen connections and exchanges with the regional centres in GNSS educational initiatives.
13. The work of the Moscow State University of Geodesy and Cartography, Tokyo University of Marine Science and Technology, and Beihang University was highlighted. The Working Group also discussed how industry could contribute to educational programmes of the regional centres.

C. Cooperation between GNSS user information centres

14. The Working Group noted that the ability to quickly answer user inquiries was critical to instilling confidence in the GNSS being used. Problems encountered with equipment

and disruption reports needed to be quickly referred to subject matter experts and law enforcement authorities for disposition.

15. A template had been developed that attempted to identify the manner in which certain types of questions could be forwarded back and forth between service centers to the benefit of the user, and establish the existing or developing center as the representative for their satellite navigation system. Web page templates were proposed for each GNSS provider with links and contact information for all user information centers.
16. The recommendations, which emanated from the deliberations of the Working Group, are listed in Attachment 1 of this report.

ATTACHMENT 1**Recommendation 1 for Committee Decision**

Prepared by: Working Group C

Date of Submission: 13/11/2014

Issue Title: Capacity Building and GNSS outreach activities in South-East Asia

Background/Brief Description of the Issue:

The NAVIS Centre was set up by the Hanoi University of Science and Technology, Istituto Superiore Mario Boella (ISMB), Politecnico di Torino and Universitat Politècnica de Catalunya with the support of the European Commission and the European GNSS Agency (GSA) with the aim to strengthen the dissemination activities on GNSS and its applications, in particular, in South-East Asia.

Discussion/Analyses:

In the last three years, the NAVIS Centre had successfully enlarged its links and activities in South East Asia by conducting joint research activities and organizing workshops in cooperation with Multi-GNSS Asia (MGA) and other organizations from Australia, Europe and Japan. WGC recognized the successful set-up of the NAVIS Centre and its participation in the MGA initiative.

Recommendation of Committee Action:

WGC recommends that the Office for Outer Space Affairs in cooperation with the ICG membership, and the centres and organizations, such as the NAVIS Centre, GESTISS, MGA and FIG, organize workshops and technical seminars in the field of GNSS and its applications in South-East Asia region. The participation of BeiDou/GNSS Application Demonstration and Experience Campaign (BADEC) is also encouraged.

Recommendation 2 for Committee Decision

Prepared by: Working Group C

Date of Submission: 13/11/2014

Issue Title: Outreach material and contribution to the UN-affiliated regional centres for science and technology acting as information centres for the ICG

Background/Brief Description of the Issue:

Different efforts have been made by organizations in the Working Group to promote education in GNSS and outreach activities. The presentations made by the members of the Working Group highlighted the possibility for cooperation on different levels within the different institutions.

Within the framework of the Working Group C of ICG, negotiations with the regional centres are ongoing in order to utilize them as “hubs” for training and information dissemination on global applications of GNSS and their benefits for humanity. ICG Information Centres aim to foster a more structured approach to information exchange in order to fulfill the reciprocal expectations of a network between ICG and regional centres. By using the existing infrastructure of the regional centres, ICG (more specifically GNSS service providers) may save significant effort and resources by taking advantage of the operational regional centres for information dissemination. The regional centres can then expand their range of training programmes and services and thus open new opportunities to connect to other GNSS providers (or future providers).

Discussion/Analyses:

Discussions built upon Action C2 of the Revised Workplan for Working Group C, and the distance learning programmes, web-based courses and tutorials, interactive programmes for middle/high schools, multimedia software and demonstration data sets in order to enrich the training and research programmes recommended as part of the workplan. The work of the Moscow State University of Geodesy and Cartography (MIIGAİK), Tokyo University of Marine Science and Technology (TUMSAT), and Beihang University was highlighted. Members also discussed how industry could contribute to educational programmes.

Recommendation of Committee Action:

Working Group C recommends that providers disseminate educational material to the United Nations-affiliated regional centres for science and technology, also acting as ICG information centres. This will be done through the ICG Executive Secretariat. Active provider participation in the regional centres and their work is encouraged. The Working Group also encourages industry involvement in the activities of the regional centres.

Recommendation 3 for Committee Decision

Prepared by: Working Group C

Date of Submission: 13/11/2014

Issue Title: **Proposed template for cooperation between existing or developing Provider and GNSS user information centers**

Background/Brief Description of the Issue:

Past work of the ICG Provider's Forum and working Group A seeks to improve cooperation and information sharing between GNSS Providers' user service centers. The European GNSS Service Center and the U.S. Coast Guard NAVCEN (the GPS civil user service center) have been working together since the beginning of the year to develop a procedure to jointly administer inquiries that come into the centers from users. Additionally, NAVCEN and the BeiDou Test and Assessment Research Center (TARC) have been engaged in discussions of the same sort.

Discussion/Analyses:

The ability to quickly answer user inquiries is critical to instilling confidence in the GNSS being used. Problems encountered with equipment and disruption reports need to be quickly referred to subject matter experts and law enforcement authorities for disposition. A template has been developed that attempts to identify the manner in which certain types of questions can be forwarded back and forth between service centers to the benefit of the user, and establish the existing or developing center as the representative for their GNSS system. Web page templates were proposed for each GNSS with links and contact information for all use information centers.

Recommendation of Committee Action:

To improve cooperation between existing or developing provider user information centres, it is recommended that all the Provider and GNSS user information centres consider development and adoption of a process for referring inquiries to each other where appropriate.