

Report of Working Group C: Information Dissemination and Capacity Building

1. The Working Group C on Information Dissemination and Capacity Building held its second meeting in Pasadena, USA on 10 and 11 December 2008 under the chairmanship of the Office for Outer Space Affairs. The meeting consisted of two sessions: presentations and informal discussions. Details of the meeting agenda and the presentations made are available on the International Committee on Global Navigation Satellite Systems (ICG) Information Portal¹.
2. The Working Group heard the following brief presentations made by Members and Participating Organizations:
 - (a) “Global Navigation Satellite Systems (GNSS) Activities of the Regional Centre for Space Science and Technology Education for Latin America and the Caribbean” by Sergio Camacho (Regional Centre for Space Science and Technology Education for Latin America and the Caribbean (CRECTEALC, Mexico);
 - (b) “Educational Tools for GNSS” by Letizia Lo Presti (Italy);
 - (c) “GNSS Curriculum Development” by Chris Rizos (Australia);
 - (d) “ICG Glossary of GNSS Terms” by Thomas vonDeak (USA);
 - (e) “Asia Pacific Economic Cooperation (APEC) Promoting GNSS Applications” by Karen Vandyke (USA);
 - (f) “Youth Promoting GNSS Cooperation and Education” by Stephanie Wan (Space Generation Advisory Council).
3. The Working Group summarized the discussions by identifying the following main issues: (i) ICG Information Centres; (ii) ICG 2009 Activities; and (iii) GNSS Education Curriculum.
4. The Working Group returned to informal discussion session on 11 December 2008 to prepare conclusions and recommendations for consideration by ICG at its second plenary session.
5. In accordance with the workplan², the Working Group considered the assigned actions.
6. At the informal session, the representative of the Office for Outer Space Affairs made a statement in which the work carried out by the Office in the framework of the workplan for 2008 was reviewed, including maintaining the ICG Information Portal, providing support for education and training on satellite navigation and location based services for capacity-building in developing countries through the regional centres for space science and technology education, affiliated to the United Nations, and organizing workshops and special sessions on the use of GNSS technologies as tools for scientific applications³.
7. Also at the informal session, it was emphasized that ICG is considering the establishment of ICG Information Centres by GNSS providers and that the maintenance of a globally focused website will be a major task of these centres. Stress was laid on the role of the Office to link all the websites into a single site to act as a portal for users of GNSS services.
8. The Working Group reviewed the workplan action by action (See Attachment 1).

¹ See www.icgsecretariat.org

² See A/AC.105/879, ICG/WP/NOV2006

³ See A/AC.105/922

9. The Working Group noted with satisfaction that the ICG Information Portal was established and recommended that the Office further develop the Portal based on contributions from Members, Associate Members and Observers of ICG.
10. The Working Group also noted with satisfaction that the cooperation was established with the University of Maine, USA, which offers 1-credit hour GNSS courses delivered asynchronously via the Internet. The courses are derived from traditional 3-credit hour undergraduate and graduate courses available at the University of Maine⁴.
11. The views were expressed that the educational opportunities being provided by a number of national universities, including hands-on training opportunities for university and graduate students in GNSS. In that regard, the representatives of Italy and CRECTEALC (Mexico) indicated their interest in providing information on the on-line GNSS courses available.
12. The Working Group noted that the list of relevant text books (in English only) had been included into the Portal. It was also noted that developing of a glossary of GNSS terms and definitions (in English) was initiated through the training course on satellite navigation and location based services conducted by the Regional Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP), affiliated to the United Nations, based in India, in 2008. The glossary will be further developed in the similar training courses to be conducted at the Regional Centres based in Morocco (in French) and Mexico (in Spanish) in 2009.
13. On the basis of the deliberations of the Working Group at its first session, the Working Group agreed that the development of the glossary would be completed in conjunction with the development of the GNSS education curriculum (see new Action CN10).
14. The Working Group noted with satisfaction that the Regional Centres for Space Science and Technology Education affiliated to the United Nations (located in Morocco and Nigeria for Africa, in Brazil and Mexico for Latin America and the Caribbean, and in India for Asia and the Pacific) agreed to act as ICG Information Centres. The draft concept paper developed in this regard that was also presented to the ICG and its Providers Forum is attached (see Attachment 2).
15. The Working Group recommended that the ICG plenary affirm the Regional Centres act as the ICG Information Centres on the basis of the draft concept paper.
16. The Working Group noted that the international meetings/summits/conferences were utilized to introduce all aspects of ICG and Providers Forum to the International GNSS Community. Appropriate reports and presentations were made available on the ICG Information Portal.
17. The Working Group took note of the activities⁵ (workshops, expert meetings and training courses) in the field of GNSS carried out in 2008 in developing countries for social-economic benefits and sustainable development. The Working Group noted with satisfaction that further progress was being made in the implementation of the activities for 2009, as listed below:
 - (a) United Nations/Azerbaijan/European Space Agency/United States of America Workshop on the Applications of GNSS, Baku, Azerbaijan, 11 – 15 May 2009;
 - (b) United Nations/European Space Agency/United States of America Training Course on Satellite Navigation and Location-based Services, Regional Centre for Space

⁴ See <http://www.gnss.unmaine.edu>

⁵ See A/AC.105/922

Technology – in French language (CRASTE-LF), Rabat, Morocco, 29 September – 24 October 2009;

- (c) United Nations/European Space Agency/United States of America Training Course on Satellite Navigation and Location-based Services, CRECTEALC, San Andres Cholula, Puebla, Mexico, 2009.
18. The Working Group also noted that, in view of the use made of GNSS equipment in Africa for various disciplines, such as geodesy, geophysics, space weather and meteorology, the Office for Outer Space Affairs will co-organize with the Abdus Salam International Centre for Theoretical Physics (ICTP) and the Boston College of the United States, the Workshop on Satellite Navigation Science and Technology for Africa from 23 March to 9 April 2009, Miramare, Trieste, Italy.
 19. The Working Group noted that, in accordance with the recommendations of the Second Meeting of the ICG, held in Bangalore, India, in 2007⁶, the Office for Outer Space Affairs, as the ICG Executive Secretariat, developed the ICG logo that should be displayed in all GNSS activities and publications.
 20. The Working Group also noted that ICG posters (A3 and 70x1000) and brochures (available in six United Nations official languages) were published and distributed worldwide (192 United Nations States Members and 185 United Nations Development Programme Offices).
 21. The Working Group agreed to establish cooperation with the entities such as the African Geodetic Reference Frame (AFREF), International Association of Geodesy (IAG) Reference Frame Sub-Commission for Europe (EUREF), European Position Determination System (EUPOS), Geocentric Reference System for the Americas (SIRGAS) and “Asia Pacific Regional Space Agency Forum (APRSAF)” in order to extend the mission of the Working Group in dissemination information and building capacity in GNSS related fields.. This would be considered as a new action, CN11.
 22. The Working Group noted that the Space Generation Advisory Council had already established cooperation with the Office for Outer Space Affairs and initiated the project entitled “Youth promoting cooperation and education in GNSS”⁷.

⁶ See A/AC.105/901

⁷ See <http://www.spacegeneration.org/ynss>

ATTACHMENT 1**Working Group C – Information Dissemination****Status of Actions**

Action C1: Establish the ICG Information Portal drawing on contributions from Members, Associate Members and Observers of the ICG. This will include a calendar of GNSS-related events.

Status: Completed, the Office for Outer Space Affairs will further develop the Portal.

Action C2: Identify undergraduate and graduate courses on GNSS to be included on the Portal.

Status: On-going

Action C3: Consider the possibility of disseminating a list of relevant textbooks on GNSS in English and other languages through the ICG Information Portal. Consideration will also be given to developing a glossary of terms and definitions.

Status: On-going

Action C4: Consider the utilization of the Regional Centres for Space Science and Technology Education, affiliated to the United Nations, to promote GNSS use and applications.

Status: Completed

Recommendation: The Working Group recommends that the ICG plenary affirm the Regional Centres act as the ICG Information Centres on the basis of the final version of the concept paper.

Action C5: Identify international conferences where Members, Associate Members and Observers will make presentations on the existence and work of the ICG. A list of such events will be maintained on the ICG Information Portal.

Status: On-going

Action C6: Develop a proposal for further mechanisms to promote the applications of GNSS.

Status: On-going

New Actions from the Second Meeting of the ICG, Bangalore, India, September 2007

New Action CN7: The ICG logo to be developed and displayed in all ICG activities and publications.

Status: Completed

New Action CN8: ICG posters and brochures (available in six UN official languages) to be published and distributed worldwide (192 United Nations States Members and 185 United Nations Development Programme Offices).

Status: On-going

New Actions from the Third Meeting of the ICG, Pasadena, USA, December 2008

New Action CN9: Establish Cooperation with the Space Generation Advisory Council.

Status: Completed, the project “Youth promoting cooperation and education in GNSS” is currently in progress.

New Action CN10: The development of the GNSS education curriculum that has already been initiated by the Regional Centres, affiliated to the United Nations, in cooperation with the Office for Outer Space Affairs, India, Italy and the Russian Federation.

New Action CN11: Establish cooperation with the entities such as the African Geodetic Reference Frame (AFREF), International Association of Geodesy (IAG) Reference Frame Sub-Commission for Europe (EUREF), European Position Determination System (EUPOS), Geocentric Reference System for the Americas (SIRGAS) and “Asia Pacific Regional Space Agency Forum (APRSAF)” in order to expand a network of the ICG Information Centres.

ATTACHMENT 2

Draft Concept for
[Regional Centres for Space Science and Technology Education]
to become Information Centres
for the International Committee on Global Navigation Satellite Systems

I. Background

1. In its resolution 54/68, the General Assembly endorsed the resolution entitled “The Space Millennium: Vienna Declaration on Space and Human Development” adopted by the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) in 1999. The Vienna Declaration called for action, inter alia, to improve the efficiency and security of transport, search and rescue, geodesy and other activities by promoting the enhancement of, universal access to and compatibility of space-based navigation and positioning systems.

2. In its resolution 61/111, the General Assembly noted with appreciation that the International Committee on Global Navigation Satellite Systems had been established on a voluntary basis as an informal body to promote cooperation, as appropriate, on matters of mutual interest related to civil satellite-based positioning, navigation, timing and value-added services, as well as the compatibility and interoperability of global navigation satellite systems, while increasing their use to support sustainable development, particularly in developing countries.

3. In the report of the First Meeting of the International Committee on Global Navigation Satellite Systems (ICG), held at the United Nations Office in Vienna, 1 and 2 November 2006, the ICG Workplan, in its cluster C on information dissemination, specifies steps of further development of ICG (ICG/REP/1/NOV2006, ICG/WP/NOV2006).

4. It is specified, that:

„The Committee will consider the establishment of user information centres by GNSS providers. The maintenance of a globally focused website will be a major task of these centres. The United Nations, through the Office for Outer Space Affairs of the Secretariat and on behalf of the Committee, will combine all the websites into a single site to act as a portal for users of GNSS services. Therefore, the Office for Outer Space Affairs and the United States of America will lead a working group to accomplish the following actions:

Action C1: Establish the ICG information portal drawing on contributions from Members, Associate Members and Observers of the Committee. This will include a calendar of GNSS-related events.

Action C2: Identify undergraduate and graduate courses on GNSS to be included on the ICG information portal.

Action C3: Consider the possibility of disseminating a list of relevant textbooks on GNSS in English and other languages through the ICG information portal. Consideration will also be given to developing a glossary of terms and definitions.

Action C4: Consider the use of the Regional Centres for Space Science and Technology Education, affiliated to the United Nations, to promote GNSS use and applications.

Action C5: Identify international conferences where Members, Associate Members and Observers will make presentations on the existence and work of the ICG. A list of such events will be maintained on the ICG information portal.

Action C6: Develop a proposal for further mechanisms to promote the applications of GNSS.“

5. In response to the recommendation of the First Meeting of the ICG, the Office for Outer Space Affairs developed a concept for the [Regional Centres for Space Science and Technology Education, affiliated to the United Nations], to include education and applications of GNSS in the programme of the nine-month post graduate courses conducted by the [Regional Centres]. This concept has been laid down in the following paragraphs.

II. Objectives and Scope

6. The International Committee on GNSS was established as an informal body for the purpose of promoting the use and application of GNSS on a global basis. Its objective is to promote cooperation on matters of mutual interest related to civil satellite-based positioning, navigation, timing and value-added services as well as the compatibility and interoperability of global navigation satellite systems to support sustainable development.

7. The objective of the [Regional Centres] is to enhance the capabilities of Member States, at the regional and international levels, in various disciplines of space science and technology that can advance their scientific, economic and social development. Each [Regional Center] provides postgraduate education, research and application programmes. The Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), held in Vienna in July 1999, recommended that collaboration should be established between the [Regional Centres] and other national, regional and international organizations to strengthen components of their education curricula.

8. A cooperation between ICG and the [Regional Centres] will be beneficiary for both sides. On one hand the ICG members gain Information Centres in different regions of the world, on the other hand the [Regional Centres] will be provided with the support to expand their curricula to GNSS. In conclusion, this partnership will foster the Plan of Implementation of the World Summit on Sustainable Development.

III. Procedure

9. The concept for the [Regional Centres] to become ICG Information Centres aims at fostering the communication between the [Regional Centres] among each other and with the ICG as well as with the members of the Providers Forum.

A. First Approach

10. Expand the content of the internet platform of ICG, giving details about:

- (i) ICG and Providers Forum, their foundation history and their purpose;
- (ii) Each [Regional Centre], its activities and contact details.

11. Connect the [Regional Centres] via internet link:

- (i) To the ICG Information Portal, by putting the ICG logo on the [Regional Centres]' websites and link it to the ICG Information Portal;
- (ii) Among each other, by establishing a link list stating the websites of the other [Regional Centres].

12. The objective is to gain confidence and to establish first contacts between the actors concerned.

B. Mechanisms of Information Transfer

13. The contents of the ICG Information Portal should be extended and contain the following items:

(i) Information about the participating actors concerning:

- (a) The detailed descriptions of the different GNSS systems;
- (b) The structure and objective of the [Regional Centres];
- (c) The background and history of the [Regional Centres];
- (d) The programme of activities of the [Regional Centres];
- (e) The partners and cooperating entities of the [Regional Centres];

(f) The achievements of the [Regional Centres] in terms of capacity building (courses records).

(ii) Mechanisms of communication by:

- (a) Providing a calendar of conferences, workshops, post-graduate and short term courses, training courses etc.;
- (b) Opening fora and initiating discussions;
- (c) Maintaining news boards containing regularly updated information;
- (d) Creating E-mail networks.

(iii) Collection of materials, such as:

- (a) Education manuals about all relevant GNSS systems;
- (b) Poster or Abstract collections of conferences, workshops and seminars;
- (c) A register of literature on GNSS in different languages;
- (d) Education curricula of the [Regional Centres].

14. The objective is to deepen the contacts and to create a platform to distribute and communicate information.

C. Structured Communication

15. Structuring the platform by adding different sections, such as:

- (a) Subnetworks of the [Regional Centres], establishing a network of nodes on a regional basis;
- (b) Local users of GNSS applications/technology, giving the opportunity to establish new partnerships;
- (c) Supervision of regular updates and control of contributions of the concerned actors.

16. The objective is to guarantee the sustainability of the communication structure and to establish a network of information and partnership.

D. Cooperation on Different Levels

17. After the successful connection of the actors via ICG interactive platform initiatives to foster a more structured approach to information exchange should be taken to fulfil the reciprocal expectations of a network between ICG and [Regional Centres].

IV. Benefits for International Committee on Global Navigation Satellite Systems and Providers Forum

18. The overall benefit of a structured cooperation of the ICG members, respectively the members of the Providers Forum, and the [Regional Centres] is the increase in GNSS education and promotion of GNSS applications.

- (i) The ICG gains a global platform and the opportunity to raise public awareness for its issues.
- (ii) The members of the Providers Forum gain better visibility of their respective system in all parts of the world.
- (iii) The cooperation between the [Regional Centres] and the ICG as an entity will effect cost efficient work to the benefit of all members of the Committee by:
 - (a) Focussing the information policy;
 - (b) Organizing joint activities such as workshops and conferences;
 - (c) Supporting the [Regional Centres] in their objectives of information dissemination and education.

19. Additionally the ICG and the Providers Forum gain information from the [Regional Centres] in terms of their ideas and expertise.

- (i) The [Regional Centres] might be included in the procedure of the ICG meetings (preparation and/or participation).
- (ii) Special working groups might be established between ICG members and [Regional Centres].
- (iii) Key players of the [Regional Centres] might get involved in the programmes of ICG members and vice versa to exchange experience and to communicate necessities

20. The operation of [Regional Centres] as ICG Information Centres and the Providers Forum will facilitate the interconnection between different actors by using already established structures. This approach will thus save the costs of installation of new information centres and will guarantee coherence in the proceeding of the Providers Forum members.

21. In addition, the focused cooperation with [Regional Centres] will bring benefits in terms of learning about necessities and gaining new ideas to support sustainable development by means of GNSS technologies in all parts of the world, particularly in developing countries.

V. Benefits for [Regional Centres for Space Science and Technology Education]

22. The [Regional Centres] benefit from acting as ICG Information Centres as follows:
- (i) The [Regional Centres] may receive in-kind and/or in-cash support in the form of:
 - (a) The joint organization of activities, such as workshops and conferences;
 - (b) The establishment of a system of scholarships and funds in relation to GNSS related education;
 - (c) The implementation of sponsored on the job educating for educators.
 - (ii) They will be able to raise public awareness for their issues in terms of:
 - (a) Increasing the visibility of [Regional Centres];
 - (b) Establishing a comprehensive network for information and education in the region;
 - (c) Providing an enhanced approach to connect regional actors working with or interested in GNSS applications.
 - (iii) The [Regional Centres] might be included in the discourse on a higher level by:
 - (a) Participation in ICG meetings;
 - (b) Participation in special working groups;
 - (c) Establishing and/or strengthening contacts to key players in terms of GNSS applications.
23. The inclusion of the ICG as an international partner and the extension of information policy by all GNSS systems available will make the [Regional Centres] more competitive and will strengthen their status in their region and areas of work.
24. Furthermore, the connection to other actors in the sector will facilitate the identification of GNSS applications for sustainable development, thus bringing benefits to the whole region.

VI. Commitment

25. The parties of the cooperation are committed to implement the benefits in the sense of mutual interest.
26. The development of the cooperation with the [Regional Centres] will be subject to review in the Meetings of the ICG on a regular basis.

VII. Conclusions

27. The above stated arguments leads to the following assumptions:
- (i) Establishing an international partnership between the [Regional Centres for Space Science and Technology Education, affiliated to the UN], and the International Committee on Global Navigation Satellite Systems will contribute to promote GNSS applications and education. An international partnership of that shape will enable different strategies of mutual support and thus foster the Plan of Implementation of the World Summit on Sustainable Development.

(ii) The above stated proposals are beneficiary for all actors concerned. By using the already existing structures of the [Regional Centres], ICG and Providers Forum save time and money while gaining the support of already operating centres of information. On the other side the [Regional Centres] expand their range of knowledge and service and thus open new opportunities to connect to other GNSS interested actors in their regions.

(iii) Implementation of the concept will deepen the cooperation of the members of ICG and thus contribute to a common approach on matters of mutual interest related to civil satellite-based positioning, navigation, timing, and value-added services, as well as compatibility and interoperability among the GNSS systems, while increasing their use to support sustainable development, particularly in the developing countries.

VIII. Amendments

28. An amendment to the concept is possible at any time, given the mutual agreement of all parties.

Recommendation for Committee Decision

Prepared by: Working Group C

Date of Submission: 11 December 2008

Issue Title: ICG Information Centres

Background/Brief Description of the Issue:

Based on resolutions of the United Nations General Assembly, Regional Centres for Space Science and Technology Education were established in India, Morocco, Nigeria, Brazil and Mexico. Simultaneously, education curricula were developed for the core disciplines of remote sensing, satellite communications, satellite meteorology, and space and atmospheric science. These centres agreed to act as information centres of the International Committee on Global Navigation Satellite Systems (ICG).

Discussion/Analyses:

The working group discussed the draft concept paper (objectives and scope, procedure, first approach, mechanisms of information transfer, benefits for providers forum and regional centres) for the regional centres for space science and technology education to become information centres for the international committee on global navigation satellite systems.

Recommendation of Committee Action:

The working group C recommends that the ICG plenary affirm the Regional Centres act as the ICG information centres on the basis of the final version of the concept paper.