



**Committee on the Peaceful
Uses of Outer Space****Fourteenth meeting of the International Committee on
Global Navigation Satellite Systems****Note by the Secretariat****I. Introduction****A. Background**

1. The International Committee on Global Navigation Satellite Systems (ICG) promotes coordination among leading satellite operators and strives to maximize the benefits of global navigation satellite systems (GNSS) for sustainable development. ICG also serves as a platform for discussion and the exchange of information on general trends in user needs, applications and technology development. The Office for Outer Space Affairs of the Secretariat, as the executive secretariat of ICG, works with Member States to enhance the compatibility and interoperability of constellations of GNSS so that positioning, navigation and timing technology remains equally accessible to all.

2. ICG divides its work among four working groups comprising representatives of the members, associate members and observers of ICG. The following topics are currently being discussed by the working groups: systems, signals and services (Working Group S, co-led by the Russian Federation and the United States of America); enhancement of GNSS performance, new services and capabilities (Working Group B, co-led by China, India and the European Space Agency (ESA)); information dissemination and capacity-building (Working Group C, led by the Office for Outer Space Affairs); and reference frames, timing and applications (Working Group D, co-led by the International Association of Geodesy (IAG), the International Federation of Surveyors (FIG) and the International GNSS Service (IGS)).

3. The ICG Providers' Forum, consisting of those countries that operate global and regional navigation satellite systems or with plans to develop one, provides a venue for coordination and cooperation to improve overall service provision. The Forum also acts as a mechanism to continue discussions on important issues addressed by ICG that require inputs from system providers. The Forum meetings are held in conjunction with the annual meetings of ICG, or more often should the need arise.

4. ICG held its fourteenth meeting in Bengaluru, India, from 9 to 13 December 2019. The Providers' Forum held its twenty-third meeting on 8 and 12 December 2019, in conjunction with the ICG meeting. The Indian Space Research Organization (ISRO) had organized the meeting on behalf of the Government of India. A list of the



States Members of the United Nations, United Nations entities and governmental, intergovernmental and non-governmental organizations participating in ICG is contained in annex I.

B. Structure and programme of the meeting

5. The programme of the fourteenth meeting of ICG consisted of three plenary sessions and a series of meetings of the four working groups. The first plenary session, held on 9 December 2019 provided an opportunity for providers of GNSS, regional systems and augmentations to make presentations on their programme and policy updates and on new technologies and research areas, and exchange ideas in the field of GNSS and related positioning, navigation and timing fields. ICG members, associate members and observers representing GNSS user groups shared their views and perspectives on matters of interest to ICG and its working groups.

6. An expert seminar entitled “GNSS in societal and development applications” was held on 9 December 2019, which dealt with GNSS-based applications in a broad range of areas, including enhancing the safety of transportation by land, sea and air, environmental protection, and responding to new societal challenges and emerging needs.

7. The ICG working groups met in four parallel sessions on 10 and 11 December 2019 to discuss activities that had been put forward through the respective working groups workplans and recommendations made at previous meetings. In addition, the working groups held joint sessions to address the following topics: (a) international GNSS monitoring and assessment and timing interoperability (Working Groups S and D); (b) precise point positioning (PPP) interoperability (Working Groups S, B and D); and (c) applications, capacity-building and education (Working Groups C and D). The conclusions and recommendations of the working groups were presented and discussed at the ICG second plenary session, held on 12 December 2019.

8. After considering the various items on its agenda, ICG adopted a joint statement (see sect. III below).

9. In conjunction with the fourteenth meeting of ICG, the Providers’ Forum held its twenty-third meeting on 8 and 12 December 2019 under the co-chairmanship of India and China (see sect. IV below).

C. Attendance

10. Representatives of the following States participated in the fourteenth meeting of ICG: Australia, China, India, Japan, Nigeria, Russian Federation, United Arab Emirates and United States. The European Union was also represented.

11. The following intergovernmental and non-governmental organizations dealing with GNSS services and applications were also represented at the meeting: Arab Institute of Navigation, Asia-Pacific Space Cooperation Organization, Civil Global Positioning System Service Interface Committee, ESA, FIG, Interagency Operations Advisory Group, International Bureau of Weights and Measures and IGS. Representatives of the Office for Outer Space Affairs and the International Telecommunication Union also participated.

12. ICG invited the observers for New Zealand and the Republic of Korea, at their request, to attend the fourteenth meeting and to address it, as appropriate, on the understanding that it would be without prejudice to further requests of that nature and that doing so would not involve any decision of ICG concerning their status.

D. Expert seminar on global navigation satellite system applications

13. An expert seminar entitled “GNSS in societal and development applications” was held on 9 December 2019. The seminar focused on the following applications that made use of Navigation with Indian Constellation (NavIC), which were presented by the representatives of India: messaging and surveillance, safety in public transportation systems, timing applications in India, vehicle location trackers, environment monitoring and mobile phone applications. The initial results of and future plans for the S-band pseudolite system of India were also presented. Presentations were made by the representatives of China on how smart cities could use services of the BeiDou Navigation Satellite System (BDS) and on the development of BDS products and the related challenges.

14. The representative of the European Commission presented a joint study, conducted by the Office for Outer Space Affairs and the European GNSS Agency, that focused on how the activities of the European GNSS Agency and the Earth observation activities of the Copernicus Programme, in particular when combined, could be used to support the Sustainable Development Goals (see ST/SPACE/71).

E. Documentation

15. A list of the documents before ICG at its fourteenth meeting is contained in annex II. Those documents and further information on the agenda of the fourteenth meeting, background materials and presentations are available on the ICG information portal on the website of the Office for Outer Space Affairs (www.unoosa.org).

16. A description of the activities undertaken or supported by the Office for Outer Space Affairs in 2019 in the framework of the workplan of ICG, and the main results achieved, are contained in document A/AC.105/1213.

II. Observations, recommendations and decisions

17. After considering the various items before it at its fourteenth meeting, ICG made the observations, recommendations and decisions set out below.

18. ICG took note with appreciation of the reports of its working groups and its Providers’ Forum, which contained the results of their deliberations conducted in accordance with their respective workplans.

19. ICG endorsed the decisions and recommendations of the working groups with regard to the implementation of the actions set forth in their workplans.

20. ICG took note of the schedule of the intersessional meetings and workshops of the working groups for 2020, which would be held in conjunction with space-related international conferences and symposiums.

21. The chair of the meeting informed participants that a request from New Zealand for membership in ICG had been received. The chair of the meeting summarized the letter of request and the relevant correspondence.

22. ICG took note of a presentation by the representative of New Zealand on the establishment of a satellite-based augmentation system in partnership with Australia. As part of that programme, New Zealand would seek to have the legacy L1 SBAS for global positioning system service certified for use by New Zealand aviation by the year 2023, and the SBAS open service would continue to be provided to the user community.

23. ICG welcomed the application of New Zealand for membership in ICG.

24. The executive secretariat was requested to amend the terms of reference of ICG to reflect the addition of the new member.

25. ICG accepted the invitation extended by the Office for Outer Space Affairs to host the fifteenth meeting of ICG, in 2020, and noted the offer made by the United Arab Emirates to host the sixteenth meeting, in 2021.
26. ICG agreed on a tentative schedule for the preparatory meetings for its fifteenth meeting, to be held during the fifty-seventh session of the Scientific and Technical Subcommittee and the sixty-third session of the Committee, both in 2020.
27. At the closing ceremony, participants expressed their appreciation to ISRO for organizing the meeting and to the Office for Outer Space Affairs for its work in support of ICG and its Providers' Forum, including carrying out planned activities.

III. Joint statement

28. ICG adopted by consensus the following joint statement:
 1. The fourteenth meeting of the International Committee on Global Navigation Satellite Systems (ICG) was held in Bengaluru, India, from 9 to 13 December 2019 to continue reviewing and discussing developments in the field of global navigation satellite systems (GNSS) and to allow ICG members, associate members and observers to address recent developments in their countries, organizations and associations regarding GNSS services and applications.
 2. On behalf of the Government of India, K. Sivan, Chairman of the Indian Space Research Organization (ISRO) and Secretary of the Department of Space presided over the inauguration of the fourteenth meeting of ICG and delivered a keynote address. Senior representatives of ISRO, including the Scientific Secretary and the Directors of the U R Rao Satellite Centre and the Space Applications Centre, the ISRO centres that are the key contributors to the navigation programme, addressed the meeting. The representative of the Office for Outer Space Affairs also addressed the meeting. The inaugural event concluded with an expression of thanks offered by the Director of the Satellite Navigation Programme Office of ISRO headquarters.
 3. The meeting was attended by representatives of Australia, China, India, Japan, Nigeria, the Russian Federation, the United Arab Emirates, the United States of America and the European Union, as well as the following intergovernmental and non-governmental organizations: Arab Institute of Navigation, Asia-Pacific Space Cooperation Organization, Civil Global Positioning System Service Interface Committee, European Space Agency (ESA), Interagency Operations Advisory Group (IOAG), International Bureau of Weights and Measures (BIPM), International Federation of Surveyors and International GNSS Service (IGS). Representatives of the Office for Outer Space Affairs and the International Telecommunication Union (ITU) also participated. New Zealand and the Republic of Korea were invited to attend as observers. New Zealand was recognized by ICG as a new member.
 4. ICG conducted a seminar focusing on the contributions of GNSS for societal and developmental purposes. Presentations were made on the use of satellite navigation in terrestrial and maritime transportation, timing applications, use of pseudolites for aircraft approach and unmanned aerial vehicle guidance, environmental observations and the introduction of the use of NavIC positioning data in mobile phones.
 5. ICG noted that the working groups had focused on the following issues: systems, signals and services; enhancement of GNSS performance, new services and capabilities; information dissemination and capacity-building; and reference frames, timing and applications.

6. The Working Group on Systems, Signals and Services (Working Group S), through its subgroups and task forces, advanced all aspects of its workplan in the intersessional period between the thirteenth and fourteenth meetings of ICG. Under the leadership of the subgroup on compatibility and spectrum protection, an eighth GNSS interference detection and mitigation workshop was conducted in May 2019, for the third time in conjunction with the annual conference in Baška, Croatia. At the workshop, a number of concepts and ideas were presented on interference detection and mitigation capabilities and methodologies. The Working Group continued its campaign to promote adequate protection of the GNSS spectrum through education and outreach by conducting a fourth seminar on spectrum protection and interference detection and mitigation, in conjunction with a regional workshop on the applications of GNSS, held in Suva from 24 to 28 June 2019 (see [A/AC.105/1216](#)). On the basis of the positive feedback received about the success of that outreach effort, the Working Group submitted a recommendation to ICG to create a booklet addressing the importance of GNSS spectrum protection and interference detection and mitigation. The recommendation was adopted at an ICG plenary session. The compatibility and spectrum protection subgroup also maintained a close watch on ITU activities, including preparations for the World Radiocommunication Conference 2019 (WRC-19), held in Egypt in November 2019. The Working Group members received an update on the outcomes related to the radio-navigation satellite service (RNSS) spectrum. As a result of the hard work done before and during WRC-19, there were no impacts on RNSS resulting from the ITU Radio Regulations.
7. The subgroup on interoperability and service standards held three workshops during the intersessional period, in Vienna in June 2019. A workshop on defining guidelines for developing open service performance standards was held on 12 June 2019, led by a dedicated team of experts working under the auspices of the subgroup. The main emphasis was on defining and expanding the list of parameters beyond those in the initial performance standard guidelines adopted at the thirteenth meeting of ICG. On 12 and 13 June 2019, a workshop focused on international GNSS monitoring and assessment (IGMA) took place. The subgroup also organized a third workshop focused on GNSS system time interoperability, held on 14 June 2019, in conjunction with the meeting of Working Group D. The Working Group agreed to continue those discussions by holding another workshop in conjunction with meetings of Working Groups B and D in 2020, with a focus on input from GNSS receiver manufacturers and users of different categories. Finally, the Working Group participated in a workshop chaired by Working Groups B and D, focused on precise point positioning (PPP) services, which took place in conjunction with the regional workshop held in Suva in June 2019. Based on the outcome of the workshop, Working Group S recommended the establishment of a task force on PPP interoperability, which was adopted by ICG. The task force will be co-chaired by Australia, the European Union and Japan and will prepare a workshop in 2020 to continue the discussions and address the issues raised at the 2019 workshop.
8. The Working Group also highlighted the need for consultation with the Inter-Agency Space Debris Coordination Committee regarding implementation of the recommendation from the thirteenth meeting of ICG to study the issue of debris mitigation practices relevant to the medium Earth orbit and inclined geosynchronous orbit orbital regimes used for GNSS.
9. The Working Group on Enhancement of GNSS Performance, New Services and Capabilities (Working Group B) has progressed in its activities.

10. The space user subgroup informed the Working Group on the progress made since the thirteenth meeting of ICG, when the subgroup was established. The subgroup made major progress related to the updates for the next envisaged release of the GNSS space service volume (SSV) booklet, in line with its workplan for the period 2019–2020. The finalization of a video, produced to explain the basic concept of the GNSS SSV to the general public, was expected in the first quarter of 2020. It was envisaged that the name of that subgroup would be finalized in that same period. New activities had also been identified, including discussions on the need for user guidelines or standards for space usage of GNSS and the identification of space user needs related to timing aspects. The subgroup also proposed a recommendation related to the release of the GNSS transmit antenna patterns or equivalent representative modelling information, including the side lobes, by all GNSS service providers, in order to fully exploit the potential of GNSS for space users, including missions to the Moon and beyond.
11. The Working Group recognized the efforts made by its application subgroup on creating a user questionnaire and a GNSS catalogue, and a draft questionnaire and a draft structure of the application catalogue were distributed to the co-chairs and members of the Working Group. After reviewing the current status of the project, the Working Group recommended that the project should focus on specific areas. The focus areas were still to be identified, but suggested areas were user needs with respect to emerging scientific GNSS applications such as space weather, reflectometry, PPP and unmanned vehicles. All members of the Working Group were encouraged to take a more proactive role in the project.
12. The co-chairs of the application subgroup requested each contact point to report the topics of interest to the co-chairs and to identify potential additional members of the subgroup by the end of January 2020, as input for a meeting of the subgroup to be held in March 2020. The subgroup would select the topics of focus and develop a workplan to be submitted to the Working Group for the intersessional meeting to be held in June 2020, in preparation for the fifteenth meeting of ICG.
13. Working Group B, as part of its agenda, addressed additional aspects of GNSS usage in space, on the basis of presentations provided by the National Aeronautics and Space Administration (NASA) of the United States and by India and China. The Working Group was provided with updates on space missions using GNSS receivers based on the information recorded by IOAG. NASA shared new results of the navigation performance of the Magnetospheric Multiscale (MMS) mission and discussed plans and analyses related to the use of GNSS for its lunar exploration missions. NASA reported on the successful first operational use of the NASA Autonomous Flight Termination System using global positioning system during a launch on 6 December 2019. China reported a signal improvement method for cislunar space missions. India informed the Working Group about activities for orbit determination for Navigation with Indian Constellation (NavIC), including extended Kalman filter-based on-board orbit determination using GNSS and investigations on NavIC extended ephemerides, the efforts of India for SSV and lunar missions, as well as on pseudo-random noise number (PRN) code design for a future NavIC signal on the L1 band. China introduced a low Earth orbit (LEO) satellite-based augmentation system using 120 LEO satellites to provide global fast convergence high-accuracy PPP, GNSS monitoring and integrity augmentation services. The Russian Federation made a presentation on developments relating to the module for real-time kinematic navigation, with respect to multi-GNSS and integration with inertial sensors.

14. As part of the scientific presentations, India provided details on many scientific investigations and research for future applications such as the following: a NeQuick model-based ionospheric corrections and solar flux estimation for NavIC, modelling of perturbations in the total electron content in the ionosphere for space weather studies, atmospheric water vapour detection using GNSS and its impact on weather prediction, the detection of seismic activities utilizing NavIC signals by identifying anomalies in the ionosphere, and the benefits of GNSS signals for weather monitoring employing GNSS reflectometry techniques.
15. China informed the Working Group about the BeiDou Navigation Satellite System (BDS-3) on board space weather payloads and the recent release of data on the BDS web page (<http://en.beidou.gov.cn/>). Since most GNSS satellites have space weather payloads, China suggested that GNSS providers share space weather data. Furthermore, China suggested that a correspondence group on this topic be established within the Working Group. This point will be addressed as part of the Working Group's activities leading to the fifteenth meeting of ICG.
16. Japan informed the Working Group on the progress of the emergency warning service of the Quasi-Zenith Satellite System (QZSS) and provided an update on the activities of the correspondence group on the emergency warning service. A draft message definition had been shared with the contact points of the correspondence group. Future work will focus on the definition of the technical specifications of emergency warning messages. More active response from each contact point was encouraged. China provided the Working Group with an update on the progress of the BDS synthetic aperture radar and the BDS return link service. India made a presentation on the results of a project for monitoring coastal rip currents and how those results had been used to improve safety on beaches along the Indian coastline.
17. The Working Group expressed its appreciation for the variety of the contributions and noted the growing importance of the scientific use of GNSS. In addition, the Working Group agreed to organize the joint session held with Working Groups S and D on the topics of PPP and timing interoperability.
18. The Working Group on Information Dissemination and Capacity-building (Working Group C) considered, through its extensive deliberations, the outreach programmes and the capacity-building activities carried out by ESA, the University of Tokyo, the Tokyo University of Marine Science and Technology of Japan, Beihang University of China, the United Nations-affiliated Regional Centre for Space Science and Technology Education for Asia and the Pacific, ISRO of India, Moscow State University of Geodesy and Cartography of the Russian Federation, and the European Union. It was emphasized that those institutions could collaborate on future training curricula and opportunities.
19. The Working Group examined in depth certain points pertinent to offering superior quality of education on GNSS and building up sustainable cooperation. Those points included the exchange of faculty staff from different regional centres, approaches and methods for the dissemination of GNSS data and information about GNSS-related events, and encouraging the above-listed institutions participating in the Working Group to consider making online GNSS courses available.
20. The Working Group noted that a communication framework for the sharing of short-term training opportunities should be developed, enabling efficient use of programmes provided by the regional centres for space science and technology education, affiliated to the United Nations and other institutions. By virtue of the experience in conducting short-term

training courses, the Regional Centre for Space Science and Technology Education for Asia and the Pacific in India could take a leading role in organizing such courses.

21. The Working Group on Reference Frames, Timing and Applications (Working Group D) noted the significant progress on the geodetic and timing references made by the GNSS providers. Specific progress was noted on: (a) the refinement of the alignment of GNSS reference frames with the International Terrestrial Reference Frame (ITRF); and (b) the information on the GNSS timing references and the inter-comparisons of GNSS time offsets. The Working Group noted that the templates on geodetic and timing references currently provided on the ICG information portal should be updated by the GNSS providers so that they contain the most current information.
22. It was noted that the work of ICG and the Working Group had resulted in significant progress in the realization of GNSS reference frames, and especially with regard to their alignment to ITRF. This progress included deformation of the terrestrial scale. As this work progressed into a high-accuracy positioning community service, participants were encouraged to consider how to address potential issues of reference frame interoperability.
23. Knowledge of satellite physical and geometrical properties related to the shape, mass, optical properties, dimensions and locations of radiating antennas permits improved orbit modelling, which in turn increases the accuracy of satellite ephemerides and clock correction determination. The Working Group acknowledged that there had been some progress made in the provision of satellite properties by the GNSS providers, on the basis of ICG recommendation No. 23 and in accordance with the IGS white paper entitled "Satellite and operations information for generation of precise GNSS orbit and clock products". IGS collects and makes available GNSS satellite properties to the user community. Access to satellite metadata was essential for enabling scientific applications and for high-accuracy precise positioning. The Working Group also noted that providing GNSS satellite phase centre offsets made it possible to determine the ITRF scale using GNSS. The Working Group acknowledged the release of additional satellite metadata for QZSS, the European satellite navigation system (Galileo) and BDS.
24. The Working Group noted that there had been little progress on ICG recommendation No. 12. Some providers were providing GNSS data from their tracking stations to IGS. The Working Group will continue to monitor progress. The Working Group continued to contribute to the IGMA initiative, in particular through involvement in the IGMA Task Force IGS joint trial project.
25. The Working Group noted progress on ICG recommendation No. 21 on monitoring the offsets between GNSS times. Studies had been conducted by some providers and the timing community identifying several methods to improve their time offset determination and the impact on positioning. Additional work was necessary for the providers to assess the accuracy goals in the determination of the GNSS time offsets and the impact on positioning so as to specify a recommended method to determine and monitor time offsets. At the joint session of the Working Groups S and D, it was concluded that a further workshop should focus on addressing these questions in 2020 by inviting receiver manufacturers to discuss multi-GNSS positioning and interoperability.
26. The task force on timing references of the Working Group noted that there had been significant progress related to the ICG recommendation No. 20, as BIPM was on the verge of extending the provision of Coordinated

Universal Time (UTC) – UTC(k)_GNSS to Galileo and BDS. The Working Group also noted the excellent performance of UTC_r, in particular since July 2017. It was recalled that the creation of UTC_r by BIPM was initiated subsequent to ICG recommendation No. 19.

27. The Working Group recognized the contributions from India and the presentations on the NavIC timescale, time transfer and space-based clock. The Working Group noted interest of NavIC in proposing an update regarding the ICG recommendation No. 20 at the next meeting of ICG.
28. With respect to education and capacity-building in developing countries, the Working Group members also participated in education, outreach and community engagement projects, in partnership with Working Group C. Linkages between ICG capacity-building initiatives and the Sendai Framework for Disaster Risk Reduction were also described.
29. The chairs of Working Groups C and D recognized the synergies that existed between the activities of the two working groups in the fields of GNSS, geodesy and reference frames. The two working groups therefore both agreed to continue to work together and contribute to capacity-building in the field of GNSS and the utilization of GNSS in geodesy and reference frames.
30. The Working Group held a joint meeting with the Working Groups B and S to discuss the Interoperability of GNSS PPP services. The discussions in the joint meeting highlighted the importance of harmonizing key aspects of system-provided PPP services, which subsequently led to a recommendation to establish a task force under the interoperability subgroup of Working Group S.

IV. Providers' Forum

29. The twenty-third meeting of the Providers' Forum, co-chaired by India and China, was held in conjunction with the fourteenth meeting of ICG, on 8 and 12 December 2019, in Bengaluru, India. China, India, Japan, the Russian Federation, the United States and the European Union were represented at the meeting. It was recalled that the ICG Providers' Forum had grown since its inception, with many accomplishments through the years.

30. After considering the items on its agenda, the Providers' Forum adopted the report on its twenty-third meeting, containing the discussions and recommendations set out below.

A. Summary of discussions and recommendations

1. Open service information dissemination

31. Presentations were made on the following topics.

(a) Update on the International GNSS Monitoring and Assessment System and a preliminary assessment of multi-GNSS performance

32. China presented an update on its International GNSS Monitoring and Assessment System (iGMAS), including results and the enhancement of iGMAS by implementing new receivers to process all GNSS open signals. In addition, it was reported that iGMAS preliminary performance evaluation of multi-GNSS showed that use of multi-GNSS had obvious advantages in terms of position dilution of precision and convergence time for PPP. It was also reported that the routine assessment showed that BDS-3 had better performance than BDS-2.

(b) The construction of the legal system of China related to satellite navigation

33. China introduced its domestic laws and regulations related to satellite navigation and proposed that ICG should start similar discussions. The providers agreed to consider discussing relevant legal issues within ICG. India requested ICG to consider including in the agenda for discussion issues related to S-band interference and jamming/spoofing.

2. Multi-GNSS demonstration project in the Asia-Oceania region

34. Japan provided an update on the multi-GNSS demonstration project in the Asia-Oceania region. Multi-GNSS Asia (MGA) is an organization that promotes the project, with 57 participating organizations from 20 countries. After the thirteenth meeting of ICG, one MGA conference was held in Bangkok from 27 to 29 August 2019. It was reported that a memorandum of understanding between MGA and the Economic and Social Commission for Asia and the Pacific had been signed, and the joint pilot project had been implemented. It was also reported that, in 2020, MGA would adopt a new style involving one custom-made regional seminar, to be held on 6 and 7 February 2020 in Singapore and one conference from 24 to 27 August 2020 in Bangkok. The objective of MGA was to strengthen the user community's adoption of the "open innovation hub" and to align more closely with ICG to support regional implementation of ICG recommendations.

3. Information centres of the International Committee on Global Navigation Satellite Systems: regional centres for space science and technology education, affiliated to the United Nations

35. The executive secretariat of ICG provided an overview of the established regional centres in each region covered by the regional economic commissions of the United Nations (for Africa, Asia and the Pacific, Latin America and the Caribbean and West Asia). The ICG executive secretariat described the nine-month courses offered by the regional centres, which were followed by a year of participation in a pilot project in the participant's home country, after which students presented their findings at the centre in order to receive a certificate of course completion.

36. The ICG executive secretariat announced that a training course on GNSS would be held in Bangkok from 6 to 10 January 2020. The United Nations/Mongolia workshop on the application of GNSS would be held in Ulaanbaatar from 13 to 17 April 2020. Finally, an African workshop on GNSS and space weather would be held in Rabat from 5 to 16 October 2020.

B. Other matters**1. Review of the terms of reference of the Providers' Forum**

37. The Providers' Forum discussed and agreed on proposed changes to its terms of reference, as reflected in the latest version (ICG/PF/TOR/2016). They included the suggestion to add "Navigation with Indian Constellation (NavIC) or Indian Regional Navigation Satellite System (IRNSS)" to the list of members contained in the terms of reference of ICG.

2. Request by New Zealand to become a member of the International Committee on Global Navigation Satellite Systems

38. New Zealand was invited to present details of their interest in membership to the Providers' Forum.

Annex I

List of States Members of the United Nations, United Nations entities and governmental, intergovernmental and non-governmental organizations participating in the International Committee on Global Navigation Satellite Systems

Australia

China

India

Italy

Japan

Malaysia

New Zealand

Nigeria

Russian Federation

United Arab Emirates

United States of America

European Union

Arab Institute of Navigation

Asia-Pacific Space Cooperation Organization

Civil Global Positioning System Service Interface Committee

Committee on Space Research

European Space Agency

European Space Policy Institute

Interagency Operations Advisory Group

International Aeronautical Federation

International Association of Geodesy

International Association of Geodesy Reference Frame Sub-Commission for Europe

International Association of Institutes of Navigation

International Bureau of Weights and Measures

International Cartographic Association

International Earth Rotation and Reference Systems Service

International Federation of Surveyors

International Global Navigation Satellite System Service

International Society for Photogrammetry and Remote Sensing

International Steering Committee of the European Position Determination System

International Telecommunication Union

International Union of Radio Science

Office for Outer Space Affairs of the Secretariat

Annex II**Documents before the fourteenth meeting of the
International Committee on Global Navigation Satellite
Systems**

<i>Symbol</i>	<i>Title or description</i>
ICG/WGS/2019	Report of the Working Group on Systems, Signals and Services
ICG/WGB/2019	Report of the Working Group on Enhancement of GNSS Performance, New Services and Capabilities
ICG/WGC/2019	Report of the Working Group on Information Dissemination and Capacity-building
ICG/WGD/2019	Report of the Working Group on Reference Frames, Timing and Applications
ICG/TOR/2019	Terms of reference of the International Committee on Global Navigation Satellite Systems (as amended)
ICG/PF/TOR/2019	Terms of reference of the Providers' Forum (as amended)
