



International Civil Aviation Organization

**THE THIRD MEETING OF IONOSPHERIC
STUDIES TASK FORCE (ISTF/2)**

15 – 17 October 2013, Seoul, Republic of Korea



Agenda Item 2: Review of outcome of relevant meetings/conferences

(d) IGWG-14

**REPORT ON THE 14TH MEETING OF INTERNATIONAL
GBAS WORKING GROUP**

(Presented by Japan)

SUMMARY

This information paper presents the report on the 14th meeting of International GBAS Working Group (IGWG) held in Everett, USA from 4 to 7 June 2013. This paper also reports on recent activities of IGWG Iono-subgroup.

1. INTRODUCTION

1.1 The International GBAS Working Group (IGWG) is an international meeting organized by FAA and EUROCONTROL to exchange information on national and international GBAS implementation plan, to seek for opportunity of collaboration, and to discuss on technical and operational aspects of GBAS.

1.2 The 14th IGWG meeting (IGWG-14) was held in Everett, USA from 4 to 7 June 2013 hosted by the Boeing Company. This information paper presents the outcome of IGWG-14.

1.3 The IGWG has a subgroup studying on the ionospheric issues in developing and implementing GBAS which is called IGWG-Iono subgroup (SG). IGWG-Iono SG is actively working on coordination of ionospheric data collection and analysis. This information paper also reports on the recent activities of the IGWG-Iono Subgroup.

2. DISCUSSION

2.1 The IGWG-14 meeting was attended by more than 110 participants from 16 nations international service providers, industry, airlines and aircraft manufacturers. The meeting had a plenary session with 9 agenda items and five working sessions. In the plenary session, status of GBAS activities of participating parties was reported. Not only the CAT-I GBAS, GAST-D that will support CAT-III approach and landing was discussed. Japan introduced its plan to install a GAST-D prototype in Southern part of Japan which belongs to the low latitude region. The working sessions included

- WS1: Data collection/sharing/evaluation
- WS2: CAT I Post Approval/Implementation Activities
- WS3: Ionospheric Aspects

WS4: GBAS Future Operations: Operational and implementation aspects
WS5: GS siting and ground monitoring aspects

2.2 The Working Session 3 discusses on the ionospheric aspects and monitors for GBAS. There were 10 presentations in the session including:

1. I-GWG/13 Iono Subgroup Summary (John Howard, Honeywell)
2. Gradient Monitor – Illinois Institute of Technology (Samer Khanafseh, IIT)
3. Absolute Iono Gradient monitor Evaluation (Susumu Saito, ENRI)
4. FAA LTIAM Activity (Jiyun Lee, FAA)
5. Iono Project Status and Results (Mikael Mabillau, Egisavia)
6. Update on DLR's Iono Activities (Boubeker Belabbas, DLR)
7. Modeling Phase Scintillations (Morten Stakkeland, Indra Navia)
8. Flight Trials under Equatorial Plasma Bubbles (Takeshi Fujiwara, JAXA)
9. Honeywell Iono Analysis at Rio (John Howard, Honeywell)
10. Iono Subgroup Summary (John Howard, Honeywell)

The complete report and materials discussed in the IGWG-14 meeting can be found in the EUROCONTROL's OneSky Team website (<https://ost.eurocontrol.int>) where the EUROCONTROL UserID is required. It is granted based on application.

2.3 Since the last ISTF meeting (ISTF/2) held in Bangkok in October 2013, IGWG-Iono SG had a WebEx meeting on 17 January 2013. The meeting was attended by 14 participants from 9 organizations including FAA WJHTC, NAVTAC, EUROCONTROL, Stanford University, Japan Aerospace Exploration Agency (JAXA), ENRI, DFS, Indra, and German Aerospace Center (DLR). The main topic of this teleconference consisted mainly of technical updates to activities related to the Long-Tern Ionosphere Anomaly Monitoring (LTIAM) tool developed by the FAA, in cooperation with Stanford University and NAVTAC. The latest version of the LTIAM, version 2.1 is ready for distribution by the FAA. FAA WJHTC continued their effort to identify and catalog anomalous gradients. They stressed that it is important to remove "bad" sites from the list of stations for LTIAM analysis, instead of selecting "good" sites, to reduce computing time and human labor and to eliminate false gradients. NAVTAC is working on optimizing the network of stations for this purpose. EUROCONTROL reported on their continued effort to modify the LTIAM interfaces to process data from European stations. There were several discussions related to the technical issues they have encountered in executing the LTIAM for these European stations. Finally (during the last few minutes of the teleconference), EUROCONTROL was able to successfully run the LTIAM against a sample set of data from October 22, 2011 without encountering errors. In addition, EUROCONTROL reported that daily RINEX raw data from more than 250 European GNSS stations will be archived for the next 3 years (from October 2012 to October 2015). EUROCONTROL aims at running LTIAM on these data or on a sub-set of these data. ENRI reported their first results of comparison between ionospheric gradients estimated by the LTIAM and by ENRI's tool [9,10]. Cross-check between the tools will be continued. The members agreed to continue their activities, though the next teleconference has not been scheduled yet.

3. ACTION REQUIRED BY THE MEETING

3.1 The meeting is invited to do the following:

- a) note the information presented in this paper; and
- b) discuss any relevant matters as appropriate.
