

Recommendation 3 for Committee Decision

Prepared by: Working Group B

(Working Group, or individual Members or Associate Members)

Date of Submission: 10 October 2024

Issue Title: The workshop on ionospheric impacts on Global Navigation Satellite Systems (GNSS) and international collaboration to meet current and future solar activity period challenges

Background/Brief Description of the Issue:

The ionosphere is one of the key factors affecting the performance of all navigation satellite systems. Currently, the 25th solar activity cycle is approaching its peak years around 2024-2025. During this period, the occurrence and intensity of ionospheric anomalies such as scintillation, disturbances, and storms will increase significantly. The influence of the ionosphere is the same for all navigation satellite systems and ionospheric anomalies have a significant global impact.

Discussion/Analyses:

During the 25th solar activity cycle, the ionosphere will significantly affect the performance of GNSS services, with an anticipated continuous increase in the coming years. Monitoring of the GNSS performance is a fundamental activity within the International Committee on GNSS (ICG). Given that the ionosphere exerts global impacts on different countries, collaborative efforts among worldwide countries are needed to monitor the global ionospheric impacts and potentially provide alerts. However, the progress about an interoperable and compatible way for maintaining and improving the performance of GNSS standard and precise positioning during current and future solar activity peak period are limited.

It is necessary to hold a dedicated workshop as the starting point of the sharing of knowledge and strategies as well as the international cooperation on the mitigation of ionospheric impacts across the globe. New monitoring and alert services on the ionospheric impacts on GNSS are expected to mitigate the effects of ionosphere during the period of high solar activity.

Recommendation of Committee Action:

ICG encourages international GNSS and ionospheric space weather communities including ICG members to work together by conducting a workshop aimed at discussing the ionospheric impacts on GNSS and joint actions to be undertaken to mitigate the ionospheric impacts on GNSS during current and future solar activity period through international collaborations.

Members Consensus Reached _____ **No Consensus Reached** _____

Chairperson Signature: _____ **Date:** _____