



Ionosphere session

Name of Working Group Chair(s) Andrzej Krankowski

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IGS INTERNATIONAL
GNSS SERVICE

2022 Virtual Workshop

“Science from Earth to Space”

Session Information

Rapporteur: Andrzej Krankowski

Participants:

Session featured 45 participants

Discussion Highlights

- **A progress within the real-time global ionospheric maps have been discussed – performance of the two independent IGS combined real-time products has been presented.**
- **The ROTI ionospheric fluctuation product development towards covering the southern hemisphere and equatorial region has been presented.**
- **A progress within the cooperation between IGS and IRI groups regarding the development of the VTEC maps as an input for the GIRO GAMBIT system.**
- **First results of the simultaneous ionospheric observations with GNSS and LOFAR systems have been presented.**

Key Issues

- **IGS real-time service for global ionospheric total electron content modeling** (N. Wang, M. Hernández-Pajares)
- **IGS ROTI Maps: Current Status and Its Extension towards Equatorial Region and Southern Hemisphere** (I. Cherniak)
- **Towards Cooperative Global Mapping of the Ionosphere: Fusion Feasibility for IGS and IRI with Global Climate VTEC Maps** (A. Froń)
- **Cooperation with International LOFAR Telescope (ILT) for potential synergies** (K. Kotulak)
- **From the VTEC GIMs to the Storm Index GIMs** (M. Hernández-Pajares)
- **The VTEC GIMs as a reliable source of VTEC gradient information** (M. Hernández-Pajares)
- **Influence of the temporal resolution in the VTEC GIM performance** (M. Hernández-Pajares)

Emerging Ideas

Moving toward real-time multi-constellation ionosphere products including VTEC maps, ROTI maps, scintillation products.

Major Accomplishments

- **Further expansion of the real-time global ionospheric maps has been achieved – currently two IGS combined real-time products are available (results published in three papers)**
- **ROTI Northern-hemisphere polar maps are being supplemented with products covering also Southern hemisphere and equatorial region (results published in six papers)**
- **Four manuscripts concerning cooperation with ILT and IRI communities have been published in high impact factor peer-reviewed journals.**

Changes to Charter/Goals and Objectives

No

Recommendations

- **Continuation of work on IGS real-time service for global ionospheric total electron content modeling.**
- **Preparation of final version of IGS ROTI maps extension towards low latitudes and Southern Hemisphere.**
- **Continuation of cooperation with IRI and ILT communities.**
- **Close cooperation with the Real-Time Working Group in order to elaborate full real-time VTEC and ROTI products.**

IGS 2021+ Strategic Plan Goals and Objectives



GOAL

1

Achieve Multi-GNSS Technical Excellence

Increase organizational capability by identifying barriers to multi-GNSS success throughout the IGS, supporting solutions to key challenges, and reinforcing the importance of continuous technical evolution.

Directly working on this objective



GOAL

2

Strengthen Outreach and Engagement

Advocate for open access geodetic and GNSS data and products that facilitate collaborations, standardization, and inclusivity.

Directly working on this objective



GOAL

3

Build Sustainability and Resilience

Foster a resilient, sustainable, and effective organization to support an expanding and evolving IGS community.

Directly and indirectly working on this objective

Major purpose in the IGS and in the greater geodesy community

Providing highest possible quality ionospheric products for the geodetic and other science communities, industry, and various other users

Possible Impediments

There are no particular impediments. The group is continuously improving the quality of the provided products.