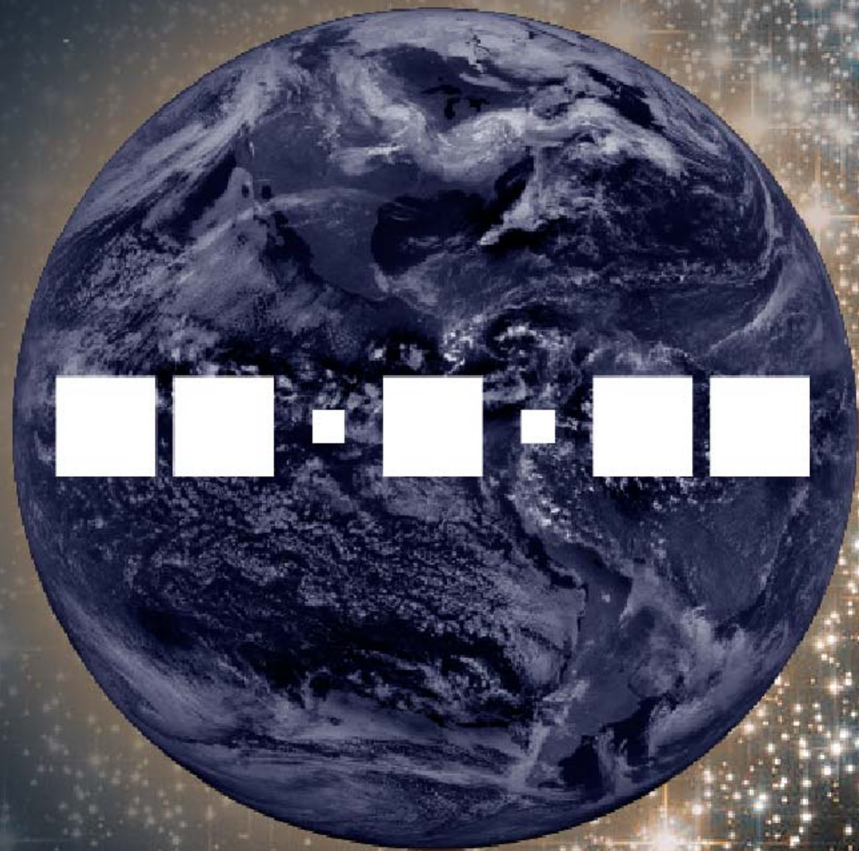# Multi-GNSS

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IGS INTERNATIONAL GNSS SERVICE

2022 Virtual Workshop
"Science from Earth to Space"

Session Information

Tue 13:00-15:15 UTC

approx. 150 Participants

Major Accomplishments

- Routine generation of multi-GNSS orbit and clock products for up to 5 constellations by 7 MGEX ACs
- MGEX Web Site transition and maintenance
- RINEX 4 navigation file format definition and product
- Satellite metadata file maintenance

Key **Topics**

- Transfer of MGEX products to standard IGS product directory
- Multi-GNSS product combination
  - Orbit/clock product comparison and required harmonization
  - Review of past work on orbit/clock combination (ACC, GFZ, Wuhan Univ., iGMAS) and
  - Discussion of preferred concept for multi-GNSS orbit combination (constellations, Helmert transformation, VCE, EOPs, weighting)
  - Discussion of clock combination concept (system time, GLONASS handling)
- Metadata SINEX file
- IGS support for GPS L1/L5 users

Discussion **Highlights**

- General agreement to full integration of MGEX products into standard directory branch

- Various discussions on possible extensions of current satellite metadata format (clock type, box-wing model parameters, yaw rate). Feasibility/benefit to be assessed. Current contents well received by user community.

- User interest in GPS L1/L5 products is recognized, but varying opinions on preferred approach (bias file for time varying offset between L1/L2 clock and L1/L5 vs. dedicated L1/L5 clock product)

- Lifely and controverse discussion on need for coordination/harmonization of concurrent product combination activities within different IGS entities and the range of supported constellations (GGG vs full MGEX)

Recommendations

- Relocate all MGEX products to standard IGS products directory

  Notes: currently products implementation by all DCs coordinated by DCC (Pat and Markus); target date for completion 30 Sep 2023; 2 months lead notice to all users via IGS mail

- Request GB approval for Satellite Metadata SINEX File Format and Product

  Notes: standardized I/F for satellite metadata for ACs and IGS users, maintained by DLR/GSOC, prototype available from files.igs.org/pub/station/general/ or igs.org/mgex since Jan 2021

- Establish a Task Force to define and implement a tool chain for multi-GNSS orbit/clock/(bias,SINEX,EOP) combination and to establish an operational product

  Notes: taskforce to be composed of interested IGS specialists/volunteers/stakeholders to coordinate concurrent activities of different IGS entities with the ultimate goal of generating comprehensive multi-constellation products in accord with Strategic Plan

- Study options for supporting the GPS L1/L5 user community through dedicated IGS clock or bias products