IGS PPP-AR Working Group

Simon Banville (NRCan), Chair

IGS Associate Member Meeting, 6 December 2021, Virtual

Overview of the Working Group Charter

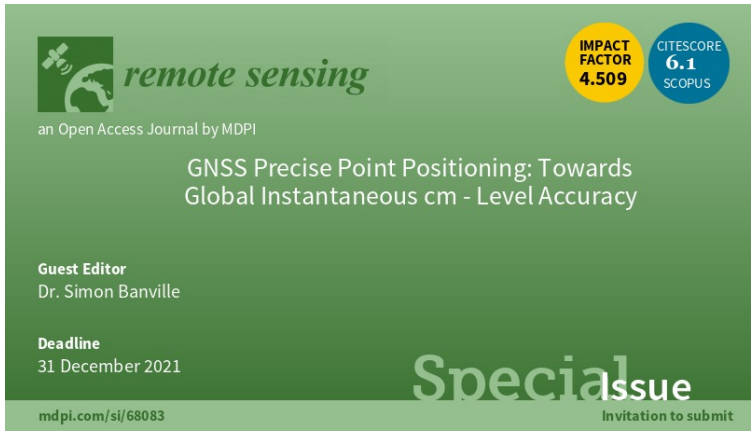
- PPP-AR: precise point positioning with ambiguity resolution
- Established Nov. 2018, Wuhan
- Purpose:
  "Analyze the feasibility and benefits of having the IGS adopt a modernized combination process considering the consistency of the satellite clock and bias products"
- Goals (high level)
  - Verify the interoperability of clock/bias products generated by IGS analysis centers
  - Initiate a pilot project to expose the combined clock/bias solution to open testing

Progress since last AM Meeting (Dec 2019) (1/2)

- Demonstrated interoperability of GPS clock/bias products
  - Banville, S., J. Geng, S. Loyer, S. Schaer, T. Springer, S. Strasser (2020) "On the interoperability of IGS products for precise point positioning with ambiguity resolution," Journal of Geodesy, Vol. 94, No. 10. https://doi.org/10.1007/s00190-019-01335-w
- Encouraged the exchange of satellite attitude information
  - Loyer, S., S. Banville, J. Geng, S. Strasser (2021) "Exchanging satellite attitude quaternions for improved GNSS data processing consistency," Advances in Space Research, published online. https://doi.org/10.1016/j.asr.2021.04.049
- Made available open source code for satellite attitude modeling
  - Strasser, S., S. Banville, A. Kvas, S. Loyer, T. Mayer-Gürr (2021) "Comparison and generalization of GNSS satellite attitude models," EGU General Assembly 2021, 19–30 Apr 2021, EGU21-7825, https://doi.org/10.5194/egusphere-egu21-7825
- Proposed a new convention for bias interoperability with regards to phase center offsets
  - IGSMAIL-8113

Progress since last AM Meeting (Dec 2019) (2/2)

- Generated combined multi-GNSS clock/bias corrections for repro3 (in progress)
  - Performed by Prof Jianghui Geng and his team (Wuhan University)
- Updated IGS PPP-AR WG webpage
  - https://igs.org/wg/precise-point-positioning-ppp/
- Promoted the development of PPP-AR through special issue in Remote Sensing



GOAL 1 Achieve Multi-GNSS Technical Excellence

GOAL 2 Strengthen Outreach and Engagement

Future Work

- Produce and validate repro3 multi-GNSS clock/bias combined products by the 2022 IGS workshop in Boulder

- When repro3 standards are adopted for the operational products (~summer 2022):
  - Adopt new PCO convention regarding biases
  - Provide operational multi-GNSS combined products enabling PPP-AR

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Thank You!

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