IGS Wuhan Workshop Recommendation Template

Name of Working Group and Chair: *Analysis and Reference Frames – Michael Moore, Paul Rebischung and Thomas Herring*

Rapporteur:

Session Highlights:

Progress on Paris Workshop Recommendations: *(indicate which recommendations have been resolved, which are still in progress, and what impediments there are to completion)*

Include the Wuhan rapid products as a fully weighted solution
- completed

Include the GFZ TIGA solution with the missing IGS stations into the Reference Frame IGS combination
- still in progress, there were quality issues with initial GFZ TIGA solutions, then personnel has moved on

Propose the extension of SINEX to allow for a 9 character Station/Marker name
- proposed at UAW, awaiting response from IERS SINEX format Working Group

Investigate the extension of statistical reporting for the final products, and the underlying model to compute the 7 day arcs
- in progress: ECOM2 , 1 stochastic pulse, need to recompute statistics to make them consistent

Tabulation of antenna transmit power values in satellite metadata SINEX file for testing purposes
- proposed

Set up a location for testing the implementation of models between different ACs and encourage model developers to submit test data sets
- in progress. Need some nominated data sets, and a centralized location. Possibly the IGS-ACC server.

Recommendations:*(Please also indicate who in your group is the point of contact/responsible person for each recommendation, and their contact information)*

Establish the repro3 models and standards as soon as possible

- Formalize list of ACs participating to repro3 and constellations they intend to contribute (MM)
- Provide a repro3 website with guidelines on models and test data sets (MM)
- Liaise with the HF EOP working group (TH)
- Liaise with the ILRS to determine the low-degree time variable gravity model to use for repro3 (and prediction into the future) (TH)
- ionosphere 3rd ,etc (TH,MM,PR)
- Identify a priori orbit force models and provide test datasets to facilitate implementation by ACs (Orbit Modelling WG, TH)
- Encourage repro3 ACs to provide tropo SINEX files, 30s clocks, bias SINEX files and satellite quaternions

Work closely with the AWG on ANTEX file to be used for repro3 (PR, MM, TH, AWG, ACs)
- Assess the impact of different possibilities proposed to handle L5/E5 ground antenna patterns
- Determine the best way to use Galileo satellite antenna calibrations without introducing scale inconsistency between GPS/GLONASS and Galileo
- Asses the possibility of defining a "GNSS scale" based on Galileo satellite antenna calibrations
- If needed, provide an update of the IGS14 Reference Frame consistent with repro3 ANTEX file (PR)
- Aim to have the repro3 ANTEX file still usable once ITRF2020 is adopted by the IGS
- Encourage the AWG to update old satellite antenna PCVs

Work towards multi-GNSS IGS combined products
- Assess the impact of multi-GNSS solutions on RF products (PR, ACs)
- Assess whether specific start dates for different constellations are needed in repro3
- Form a pseudo working group on ACC2.0 (GFZ, WHU, GA, anyone welcome)

Products and formats
- Formalize an in-house data format for satellite quaternions
- Use long names for repro3/operational products (MM, in consultation with the IC/DC)
- Determine a clear recommendation for users in case 24h day boundary epochs are added into clock files (Stefan)

Does this WG actively plan to transition its work to multi-GNSS? If yes, when?
*(If applicable)***What impediments may prevent this WG from transitioning to multi-GNSS?**

See above.