

IGS-ACC

MICHAEL MOORE, THOMAS HERRING, SALIM MASOUMI

Welcome to the Wuhan IGS workshop!

- ▶ last before we start repro3 for ITRF2020
- ▶ Think about how your work can help IGS products
 - ▶ What work needs to be completed
 - ▶ What areas need targeted research
 - ▶ How can we server our users better

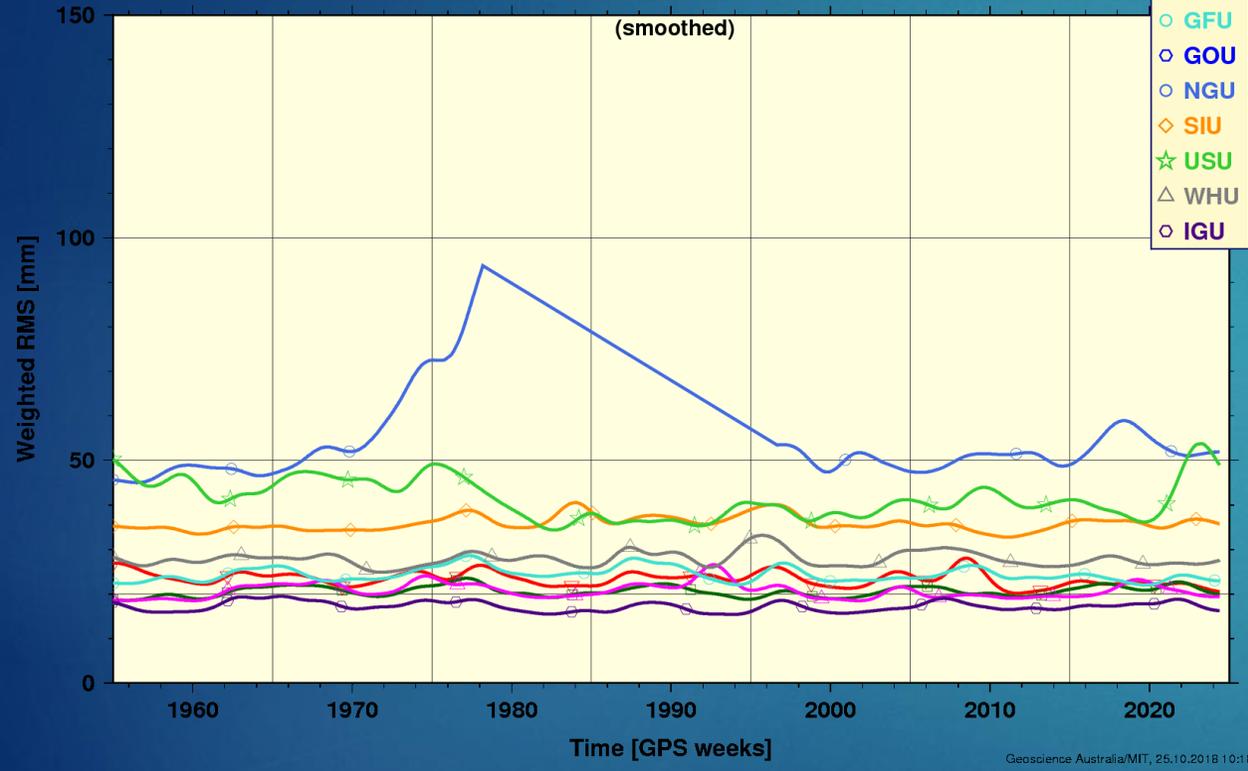
Posters for Analysis and Reference frame

Jan Dousa	New developments at GOP Analysis Center
Rengui Ruan	Between-satellite single-difference integer ambiguity resolution in the SPODS software
Tao Li	Precise satellite clock estimation for GPS, GLONASS, BeiDou and Galileo using the Australian Analysis Centre Software
Tim Springer	The ESA/ESOC Analysis Centre progress and improvements
Rolf Dach	Activities at the CODE Analysis Center
Paul Ries	Status of IGS14 reprocessing at the JPL IGS Analysis Center
Pu Li	Least Squares Cubic Splines for the Polar Motion Estimations
Jianqing Cai	Converted Total Least Squares method and Gauss-Helmert model with applications to 3-D coordinate transformations of ITRF series

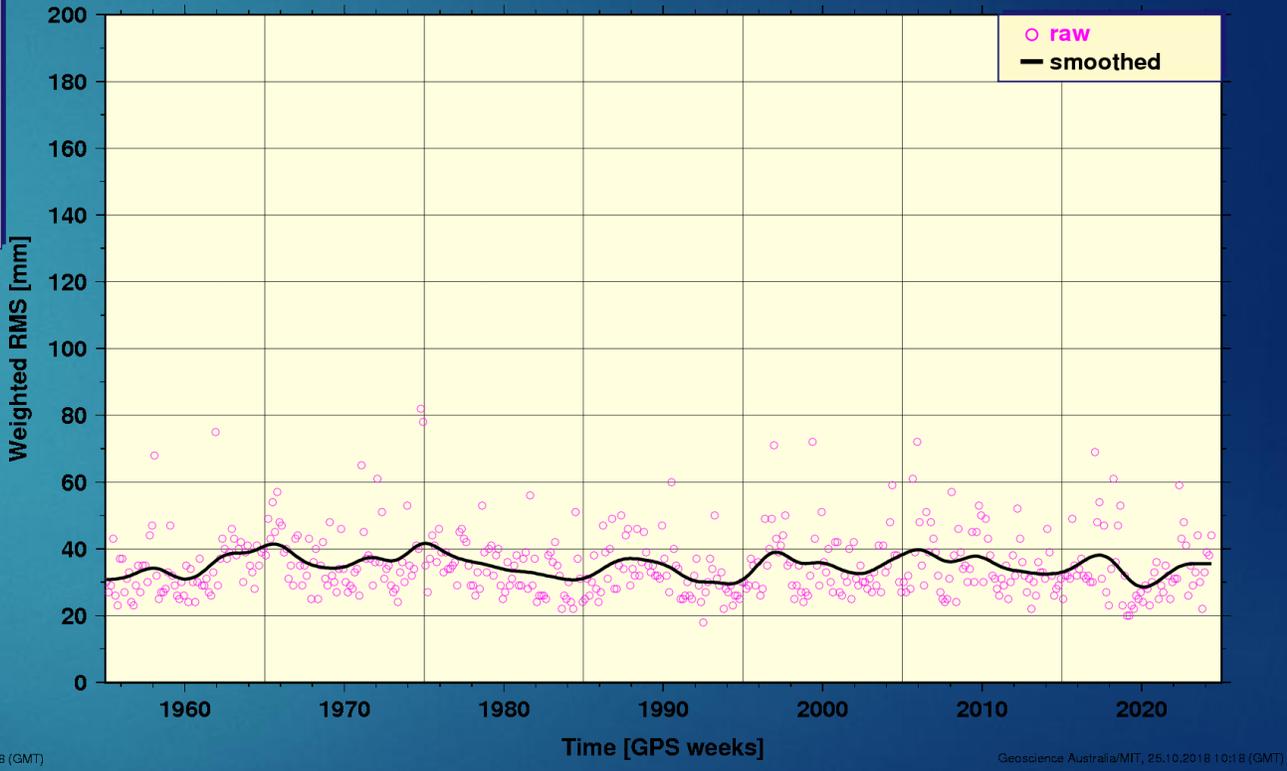
Ultra-rapid Predicted Orbits



Ultra Rapid Orbits (RT predictions compared to IGS Rapid)



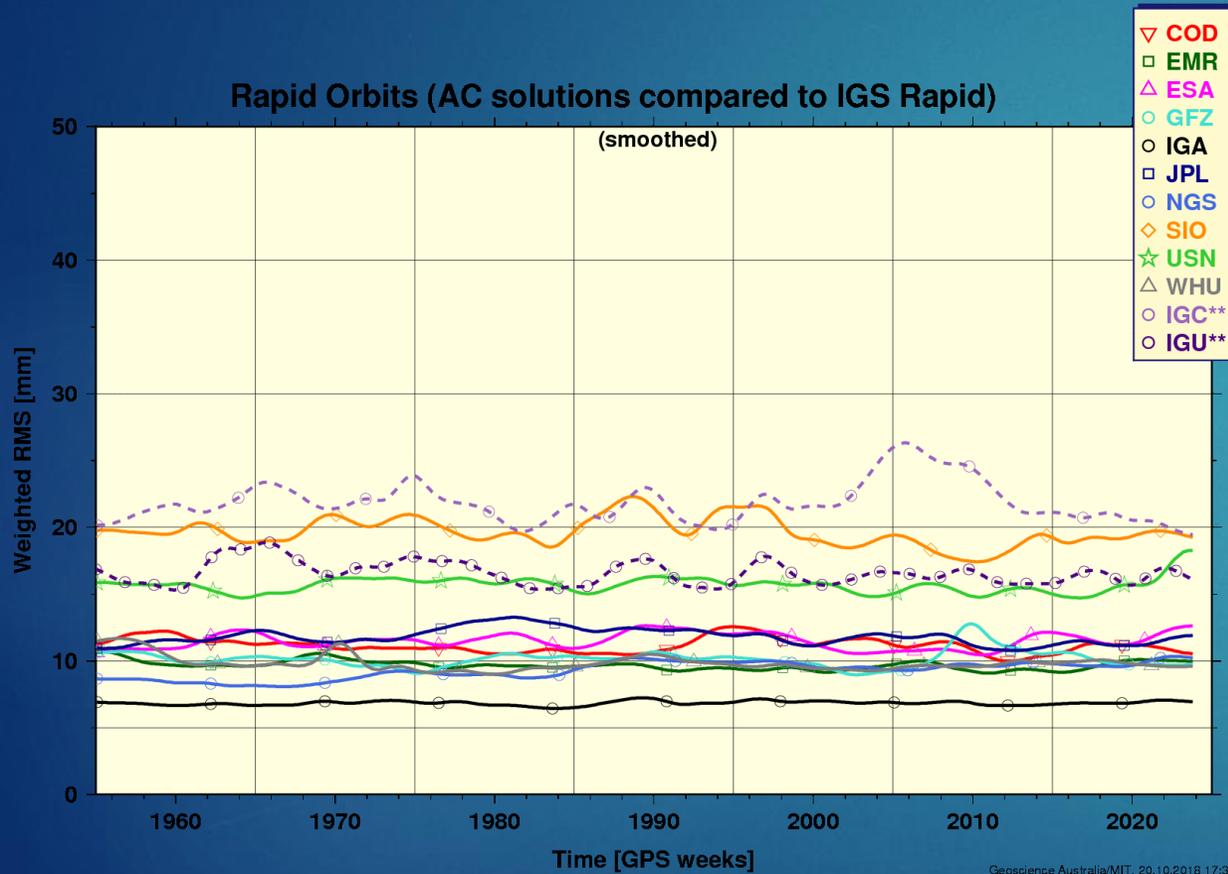
IGS Ultra Rapid Orbits (24h predictions compared to IGS Rapid)



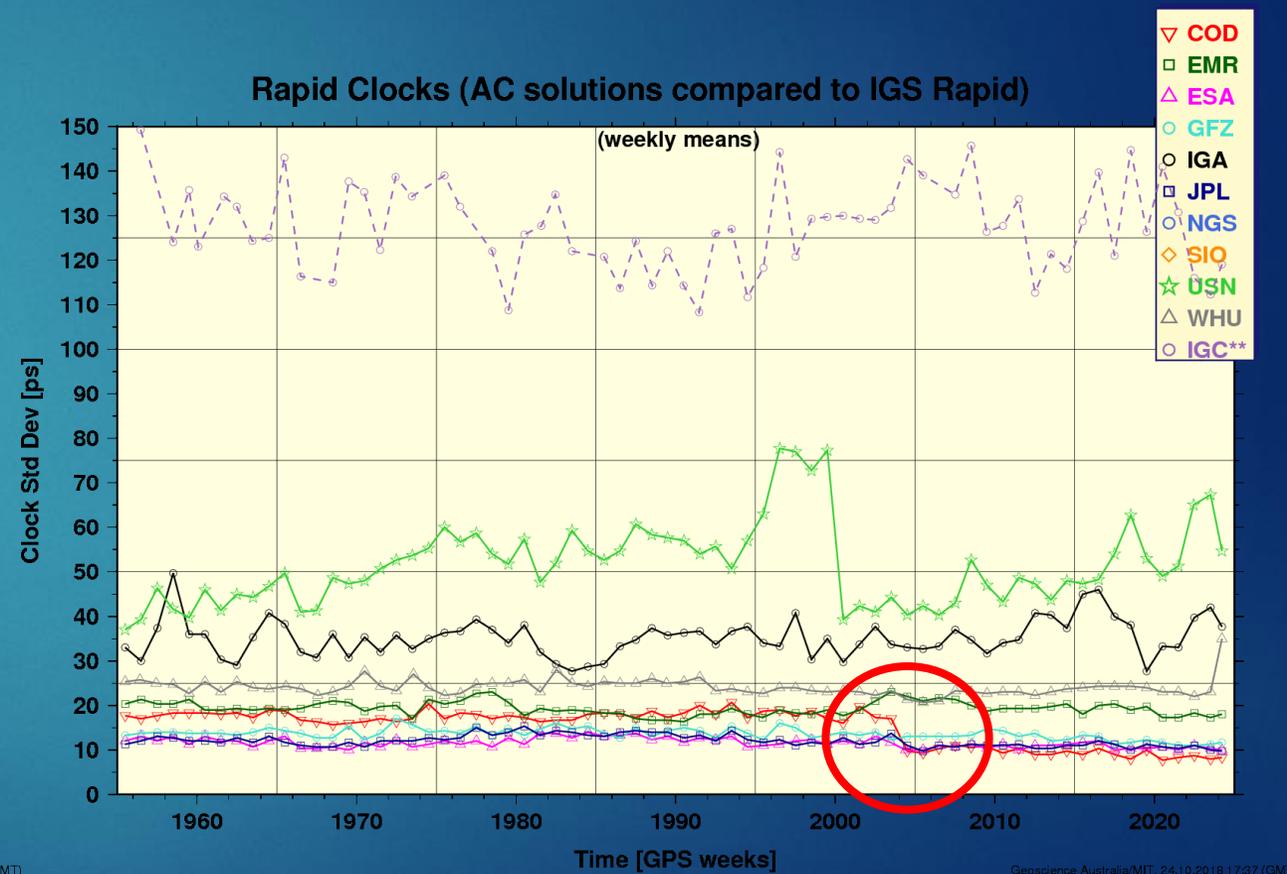
Product performance Rapid Orbits



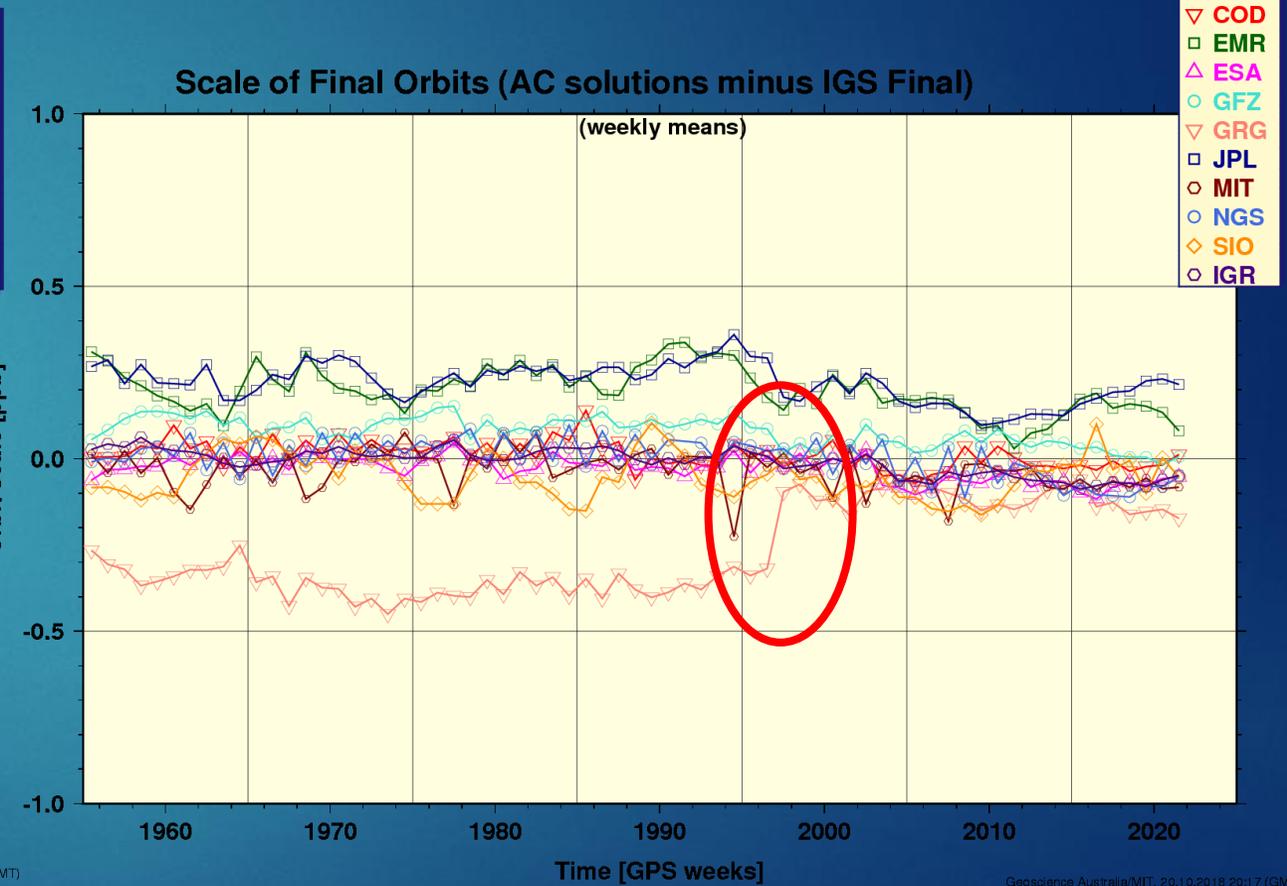
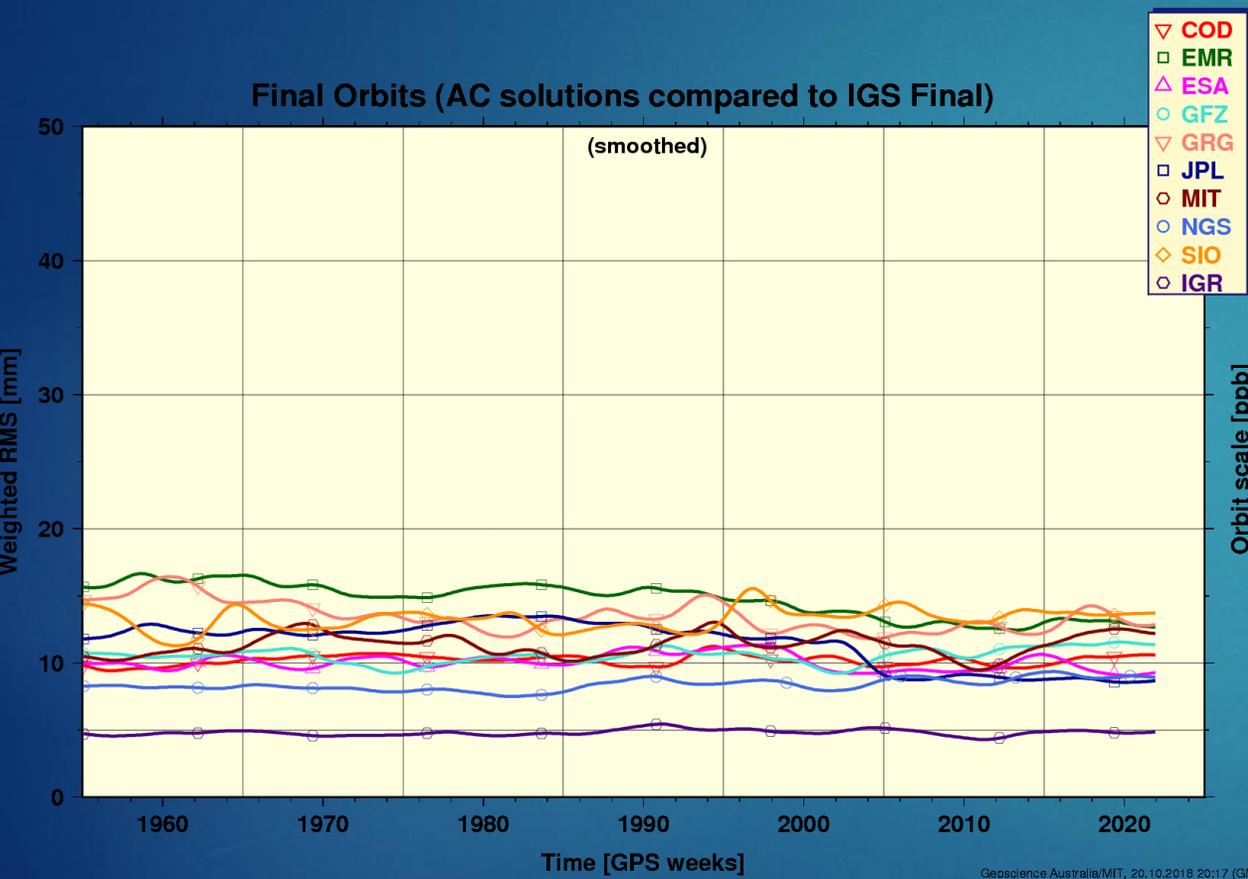
Rapid Orbits (AC solutions compared to IGS Rapid)



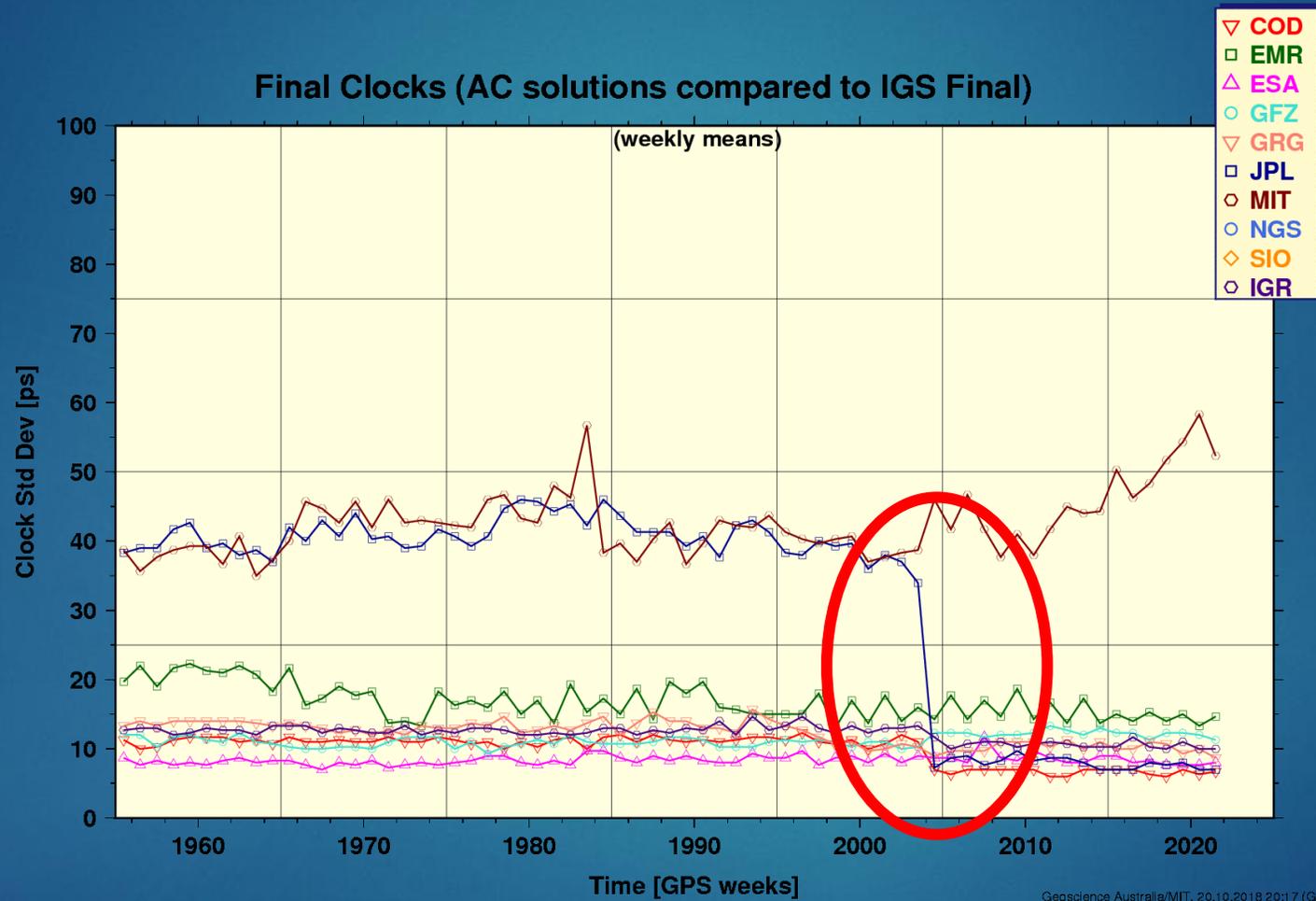
Rapid Clocks (AC solutions compared to IGS Rapid)



Product performance Final Orbits



Product performance Final Clocks



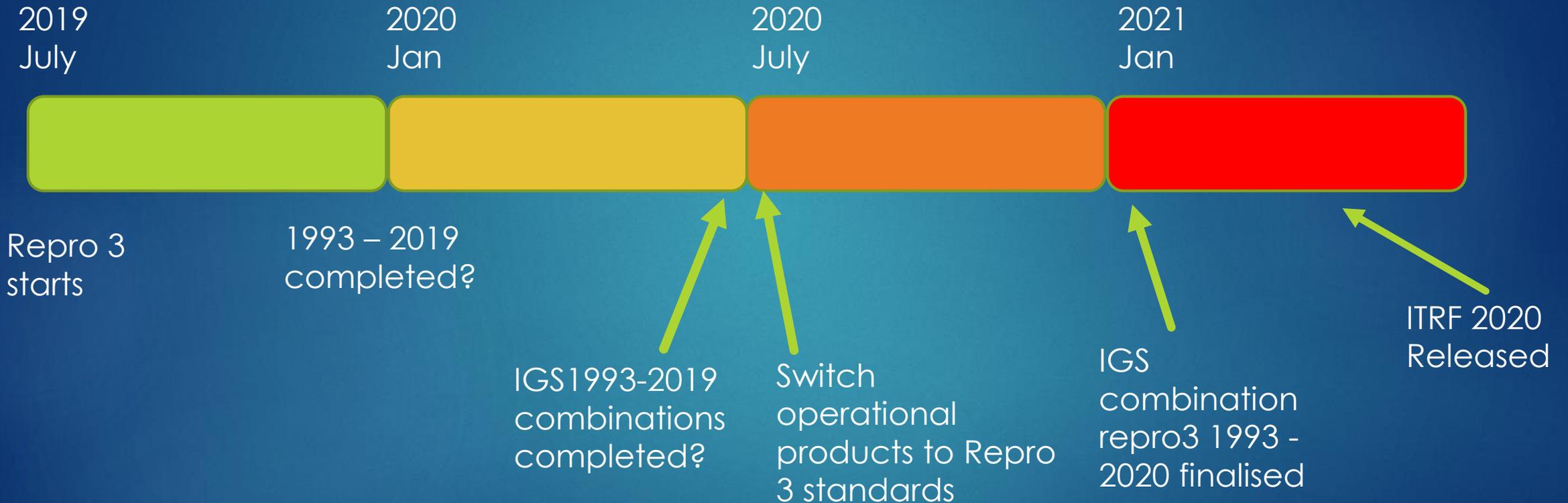
Ongoing ACC issues

Time scale alignment Rapid and final products have both diverged

- ▶ Do we really need two time scales one for rapid and one for final?
- ▶ Or should we just maintain one?

- ▶ Combination software
 - ▶ Incorporate Multi-GNSS
 - ▶ Streamline the combination
 - ▶ Control of the combination (weights, etc)
 - ▶ Re-write from scratch

Timeline for Repró-3 is this possible?



Repro-3 models?

- ▶ Implement linear mean pole model
- ▶ Adopt post EGM2008 static gravity model based on all GRACE and GOCE data
- ▶ Highest-fidelity time-variable gravity (TVG) model (degrees >1) using GRACE + SLR + geophysical fluid models for full space geodetic era, consistent with GRACE + GOCE standards
 - ▶ should be consistent with ILRS
- ▶ High Frequency EOP models
 - ▶ should be consistent with IVS
- ▶ Multi-GNSS solutions

Repro-3

- ▶ standardized set of antenna thrust models
- ▶ Improve radiation force modeling, especially associated with attitude changes during eclipse
- ▶ RINEX3 in preference to RINEX2
- ▶ Officially Implement long name AC products?
- ▶ How do we handle the satellite PCO?

Splinter Group Meeting

Tuesday 13:10 – 14:40

- ▶ Repro 3 models and standards
- ▶ Timeline

Sub-daily pole models

- ▶ See John Gipson talk at AGU
- ▶ G33A-04: Report of the IERS ad hoc working group on tidally driven High Frequency Earth Orientation variation. (Invited)
- ▶ Wednesday, 12 December 2018 14:25 - 14:40 Marriott Marquis - Marquis A-C
- ▶ Diurnal and semi-diurnal Earth orientation (“HF-EOP”) variation were detected in the early 1990s in SLR and VLBI data. Beginning in 1996 a model of HF-EOP variation based on ocean-tides derived from Topex data was included in the IERS standards. This model has not been updated since then with the exception of including libration for effects for polar motion (2003 IERS conventions) and UT1 (2010 IERS conventions). The accuracy of Space Geodesy has increased remarkably over the last 20 years and the 1996 IERS HF-EOP model is no longer adequate. At the conclusion of the 2017 GGOS/IERS Unified Analysis Workshop an ad hoc working group was formed including representatives of the IDS, IGS, ILRS, and IVS. The goal of the working group is to test several models of HF-EOP in the different space geodesy techniques and to make a recommendation to the IERS for the adoption of a new HF-EOP model. In this presentation I will give a summary of work on HF-EOP done to date by various scientists which demonstrate the inadequacy of the current IERS HF-EOP model. I will then describe the goals and the progress of the working group to date, with a preview of further work.