Preparatory analysis and development for the ITRF2020

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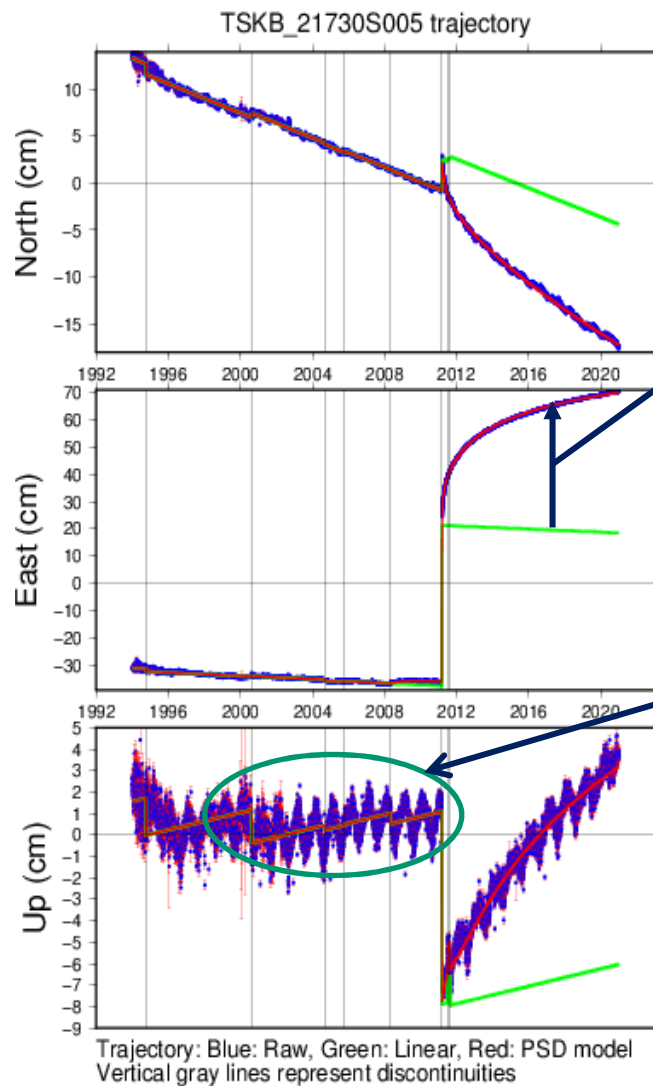
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ITRF2020: Augmented Parametric Reference Frame

TSKB_21730S005 trajectory

Trajectory: Blue: Raw, Green: Linear, Red: PSD model
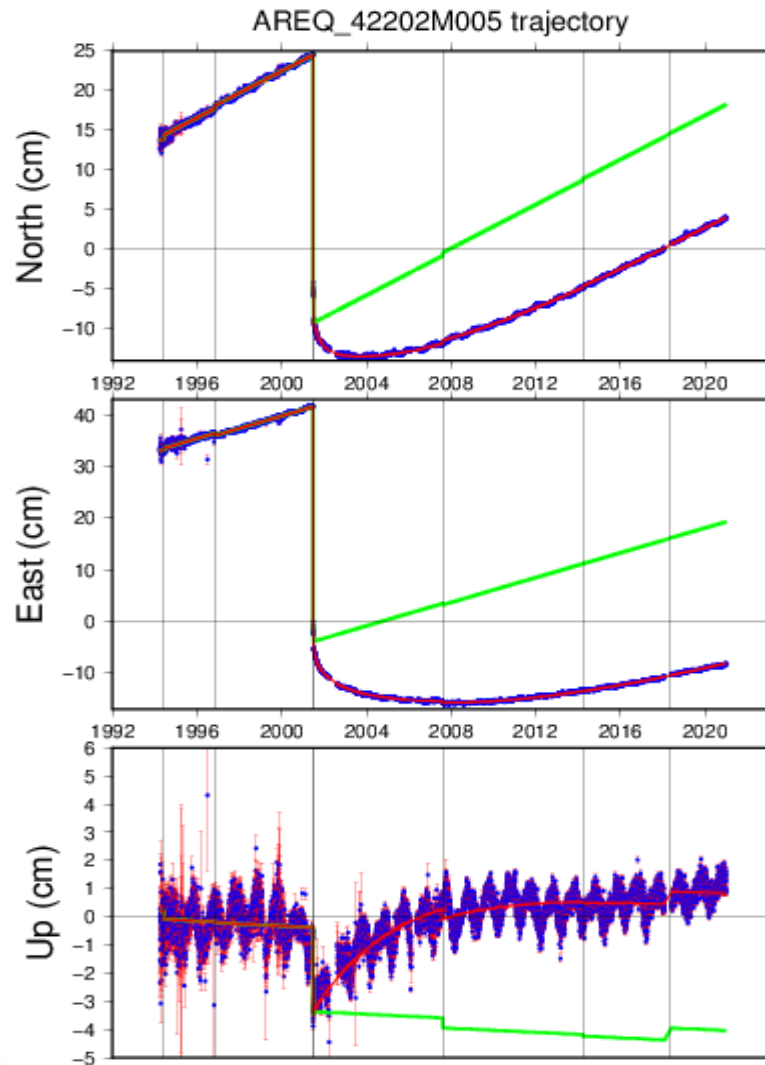Vertical gray lines represent discontinuities

Regularized position

$$X(t) = X(t_0) + \dot{X}.(t - t_0) + \delta X(t)_{PSD} + \delta X(t)_S$$

$\sum$ **Post-Seismic Deformations (PSD) Parametric models will be refined**

$\sum$ **Periodic Signals will be provided in the CM-SLR frame**

But there are discrepancies in the annual signal between techniques at some colocation sites.

Arequipa & Tsukuba trajectories:
Repro3 data + PSD models of ITRF2014

AREQ_42202M005 trajectory

TSKB_21730S005 trajectory

Trajectory: Blue: Raw, Green: Linear, Red: PSD model
Vertical gray lines represent discontinuities

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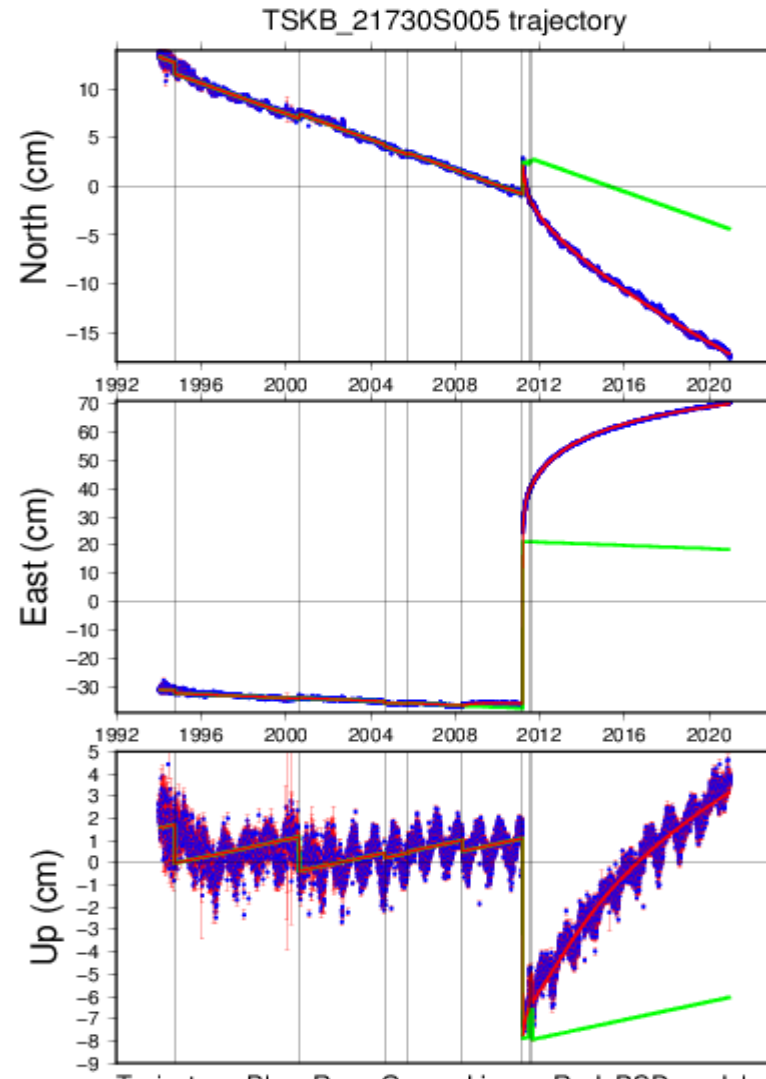
IDS 2020 origin & scale wrt ITF2014

DORIS/IDS WD15 origin and scale wrt ITRF2014 (STD)

IGS Repro3 origin & Scale wrt ITRF2014

GNSS/IGS Repro 3 origin and scale WRT ITRF2014

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ILRSA 2020 origin & Scale wrt ITRF2014
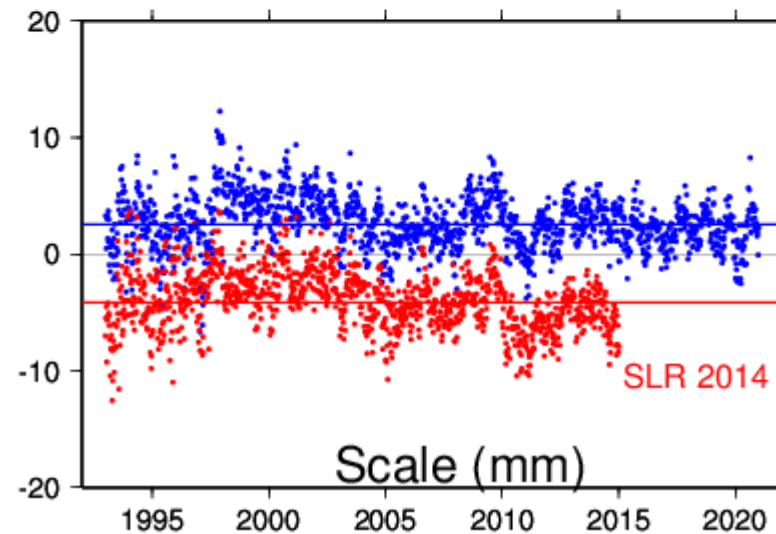

ILRSA origin and scale wrt ITRF2014

Preliminary

Preliminary

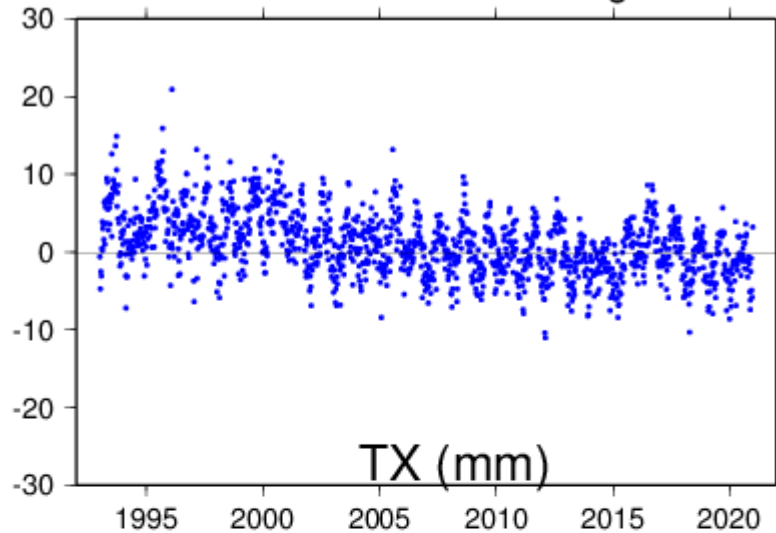Altamimi et al. vEGU2021- April, 2021
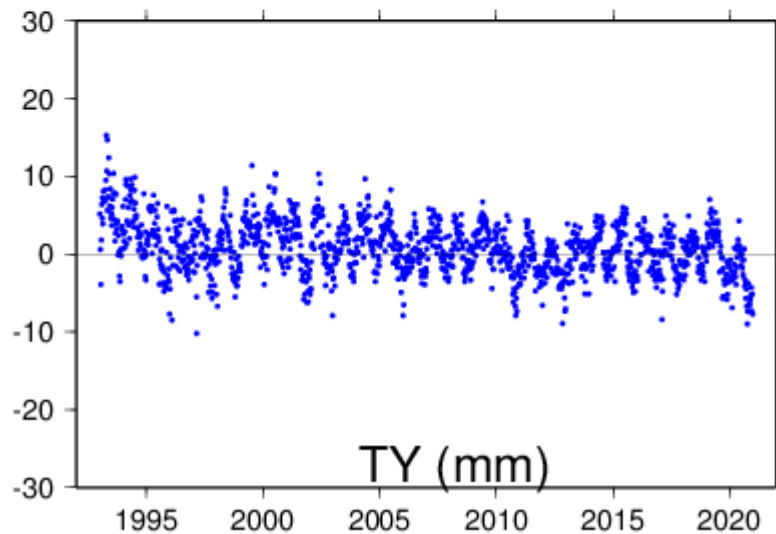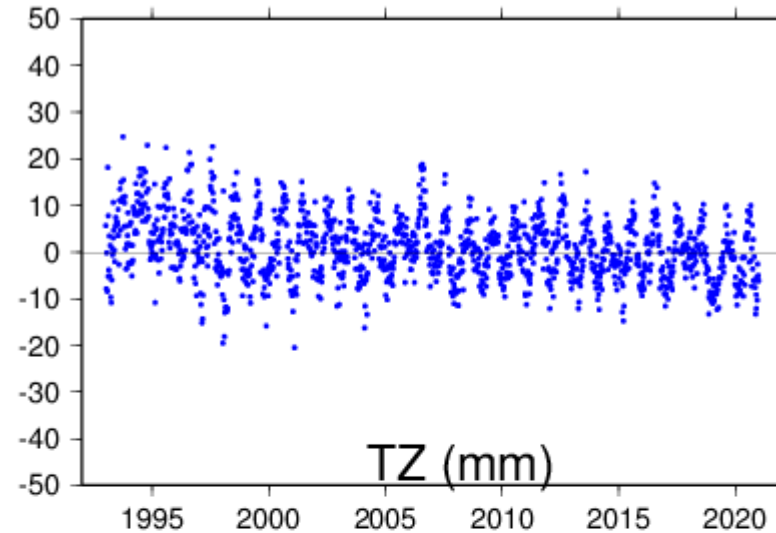
Conclusion

- **ITRF2020: an augmented parametric frame**
  - Enhanced PSD parametric functions
  - Periodic signals in the SLR CM Frame

- **Analysis of ITRF2020 input data is still ongoing, but preliminary results show:**
  - Nonlinear/aperiodic variation in the IDS scale
  - IGS apparent scale offset/drift with respect to ITRF2014 needs to be investigated
  - 1 ppb offset of SLR 2020 compared with 2014 data
  - Expected scale difference between SLR & VLBI:
    ≤ **0.5 ppb (~3mm),** versus 1.37 ppb (~8.2 mm) in ITRF2014