Status of ITRF2020 and IDS Contribution

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Outline

• ITRF2020 : Status of input data

• ITRF2020: an augmented reference frame

• Some preliminary “early” results using ITRF2020 input data IGS Repro3 & IDS 2020

• IDS Contribution to ITRF2020
  – Quality of the IDS time series (WRMS)
  – Origin & Scale

• Post Seismic Deformation for stations subject to major earthquakes
ITRF2020 : Status of input data

• Initial deadline: February 10, 2021

• Consultation with the 4 techniques before the deadline:
  – Most techniques indicated some delay
  – Deadline extended to April 10 (end of this week)

• IDS & IGS delivered preliminary solutions (tested here)

• Hope to have all final input data by the new deadline.
Expected ITRF2020 co-locations
Regularized position

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

\[ \sum \text{Post-Seismic Deformations} \]
Parametric models will be refined

\[ \sum \text{Periodic Signals} \]
Will be provided in the CM-SLR frame

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

ITRF2020: Augmented Parametric Reference Frame

Altamimi et al. IDS-AWG-April 06-07, 2021
Arequipa & Tsukuba trajectories

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

Altamimi et al. IDS-AWG-April 06-07, 2021
IDS 2014 WRMS

IDS/DORIS Weekly WRMS (mm)

North  East  Up

Altamimi et al. IDS-AWG-April 06-07, 2021
IDS 2020 Weekly WRMS (mm)

North  East  Up
IDS 2020 intrinsic origin & scale (STD)

DORIS/IDS WD15 intrinsic origin and scale

TX (mm)

TZ (mm)

TY (mm)

Scale (mm)
IDS 2020 wrt to ITRF2014 (STD)

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

Altamimi et al. IDS-AWG-April 06-07, 2021
Post-Seismic deformation
Altamimi et al. IDS-AWG-April 06-07, 2021
Conclusion

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

- **IDS contribution to ITRF2020** (still preliminary)
  - Quality (WRMS) improves with time
  - Non-linearity of IDS origin and scale needs to be investigated
  - ITRF2020 PSD parametric models (still to come) need to be taken into account by the IDS