



JTRF2014, the 2014 JPL Realization of the ITRS

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KALREF, JPL's KALman filter and smoother for REference Frames, has been used to determine the JTRF2014, a combined terrestrial reference frame (TRF) obtained by analyzing the input SINEX files submitted by the IDS, IGS, ILRS, and IVS for the computation of ITRF2014. JTRF2014 is determined by combining on a weekly basis time series of station positions and daily Earth Orientation Parameters (EOPs) along with local ties at co-located sites.

JTRF2014 is a sub-secular reference frame whose origin is at the quasi-instantaneous Center of Mass (CM) as measured by Satellite Laser Ranging (SLR). Both SLR and Very Long Baseline Interferometry (VLBI) contribute to the scale of the combined frame. The frame orientation is conventionally defined through a no-net-rotation condition to ITRF2008.

In the JTRF2014 the temporal evolution of the station positions is formulated by accounting for linear and seasonal terms (annual and semi-annual periodic modes). Non-secular and non-seasonal motions of the geodetic sites are included in the smoothed time series by properly defining the station position process noise whose variance is characterized by analyzing station displacements induced by temporal changes of planetary fluid masses (atmosphere, oceans and continental surface water).

JTRF2014 is going to be delivered as a time series of weekly SINEX files containing the filtered and smoothed station positions and EOPs observed from the early 80s through the end of 2014. Through the geocentric coordinates reported in the KALREF weekly SINEX files, users will have access to the quasi-instantaneous CM as detected by SLR and to the quasi-instantaneous scale defined by VLBI and SLR.

Datum specification (origin, scale and orientation) of JTRF2014 will be discussed and combination metrics such as post-adjustment residuals at co-located ties will be analyzed. Comparisons with ITRF2014 will be provided.