

Summary

The ITRF2008 is an improved realization of the International Terrestrial Reference System (ITRS) and is demonstrated to be of higher quality than the past ITRF versions. It is achieved in two-step procedure: (1) stacking the time series of station positions and Earth Orientation Parameters (EOPs) provided by the four IERS Technique Centers (TC); (2) combining the long-term solutions as obtained in step 1, together with local ties in co-location sites. The two-step procedure makes use of full variance-covariance information provided in SINEX format. The TC solutions incorporated in the ITRF2008 combination are free from any external constraints, thus preserving the actual space geodesy estimates of station positions, velocities and EOPs. The ITRF2008 origin is defined in such a way that it has zero translations and translation rates with respect to the mean Earth center of mass, averaged by the SLR station positions time series. Its scale is defined by nullifying the scale factor and its rate with respect to the mean of VLBI and SLR long-term solutions as obtained by stacking their respective time series. The ITRF2008 orientation (at epoch 2005.0) and its rate are aligned to the ITRF2005 using 179 stations of high geodetic quality.

The ITRF2008 includes the positions and velocities of 934 stations located at 580 sites. Figure 1 shows the coverage of these sites, underlying the co-located space geodesy techniques.

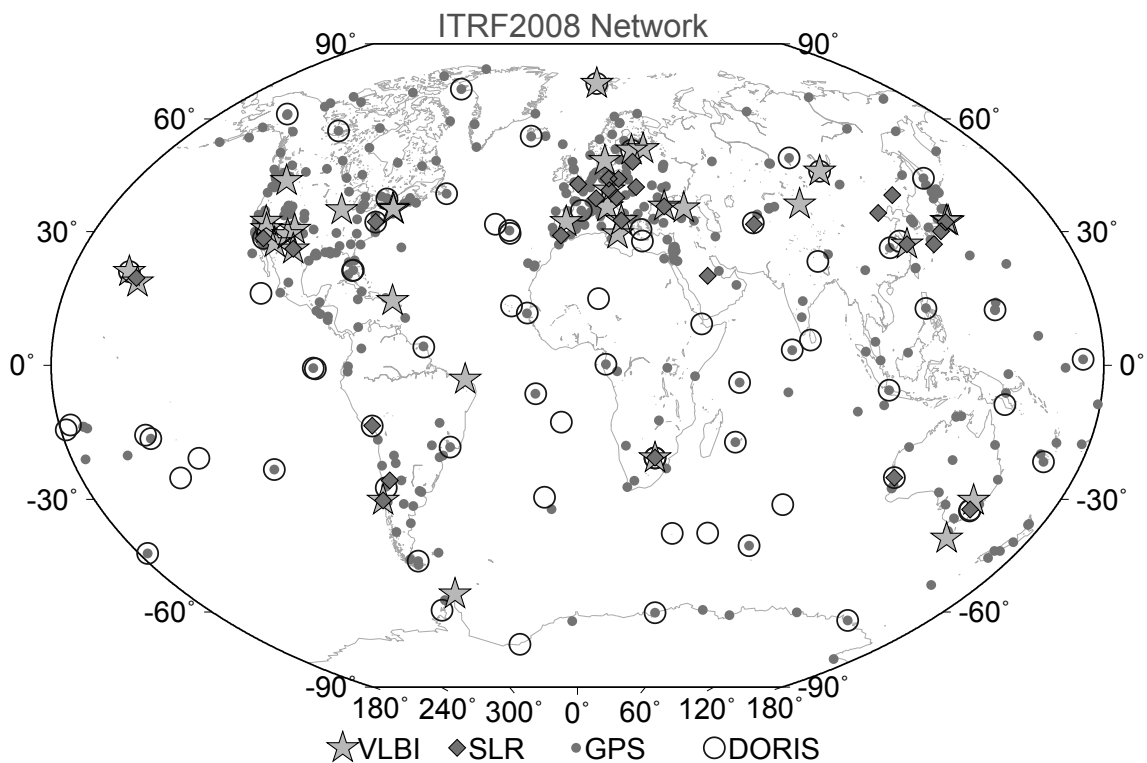


Figure 1. ITRF2008 Network

This technical note contains the main ITRF2008 products: station positions and velocities, the post fit residuals of the least squares adjustment as well as the transformation parameters between ITRF2008 and ITRF2005. The main technical procedure used to generate the ITRF2008, a thorough discussion of its quality as well as most important geodetic and geophysical results were published in (Altamimi et al, 2011), appended to this Technical Note.