



## **Evolution of the ITRF<sub>yy</sub> Regional Densifications between Successive ITRS Realizations**

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The successive realizations of the International Terrestrial Reference System are based on the analysis of space geodetic data series stemming from GNSS, SLR, VLBI and DORIS. Beyond the modeling refinements the realizations (called ITRF<sub>yy</sub>, where yy denotes the end date of data involved in the solution) includes growing data sets, therefore a gradual quality improvement of the solutions is expected.

On regional scale the geodetic reference frame is maintained by densification of the global ITRS realizations using continental scale CORS networks. Such networks are operational in Europe (EPN), North-America (NAREF), South-America (SIRGAS), Africa (AFREF), Asia-Pacific (APREF).

Between two ITRS realizations, based on the analysis of the regional CORS network's data the regional reference frame solution may regularly updated with the integration of new, extended data series.

According to the present practice in Europe the actual ITRS/ETRS89 realization is updated each 15 weeks using the weekly SINEX product of the EUREF Permanent Network (EPN).

This densification approach is a kind of extrapolation of the actual ITRF<sub>yy</sub>, where the agreement may vary in time as a consequence of new data added and due to changes in network geometry or in intermediate changes in modeling parameters.

In this paper the regional ITRF densification methodology is described and the European ITRF2008 densification solution series are reviewed with special emphasis on the agreement level of this series with the published ITRF2014 solution.