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Preparations for the IGS realization of ITRF2014

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The International GNSS Service (IGS) currently prepares its own realization, called IGS14, of the latest release of the International Terrestrial Reference Frame (ITRF2014). This preparation involves:
- a selection of the most suitable reference frame (RF) stations from the complete set of GNSS stations in ITRF2014;
- the design of a well-distributed core network of RF stations for the purpose of aligning global GNSS solutions;
- a re-evaluation of the GPS and GLONASS satellite antenna phase center offsets (PCOs), based on the SINEX files provided by the IGS Analysis Centers (ACs) in the frame of the second IGS reprocessing campaign repro2.

This presentation will first cover the criteria used for the selection of the IGS14 and IGS14 core RF stations as well as preliminary station selection results. We will then use the preliminary IGS14 RF to re-align the daily IGS combined repro2 SINEX solutions and study the impact of the RF change on GNSS-derived geodetic parameter time series.

In a second part, we will focus on the re-evaluation of the GNSS satellite antenna PCOs. A re-evaluation of at least their radial (z) components is indeed required, despite the negligible scale difference between ITRF2008 and ITRF2014, because of modeling changes recently introduced within the IGS which affect the scale of GNSS terrestrial frames (Earth radiation pressure, antenna thrust). Moreover, the 13 GPS and GLONASS satellites launched since September 2012 are currently assigned preliminary block-specific mean PCO values which need to be updated. From the daily AC repro2 SINEX files, we will therefore derive time series of satellite z-PCO estimates and analyze the resulting time series. Since several ACs provided all three components of the satellite PCOs in their SINEX files, we will additionally derive similar x- and y-PCO time series and discuss the relevance of their potential re-evaluation.