

Proposed Update of the IGS Reference Frame

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A review of the IGS Reference Frame realization “IGb00” is presented along with a proposal for an update. The focus is on 3 main aspects: first, the update of the selected set of primary reference frame stations; second, the realignment to ITRF2005 and third, the impact of station antenna absolute phase centers on the reference frame. The current IGb00 realization was proposed and adopted almost 3 years ago; it included 99 stations. For various reasons, about 80 stations remain useable. This situation also highlights the importance of the reference frame stations and the effort that must be made to maintain these key sites, avoid or eliminate discontinuities whenever possible to help ensure a more stable frame. The proposed new realization will take advantage of additional stations while still relying on older sites to ensure reliable link with historical data. The realization will also be realigned to the new ITRF2005, when officially available. The effect of the switch from station antenna relative calibration “IGS_01” to the absolute calibration “IGS_T05” will also be discussed. The antenna phase center shift as well as radome addition/removal also introduces discontinuities in the station coordinates time series. Each aspect of this update will introduce a small discontinuity (rotation, translation, scale and rates) between the existing “IGb00” and the proposed realization.