



Consistency of the IGS contribution to ITRF2008

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The reanalysis of historical IGS data is one important activity that has been undertaken for the contribution to the new ITRF2008. It includes data available from the IGS Data Centers going back to approximately 1994. The main objective of this exercise is to provide consistent products using the latest modeling and analysis tools. Nine Analysis Centers (ACs) have so far contributed weekly solutions and more are expected in the final reanalysis. The years 2000 to 2008 have been combined and contributed to ITRF2008. The procedure used for the combination of the reanalysis is very similar to the one used for the official weekly IGS combination products. Most of the ACs weekly solutions include station coordinates, implicit apparent geocenter estimates as well as daily Earth rotation parameters together with their fully populated covariance matrices. The ACs include between approximately 100 and 300 stations in their weekly solutions. The combined weekly solutions generally include about 400 stations as well as explicit apparent geocenter position and daily ERP's. The combined solutions include complete covariance information and are aligned to the IGS realization of ITRF2005 (IGS05). For the period between 2000 and 2008, over 600 stations are available. The majority of stations are in North America and Europe. The ACs station consistency (horizontal/vertical) with respect to: 1) IGS05 is about 2-3mm/8mm; 2) the IGS weekly solutions is about 1-2mm/3mm and 3) the IGS cumulative solution is about 2mm/5mm. The consistency of the ACs pole position and rates approaches 0.02-0.03mas and 0.05mas/d, respectively. For weekly estimates of the apparent geocenter the ACs consistency is about 4mm in the X and Y components and 7mm in the Z component, while the combined estimates agrees with the ITRF2005 origin at about 5mm. One important improvement of this contribution to ITRF is the use absolute antenna phase centers. Previous contributions used only relative antenna phase centers.