Combination at the Observation Level: contribution to ITRF2013

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The new ITRF2013 realization is planned to rely on single-technique combined solutions. However, other
solutions based on combination of techniques at the observation level will be evaluated.
Since several years, such a project has been developed by the GRGS (Groupe de Recherche en Géodésie Spatiale).
Its main objective is to search for an optimal strategy to combine observations and normal equations derived from
the processing of the whole set of different space geodetic observations (GPS, DORIS, LLR, SLR and VLBI),
this for estimating astro-geodetic parameters (Station positions, Earth Orientation Parameters (EOP), quasar
coordinates). Other parameters, such as zenithal troposphere delay, orbit parameters will be determined as well.
In the first step, observations are processed by a unique software (GINS) complying with the IERS Conventions,
constants and models for insuring homogeneity and consistency. The second step consists in identifying the
systematic errors and mitigating their effects, such as inconsistencies of the a priori individual networks, aliasing in
sub-daily EOP and no net rotation of the ensemble of quasar coordinates. The ensemble of weekly unconstrained
normal equations covering a period of 10 years will be produced and made available for analysis.