# Consistent estimation of TRF and CRF

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The International Terrestrial Reference Frame (ITRF) is computed by combining the
space geodetic techniques VLBI, SLR, GPS and DORIS. VLBI is the only technique observing quasi-stellar radio sources and hence provides the link to the International Celestial Reference Frame (ICRF). ITRF and ICRF are not computed from a common adjustment so far. While the ICRF is computed only from VLBI observations by applying no-net-rotation conditions for the quasar coordinates, in ITRF computation only station coordinates and EOP are considered and the quasar coordinates are fixed to ICRF. The consequence is that the ITRF and ICRF solutins are not fully consistent.

The paper deals with the consistent computation of TRF and CRF. It presents a computation approach which allows for minimizing the deformation of the solution by using only minimum constraints in the form of no-net-rotation conditions applied for station as well as for quasar coordinates. The paper also discusses the different aspects of a common computation. On the one hand a stabilization of EOP and station coordinates can be achieved by the combination. On the other hand small deformations of the station networks because of the local tie misfits at co-location sites, well known from the ITRF computation, cannot be fully avoided.