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Analysis of ILRS contribution to ITRF2008: Origin and Scale parameters

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The role of the Satellite Laser Ranging technique for the ITRF maintenance is quite critical: due to the spatial and temporal features of the tracking network and its specific sensitivity, it is expected to realize, alone, the ITRF origin and, in conjunction with VLBI, its scale. The present IERS strategy to realize the ITRF is based on an inter-technique combination of geodetic solutions, in turn obtained from an intra-technique combination strategy performed at the Technique Centre (ILRS, IGS, IVS, IDS) level. In Summer 2009, ILRS has provided IERS with its official contribution to the ITRF2008: a homogeneous set of coordinate time series for the period 1983-2008, obtained by ASI/CGS ILRS Combination Center combining time series sets of solutions provided by 7 official ILRS Analysis Centers.
A detailed analysis of ILRS solution origin&scale parameters is presented, both of combined and individual solutions, to highlight especially their non-linear behaviour: in the perspective of a global terrestrial reference frame compliant to the present, very demanding, accuracy requirements from the scientific community (e.g. in the GGOS context), also these tiny, non-linear, residual effects must be taken into account carefully, to be explained and possibly minimized.