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Effect of different ITRF computation strategies

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The results of the official version of the ITRF2005 reveal an apparent difference in VLBI and SLR scales. As a consequence the scale of this ITRF2005 solution is defined by VLBI only. A problem is that SLR solutions show a significant scale difference of 1.0 ppb (at epoch 2000.0) and 0.1 ppb/yr w.r.t. ITRF2005, which accumulates to almost 2 ppb or 13 mm vertical site displacement for current observations. Because of this scale inconsistency it was decided by IGN to provide a second (re-scaled) ITRF2005 solution for SLR users. On the other hand it should be considered that the ITRS Combination Centre at DGFI has computed an ITRF2005 solution, which does not show a difference in VLBI and SLR scales. This suggests that the apparent scale difference in the ITRF2005 is probably an artificial effect caused by the combination strategy. In this presentation we discuss the major differences between the combination strategies of IGN and DGFI and we investigate their impact on the combination results. In this context we also present the results of various test computations that were performed to analyse the effect of different selections of co-location sites and the implementation (weighting) of local tie information.