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ITRF2005: evaluation of its consistency

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The new combined geodetic reference system ITRF2005, recently delivered, was constructed by combining time series from all the space geodesy techniques. The consistency with the former ITRF2000 is only assured by constraining the orientations to be identical at epoch 2000.0 and null orientation rates between the two, however the translation and its rate were fixed to the SLR solutions and scale and its rate to the VLBI solutions. This datum definition causes the new reference frame to differ in the z-direction translation rate, drifting at 1-2 mm/yr and inducing a velocity deformation rate (scale rate) on the order of 0.1 ppb. This inconsistencies are not negligible when faced with SLR data, that are directly sensitive to scale and scale rate. Differences induced in the velocity field and core network effects were discussed in order to assess the real stability and accuracy of the new reference frame.