Improved parameterization in the computation of a terrestrial reference frame

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ITRF2005 is the first reference frame that is computed from weekly/daily data sets of the techniques GPS, VLBI, DORIS and SLR. This allowed e.g. to handle discontinuities properly. However due to inconsistencies e.g. in modelling between techniques or within one data set, it was not possible to fully analyse and make use of the time variable behaviour in station positions (e.g. relaxation after earthquakes, seasonal variations) in the computation.

To improve this we used consitently computed data sets from the german GGOS-D project of the techniques SLR, GPS and VLBI to compute a reference frame. These data sets allow to compare to geophysical modelling to detect which part is geophysically meaningfull. This part then needs to be handled in the parameterization of station positions properly. In this context especially the relaxation processes after earthquakes and seasonal variations are important. We discuss various options of parameterization for this process in order to improve future versions of the ITRF.