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ITRF2014 orbits for CryoSat-2 based on DORIS and SLR tracking

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With the advent of the new reference system ITRF2014 we have modified our precision orbit determination procedures so that all CryoSat-2 trajectories are now realized in the new reference system which provides a consistent survey of DORIS and SLR station coordinates. For SLR stations in ITRF2014 we take the solution from the SINEX files, there is no need to estimate SLR station coordinates. This is also the case for most DORIS beacons although some beacons require us to estimate station positions since they are not in ITRF2014. Preliminary results show that the DORIS residuals are consistent at 0.4 mm/s and that the SLR residuals are around to 1.5 cm. The level of unexplained accelerations with the presently used dynamic models is around 3.6 nanometer per second squared in the flight direction, for traverse track accelerations it is around 10 nm/s2. Crossover residuals of the CryoSat-2 altimeter typically reduce to under 5 cm, an independent comparison to the CNES precision orbit solutions yields radial differences of around 1.5 cm.