DPOD2005 Performance and Impact of Modelling Improvements for TOPEX, Jason-1, and Jason-2

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It has been shown that even moderate error in the terrestrial reference frame can affect the orbit sufficiently to impact the mm/year MSL trend estimates. The accuracy and stability of the DORIS reference frame realizations have undergone special scrutiny over the last few years, with DPOD2005 offering the latest complement values. DORIS data successfully contributed to the ITRF2005 standard solution, considered an improvement over the ITRF2000 realization. For improved POD performance the standard ITRF2005 DORIS station position/velocity complement has been augmented with DPOD2005. DPOD2005 includes station position/velocities missing from the standard complement, offers updated station position/velocity values, and defines tracking data which should not be used. In this analysis, DPOD2005 is evaluated by processing TOPEX, Jason-1, and Jason-2 DORIS tracking data, using the latest and most accurate POD models. These updated POD models include Eigen-GL04 (a recent GRACE static gravity field), forward modeling of the atmospheric gravity, and the modeling of other time varying gravity terms. Several of the DPOD2005 station position/velocities which show poor performance, have also been re-estimated and re-evaluated. Special attention is paid to Jason-2 POD reflecting the improvements due to using the latest advance in DORIS receiver technology.