IDS Workshop

DORIS SYSTEM TIME BIAS: ENVISAT-1 AND JASON-2

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Abstract

The Envisat-1 and Jason-2 satellites are equipped with a DORIS receiver and a SLR retro-reflector array. The Jason-2 satellite is also equipped with a GPS receiver. The tracking data from these three independent measurement types provide the opportunity to compare, verify, validate and calibrate the respective orbit trajectories as a measure of their quality. For altimetry applications, it has been common practice to undertake these quality checks by examining the radial component of these orbit trajectories as determined from the respective measurement types. However, for other geodetic applications such as geocentre determination, it has become important to consider the differences in the along track component of the satellite orbits, and its effect on estimates of the geocentre, particularly from DORIS data. The along track differences between the DORIS and SLR determined orbits imply a time system bias between the two measurement systems. This study examines the along track differences between the DORIS and SLR determined orbits, estimates an arc-by-arc time bias between the two measurement systems and compares the resulting DORIS determined along track component as a consequence of applying the estimated system time bias with respect to SLR.