

A Navigation Summary of OMM18 Performance

OMM18 was successfully implemented on 02 May 2001 at the scheduled burn centroid time of 10:38 UTC. This maneuver occurred on orbit number 40,813 near the boundary between repeat cycles 317 and 318 (pass #1). The ideal maneuver magnitude (after the tweak) and the commanded value were both 5.8 mm/sec. This maneuver was applied in the orbit along-track direction to increase the mean semi-major axis by 12.45 meters to reverse the satellite ground track drift westward and thereby remain inside the +/- 1 km control band. At the time of the maneuver, the ground track was 250 meters east of the reference ground track, having a projected control band exit on about 15 May 2001.

Operational orbit determination solutions following the maneuver were used by the NAVT to estimate an achieved maneuver magnitude of 5.66 mm/sec, which is 2.4% lower than the 5.8 mm/sec. The achieved change in semi-major axis was 12.15 meters compared to the 12.45 meters design value. This was based on a tracking arc of ~4 days.

Based on the above brief performance evaluation and due to changes in the orbit due to drag, solar activities, anomalous forces, and luni-solar perturbations, the ground track is expected to exit the control band the first week of September 2001 near repeat cycles 331 and 332.

To enhance future maneuver design activities, and compensate for errors in OMM18 execution and/or in predicting solar activities and anomalous forces, the NAVT will recommend use of partial lead/lag strategy in the fixed yaw periods of May and July. The NAVT is projecting OMM19 to be between August 19 and September 18 depending upon Jason activities and the outcome of the lead/lag strategy.

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