

A Navigation Summary of OMM16 Performance

OMM16 was successfully implemented on 26 September 2000 at the scheduled burn centroid time of 06:00 UTC. This maneuver occurred on orbit number 38,018 near the boundary between repeat cycles 295 and 296 (pass #254). The ideal maneuver magnitude (after the tweak) and the commanded value were both 4.5 mm/sec. This maneuver was applied in the orbit along-track direction to increase the mean semi-major axis by ~ 9.8 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 ~ 66 meters west of the reference ground track, having a projected control band exit on 15 October 2000.

Operational orbit determination solutions following the maneuver were used by the NAVT to estimate an achieved maneuver magnitude of 4.63 mm/sec, which is ~ 2.89% higher than the 4.5 mm/sec. The achieved change in semi-major axis was 9.94 meters compared to the 9.8 meters design value. This was based on a tracking arc of ~3 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 in the end of January 2001 near repeat cycles 309 and 310.

To enhance future maneuver design activities, and compensate for errors in OMM16 execution and/or in predicting solar activities and anomalous forces, the NAVT will recommend use of full boost strategy in the fixed yaw period of November/December. Projected date for OMM17 is Saturday January 13, 2001 during fixed yaw flying forward.

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