

A Navigation Summary of OMM17 Performance

OMM17 was successfully implemented on 13 January 2001 at the scheduled burn centroid time of 07:44 UTC. This maneuver occurred on orbit number 39,415 near the boundary between repeat cycles 306 and 307 (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 ~ 9.6 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 270 meters east of the reference ground track, having a projected control band exit on about 29 January 2001.

Operational orbit determination solutions following the maneuver were used by the NAVT to estimate an achieved maneuver magnitude of 4.55 mm/sec, which is 1.11% higher than the 4.5mm/sec. The achieved change in semi-major axis was 9.78 meters compared to the 9.6 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 the first week of June 2001 near repeat cycles 321 and 322.

To enhance future maneuver design activities, and compensate for errors in OMM17 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 March/April. Projected date for OMM18 is Tuesday May 22, 2001 during fixed yaw flying forward.

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