

MISR Geo-Calibration Quality Statement April 15, 2002

See also

- [Statement dated February 5, 2002](#) for information concerning the previous version of the MISR Camera Geometric Model

NOMINAL SITUATION (update)

MISR Level 1 products generated with the Camera Geometric Model (CGM) version 7 represent a significant improvement in terms of georectification and coregistration accuracy if compared with those generated with previous CGM versions 5 and 6. Previous CGM versions were based upon data from a few months or less. CGM version 7 was produced after extensive analysis of a comprehensive list of MISR image data acquired over an eighteen month time period. The improved coverage provided for more reliable removal of outlier data prior to full in-flight geometric calibration. The calibration was based on 120 Ground Control Points (GCP's) distributed around the globe. As a result, the D aft camera pointing deficiencies evident in previous CGMs were removed. The expected mean geolocation error for all nine cameras is below 60 meters with the standard deviations ranging from 100 meters for the nadir view angle, up to 300 meters for the most oblique angles (i.e., the D cameras). The observed sizes of the remaining pointing deviations are consistent with small dynamic errors expected in the reported spacecraft attitude data. We are in the process of verifying other ancillary datasets which are designed to complement the CGM and complete the in-flight geometric calibration effort. These datasets, named Projection Parameters and Reference Orbit Imagery, are specifically designed to reduce the effects of dynamic attitude errors. In addition, the use of these datasets should rectify any future changes in static pointing for the remainder of the mission. When these datasets are delivered and utilized (late 2002) a reliable geometric accuracy quality indicator will be added to MISR data products.

ANOMALIES

It should also be noted that occasional and temporary degradations in attitude accuracy have been observed. These attitude degradations ultimately impact product geolocation and registration. Nevertheless, we expect a very small percentage of data to be affected. There is a list of orbits suspected to suffer from poor attitude accuracy due to orbit maneuvers or orbit attitude data loss.

Also, MISR products for orbits in the range 3100-3300, acquired during July of 2000, are known to contain a bias of up to 500 meters. CGM7 does not fit this data as well as it fits data for the rest of the mission. The cause of this anomaly is not yet known.

