

Galileo NIMS Observations of Europa

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The Galileo spacecraft began its tour of the Jovian system in December, 1995. The Galileo Millennium Mission (GMM) is scheduled to end in January, 2003. The opportunities to observe Europa in the remaining orbits are severely limited. Thus the catalog of NIMS observations of Europa is virtually complete. We summarize and describe this extraordinary dataset, which consists of 77 observations.

The observations may be grouped in three categories, based on the scale of the data (km/pixel). The highest-resolution observations, with projected scales of 1-9 km/pixel, comprise one important subset of the catalog. These 29 observations sample both leading and trailing hemispheres at low and high latitudes. They have been employed in studies exploring the chemical composition of the non-ice surface materials on Europa (McCord et al., 1999, JGR 104, 11,827; Carlson et al., 1999, Science 286, 97).

A second category consists of regional observations at moderate resolution. These 15 observations image Europa's surface at scales of 15-50 km/pixel, appropriate for construction of regional and global mosaics. A gap in coverage for longitudes 270-359 W may be partially filled during the 34th orbit of GMM.

The final category consists of 33 global observations with scales ranging upward from 150 km/pixel. The noise levels are typically much reduced in comparison to observations taken deep within Jupiter's magnetosphere. Distant observations obtained during the 11th orbit revealed the presence of hydrogen peroxide on Europa's surface (Carlson et al., 1999b, Science 283, 2062).

NIMS observations are archived in ISIS-format "cubes," which are available to researchers through the Planetary Data System (<http://www-pdsimage.jpl.nasa.gov/PDS/Public/Atlas/Atlas.html>). Detailed guides to every NIMS observation may be downloaded from the NIMS web site (<http://jumpy.igpp.ucla.edu/~nims/>).

This research was carried out at the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.