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We have produced a high-resolution (~1 km/pixel) controlled mosaic of the hemisphere of Io centered on longitude 310°. Digital cartographic techniques employed were those described by Batson [1] and Edwards [2]. Approximately 80 Voyager 1 clear- and blue-filter frames were utilized. This mosaic has been merged with low-resolution (~3.4 km/pixel) color mosaics in four colors to produce high-resolution color images [3]. We will compare this dataset to the geologic map of this region [4].

Passage of the Voyager spacecraft through the Io Plasma torus during acquisition of the highest resolution images exposed the vidicon detectors to ionized radiation, resulting in dark-current buildup on the vidicon. Because the vidicon is scanned from top to bottom, more charge accumulated toward the bottom of the frames, and the additive error increases from top to bottom as a ramp function. This ramp function was removed by using the model described in [5].

Photometric normalizations were applied using the Minnaert function [5]. An attempt to use Hapke's photometric function [6, 7, 8] revealed that this function does not adequately describe Io's limb darkening at emission angles greater than 80°. In contrast, the Minnaert function accurately describes the limb darkening up to emission angles of about 89°.

The improved set of discrete camera angles derived from this effort will be used in conjunction with the space telemetry pointing history file (the IPPS file), corrected on 4 or 12 second intervals, to derive a revised time history for the pointing of the Infrared Interferometric Spectrometer (IRIS). For IRIS observations acquired between camera shutterings, we can correct the IPPS file by linear interpolation, provided that the spacecraft motions were continuous. Image areas corresponding to the fields-of-view of IRIS spectra acquired between camera shutterings will be extracted from the mosaic to place the IRIS observations and hotspot models into geologic context.

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