Topography of lo Status Report 6/2005

Paul Schenk & Ronda Wilson LPI

Topography of lo Available Data

Limb profiles and global shape Thomas et al. ~ 20 N-S MOLA-type tracks Point stereo for global shape Oberst et al. 100s of dispersed topo points Schenk et al. **Areal stereo** Several dozen uncontrolled stereo mosaics GLL noise or VGR vidicon distortion **Areal photoclinometry** Schenk et al. near terminator uncontrolled mapping limited coverage

Topography of lo Stereo Data



Topography of lo

Boosaule

Prometheus

CARGE TO A TOTAL

Stereo Data

Maasaw

Telegonis

Topography of lo

4 independent DEMs





Topography Tohil Montes

DEMs combined



Elevation (km)



Topography of lo

Regional Scale

-antiJovian hemisphere -Galileo 1-5 km/pixel images





Topography of Io

Regional Scale

-subJovian hemisphere
-Voyager ~1 km/pixel images
-Vidicon distortion requires
nonmosaic processing
-restored later using Thomas
limb profiles as "ground truth"!



Topography of lo Shape-from-shading (PC) Data

Areal photoclinometry

Schenk et al.

long-wavelength topo is uncontrolled (some stereo "truth") limited resolvable terminator images (VGR, I3, I24, I25, I27, I32)



Topography of lo Shape-from-shading (PC) Data



High-resolution low-sun imaging very scarce (e.g., Pillan, Tohil)



Topography of Io

Topographic data for large areas available to community

- precautions on interpretation include "speckle"
 - Stereo "speckle" due to low information content & rad noise
 - Photoclinometry uncertainties due to variations and method
- additional processing required on VGR mosaics
 - regional scale DEMs are partially controlled by Limb data