Io, including Galileo

Division for Planetary Sciences Abstract Form

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**The Distribution of Sulfur Dioxide and Other Infrared Adsorbers on the Surface of Io from Galileo NIMS**

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The Galileo Near Infrared Mapping Spectrometer (NIMS) was used to investigate the distribution and relative particle size variations of sulfur dioxide over one hemisphere of Io. centered at 210° W. Using bands of differing strength, we find that large $SO_2$ grains (diameter of order 500 $\mu$m) are prevalent in the equatorial region of Colchis Regio and that smaller-sized particles occur almost everywhere, but with spatially variable concentrations. The exception is volcanic hot spots, where high surface temperatures promote rapid vaporization and produce $SO_2$-free areas. The high-latitude abundance of total sulfur dioxide exceeds that found in equatorial regions. A feature at 3.15 pm, perhaps due to an O-H stretch transition, is equatorially distributed and similarly absent in hot spots. A broad adsorption in the 1 $\mu$m region, which maybe produced by iron-containing silicates. shows a concentration at Io's southern polar region. with an absence in the Pele plume deposition ring.

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