

**High Temperature Events on Io: Expectations  
for Galileo**

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With the Galileo spacecraft now in orbit about Jupiter, Io is undergoing intense scrutiny by ground-based telescopes. During June-August 1995 we measured Io's midinfrared, thermal emission flux (4.8-20 $\mu$ m). Io's volcanic emission was found to be relatively "normal" compared with the range of behavior it has exhibited since 1983 (Veeder, et al., JGR 99, 17/095, 1994). Our radiometric data at 4.8, 8.7 and 20 $\mu$ m shows that the net change in flux due to the summer's volcanic eruptions was about a factor of two at 4.8 $\mu$ m. However, this change can be explained by relatively small changes in the temperatures and/or sizes of the thermal anomalies typically present.

There is every reason to expect that Galileo will see many relatively high temperature ( $T > 400\text{K}$ ) thermal anomalies. In modeling more than a decade of data, Veeder et al. found that in 9 out of 10 years, a minimum of 4 spots with temperatures above 400K and diameters of order 20km were required. Furthermore, some even hotter anomalies ( $T > 600\text{K}$ ) were always present, though typically only the order of 10km in diameter.

Reports from other observers also suggest that thermal anomalies such as discussed above are now present on Io (e.g., Spencer, Howell, in Io Volcano News, an e-mail bulletin; Silverstone, B.A.A.S., 1995). This work was done at the Jet Propulsion Laboratory, California Institute of Technology, under contract with NASA.