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**Silicate Eruption Dynamics on Io: Comparison with Observations.**

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**Infrared** outbursts on Io are of volcanic origin. The implied temperatures are indicative of silicate, rather than **sulphur** volcanism. Changes in temperature, area and power output from the outburst of January 9th 1990 provide other constraints on the range of **eruptive** processes taking place on Io. **Modelling** of this event produces an eruption rate of similar size to terrestrial **flood** basalt eruption episodes. Using this mass eruption rate as a starting point, the ascent and eruption of silicate **magma** "is modelled, with sulphur as one of a number of possible volatile components. The volcanological model yields eruption parameters such as degree of fragmentation of the magma, pressure in the vent and eruption velocity. The conduit radius (or fissure half-width) is also determined, although this may change through erosion of the vent. This process also reduces eruption velocity as the flow expands laterally. Possible ballistic ranges of associated **pyroclastic** ejects are calculated. The volatile content of the silicate "material strongly effects eruption behavior, especially eruption velocity.

**Modelling** of flow formation and cooling of the erupted material is in progress.

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