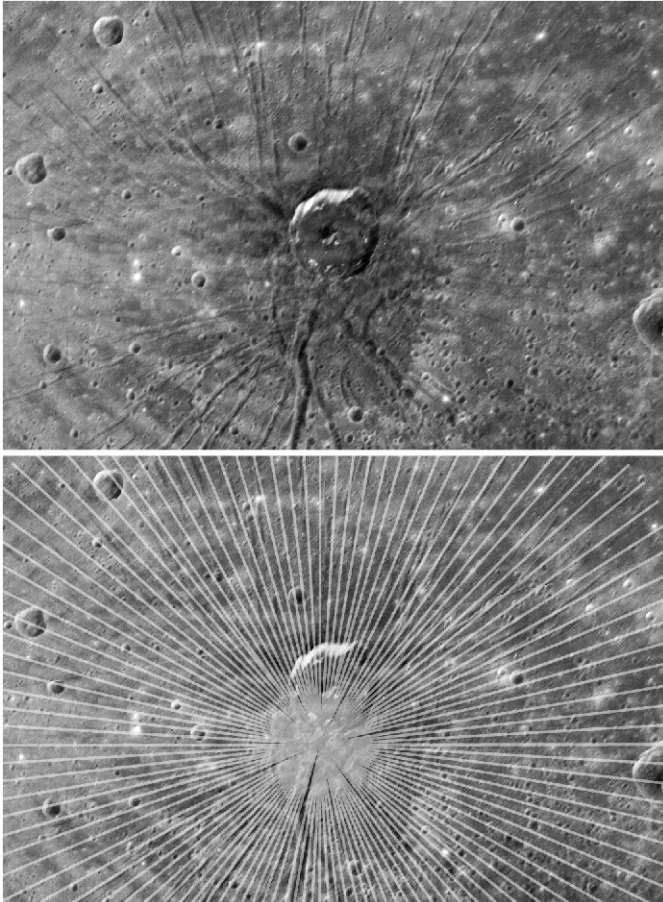


PLASMA FOCUS DISCHARGE ON MERCURY

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On January 14, 2008 the NASA space probe Messenger came within 200-km of Mercury, photographing a plasma focus discharge penumbra etched into the surface¹. The pattern recorded is identical to that etched on steel plates in experimental discharges: 112-rays from a discharge channel terminating at and producing a thick torus², here 40 km wide. The rays emanate from the 2–3 GA termination as shown in the bottom figure, the etched lines differing from radial overlay lines only by surface conductivity irregularities³. Previously, we reported the observation of a surface-traveling, infrared-radiating, plasma focus penumbra on the Jovian satellite Io whose effluent concentrated into filaments whose terminus was a narrow, well-defined, concentric annulus⁴.



1. www.nasa.gov/mission_pages/messenger/main/index.html
2. A. L. Peratt, "A high-current z-pinch recorded in antiquity", *IEEE Trans. Plasma Sci.* V.35, 2007, pp. 778-807.
3. A. L. Peratt and W. F. Yao, "An intense solar outburst in prehistory", to be published in *Physica Scripta*, 2008.
4. A. L. Peratt and A. J. Dessler, "Filamentation of volcanic plumes on the Jovian satellite Io," *Astrophys. Space Sci.*, V.144, 1988, pp. 451-461.