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Abstract

New Horizons at Jupiter

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On February 28th 2007 the Pluto-bound New Horizons spacecraft made a gravity-assist flyby of Jupiter at a range of 32 Jupiter radii. The flyby provided a chance to exercise and calibrate New Horizons' suite of instruments, but also obtained unique science from the Jupiter system. Io was studied extensively from the FUV to near-IR, resulting in the most comprehensive snapshot of its volcanic activity ever obtained. In particular, extensive observations were made of a very large eruption at the Tvashtar volcano, including movies of its 300-km-high plume. Eclipse observations of Io provided new insights into its magnetospheric interaction. The flyby also included compositional maps of Europa, Ganymede, and Callisto, and extensive observations of the Jovian ring system which resulted in the discovery of discrete ring arcs. Observations of Jupiter itself revealed polar lightning, new details of the development of ammonia-rich storms, and closeup views of the new Little Red Spot. Finally, New Horizons explored new territory in the Jovian magnetosphere, making the first traverse down the Jovian magnetotail.