Uranus is Losing its Atmosphere

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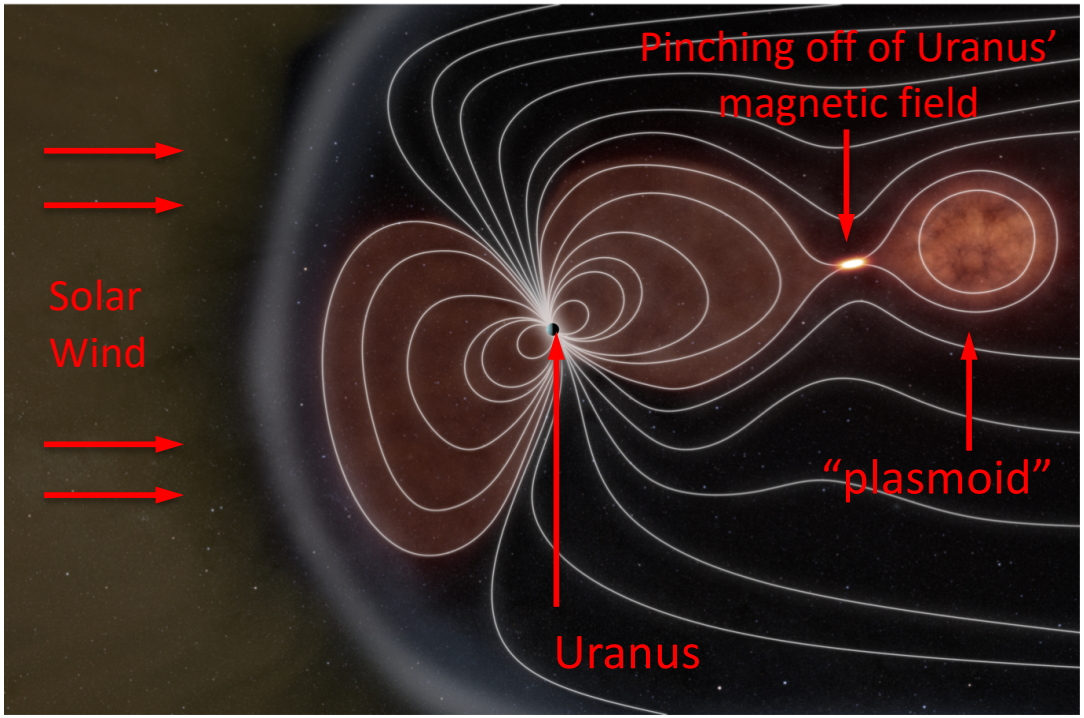
What is the science question? How does the atmosphere of Uranus escape to interplanetary space?

What were your findings? A re-examination of Voyager 2 data during its 1986 Uranus flyby resulted in the discovery of an escaping magnetized blob of particles called a "plasmoid." Plasmoids pinch off from the planet and transport atmospheric particles into space.

What was the impact? Plasmoids have been observed at Earth, Jupiter, and Saturn, but never at an Ice Giant (Uranus and Neptune). This observation suggests that plasmoids may be a dominant form of atmospheric loss at Uranus.

Why does it matter to non-scientists? Determining the way that atmospheric particles escape from a planet helps scientists to understand how the planet has evolved over time.



Here is an illustration demonstrating the formation of a plasmoid at Uranus.

G. A. DiBraccio and D. J. Gershman (2019), "Voyager 2 constraints on plasmoid-based transport at Uranus", Geophys. Res. Lett., doi:10.1029/2019GL083909.