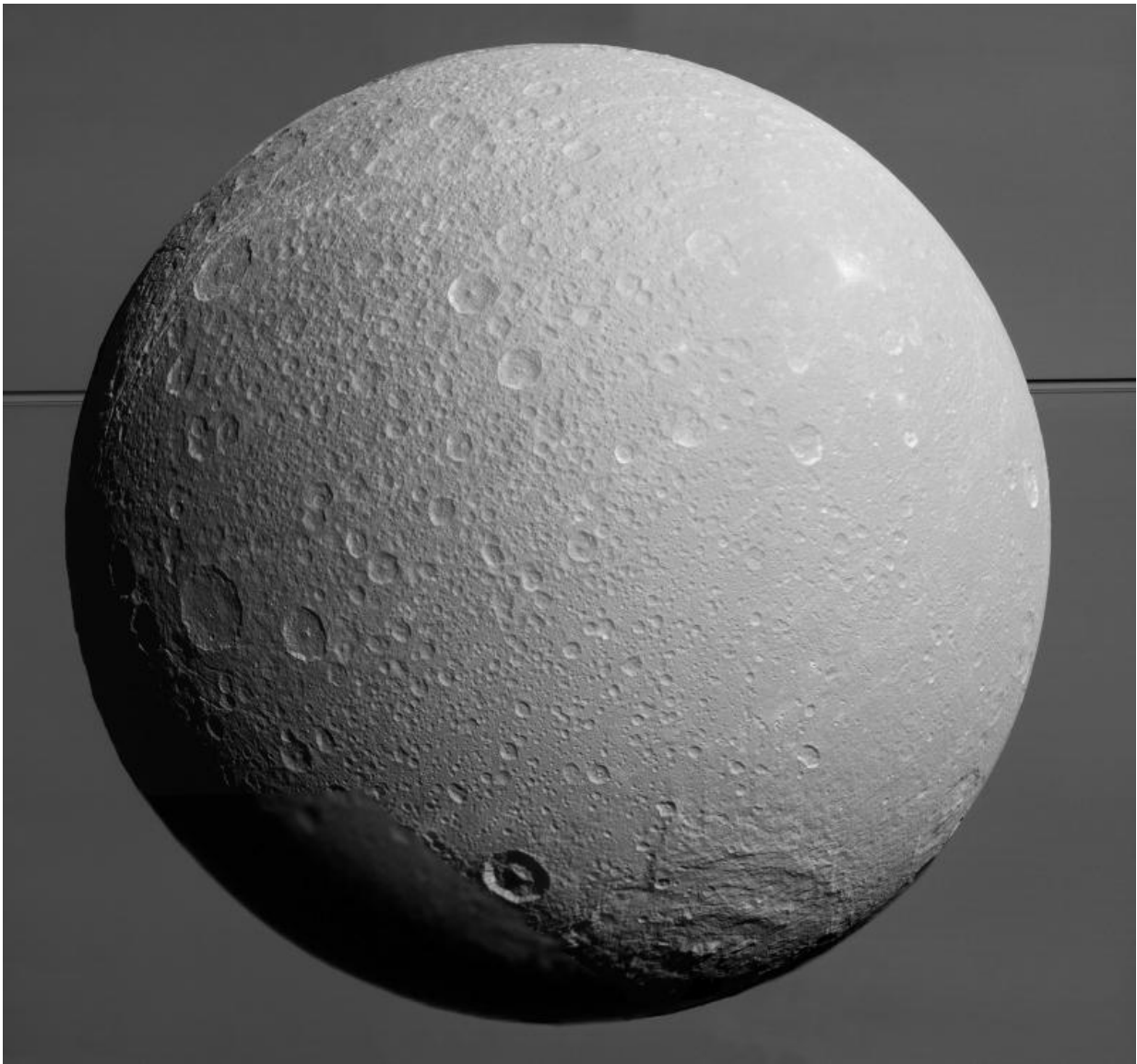


Cassini's final breathtaking close views of Dione

August 21 2015, by Preston Dyches



This view from NASA's Cassini spacecraft looks toward Saturn's icy moon

Dione, with giant Saturn and its rings in the background, just prior to the mission's final close approach to the moon on August 17, 2015. Credit: NASA/JPL-Caltech/Space Science Institute

A pockmarked, icy landscape looms beneath NASA's Cassini spacecraft in new images of Saturn's moon Dione taken during the mission's last close approach to the small, icy world. Two of the new images show the surface of Dione at the best resolution ever.

Cassini passed 295 miles (474 kilometers) above Dione's surface at 11:33 a.m. PDT (2:33 p.m. EDT) on Aug. 17. This was the fifth close encounter with Dione during Cassini's long tour at Saturn. The mission's closest-ever flyby of Dione was in Dec. 2011, at a distance of 60 miles (100 kilometers).

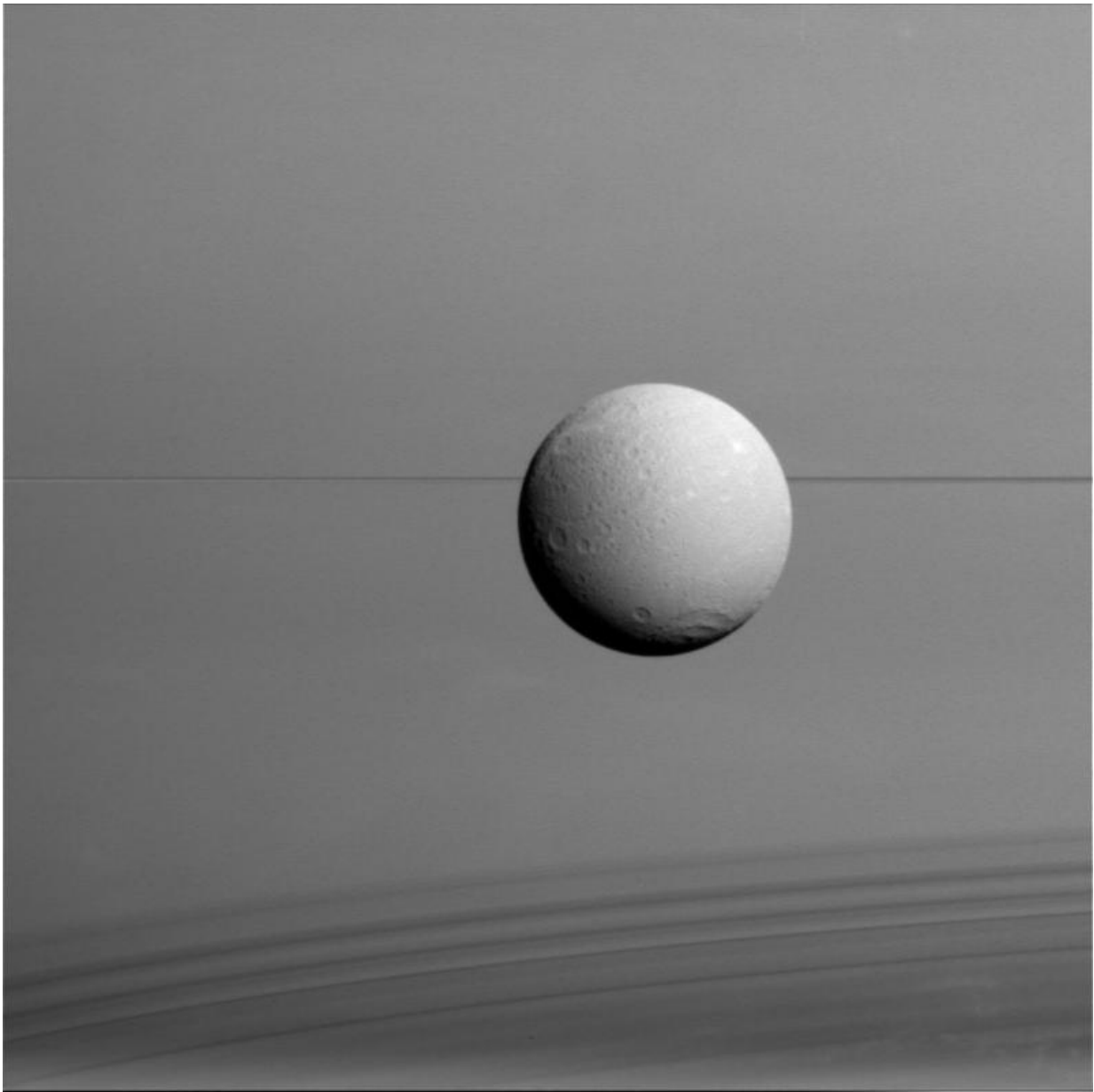
"I am moved, as I know everyone else is, looking at these exquisite [images](#) of Dione's surface and crescent, and knowing that they are the last we will see of this far-off world for a very long time to come," said Carolyn Porco, Cassini imaging team lead at the Space Science Institute, Boulder, Colorado. "Right down to the last, Cassini has faithfully delivered another extraordinary set of riches. How lucky we have been."

Raw, unprocessed images from the flyby are available [here](#).

The main scientific focus of this flyby was gravity science, not imaging. This made capturing the images tricky, as Cassini's camera was not controlling where the spacecraft pointed.

"We had just enough time to snap a few images, giving us nice, high resolution looks at the surface," said Tilmann Denk, a Cassini participating scientist at Freie University in Berlin. "We were able to

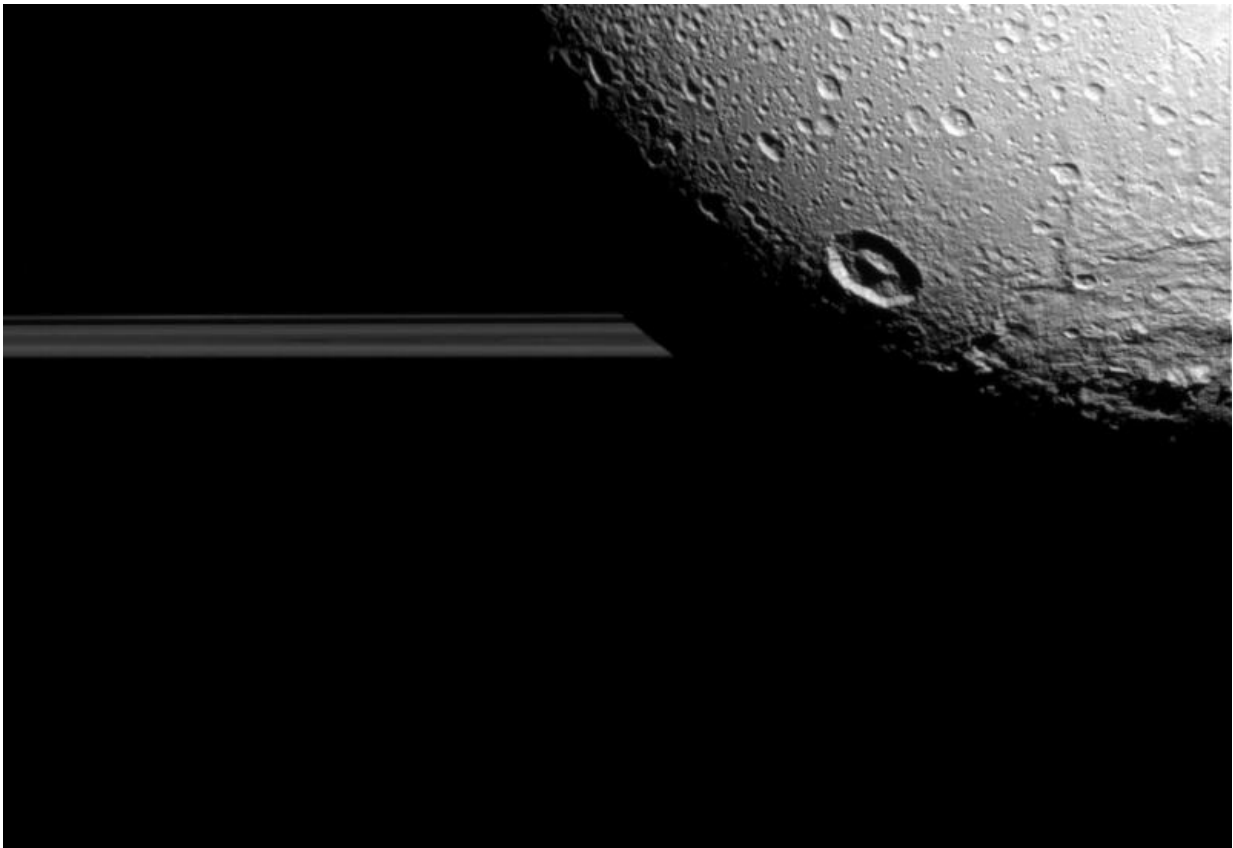
make use of reflected sunlight from Saturn as an additional light source, which revealed details in the shadows of some of the images."



Dione hangs in front of Saturn and its icy rings in this view, captured during Cassini's final close flyby of the icy moon. Credit: NASA/JPL-Caltech/Space Science Institute

Cassini scientists will study data from the gravity science experiment and magnetosphere and plasma science instruments over the next few months as they look for clues about Dione's interior structure and processes affecting its surface.

Only a handful of close flybys of Saturn's large, [icy moons](#) remain for Cassini. The spacecraft is scheduled to make three approaches to the geologically active moon Enceladus on Oct. 14 and 28, and Dec. 19. During the Oct. 28 flyby, the spacecraft will come dizzyingly close to Enceladus, passing a mere 30 miles (49 kilometers) from the surface. Cassini will make its deepest-ever dive through the moon's plume of icy spray at this time, collecting valuable data about what's going on beneath the [surface](#). The December Enceladus encounter will be Cassini's final close pass by that moon, at an altitude of 3,106 miles (4,999 kilometers).



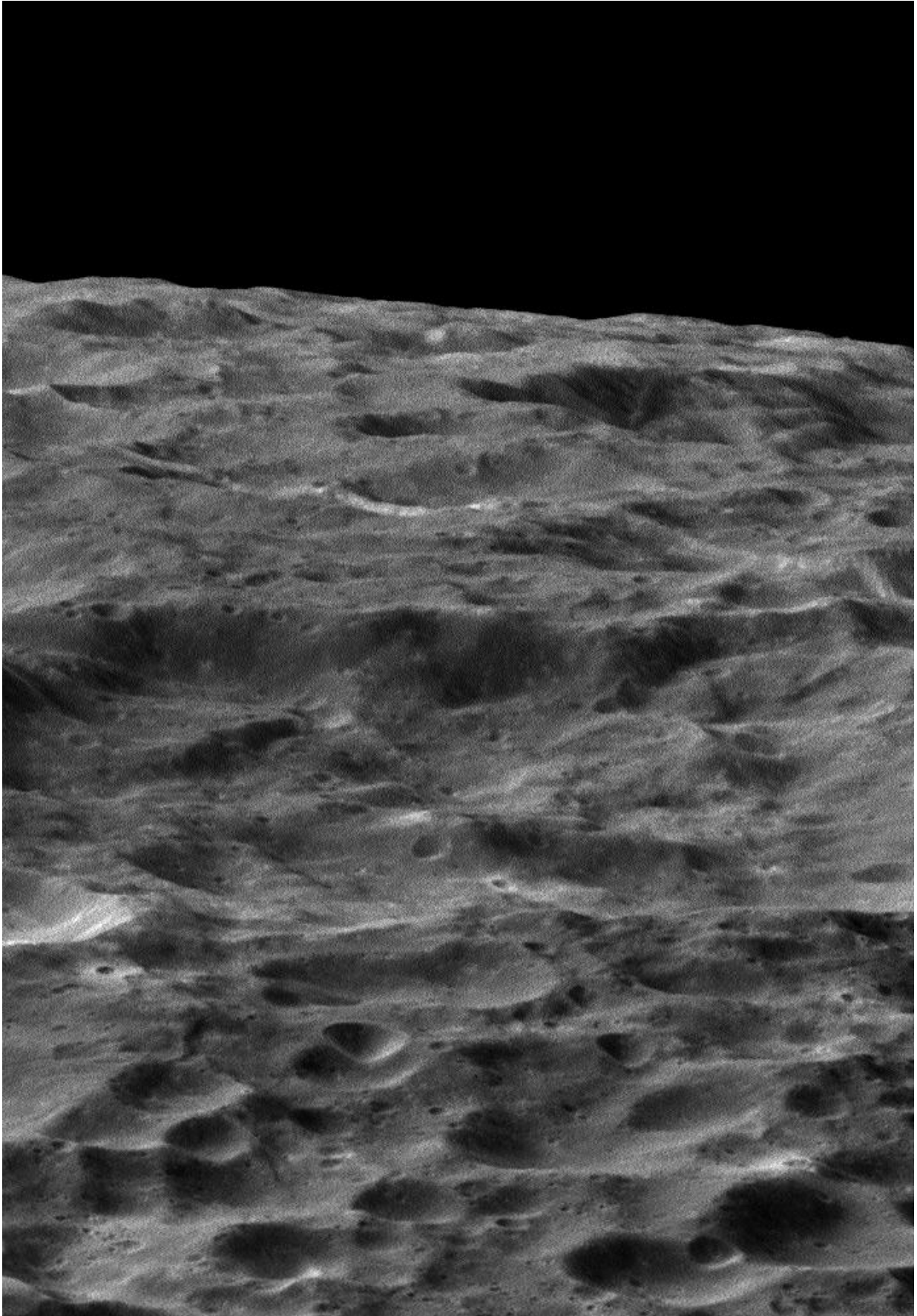
Saturn's moon Dione hangs in front of Saturn's rings in this view taken by NASA's Cassini spacecraft during the inbound leg of its last close flyby of the icy moon. Credit: NASA/JPL-Caltech/Space Science Institute

After December, and through the mission's conclusion in late 2017, there are a handful of distant flybys planned for Saturn's large, icy moons at ranges of less than about 30,000 miles (50,000 kilometers). Cassini will, however, make nearly two dozen passes by a menagerie of Saturn's small, irregularly shaped moons—including Daphnis, Telesto, Epimetheus and Aegaeon—at similar distances during this time. These passes will provide some of Cassini's best-ever views of the little moons.

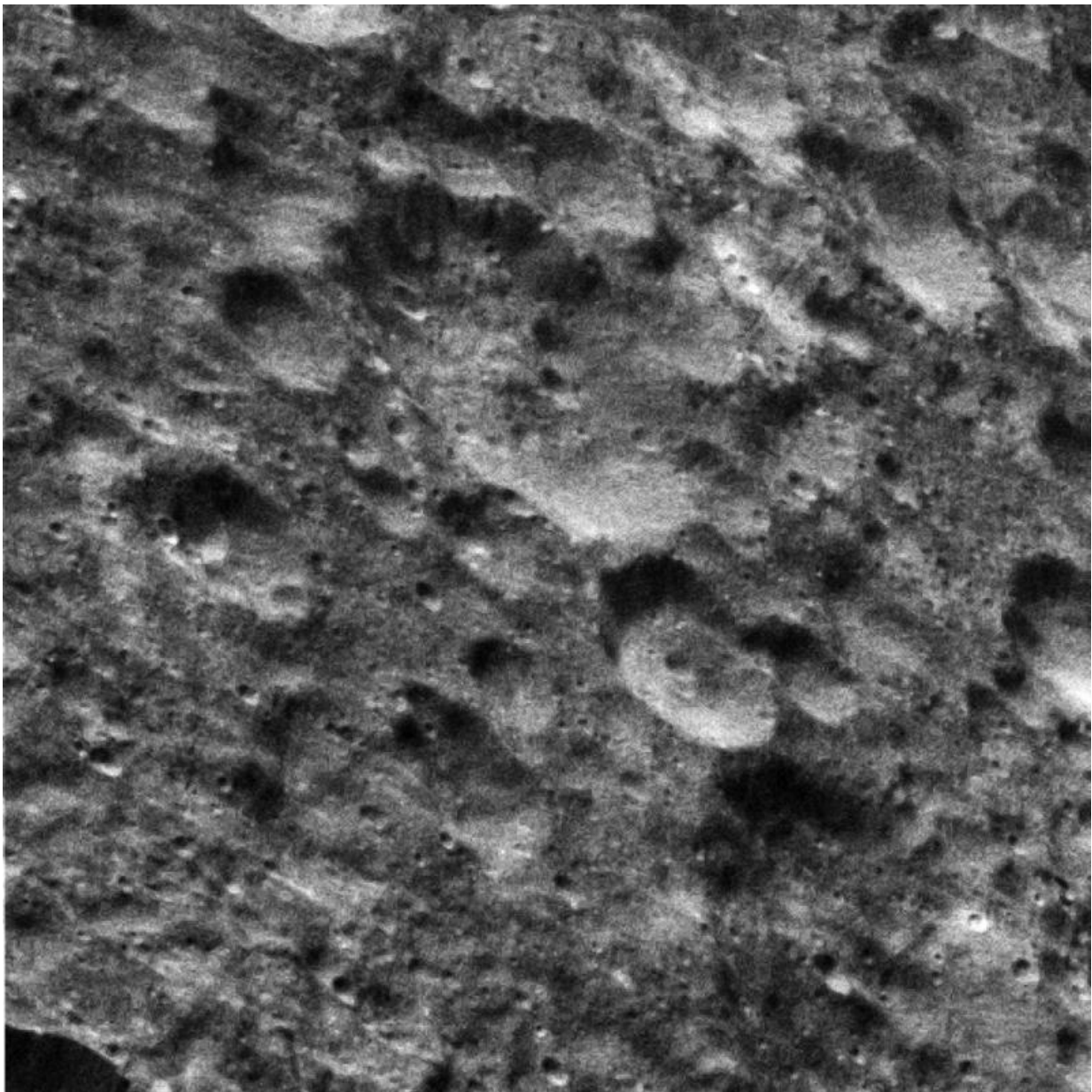
During the mission's final year—called its Grand Finale—Cassini will repeatedly dive through the space between Saturn and its rings.



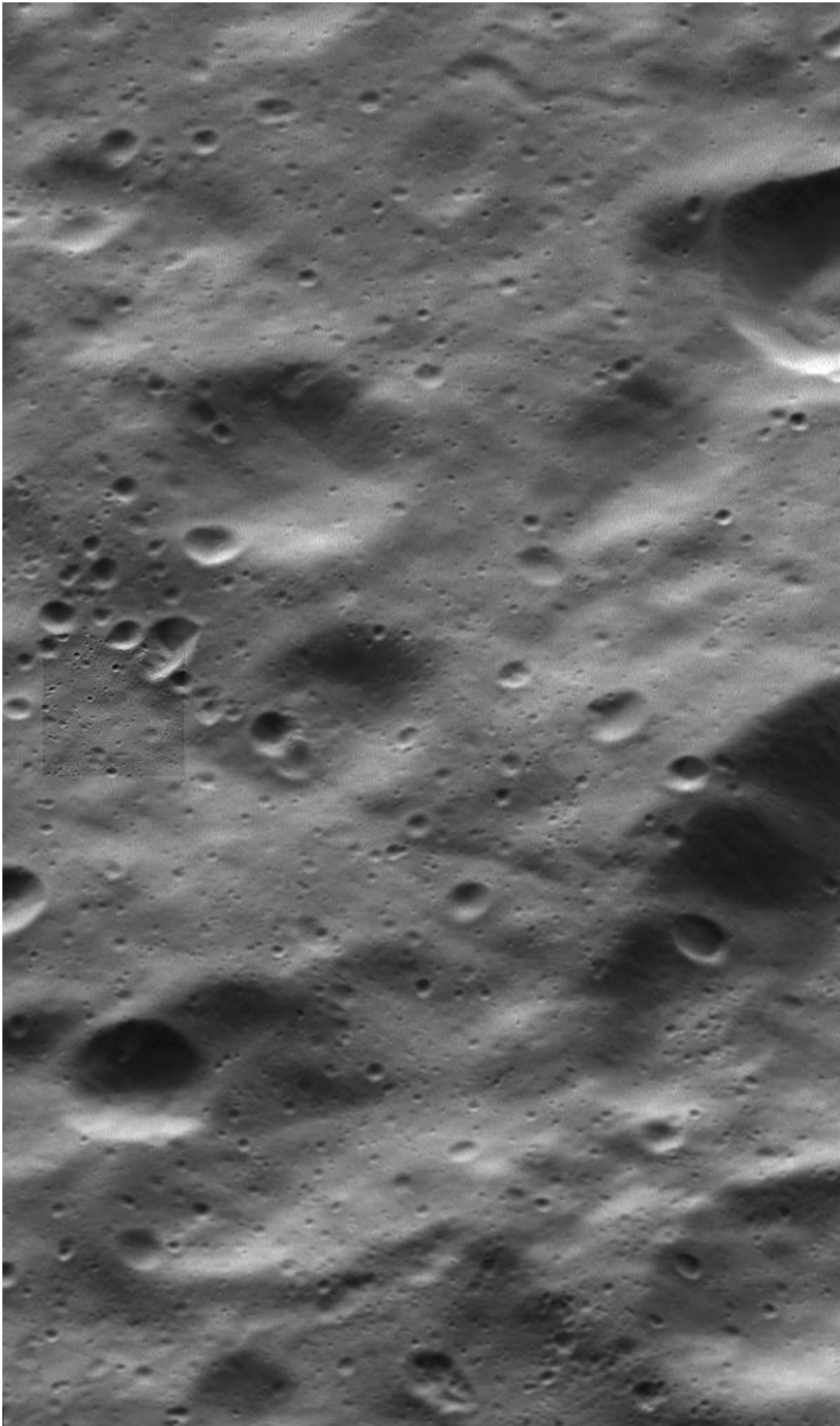
NASA's Cassini spacecraft captured this parting view showing the rough and icy crescent of Saturn's moon Dione following the spacecraft's last close flyby of the moon on Aug. 17, 2015. Credit: NASA/JPL-Caltech/Space Science Institute



NASA's Cassini spacecraft gazes out upon a rolling, cratered landscape in this oblique view of Saturn's moon Dione. Credit: NASA/JPL-Caltech/Space Science Institute



This view from NASA's Cassini spacecraft shows terrain on Saturn's moon Dione that is entirely lit by reflected light from Saturn, called Saturnshine.
Credit: NASA/JPL-Caltech/Space Science Institute



This view of Dione from Cassini includes the mission's highest-resolution view of the icy moon's surface as an inset at center left. Credit: NASA/JPL-Caltech/Space Science Institute



A region on Dione where features in shadow are illuminated by reflected light from Saturn. Inset above center is one of Cassini's highest-resolution views of Dione's surface. Credit: NASA/JPL-Caltech/Space Science Institute

More information: For more information about Cassini, visit www.nasa.gov/cassini

Provided by Jet Propulsion Laboratory

Citation: Cassini's final breathtaking close views of Dione (2015, August 21) retrieved 23 April 2024 from <https://phys.org/news/2015-08-cassini-breathtaking-views-dione.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.