

New Horizons Kuiper Belt Extended Mission

The Ultima Thule Flyby

January 3, 2019
Press Conference

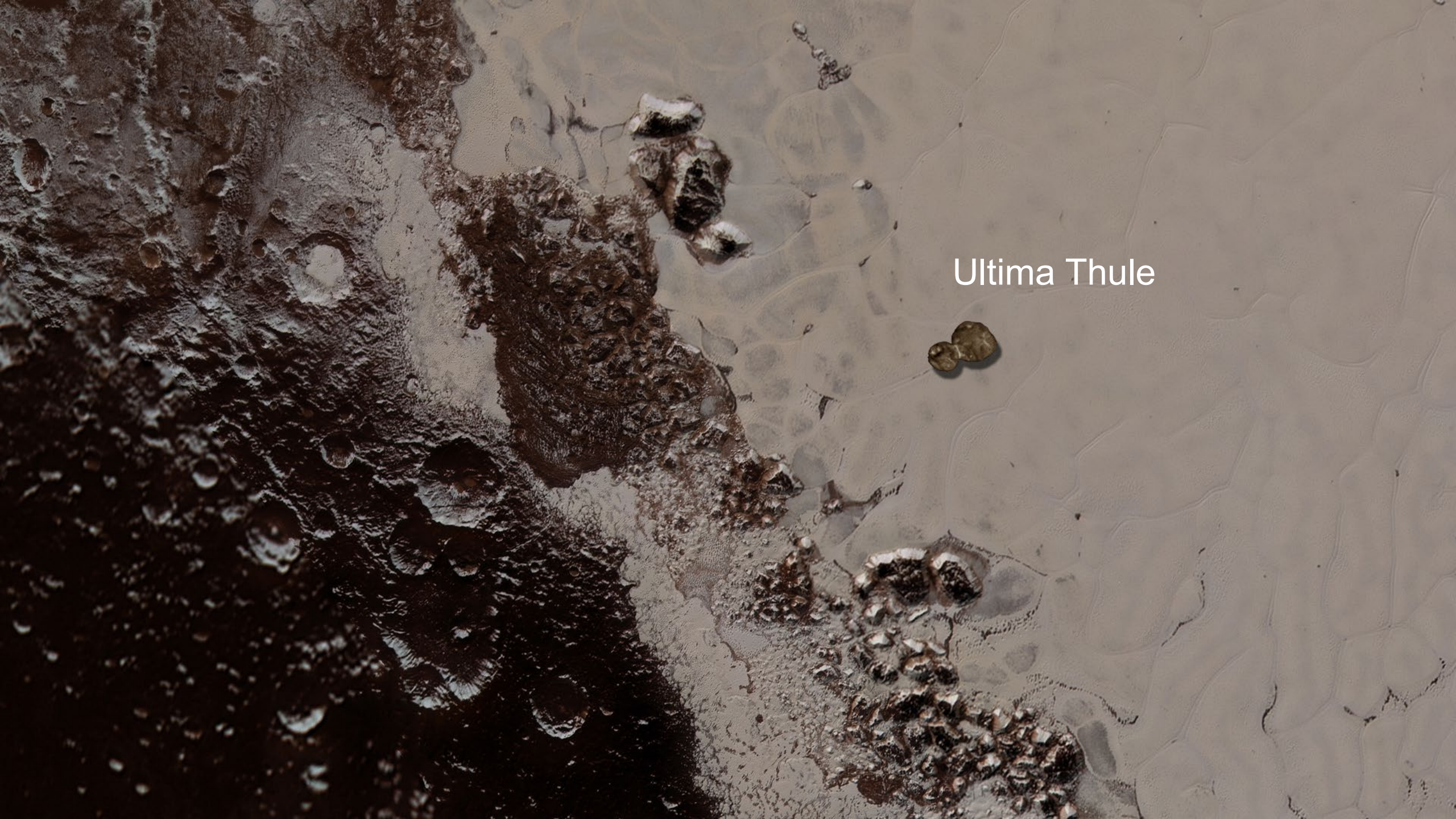


Pluto, Ultima Thule and the Kuiper Belt

Alan Stern

New Horizons Principal Investigator
Southwest Research Institute





Ultima Thule

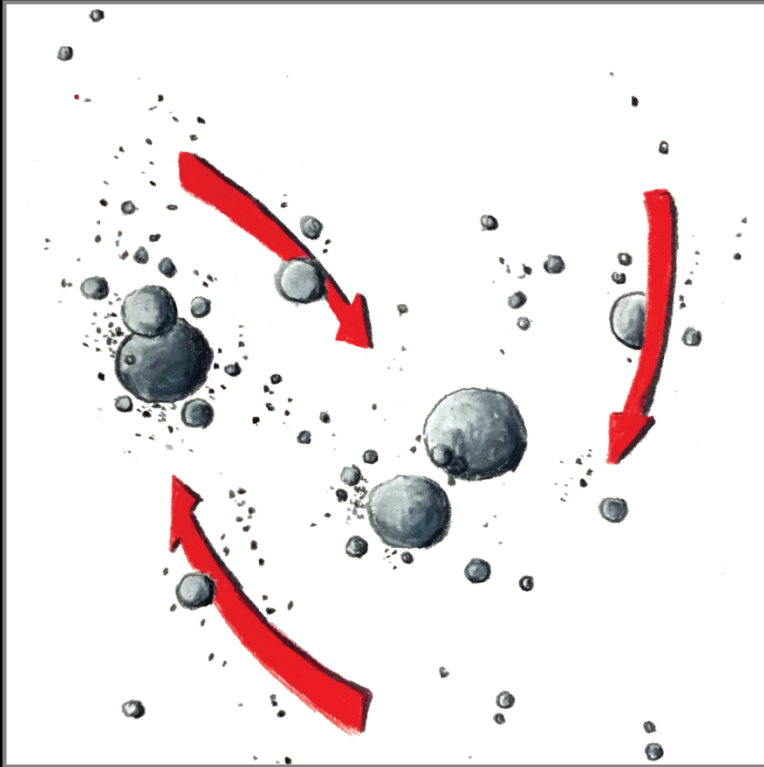
No Moons (So Far)

Mark Showalter
New Horizons Co-Investigator
SETI Institute

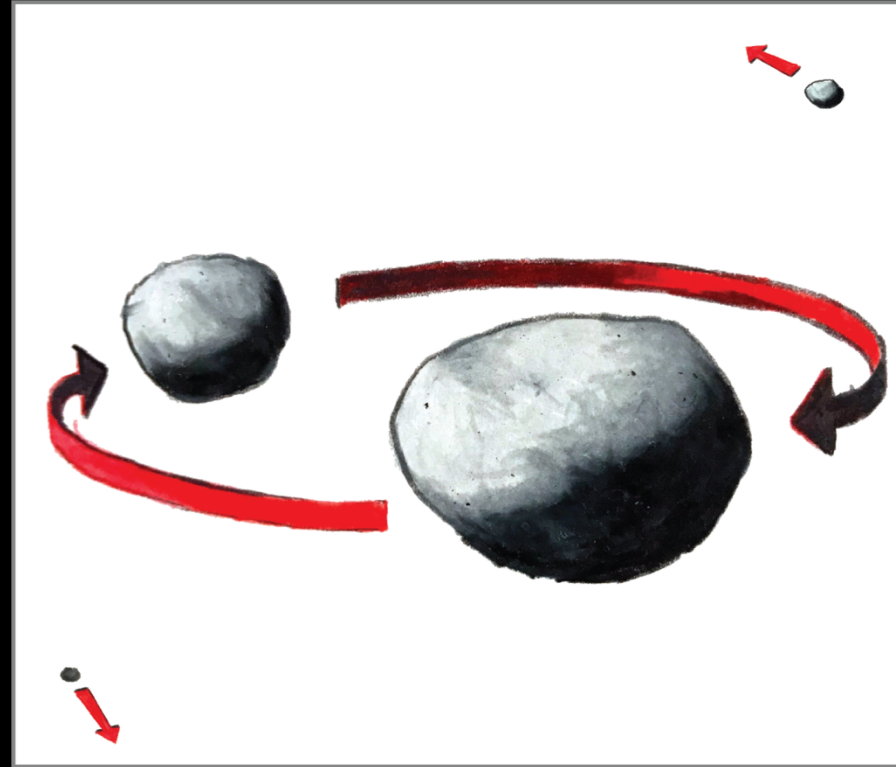
The Formation of Ultima Thule

About 4.5 billion years ago

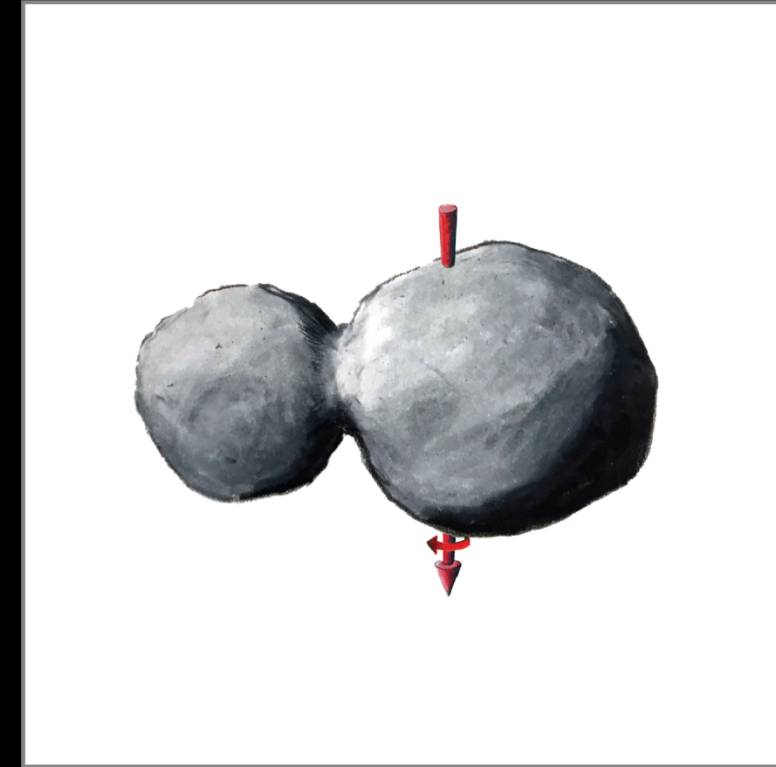
1 January 2019



A rotating cloud of small, icy bodies starts to coalesce.



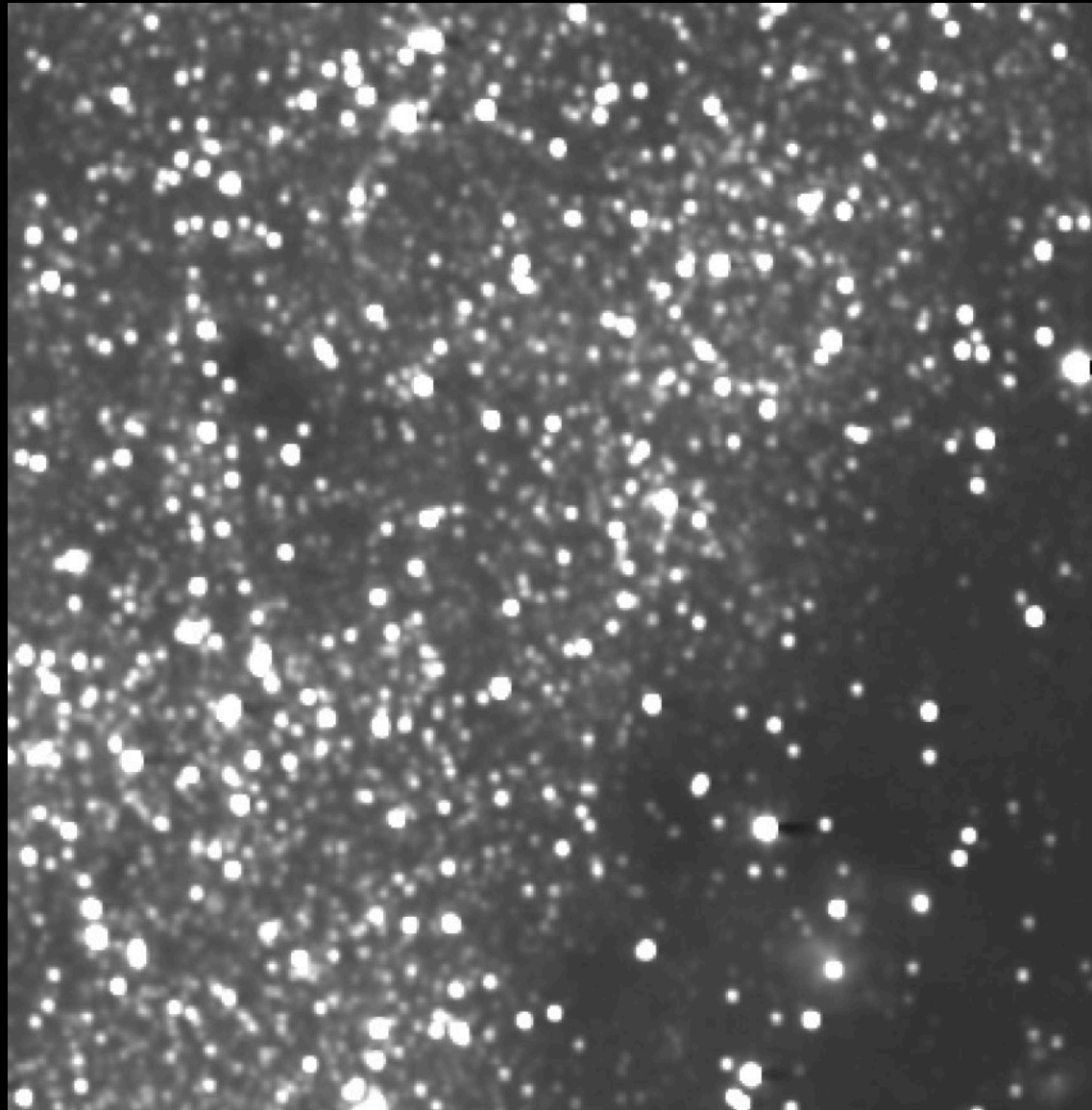
Eventually two larger bodies remain: Ultima and Thule.



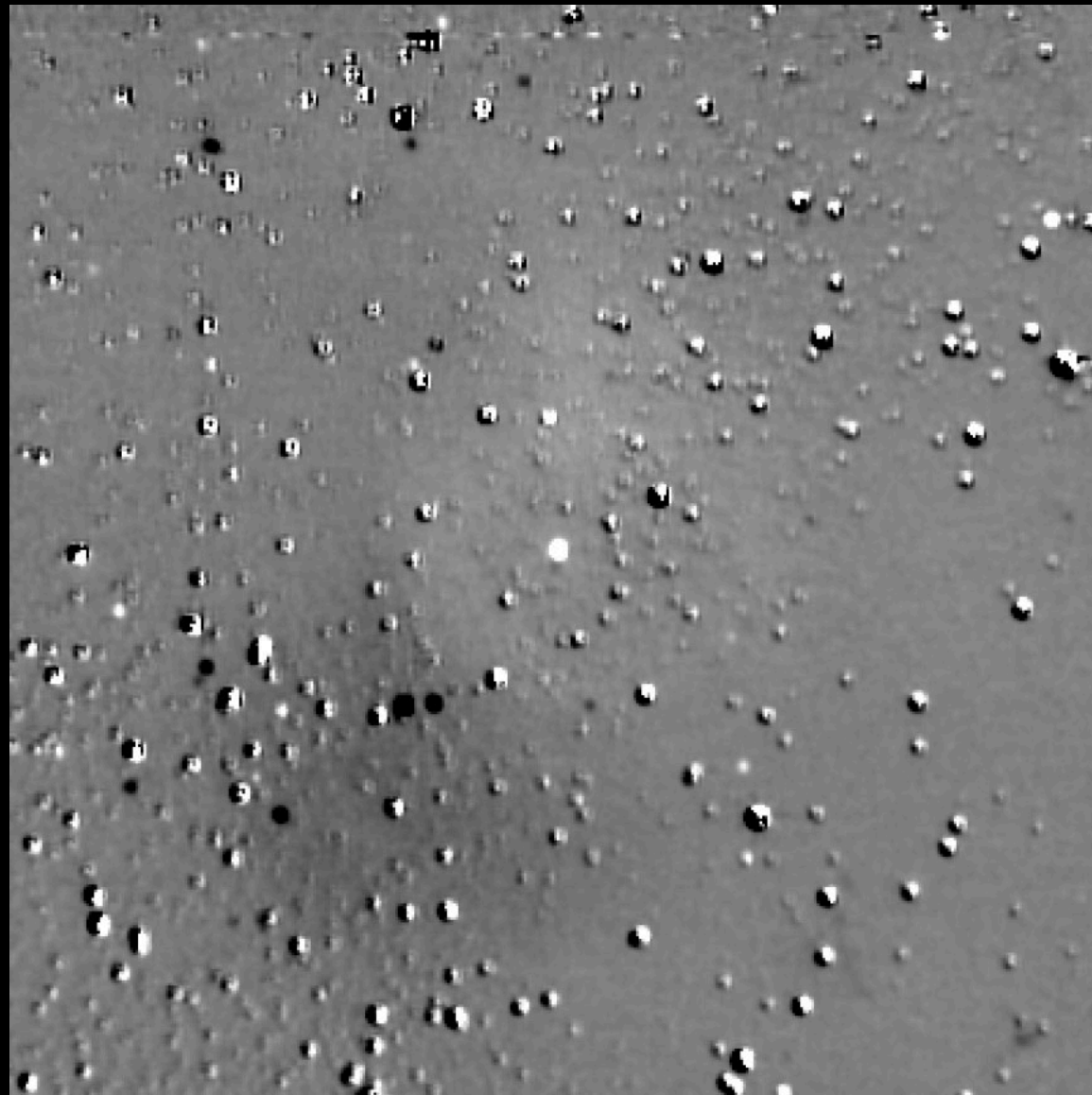
Ultima and Thule slowly spiral closer until they touch, forming the bi-lobed object we still see today.

NASA / JHUAPL / SwRI / James Tuttle Keane

Search Image: Original



Search Image: Processed



Close Approach Image: Original



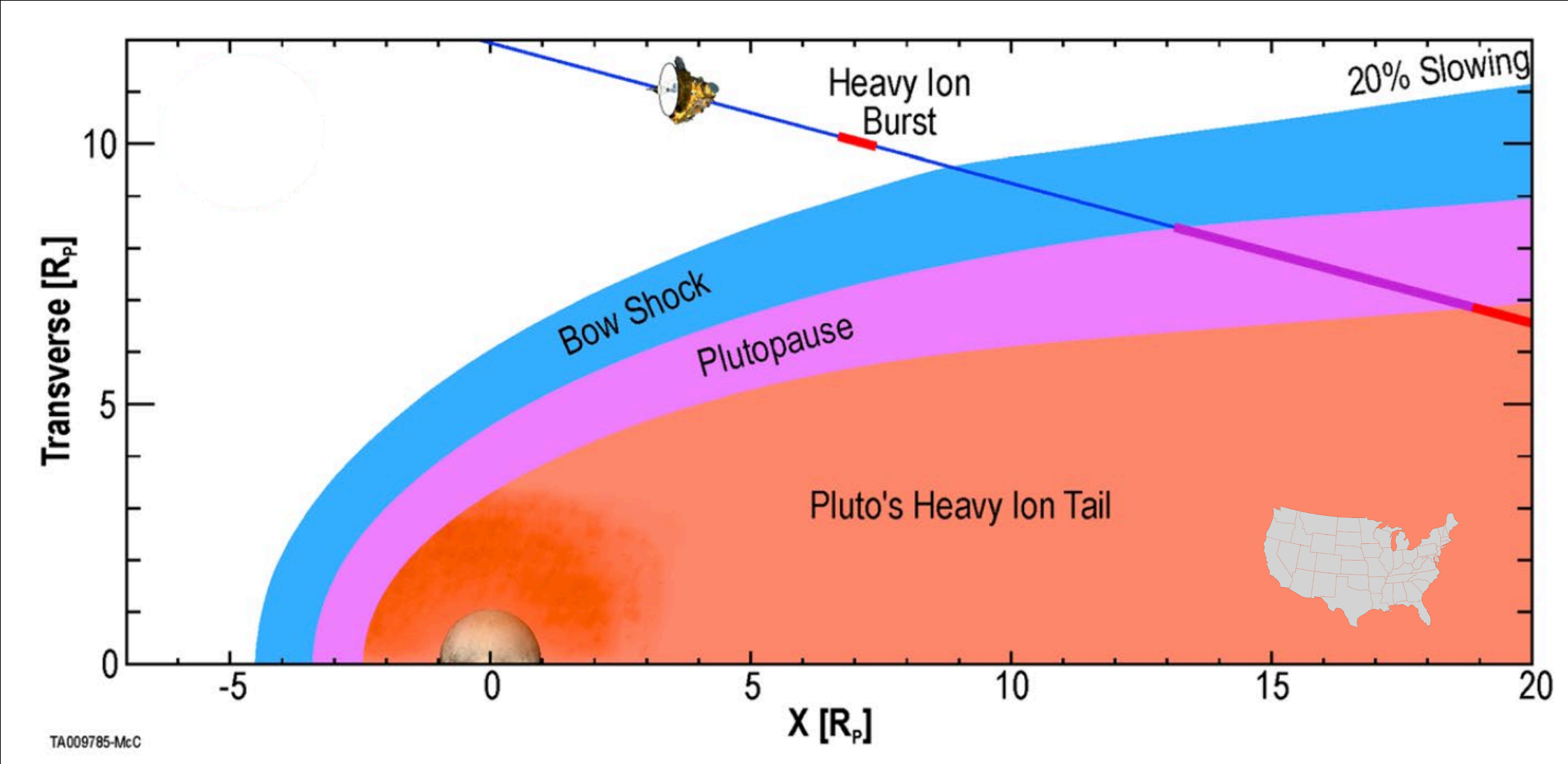
Close Approach Image: Brightened



No Atmosphere (So Far)

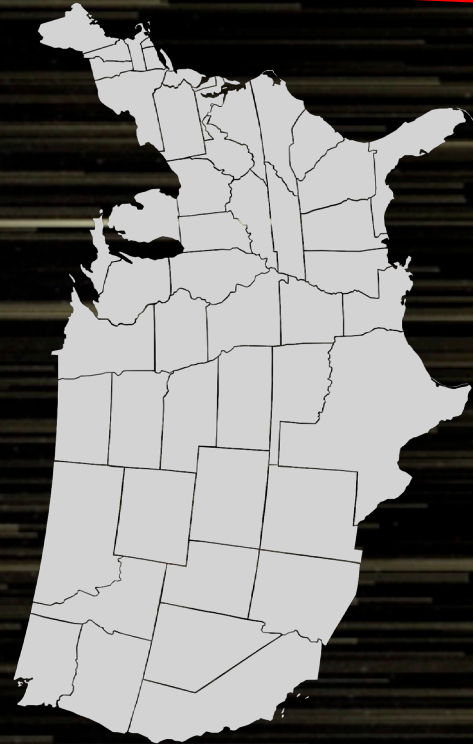
Leslie Young
New Horizons Co-Investigator
Southwest Research Institute

Solar Wind Interaction With Pluto



Solar Wind Interaction With Ultima Thule

New Horizons



3500 km
(2200 mi)

● Ultima Thule

Solar Wind Impacts Ultima Thule

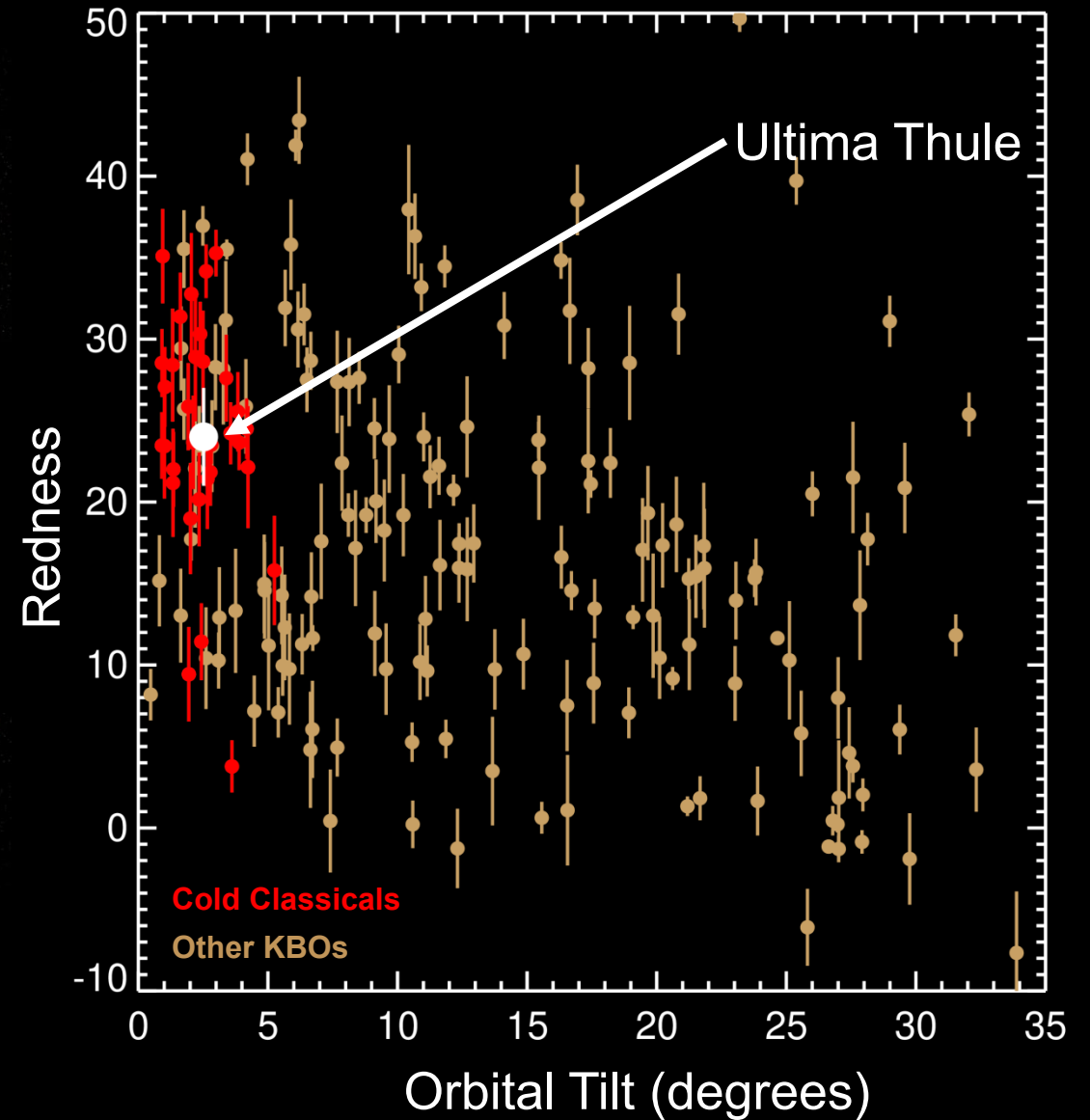
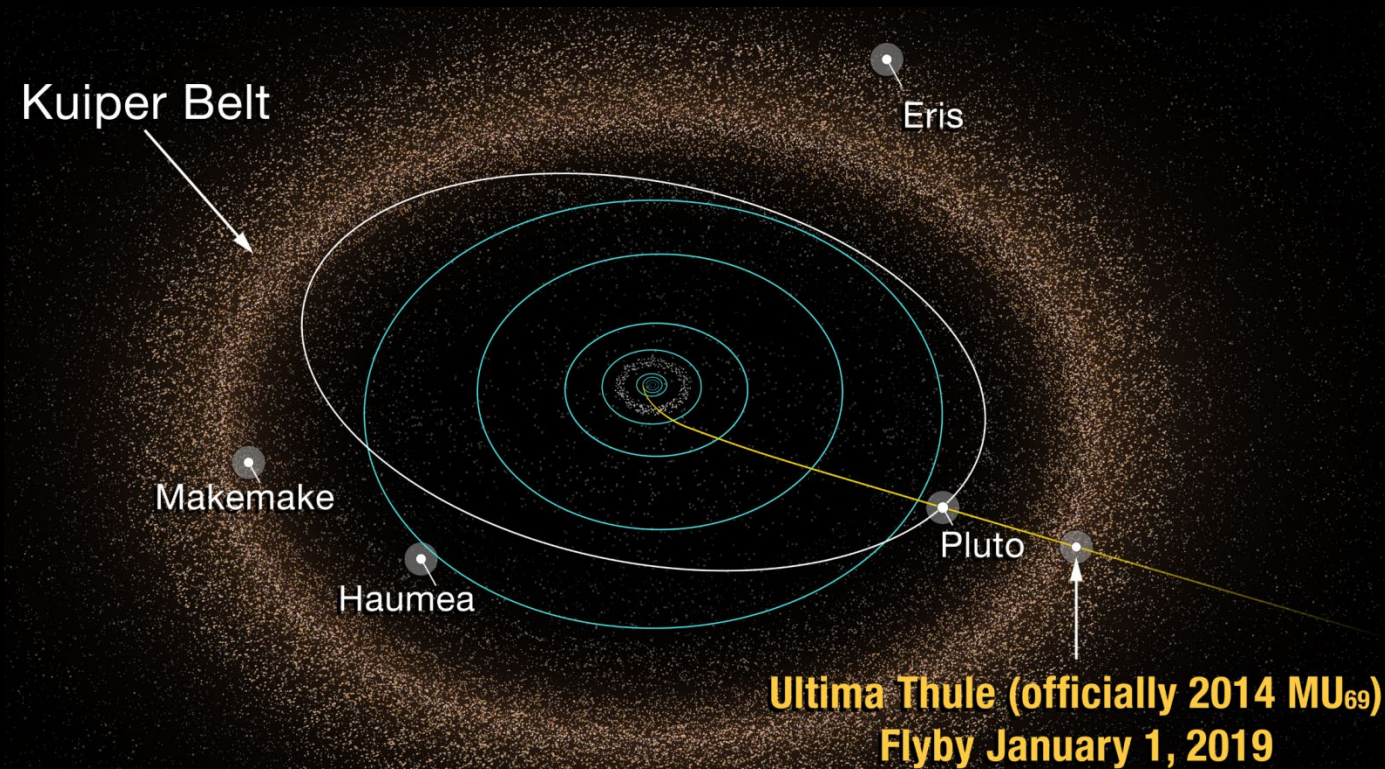




Ultima Thule: A Cold Classical Kuiper Belt Object

Silvia Protopapa
New Horizons Co-Investigator
Southwest Research Institute

Ultima Thule's Color



Correlated Colors of Binaries



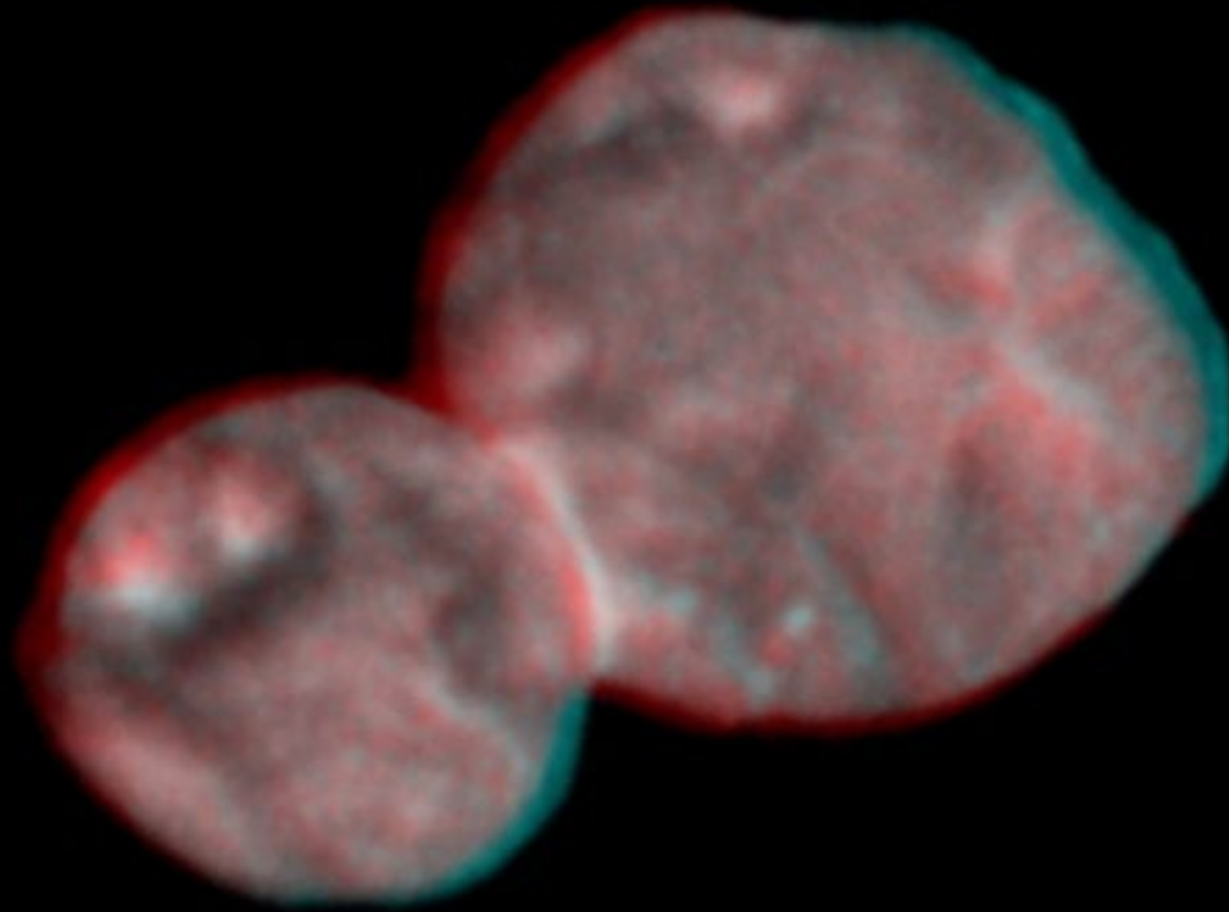
MVIC Color

- Ultima and Thule show the same average color
- Consistent with forming as a result of the merger of two objects accreted locally
- The primary and secondary components of binary systems in the Kuiper Belt present the same coloration

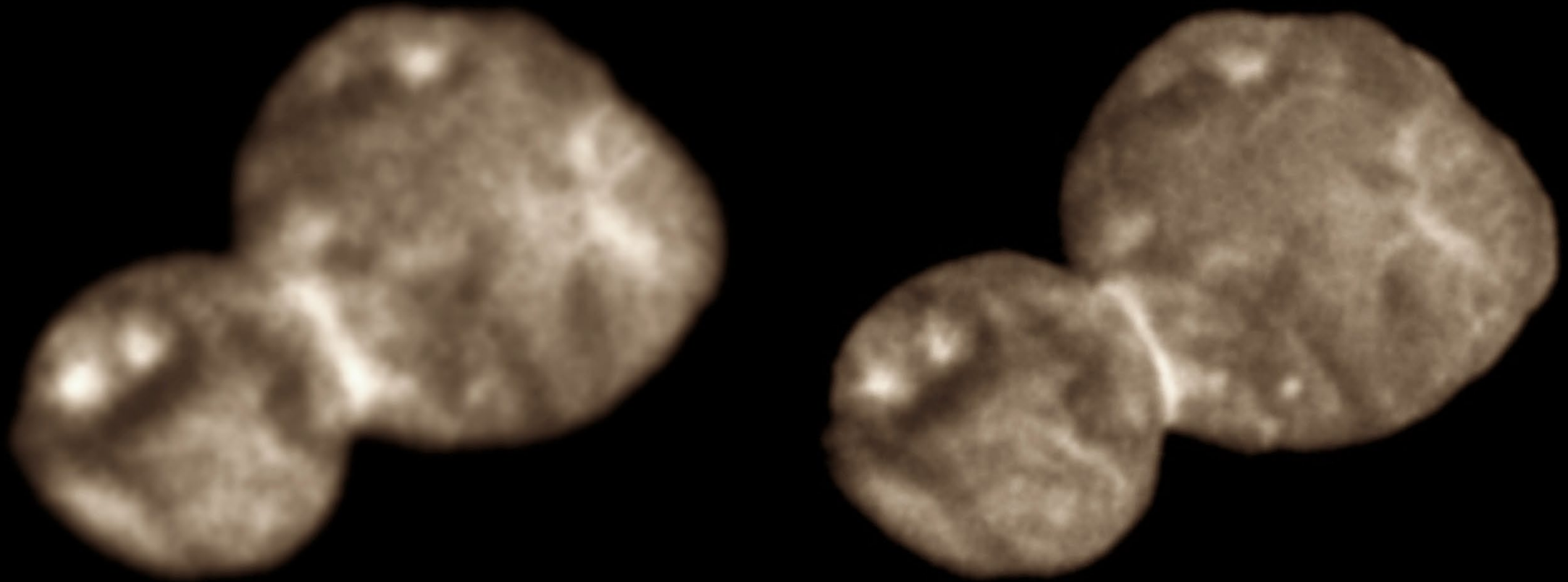
Ultima Thule in Stereo

Paul Schenk
New Horizons Co-Investigator
Lunar and Planetary Institute

Ultima Thule Stereo Anaglyph



Ultima Thule Left-Right Stereo



Credit: Dr. Brian May

Rotation “Movie”

- Thule closer to New Horizons in second image
- 30 minutes between images
- More topography peeks around edge of Ultima



The Art of Science

James Tuttle Keane, Caltech

Leila Gabasova, University of Grenoble Alpes

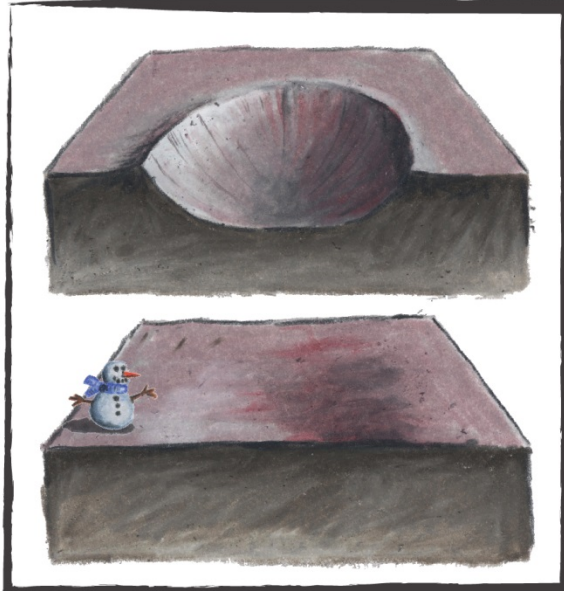
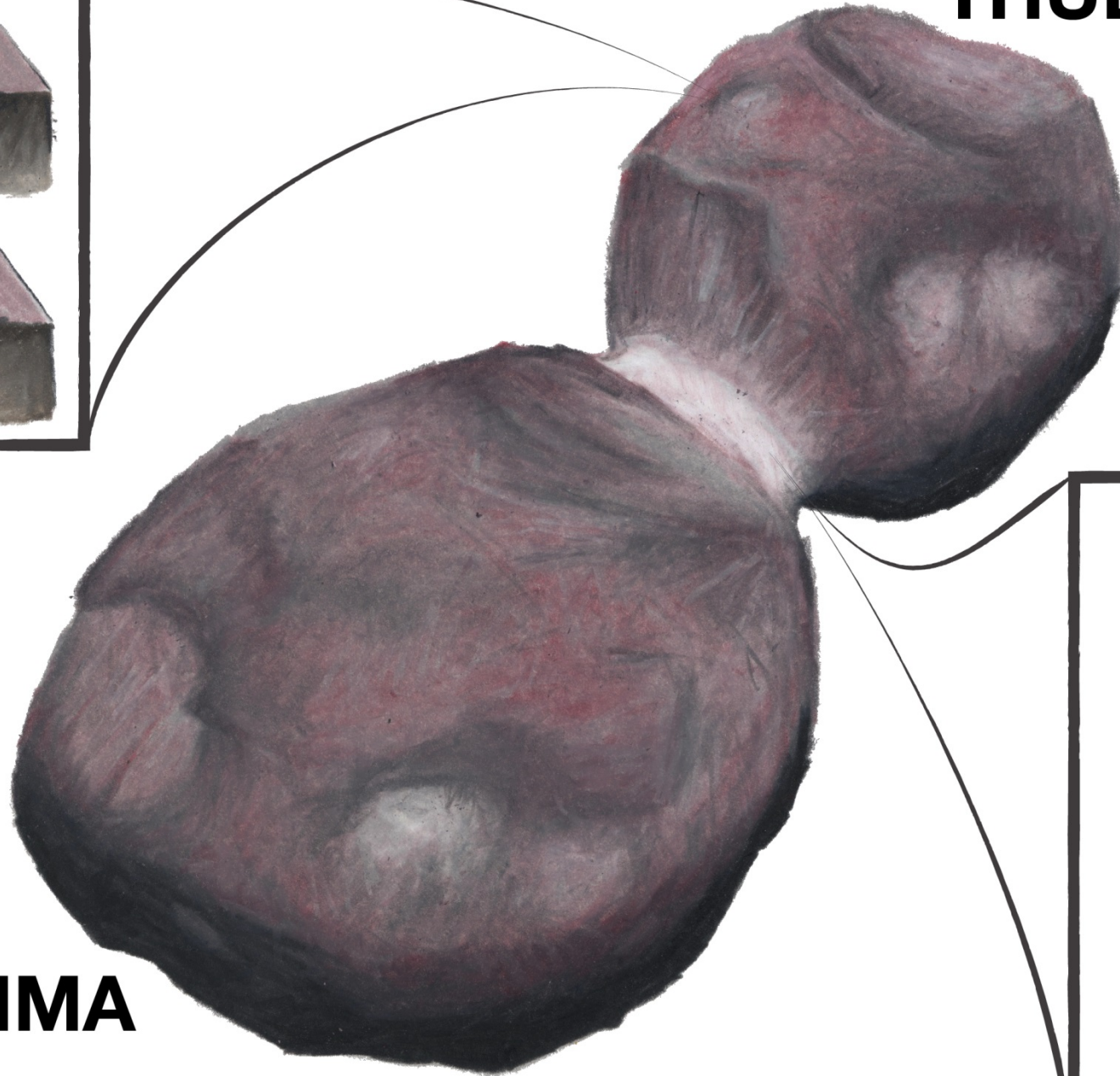
Mallory Kinczyk, North Carolina State University

New Horizons Science Team Collaborators

THULE

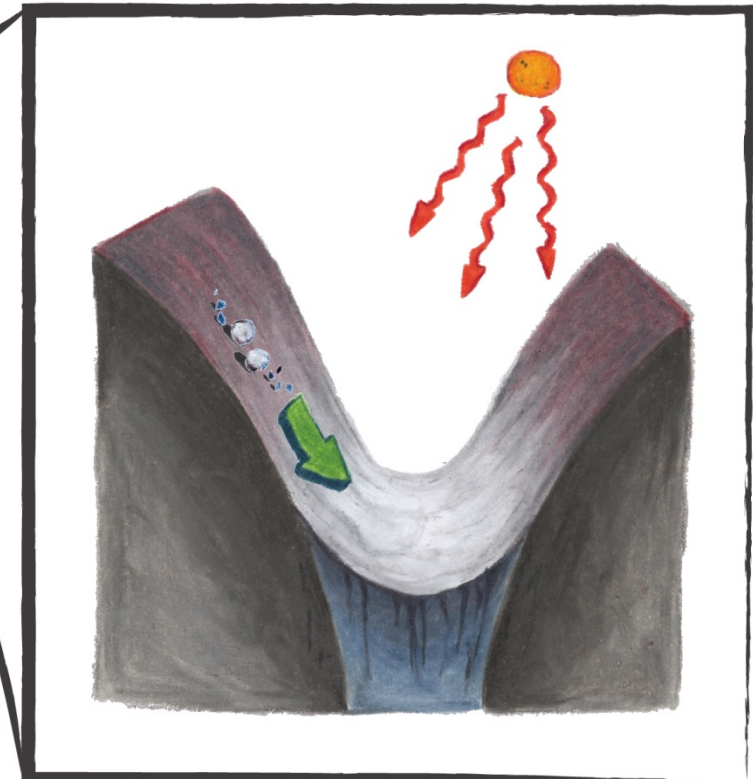


New Horizons
January 1st, 2019



Which features tell us about topography, and which tell us about reflectivity?

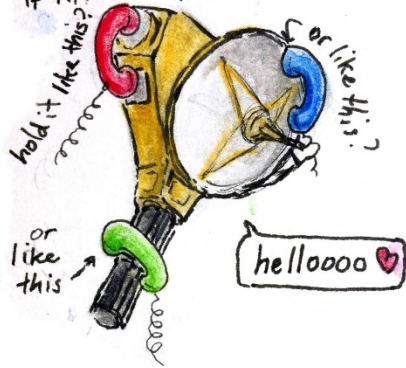
Why is the neck reflective?



ULTIMA

Leila Gabasova

If NH held a phone would she:



helloooo ♡

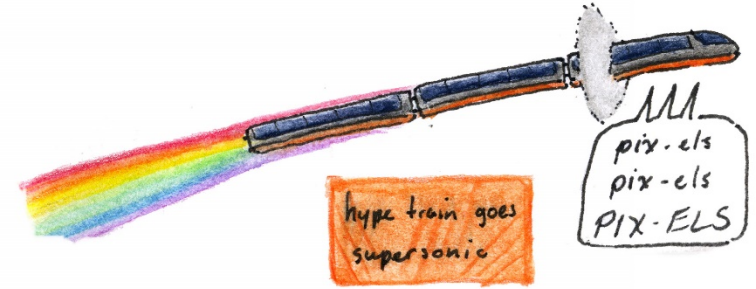


Alice Bowman: MOM!

We have a healthy spacecraft!



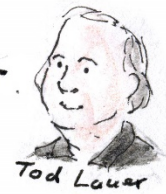
Hal Weaver is experiencing technical difficulties



hype train goes supersonic

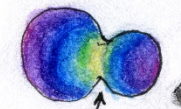
MM pix-els pix-els PIX-ELS

we see pixels

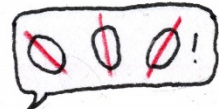


Tod Lauer

surface slope!



bright region = slope ++



Simon Porter



$$T = \frac{30}{n}; n=1 \text{ or } 2$$

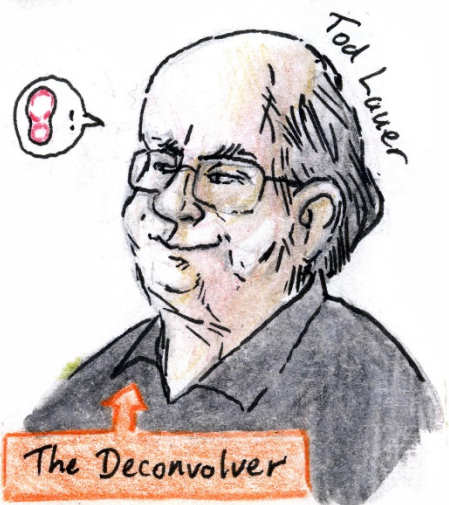
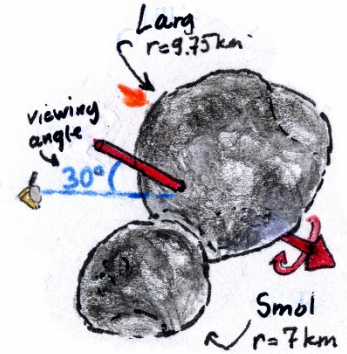
Will Grundy (COMP)



SCIENCE THEME TEAMS



Jeff Moore (CGI)



Tod Lauer

The Deconvolver

Marc Buie was right: the photometry is just ~~NOISE~~

THE KELSIE & KIRBY SHOW



I have a lot of components!

She has a lot of components.



Press Conference



You nailed it! I'm v. proud ☺

Alan is proud ☺



