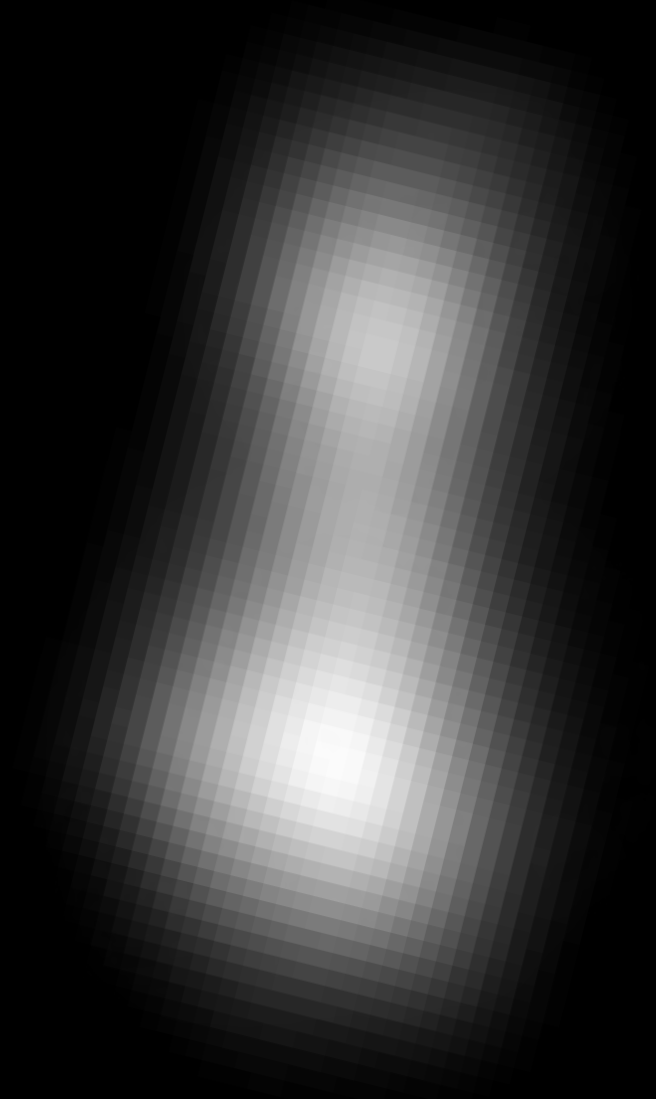
First Results

Alan Stern
New Horizons Principal Investigator
Southwest Research Institute

What A Difference a Day Makes

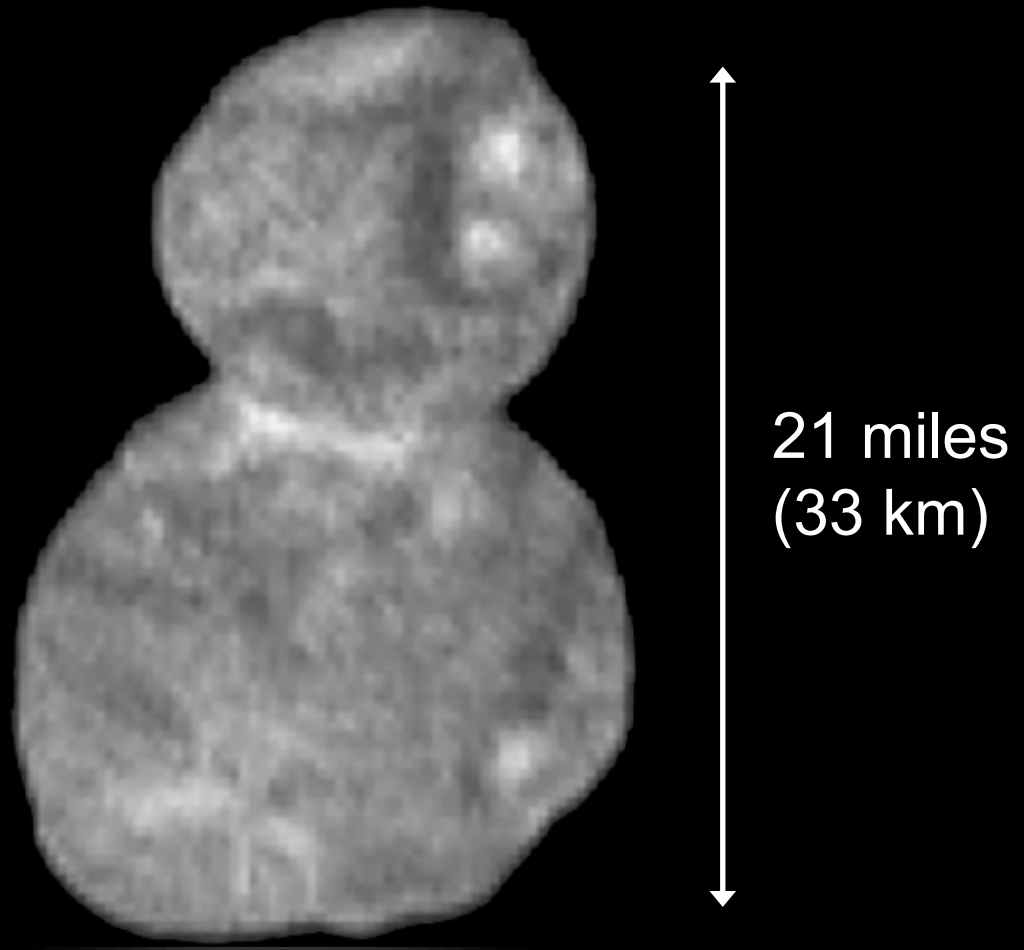
2018



21 miles
(33 km)

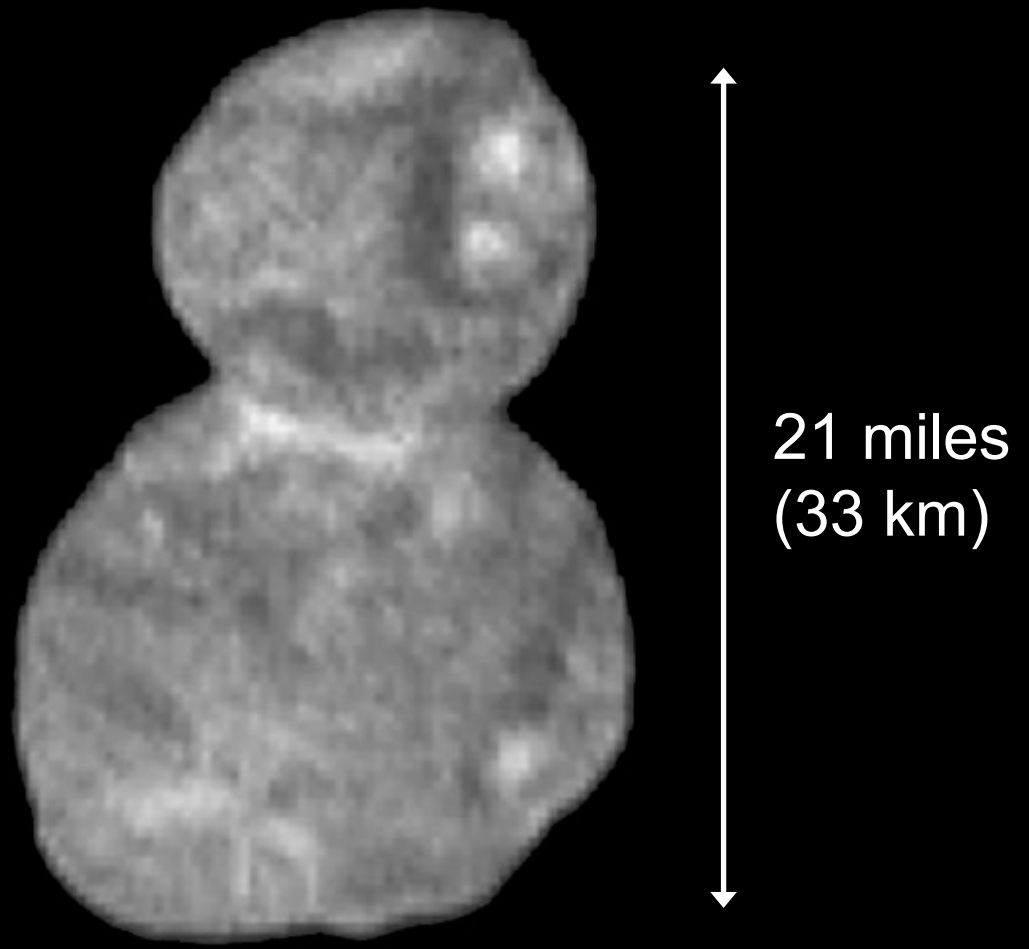
What A Difference a Day Makes

2019



21 miles
(33 km)

“The Snowman”



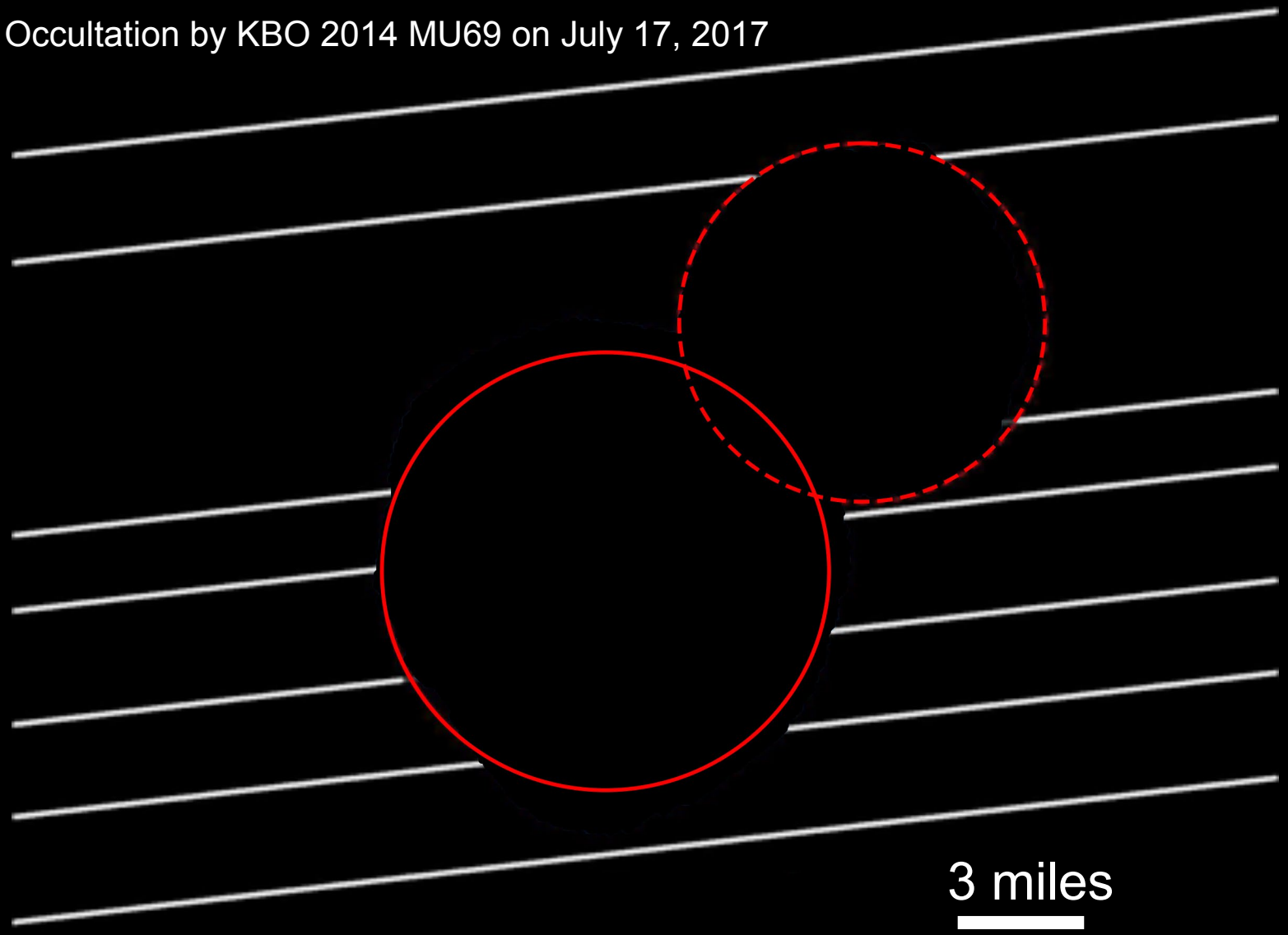
A Contact Binary: Unlike Asteroids and Comets

Thule

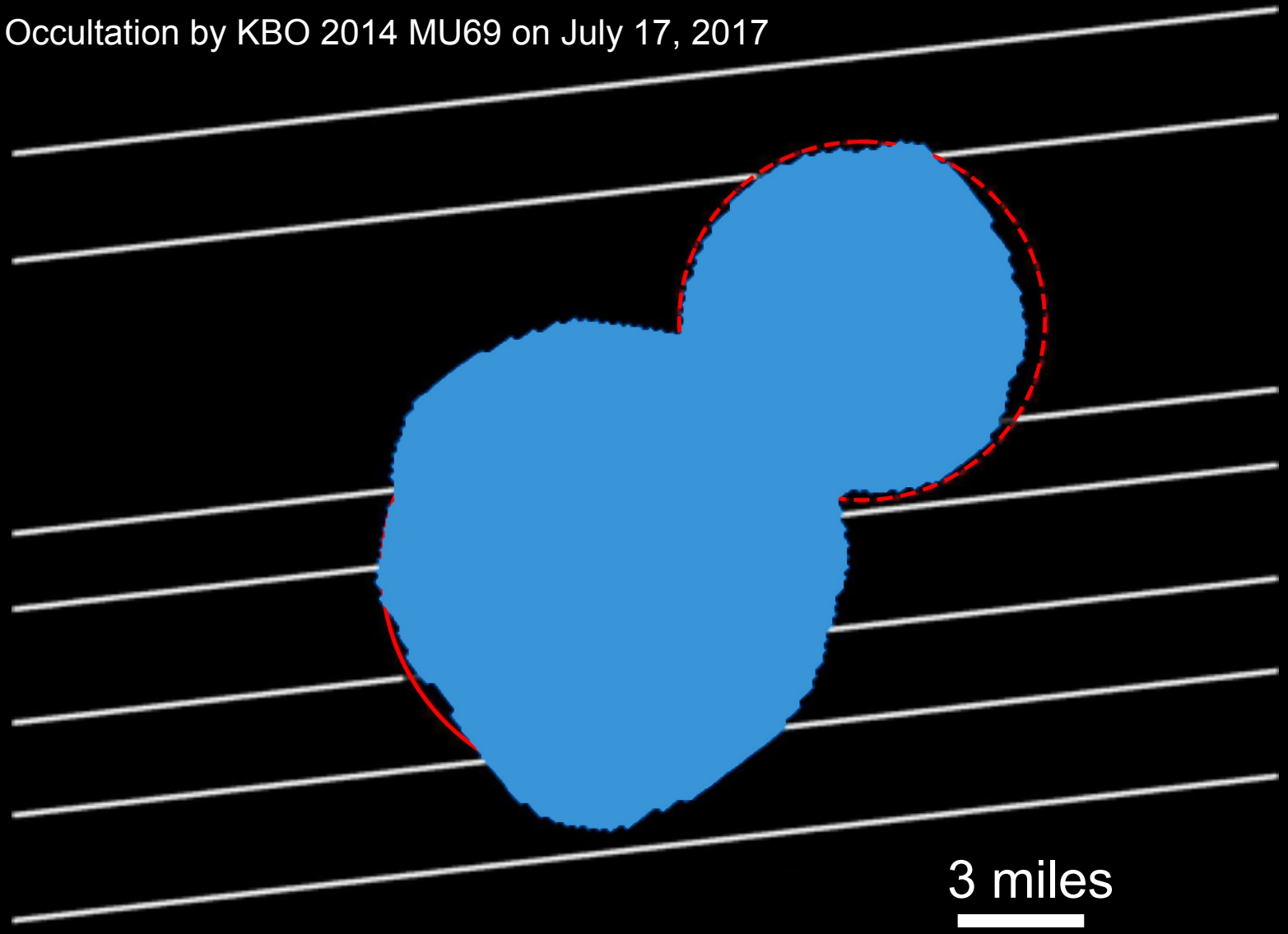
Ultima

21 miles
(33 km)

Occultation Profile and Size Matches



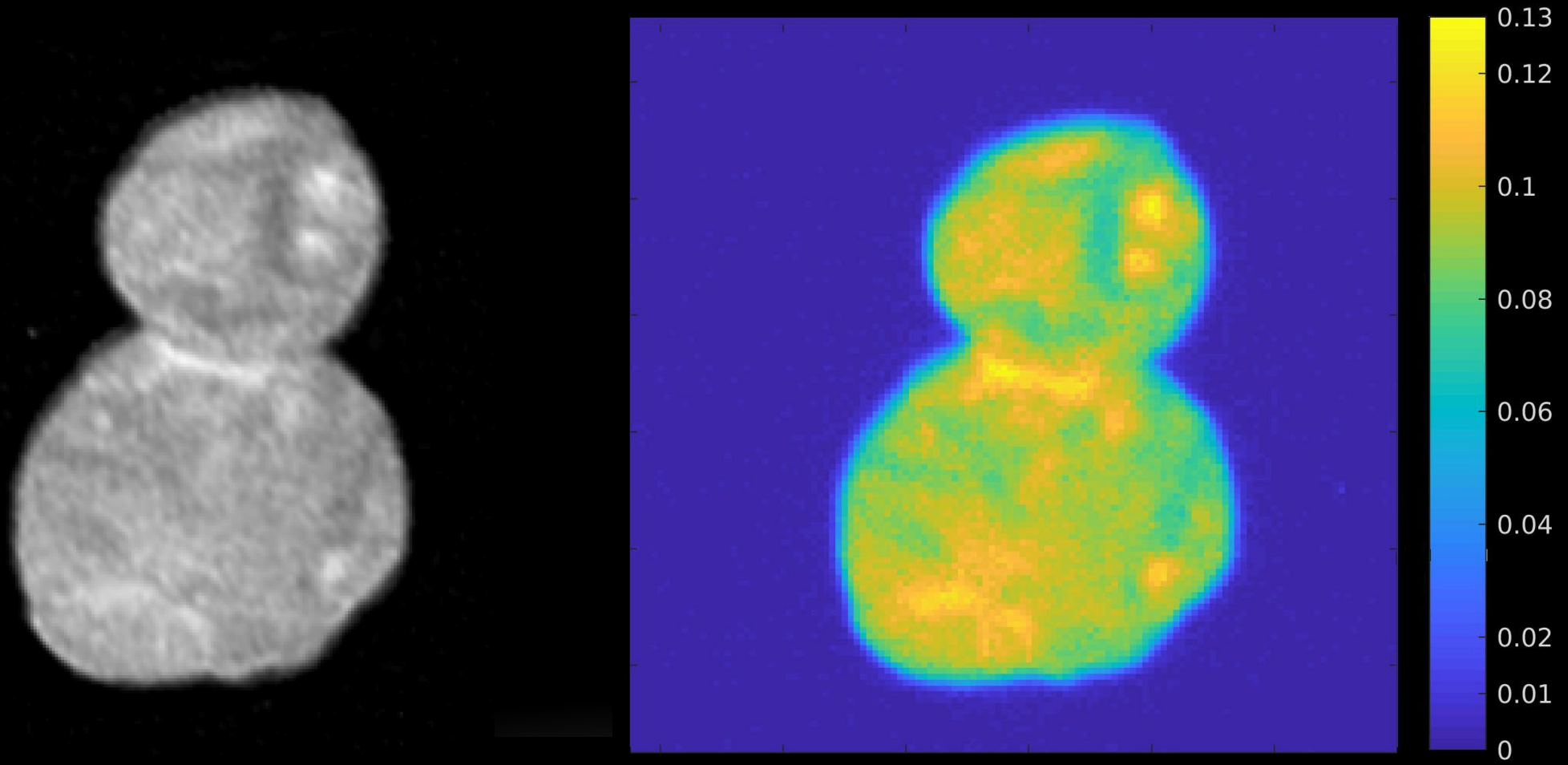
Occultation Profile and Size Matches



Rotation Period and Brightness

Cathy Olkin
New Horizons Deputy Project Scientist
Southwest Research Institute

Reflectivity Variations

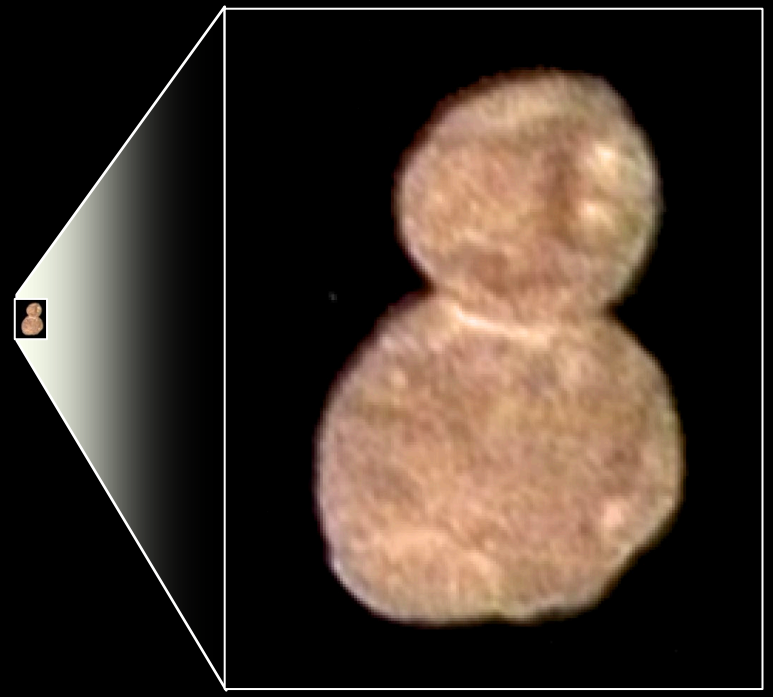


First Color Imagery

Carly Howett
New Horizons Co-Investigator
Southwest Research Institute

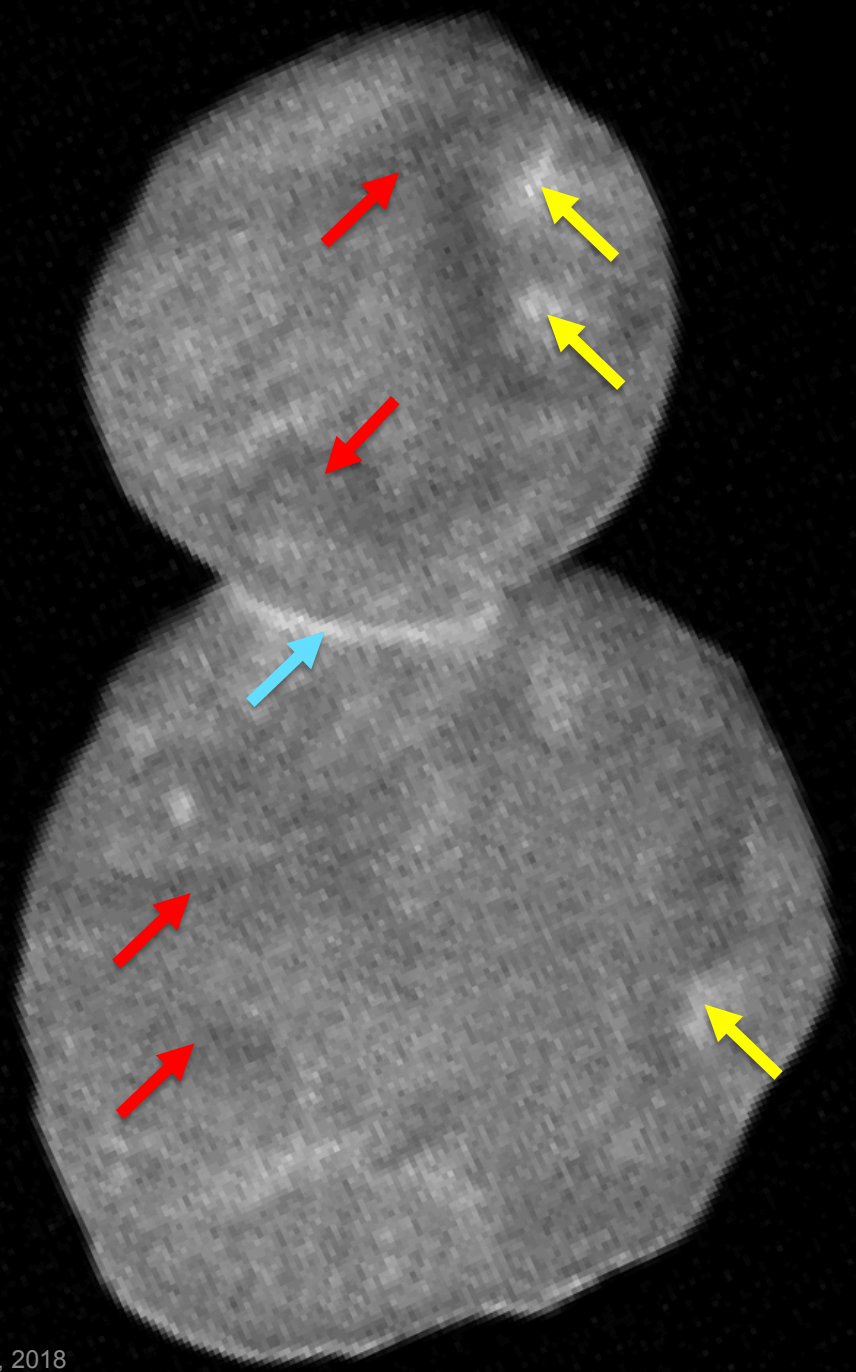
Color Variation

Comparisons with the Pluto System

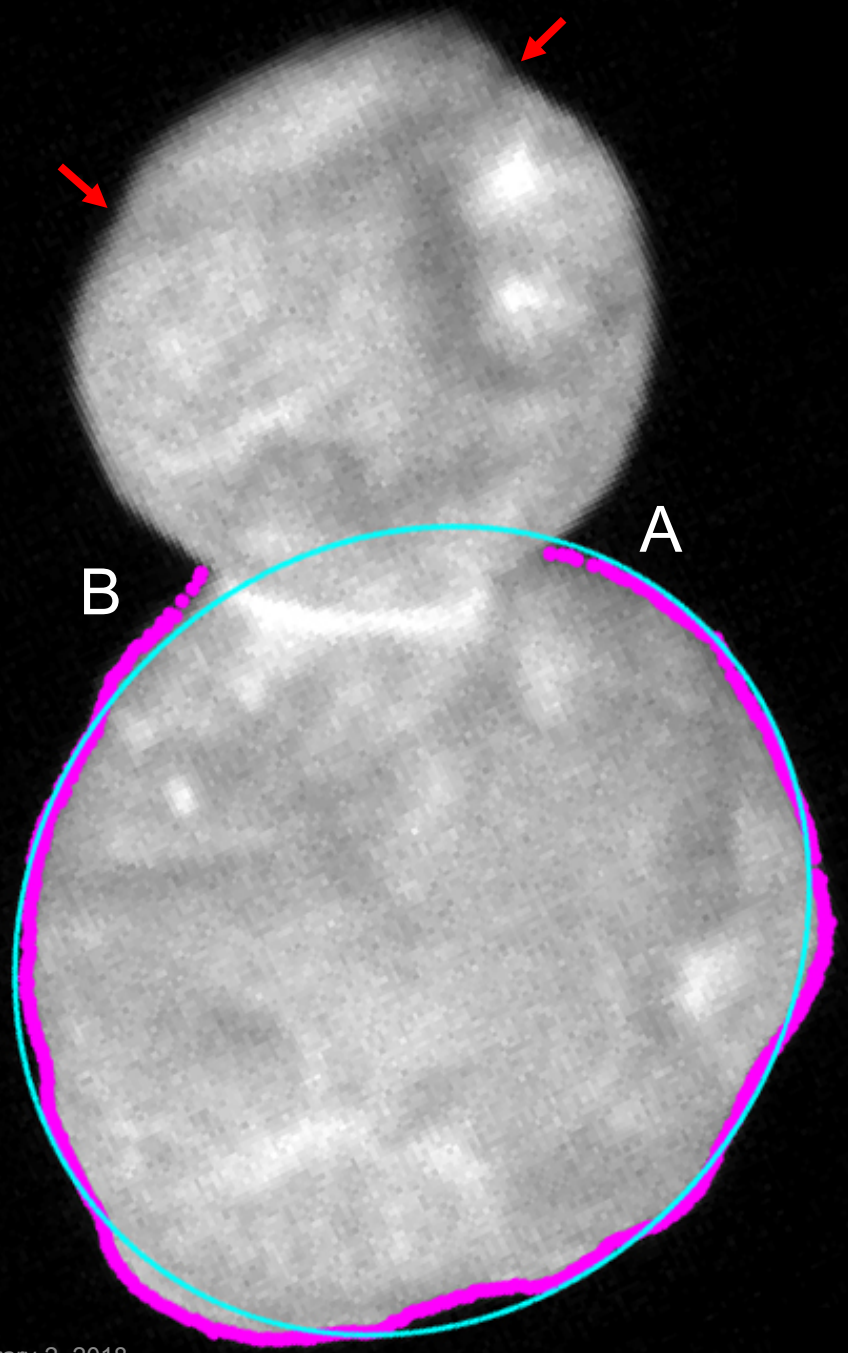


Ultima Thule Morphology

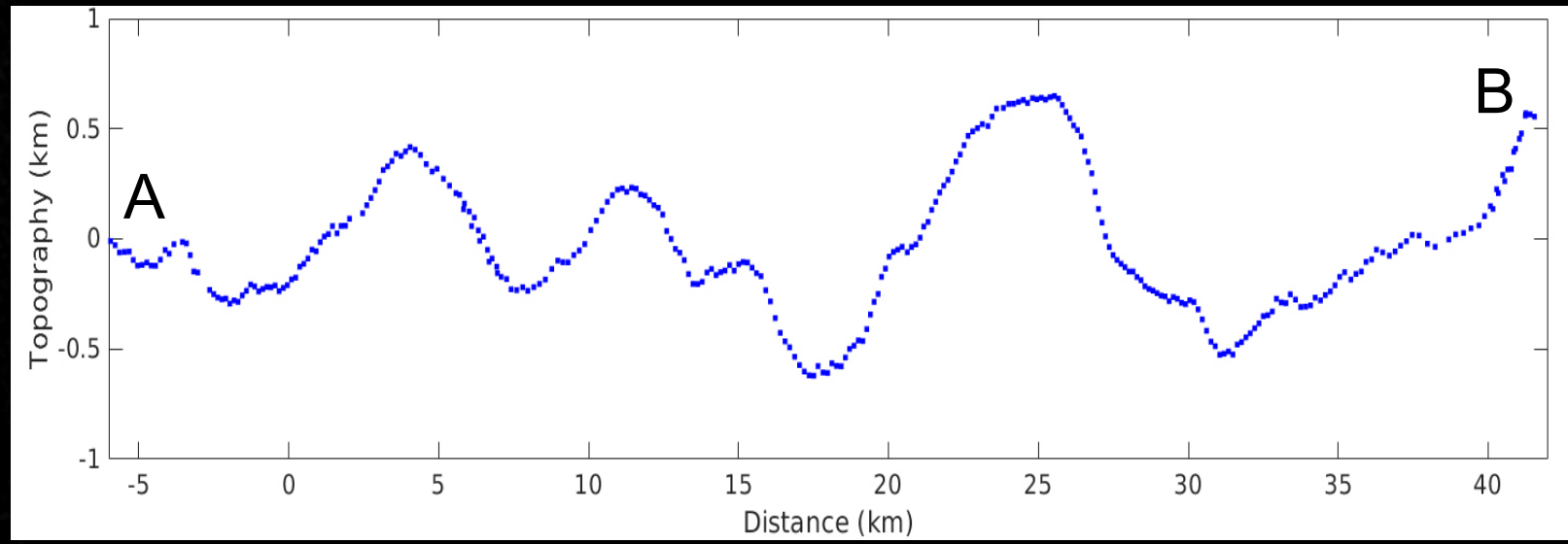
Jeff Moore
New Horizons Geology and Geophysics
Team Lead
NASA Ames Research Center



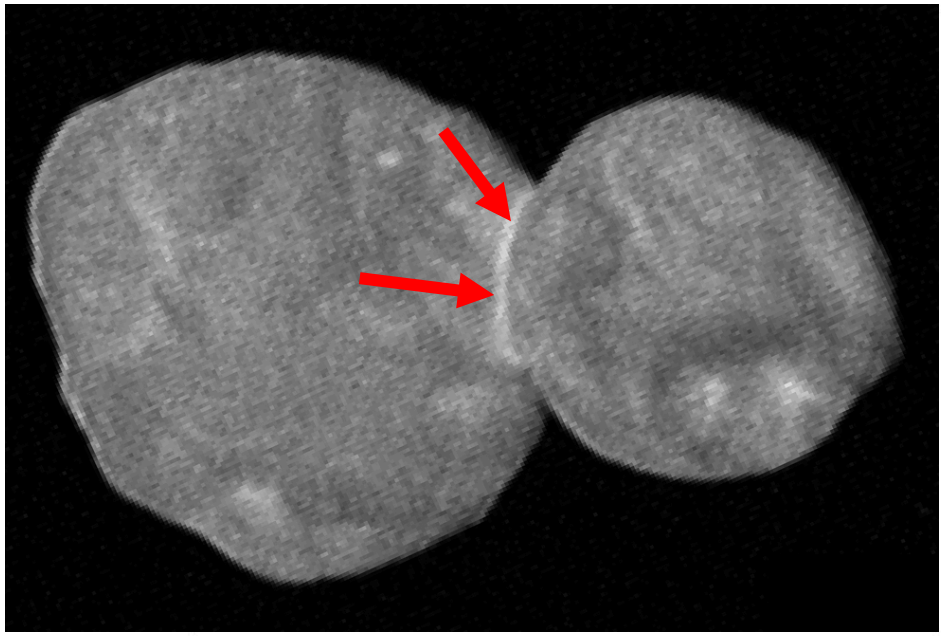
- Mottled appearance
- Brighter (yellow arrows) and darker regions (red arrows)
- Remarkable “neck” (blue arrow)
- No obvious impact craters
- Hills and ridges?



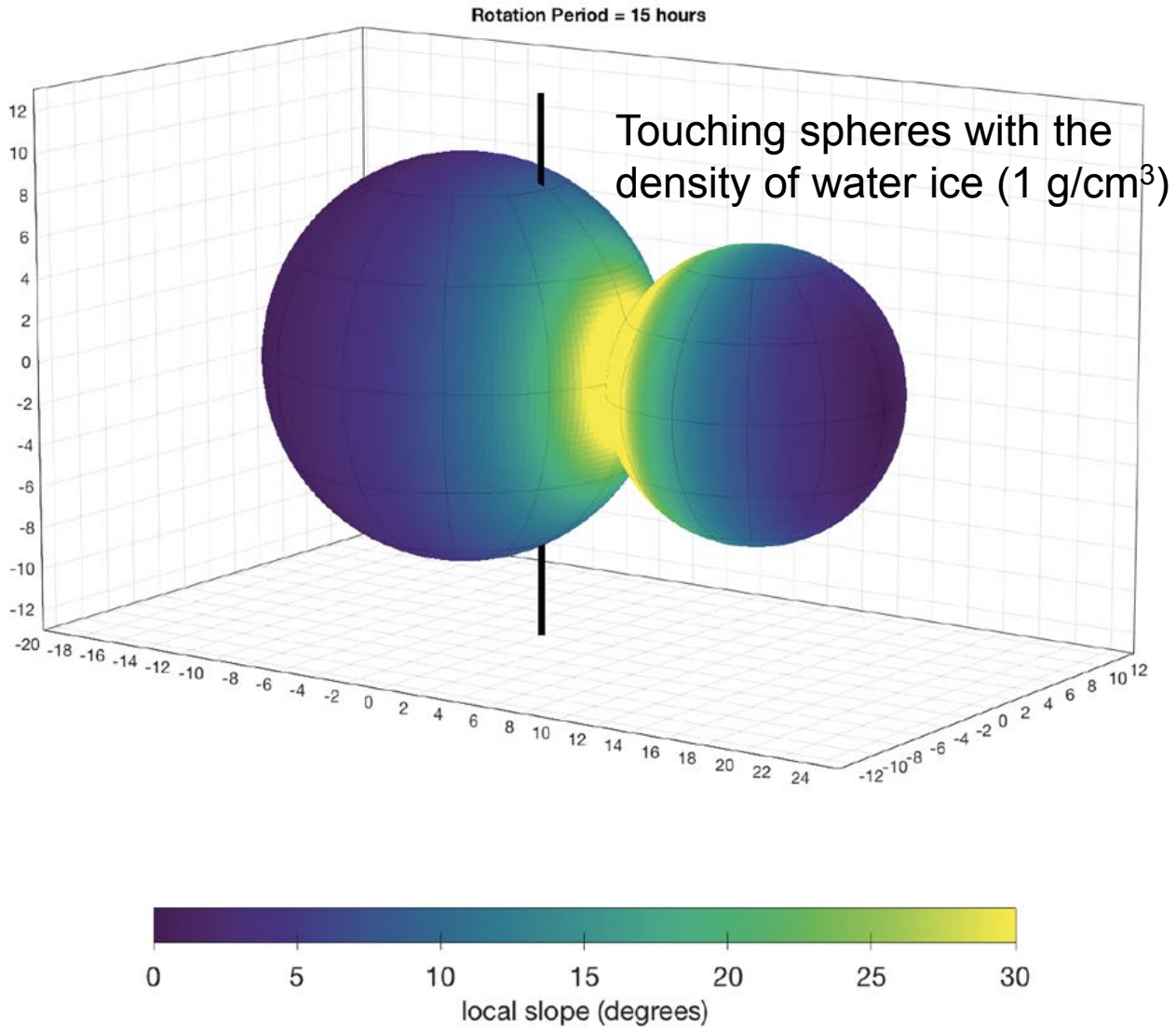
- Ultima limb topography is >1 km.
- Origins of topography are currently unclear (for instance, hills or crater rims).
- Red arrows point to apparent “divots” connected by a dark, elongated marking.



Surface Slopes

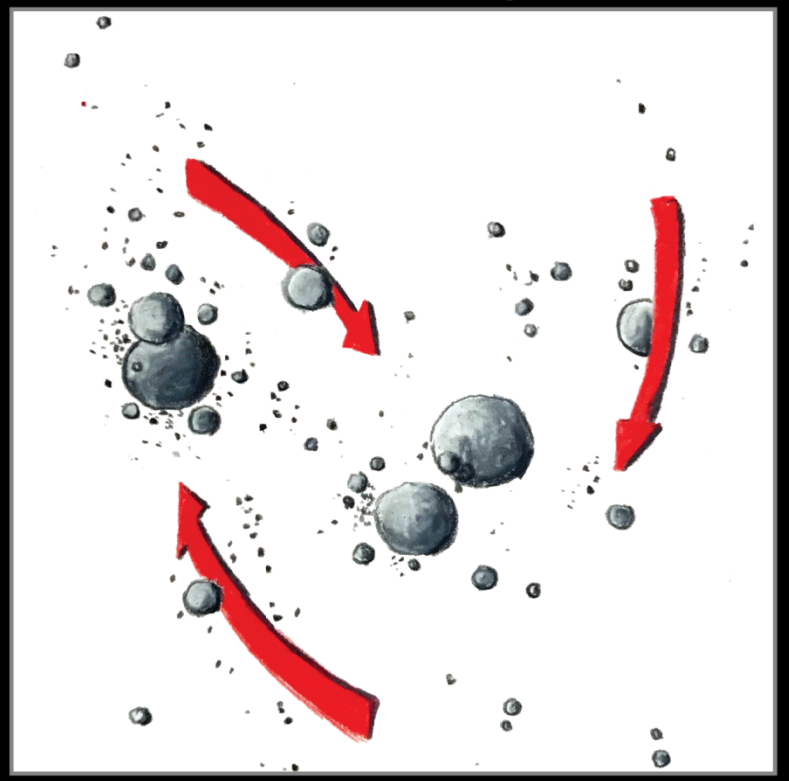


The “neck” corresponds to the steepest slopes.

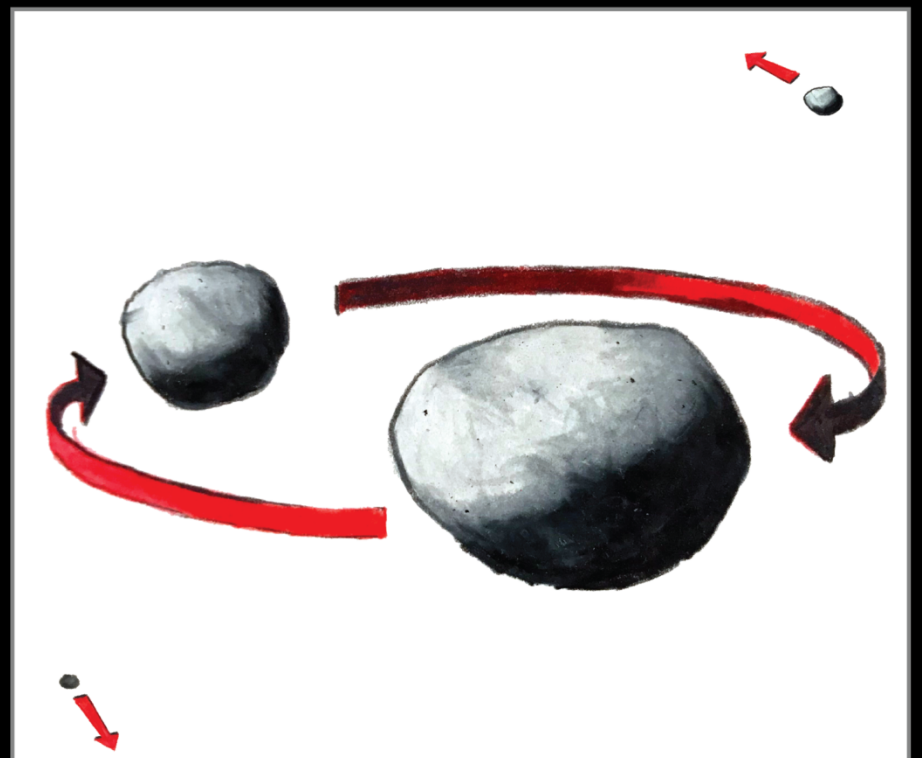


The Formation of Ultima Thule

About 4.5 billion years ago

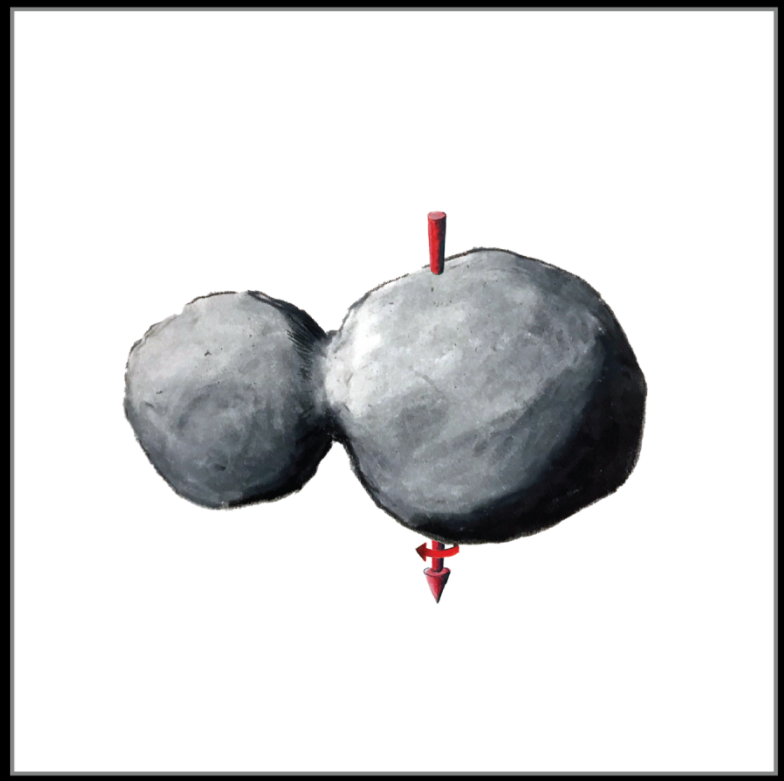


A rotating cloud of small, icy bodies starts to coalesce.



Eventually two larger bodies remain: Ultima and Thule.

1 January 2019



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

NASA / JHUAPL / SwRI / James Tuttle Keane

Think of New Horizons as a time machine that has brought us back to the very beginning of the solar system, to a place where we can observe the most primordial building blocks of the planets.

Closing Remarks

Thomas Zurbuchen
Associate Administrator
Science Mission Directorate
NASA Headquarters