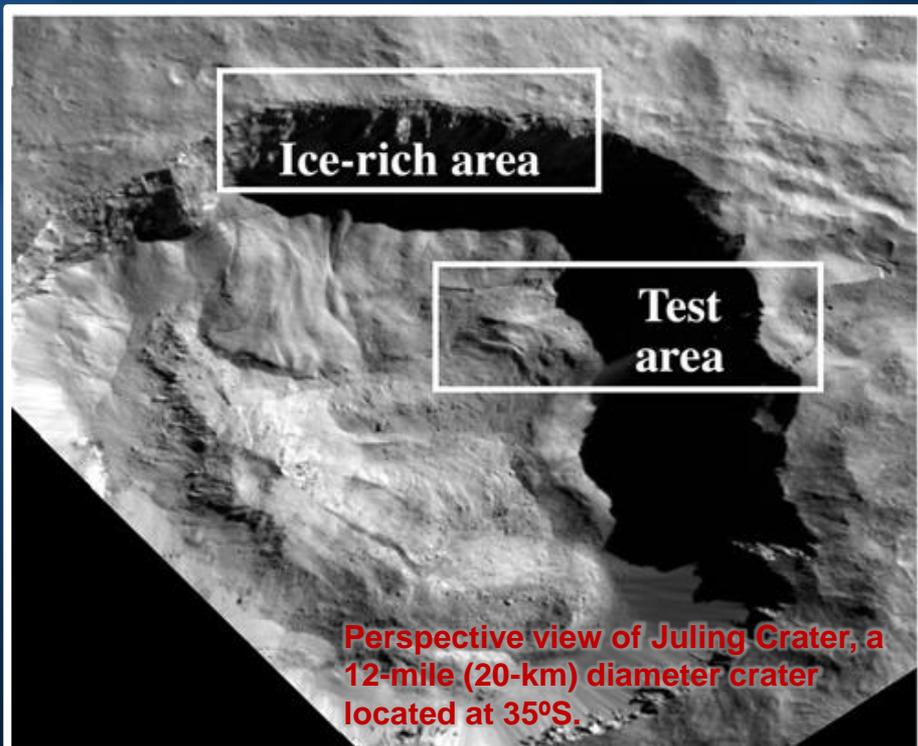


The Changing Ice on Ceres

NASA's Dawn spacecraft has been orbiting Ceres since March 2015, and continuing observations of this dwarf planet have recently detected surface variability for the first time.

- Following on earlier observations of water ice on the surface of Ceres by Dawn, and sporadic water and hydroxyl emissions observed from space telescopes, a new study specifically tracked changes in ice content on the northern wall of Ceres' Juling Crater over a 6-month period in 2016, using the visible and infrared mapping spectrometer. Comparing a test area with out ice signatures to modeled spectra combining the signal from the wall and reflected from the floor of the crater, revealed the abundance of ice increasing from about 9% to 14% over that period.



Perspective view of Juling Crater, a 12-mile (20-km) diameter crater located at 35°S.

- Three possibilities that account for this change are internal processes moving ice to the surface where it freezes, exposure of ice due to rock falls or water vapor produced by ice sublimating from the crater floor and adjacent glacier, adhering to the cold shadowed north wall due to increased solar input. The phenomenon appears to be seasonal, which supports the solar flux hypothesis.
- These observed changes that happened in a short time frame provides additional information about Ceres' formation and uniqueness, helping to better understand the diversity of objects in the solar system.