

Log In



My Schedule



My Favorites



My Contacts

## NAVIGATION

[Home](#)[Section/Focus Group](#)[Events](#)[Co-Sponsored](#)[Cross-Listed](#)[SWIRL Themes](#)[AGU On-Demand](#)[EPoster](#)[Index Terms](#)[Meeting Resources](#)[Meeting Website](#)[Technical Support](#)

Click to add an item to 'My Schedule'.

Click to add/remove an item to 'My Favorites'.

Click to add/remove a person to 'My Contacts'.

Click to access your Schedule

Due to a known issue with Firefox, it is recommended that any printing be done in an alternate browser.

**AGU FALL MEETING**

San Francisco | 14 - 18 December 2015

**P53E-2183: Albedo and Spectral Variability on Ceres from Four Decades of Observations**

ABSTRACT

**Friday, 18 December 2015****13:40 - 18:00***Moscone South - Poster Hall*

Dawn Framing Camera (FC) observations of Ceres established the bright spots inside the Occator and Dantu craters as the likely sources of the intermittent and localized water vapor activity observed by Herschel Space Telescope. Recent ground-based observations of Ceres suggested possible global spectral variability that was attributed to changing amount of water ice on the surface. These observations suggest a possibly changing amount of water ice caused by outgassing on time scales of months to decades. We combined the imaging and spectral data of Ceres collected in the past three decades from ground-based telescopes, Hubble Space Telescope (HST), and Dawn FC during its approach to Ceres to search for global and local variabilities on the surface, and did not find evidence supporting changes in the albedo or spectrum of Ceres. The global albedo of Ceres remains unchanged within 3% of its geometric albedo of 0.09 over the time scale of 10 years. The spectral variability of Ceres recently reported can be mostly explained by changes in the observing geometry. By comparing the spatially resolved images from HST and Dawn FC, if water outgassing causes any variations on the albedo of its sources or changes in size of albedo markings, then such change must be smaller than 15% over 10 years. The stable surface of Ceres under water sublimation activity is consistent with the nearly unchanged albedo and spectral properties of comets, although no liquid water is expected on comets and the sublimation mechanism on comets is completely different from that on Ceres. The bright spots on Ceres thus must be built up over a long period of time. It also possible that the sublimation activity on Ceres either occurs in subsurface, or at size scales of <1 km.

Log In



My Schedule



My Favorites



My Contacts

## NAVIGATION

[Home](#)[Section/Focus Group](#)[Events](#)[Co-Sponsored](#)[Cross-Listed](#)[SWIRL Themes](#)[AGU On-Demand](#)[EPoster](#)[Index Terms](#)[Meeting Resources](#)[Meeting Website](#) [Technical Support](#)

Click to add an item to 'My Schedule'.

Click to add/remove an item to 'My Favorites'.

Click to add/remove a person to 'My Contacts'.

Click to access your Schedule

Due to a known issue with Firefox, it is recommended that any printing be done in an alternate browser.

[Jian Yang Li](#)

*Planetary Science  
Institute Tucson*

[Andreas Nathues](#)

*Max Planck Institute for  
Solar System Research*

[Lucille Le Corre](#)

*Planetary Science  
Institute Tucson*

[Vishnu Reddy](#)

*Organization Not Listed*

[Mark Sykes](#)

*Planetary Science  
Institute Tempe*

[Uri Carsenty](#)

*German Aerospace  
Center DLR Berlin*

[Julie Castillo](#)

*NASA Jet Propulsion  
Laboratory*

[Martin Hoffmann](#)

*Max Planck Institute for  
Solar System Research*

[Ralf Jaumann](#)

*German Aerospace  
Center DLR Berlin*

[Katrin Krohn](#)

*German Aerospace  
Center DLR Berlin*

[Stefano Mottola](#)

*German Aerospace  
Center DLR Berlin*

[Thomas Prettyman](#)

*Planetary Science  
Institute*

[Michael Schäfer](#)


*Max Planck Institute for  
Solar System Research*


[Paul Schenk](#)


*Lunar and Planetary  
Institute*


[Stefan Schroeder](#)

[Log In](#)[My Schedule](#)[My Favorites](#)[My Contacts](#)**NAVIGATION**[Home](#)[Section/Focus Group](#)[Events](#)[Co-Sponsored](#)[Cross-Listed](#)[SWIRL Themes](#)[AGU On-Demand](#)[EPoster](#)[Index Terms](#)[Meeting Resources](#)[Meeting Website !\[\]\(aff7c69c44a5e015f18c35867ef3f5c3\_img.jpg\)](#)[Technical Support](#)

Click  to add an item to 'My Schedule'.

Click  to add/remove an item to 'My Favorites'.

Click  to add/remove a person to 'My Contacts'.

Click  to access your Schedule

Due to a known issue with Firefox, it is recommended that any printing be done in an alternate browser.

**Session:** [Vesta and Ceres as Seen by Dawn and Earth-Based Instruments II Posters](#)

**Section/Focus Group:** [Planetary Sciences](#)

**Day:** [Friday, 18 December 2015](#)

