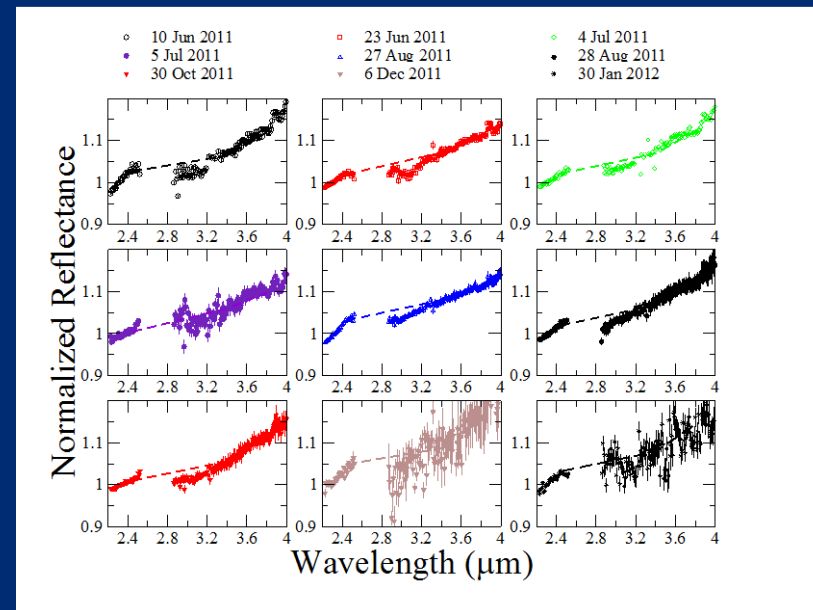


Evidence for volatiles on the surface of 433 Eros and 1036 Ganymed

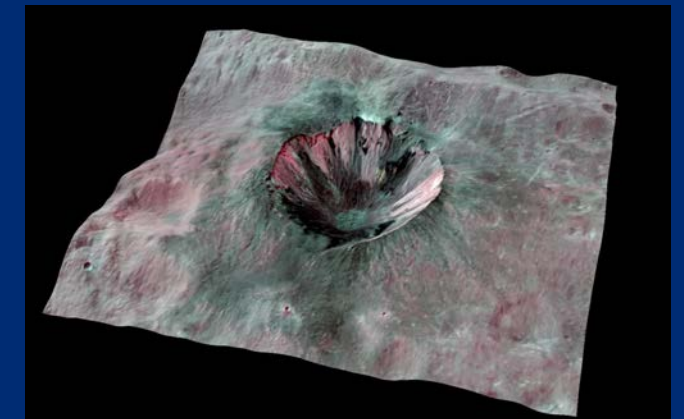


1. Meteorites thought to come from the two largest near-Earth asteroids are water-poor, indicating those asteroids do not contain significant water internally.

2. Measurements from the NASA IRTF of those objects show absorptions at wavelengths associated with H₂O and OH: the points fall below the dashed line. This is likely due to 200-300 parts per million of OH or H₂O on the surface!



3. This water comes from an external source. One possibility is that hydrogen from the solar wind creates water or pieces of water molecules on the asteroid surfaces as on the Moon. Alternately, it could be hydrated dust infall like what we think happens on Vesta.



Cornelia crater on Vesta from Dawn data

We have detected hydrated minerals on the two largest near-Earth asteroids, expected to be anhydrous. They likely are delivered by external sources such as solar wind or dust.