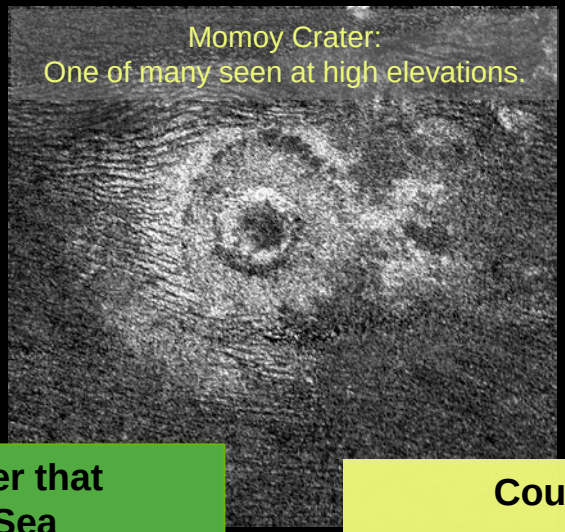
Impacts on Titan: Do They Splash or Thud?

The lack craters on Titan at mid-to-high latitudes has been perplexing. Comets and other solar system debris that impact Saturn's moon Titan may splash into wetlands, leaving only subtle traces in a marine environment, according to findings by Cassini.

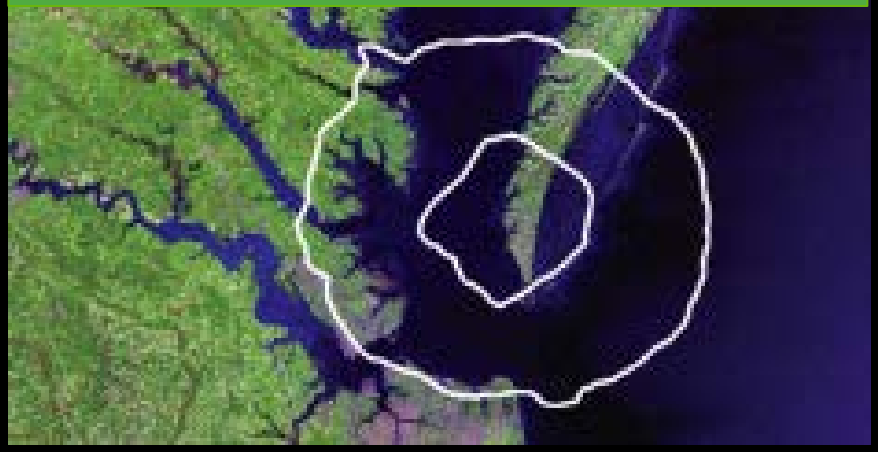


Momoy Crater:
One of many seen at high elevations.

Researchers say it is possible that many impacts could have fallen on extensive wetlands or a global sea that could have existed on Titan in the last few hundred million years. Such wetlands would be fed by an aquifer of liquid methane or ethane.

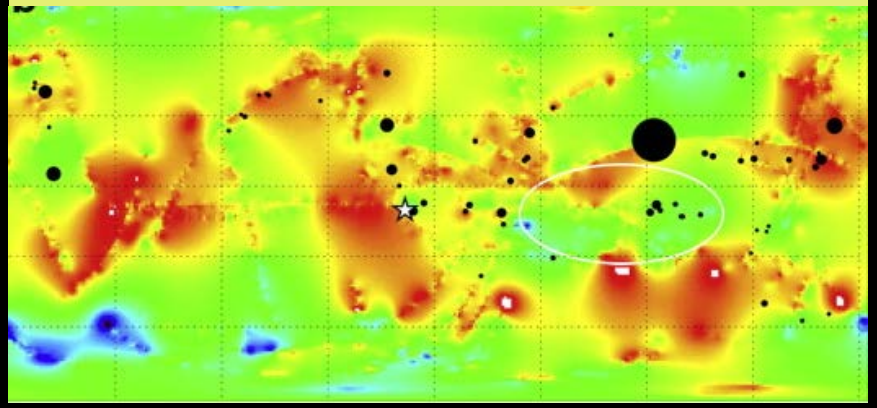
An Example of an Earth Crater that Disappeared in a Shallow Sea

A 35 million-year-impact crater (outlined in white) went undiscovered in Chesapeake Bay until 1994. The hidden 50-mile wide crater hints at how some of Titan's impact craters could have disappeared into a shallow ocean.



Could Impact Craters be Hiding in Wetlands on Titan?

There are fewer craters (black dots) in Titan's lower elevations (regions in green), which may signal the presence of past or present wetlands. Xanadu (inside the white oval) is the only low-lying area with numerous craters. A white star marks the 2005 landing spot of the Huygens Probe.



"Elevation distribution of Titan's craters suggests extensive wetlands," C.D. Neish and R.D. Lorenz,, Icarus, 228, 27-34, 2014.