

## **The Selk Impact Crater as Revealed by Cassini Observations**

**Jason M. Soderblom**

Selk crater is a bright-rimmed, 80-km diameter impact crater located in mid-latitudes of Titan, ~800 km north-northwest of the Huygens landing site. Like other impact structures on Titan, the potential for organic–water interactions within the melt pool of Selk are of great biologic interest, and one of the main reasons that this region has been selected as the destination of NASA’s Dragonfly mission. In this talk I will provide an overview of what is known about the geology and chemistry of the Selk crater region from Cassini observations.

Cassini observations reveal the outer flanks and ejecta blanket of Selk to be dissected by drainages (particularly to the east), likely the result of fluvial erosion. Infrared spectra suggest water-ice rich materials as the termini of these channels, as well as at the margins between the crater rim and the surrounding dune field. A 10–15 km wide terrace zone is identified in the northern and western walls of Selk crater; the terrace zone slightly wider than those observed in Ganymede and Callisto craters and may indicate differences in lithospheric thermal structure or composition. The floor is ~ 60 km in diameter with a 20–30 km diameter central pit or peak (Ganymede and Callisto craters of this size are typically dome craters). A potential relatively high-viscosity, fluidized-ejecta flow (a class intermediate to ejecta blankets and long venusian-style ejecta flows) is observed to extend east-southeast from Selk several hundred kilometers.