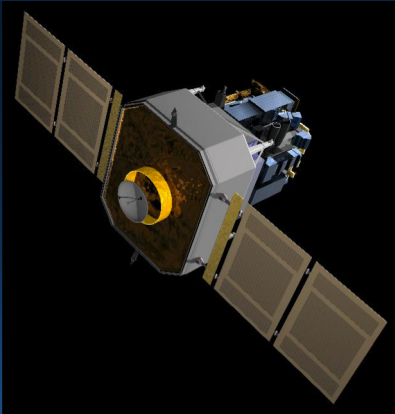
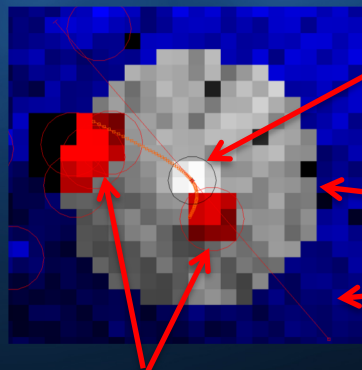


SOHO/SWAN Observations of Comet Water Production



More than two decades of observations by the SWAN instrument on the SOHO satellite has led to evidence of evolution of cometary nuclei in both long- and short- period comets.

- Since launch in December 1995, the Solar Wind Anisotropies (SWAN) instrument on the Solar and Heliospheric Observatory (SOHO) satellite has observed 44 long period and new Oort cloud comets and 36 apparitions of 17 short period comets.
- For short period comets, the active fraction of the comet's surface is correlated with the closest distance to the Sun (perihelion), indicating a decline in activity over time.
- For new and long period comets that come from the Oort cloud, the rate of activity decline is on the average faster for more evolved comets indicating evolution of activity and/or a decrease of ice volatility with time, but slower for dynamically newer comets that have made fewer trips around the Sun.

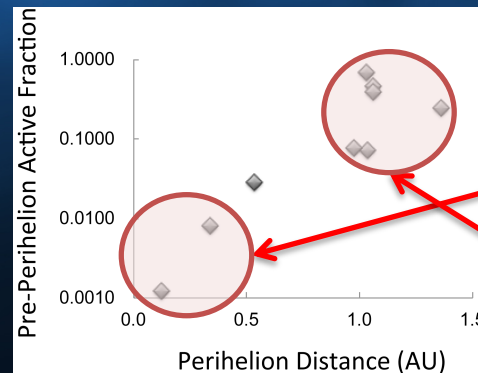


Comet C/2009 P1 (Garradd)
on Nov. 1, 2011

8 degree-radius area analyzed

Sky background (interplanetary
medium hydrogen emission)

Background stars masked in the analysis



Because they have more exposure to the sun, short period comets with smaller perihelion distances have a smaller remaining fraction of active surface...

... than short period comets with larger perihelion distances