

# Long Cometary Plasma Tails

Joe Giacalone, LPL (giacalon@lpl.arizona.edu)

## **Abstract.**

In May of 1996, The Ulysses spacecraft detected the tail of Comet Hyakutake. At that time, the comet was located very near the Sun, while Ulysses was at nearly 4 AU. This is the longest plasma tail ever observed and raises interesting questions about the propagation of ionized cometary nuclei in interplanetary space. Why have't the cometary ions become more diffuse due to scattering in the large-scale magnetic field? Can these observations be used to infer the scattering mean-free path of the cometary ions? To address these questions, we have performed numerical calculations of the trajectories of "pickup" cometary ions in the heliospheric magnetic field. Results and implications will be discussed.