



## COMET MYSTERY BOXES

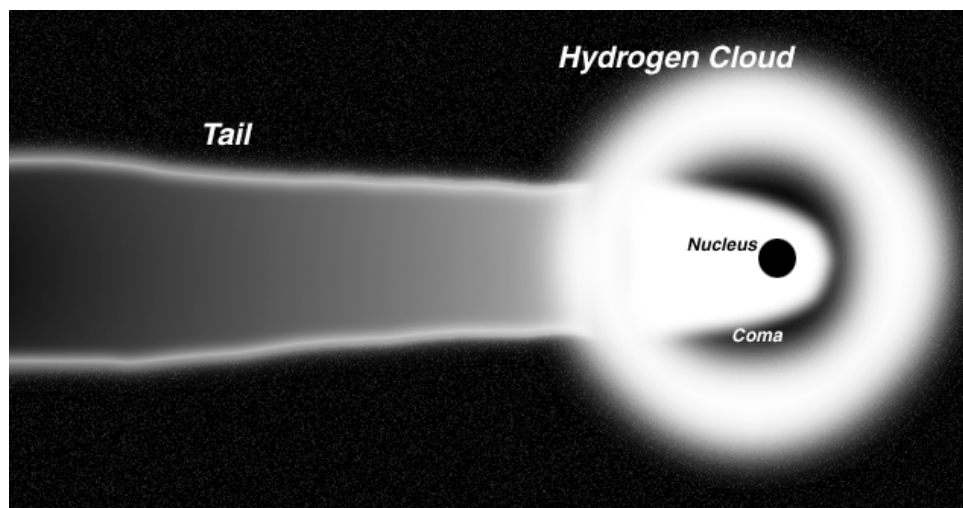


### What is a Comet?

Comets are made of **organic materials, rock and ices**. They usually have orbits that are long and elliptical compared with the rounder orbits of most asteroids and planets. Comets originate at the cold outer edges of the Solar System. When a comet is far away from the Sun (beyond the orbit of Jupiter), its **nucleus** (the solid part of the comet) remains frozen and changes very little. The nucleus is relatively small, only a few (1-20) kilometers in diameter.

As the comet approaches the inner Solar System in its orbit, however, the ices of the nucleus begin to change directly from a solid to a gas. The gases and dust released from the comet form a **coma** around its nucleus, which can grow to become 100,000 kilometers in diameter. The coma usually grows in size and brightness as the comet approaches the Sun.

The Sun's radiation and solar wind shoot materials away from the coma at differing speeds according to the size and mass of the materials. Two **tails** are formed—one of dust and one of gas. A tail may extend millions of kilometers from the nucleus and looks fuzzy from Earth through a telescope. Each time a comet orbits the Sun, it loses some of its ices until eventually they are all gone and the comet becomes just another rocky body in the Solar System.



Images courtesy NASA/JPL



## Be a comet detective!

What part of a comet does mystery box A represent and why?

What part of a comet does mystery box B represent and why?

What part of a comet does the mystery box C represent and why?

What part of a comet does mystery box D represent and why?