History's Greatest Comet Hunter Approaches Major Milestone

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The Solar and Heliospheric Observatory (SOHO) spacecraft is expected to discover its 1,000TH comet this summer.
The SOHO spacecraft is a joint effort between NASA and the European Space Agency. It has accounted for approximately one-half of all comet discoveries with computed orbits in the history of astronomy.

"Before SOHO was launched, only 16 sun grazing comets had been discovered by space observatories. Based on that experience, who could have predicted SOHO would discover more than 60 times that number, and in only nine years," said Dr. Chris St. Cyr. He is senior project scientist for NASA's Living With a Star program at the agency's Goddard Space Flight Center, Greenbelt, Md. "This is truly a remarkable achievement!"

About 85 percent of the comets SOHO discovered belongs to the Kreutz group of sun grazing comets, so named because their orbits take them very close to Earth's star. The Kreutz sun grazers pass within 500,000 miles of the star's visible surface. Mercury, the planet closest to the sun, is about 36 million miles from the solar surface.

SOHO has also been used to discover three other well-populated comet groups: the Meyer, with at least 55 members; Marsden, with at least 21 members; and the Kracht, with 24 members. These groups are named after the astronomers who suggested the comets are related, because they have similar orbits.

Many comet discoveries were made by amateurs using SOHO images on the Internet. SOHO comet hunters come from all over the world. The United States, United Kingdom, China, Japan, Taiwan, Russia, Ukraine, France, Germany, and Lithuania are among the many countries whose citizens have used SOHO to chase comets.

Almost all of SOHO's comets are discovered using images from its Large Angle and Spectrometric Coronagraph (LASCO) instrument. LASCO is used to observe the faint, multimillion-degree outer atmosphere of the sun, called the corona. A disk in the instrument is used to make an artificial eclipse, blocking direct light from the sun, so the much fainter corona can be seen. Sun grazing comets are discovered when they enter LASCO's field of view as they pass close by the star.

"Building coronagraphs like LASCO is still more art than science, because the light we are trying to detect is very faint," said Dr. Joe Gurman, U.S. project scientist for SOHO at Goddard. "Any imperfections in the optics or dust in the instrument will scatter the light, making the images too noisy to be useful. Discovering almost 1,000 comets since SOHO's launch on December 2, 1995 is a testament to the skill of the LASCO team."

SOHO successfully completed its primary mission in April 1998. It has enough fuel to remain on station to keep hunting comets for decades if the LASCO continues to function.

For information about SOHO on the Internet, visit: www.nasa.gov/vision/universe/s … ystem/1000comet.html

Source: NASA