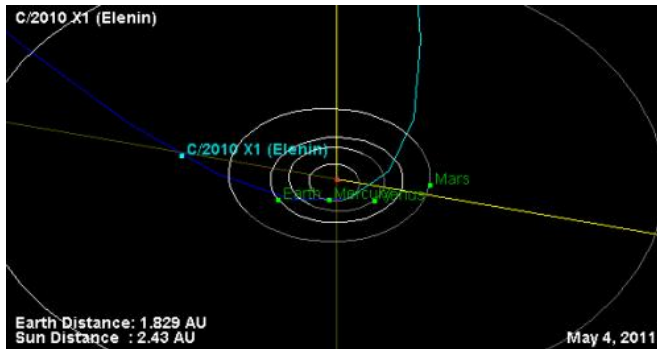


Comet Elenin: Preview of a coming attraction

5 May 2011



Trajectory of comet Elenin. Image credit: NASA/JPL-Caltech

(PhysOrg.com) -- You may have heard the news: Comet Elenin is coming to the inner-solar system this fall. Comet Elenin (also known by its astronomical name C/2010 X1), was first detected on Dec. 10, 2010 by Leonid Elenin, an observer in Lyubertsy, Russia, who made the discovery "remotely" using the ISON-NM observatory near Mayhill, New Mexico. At the time of the discovery, the comet was about 647 million kilometers (401 million miles) from Earth. Over the past four-and-a-half months, the comet has - as comets do - closed the distance to Earth's vicinity as it makes its way closer to perihelion (its closest point to the sun). As of May 4, Elenin's distance is about 274 million kilometers (170 million miles).

"That is what happens with these long-period comets that come in from way outside our planetary system," said Don Yeomans of NASA's Near-Earth Object Program Office at NASA's Jet Propulsion Laboratory in Pasadena, Calif. "They make these long, majestic, speedy arcs through our solar system, and sometimes they put on a great show. But not Elenin. Right now that [comet](#) looks kind of wimpy."

How does a NASA scientist define cometary wimpiness?

"We're talking about how a comet looks as it safely flies past us," said Yeomans. "Some cometary visitors arriving from beyond the planetary region - like Hale-Bopp in 1997 -- have really lit up the night sky where you can see them easily with the naked eye as they safely transit the [inner-solar system](#). But Elenin is trending toward the other end of the spectrum. You'll probably need a good pair of binoculars, clear skies, and a dark, secluded location to see it even on its brightest night."

Comet Elenin should be at its brightest shortly before the time of its closest approach to [Earth](#) on Oct. 16 of this year. At its closest point, it will be 35 million kilometers (22 million miles) from us. Can this icy interloper influence us from where it is, or where it will be in the future? What about this celestial object inspiring some shifting of the tides or even tectonic plates here on Earth? There have been some incorrect Internet speculations that external forces could cause comet Elenin to come closer.

"Comet Elenin will not encounter any dark bodies that could perturb its orbit, nor will it influence us in any way here on Earth," said Yeomans. "It will get no closer to Earth than 35 million kilometers [about 22 million miles]."

"Comet Elenin will not only be far away, it is also on the small side for comets," said Yeomans. "And comets are not the most densely-packed objects out there. They usually have the density of something akin to loosely packed icy dirt."

"So you've got a modest-sized icy dirtball that is getting no closer than 35 million kilometers," said Yeomans. "It will have an immeasurably miniscule influence on our planet. By comparison, my subcompact automobile exerts a greater influence on the ocean's tides than comet Elenin ever will."

Yeomans did have one final thought on comet Elenin.

"This comet may not put on a great show. Just as certainly, it will not cause any disruptions here on Earth. But there is a cause to marvel," said Yeomans. "This intrepid little traveler will offer astronomers a chance to study a relatively young comet that came here from well beyond our solar system's planetary region. After a short while, it will be headed back out again, and we will not see or hear from Elenin for thousands of years. That's pretty cool."

NASA detects, tracks and characterizes asteroids and comets passing relatively close to Earth using both ground- and space-based telescopes. The Near-Earth Object Observations Program, commonly called "Spaceguard," discovers these objects, characterizes a subset of them, and predicts their paths to determine if any could be potentially hazardous to our planet.

Provided by JPL/NASA

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