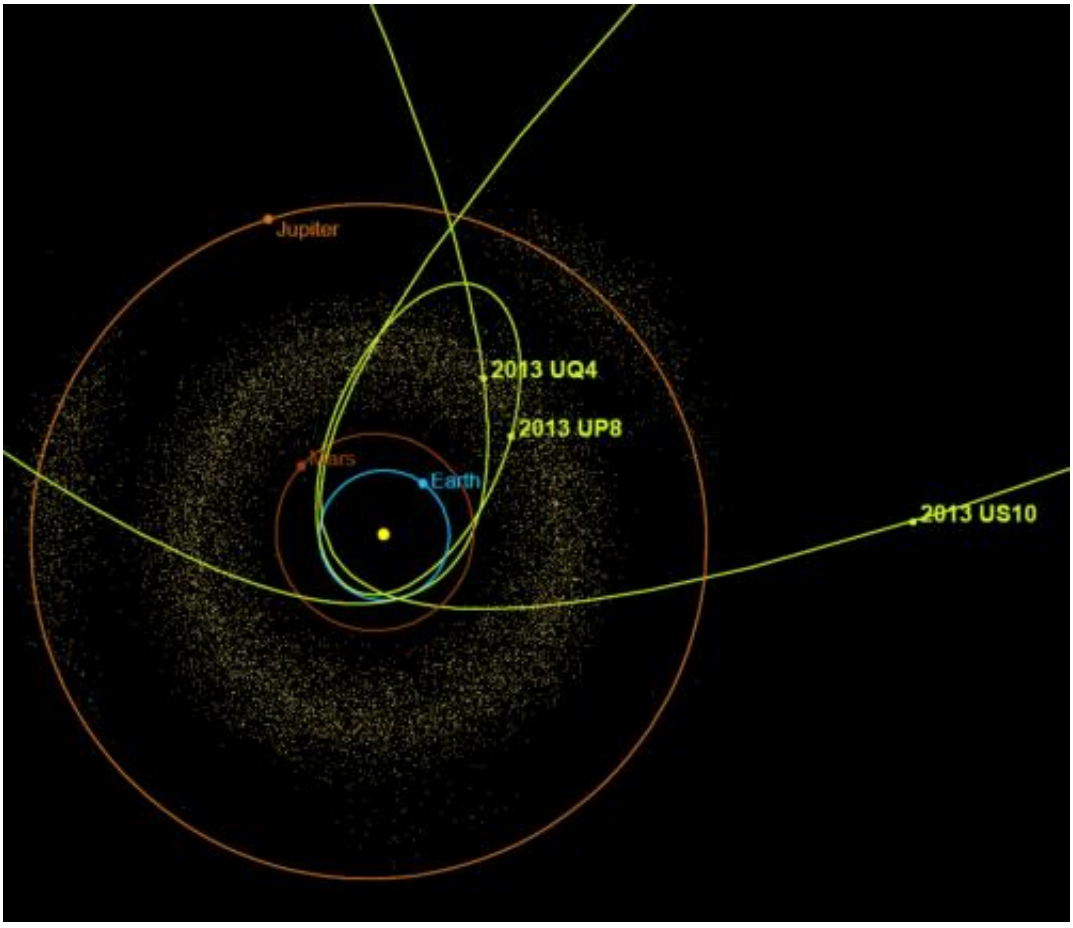
Near-Earth Object 2013 US10 is a long-period comet

November 19 2013



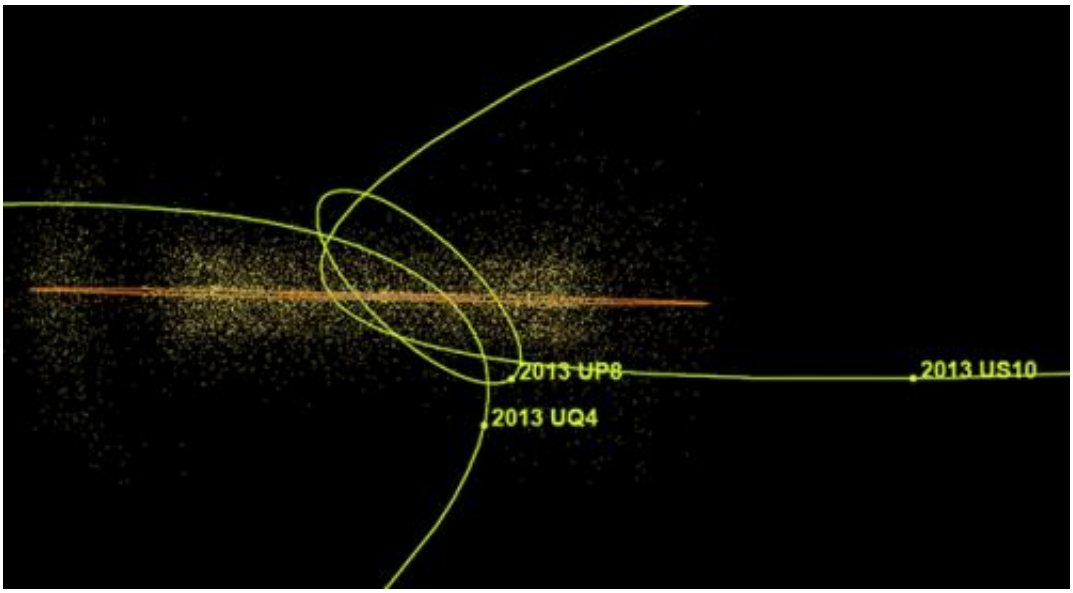
The orbits of 2013 UQ4, 2013 US10 and 2013 UP8 are shown in a view looking down on the plane of the solar system. While 2013 US10 and 2013 UP8 orbit the sun in a counter clockwise direction (so called "direct" orbits like all the planets and most asteroids), 2013 UQ4 orbits in a clockwise (retrograde) direction. The positions of the asteroids and planets are shown for Nov. 5, 2013. The positions of other large asteroids in the belt between the orbits of Mars and Jupiter and the so-called Trojan asteroids that lead and follow Jupiter in its path about the sun

are also shown for that date, but their sizes are not shown to scale so the density of these objects in these areas is greatly exaggerated. The orbital periods for 2013 US10 and 2013 UP8 are 6.2 and 4.1 years respectively. The orbital period for 2013 UQ4 is currently very uncertain, but is likely to be a several hundred years. Credit: NASA/JPL-Caltech

While initial reports from the Minor Planet Center in Cambridge, Mass., categorized object 2013 US10 as a very large near-Earth asteroid, new observations now indicate that it is, in fact, a long-period comet, and it is now designated C/2013 US10 (Catalina).

The comet was discovered by the Catalina Sky Survey near Tucson, Ariz., on Oct. 31, 2013, and linked to earlier pre-discovery Catalina observations made on Sept. 12. The initial orbit suggested this object is a large, short period, near-Earth asteroid, as reported here yesterday. An updated orbit, issued today by the Minor Planet Center, removed the September 12 observations that belong to another object and include earlier pre-discovery August and September observations made by the Catalina Sky Survey, the ISON-HD observatory in Russia and Hawaii's Pan-STARRS group.

The new orbit indicates that this object is in a long-period, near parabolic orbit about the sun. Furthermore, observations made last night at the Canada-France-Hawaii telescope indicate the object is showing modest cometary activity, which means that yesterday's rough estimate for the object's size (about 12 miles, or 20 kilometers) must now be completely revised. A new size estimate is not yet available, but the object could very well be much smaller than yesterday's estimate.



The orbits of 2013 UQ4, 2013 US10 and 2013 UP8 are shown as viewed from within the plane of the solar system (ecliptic plane), which makes clear their highly inclined orbits relative to Earth's orbit. Credit: NASA/JPL-Caltech

Provided by JPL/NASA

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