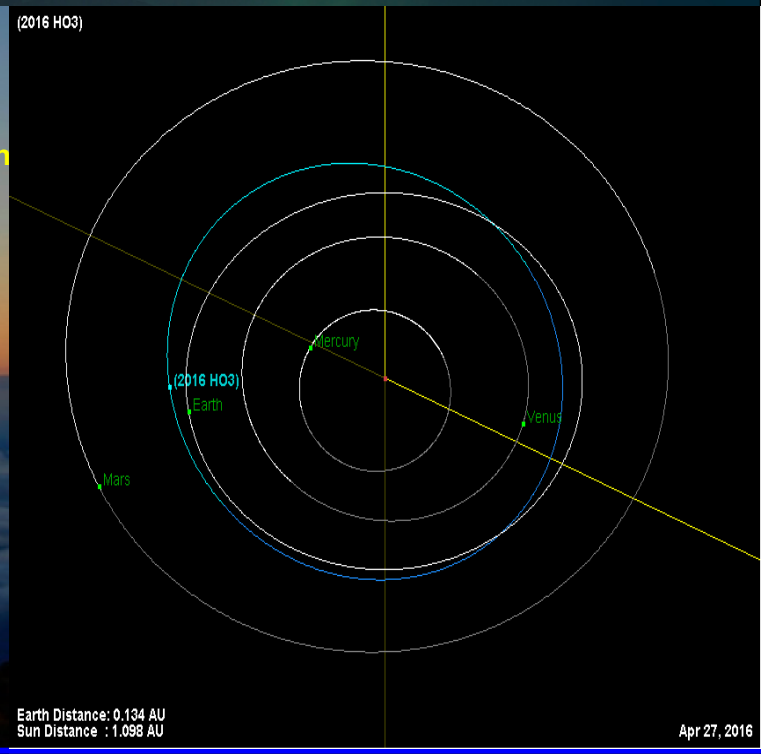
2016 HO_3: A Quasi-moon for Earth

On 27 April 2016, the Pan-STARRS 1 survey telescope on Haleakalā, detected a "quasi-moon" of the Earth. This companion, designated 2016 HO_3, is probably a small asteroid between 40 to 100 meters in size.

While looking from the Earth, it appears to orbit the planet, it actually is in a co-orbit with Earth about the Sun.

The Panoramic Survey Telescope & Rapid Response System (Pan-STARRS 1) on Maui.



Plot of the librating orbit of 2016 HO_3 over 60 years (1960-2020) relative to the Earth, presented in a rotating frame centered on the Earth and projected onto the ecliptic plane. From this perspective, this near-Earth asteroid appears to orbit the Earth; however, it actually orbits the Sun on a path very close to the Earth's. 2016 HO_3 never approaches closer than 14 million km nor ventures further than 40 million km away. It takes the Earth 365.24 days to orbit the Sun. 2016 HO_3 makes one circuit in 365.93 days (just 16-½ hours longer than Earth). In terms of Δv [the energy required to launch and rendevous a spacecraft], 2016 HO_3 might make an interesting target to visit, as it is accessible every year at less than 7 km/sec despite a 7.7° inclination with respect to the ecliptic.