

## Huge double asteroid will pass safely May 25

Professional and amateur astronomers are gearing up to observe asteroid 1999 KW4 – oddly shaped, about a mile wide, with a companion moon – around its closest approach on May 25, 2019.

The large double asteroid is now approaching Earth's vicinity and will pass by Earth safely on May 25, 2019. Closest approach is at 23:05 UTC on May 25. Asteroid 1999 KW4 consists of a primary space rock just under a mile wide (about 1.5 km), with a 0.3-mile (0.5-km) companion asteroid – an asteroid moon – orbiting the main asteroid. The asteroid and its moon will provide a good opportunity for both professional and amateur astronomers to observe the huge space rock.

Amateur astronomers will be able to observe it for a few days around May 25.

1999 KW4 is an Aten type – or Earth-crossing – space rock. Its orbit brings it between the orbits of Venus and Earth. It completes an orbit around the Sun once every 6.18 months (188 days). During the approach of May 25, 2019, the asteroid will pass at the very safe distance of 5,182,015 km from Earth, or about 13.5 times the Earth-moon distance.

Professional astronomers plan to have a look at this asteroid, too. Radar observations of asteroid 1999 KW4 are scheduled from Arecibo Observatory in Puerto Rico from May 29 to June 7.

Astronomers will also study asteroid 1999 KW4 using NASA's Goldstone Solar System Radar, located in the desert near Barstow, California, from May 26 to 31.

An interesting facet of asteroid 1999 KW4 is its shape. It has an oblate shape with an equatorial ridge, similar to asteroids Bennu and Ryugu. Observations suggest the secondary asteroid, or asteroid moon, of 1999 KW4 orbits the main space rock every 16 hours at a distance of about 2.6 km.

1999 KW4 was discovered by the Lincoln Near-Earth Asteroid Research (LINEAR) astronomical survey in Socorro, New Mexico, in 1999. It has been classified as a Near-Earth object and a potentially hazardous object by the Minor Planet Centre. However, the orbit of this huge space rock is well understood and known to pose no risk to Earth. During the closest of its approaches to Earth, its orbit brings it no closer than five Earth-moon distances.

The next encounter with Earth, which will be even closer, occurs on May 25, 2036.

An interesting fact: After asteroid 1999 KW4 passes by Earth on May 25, 2019, no known asteroid as big or larger than this space rock will approach our planet this close until year 2027. On June 6, 2027, asteroid 4953 (1990 MU), a 4 km to 9 km space rock will safely pass by Earth at 12 lunar distances, and will return on 2058 at nine lunar distances.

### OBSERVING ASTEROID 1999 KW4 WITH AMATEUR TELESCOPES:

1999 KW4 is travelling at 77,446 km/h relative to Earth. Its fast speed, combined with the size of this asteroid, will allow amateur astronomers to observe it as it moves in front of the stars! The space rock will not be visible to the eye alone, but sky enthusiasts equipped with 8in diameter and bigger telescopes might be able to see this asteroid, which might reach a visual magnitude of around 12 during closest approach. Best seen from Southern Latitudes.

One of the best techniques for locating an asteroid is to point a computerized telescope to a star known to be in the space rock's path, and wait for the asteroid to appear. It will look like a very slow moving "star." At first, it may be a little tricky to detect since its motion appears very slow. If you are pointing at the correct time and location of the sky, take a good look at the visual field of the telescope.

Or better yet, draw a sketch of the positions of the brightest stars and a few other stars you see at the eyepiece. Then compare the positions just 10 minutes later, and yes, you will find the asteroid!

During closest approach (May 25), the asteroid will be located in the direction of Puppis, a constellation in the southern sky.

