

ASTEROID 2013 TX68 UNCERTAINTIES

Asteroid 2013 TX68 passes closest in early March. Astronomers have continued to be able to refine the orbit and know it will pass safely, but its precise distance at its closest still is unknown.

The space rock may be difficult to observe even with telescopes, especially if the asteroid passes at a great distance.

Marco Micheli of the European Space Agency's NEO Coordination Centre (NEOCC/SpaceDys) in Frascati, Italy, realized that this object – which was observed only briefly in 2013 before going into a region of the sky lit by the sun's glare – was visible on some images a few days before it was officially detected on October 6, 2013. The new images let scientists roughly refine its trajectory, but just a bit. It has been determined that the space rock's closest possible approach to Earth in early March is farther than earlier thought.

The most recent estimate indicates the asteroid may pass at a nominal or most probable distance of 4,996,355 km. However, the space rock may still pass as close as 30,000 km or as far as 17,256,980 km. Astronomers at NASA's Jet Propulsion Laboratory say the variation in possible nearest distances for this asteroid is due to the wide range of possible trajectories for this object, which was tracked for only a short time after its discovery in 2013.

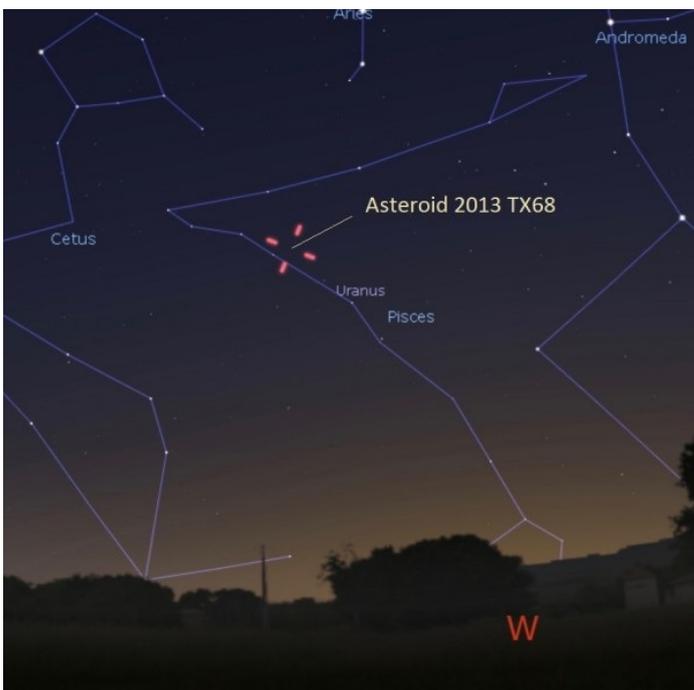
Asteroid 2013 TX68 may pass by Earth around the evening of March 7 (according to clocks in the Eastern Time zone), but the time uncertainty is still 2 days. That means the space rock may be passing by our planet sometime between the evenings of March 5 and 9. The asteroid is travelling at a speed of 55,166 km/h.

If the new trajectory estimate is correct, there is no longer even a remote risk of impact in September 2017, as earlier estimates had indicated.

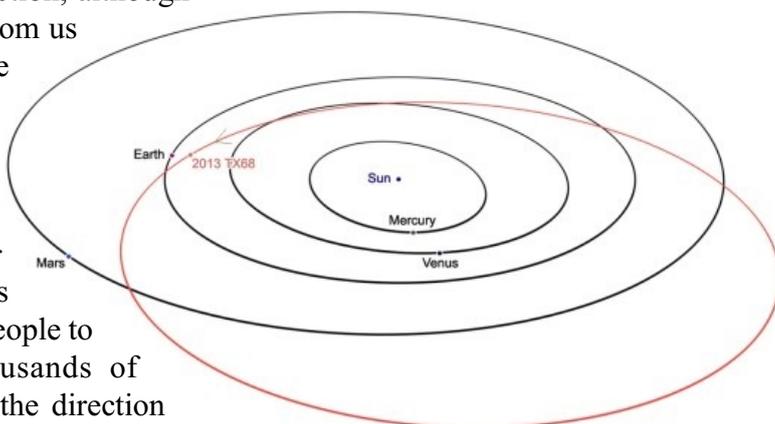
Indeed, the next approach of asteroid 2013 TX68 will be on September 18, 2056. However, the next closest approach dates predictions can change again, as soon as the asteroid is re-observed and its orbit is better understood and precisely defined.

Why is there so much uncertainty about this object?

It's the scenario that astronomers have always cautioned us about ... the fact that asteroid 2013 TX68 is approaching Earth from the sun's direction. In late February, the space rock was still approaching Earth from this direction, although the asteroid was actually at a greater distance from us than our star. In other words, it has been in the daytime sky, and astronomers can't observe it. Preliminary estimates of the size of asteroid 2013 TX68 suggest the space rock has a diameter of 30 metres, which is about twice the size of the Chelyabinsk meteor that entered over Russian skies in February 2013. It broke windows in six Russian cities – caused more than 1,500 people to seek medical care, and did damage to thousands of buildings. The small arrow on the red line is the direction from the Sun of the space rock.



Expected position in the sky of asteroid 2013 TX68 as of March 1, 2016, about 30 minutes after sunset



AK from EarthSkyNotes.