

# space situational awareness

## → NEAR-EARTH OBJECTS

### Close approach fact sheet for asteroid 2012 TC4

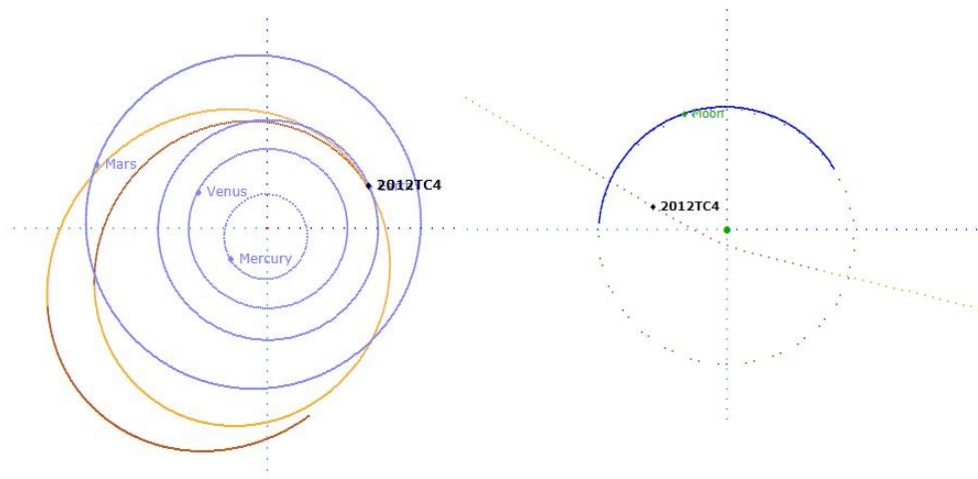
A small size asteroid will approach the Earth on 12 October 2017. The expected minimum distance is just above the geostationary ring, thus being a good target for radar observations.

Fly-by date	2017-10-12
Closest approach time	~05:41 UTC
Minimum distance from Earth surface	~43 780 km, 0.114 Lunar Distances 0.000 293 au ( $\pm 10$ km)
Fly-by speed	7.26 km/s
Size range	13-30 m

### Orbit information

The fly-by causes a significant change in the orbit elements.

Date before and after fly-by	Orbital period years (days)	Aphelion Distance au	Perihelion distance au	Eccentricity	Inclination deg	Rotation Period hours
2017-09-12	1.67 (609)	1.878	0.934	0.336	0.857	0.204
2017-11-12	2.06 (753)	2.275	0.965	0.404	0.536	



### Mitigation info

No mitigation actions needed for this object.

Discovery date	Time to closest approach	Impact Probability	Composition
2012-10-04	6 days	0	Not known

## Observational information

An international campaign devoted to 2012 TC<sub>4</sub> has been organised. Our team together with ESO was the first one to re-observe it at the end of July.

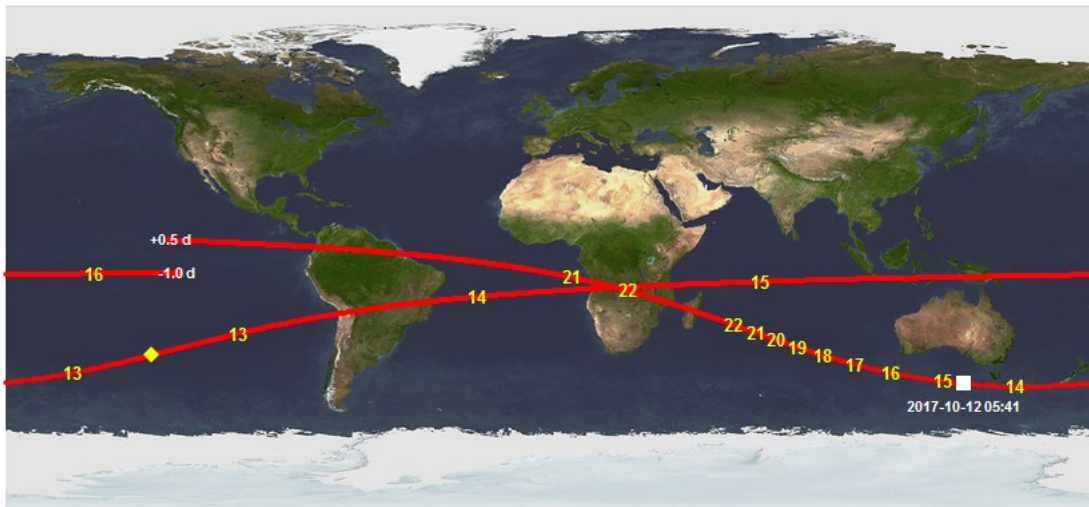
Discovery site	Peak brightness	Observability	Visibility
Pan-STARRS 1, Haleakala	~12.7	Observable only with large amateur-level telescopes	Only before close approach. Best visibility at peak brightness from the South Pacific Ocean

## Other information

Encounter peculiarities	Previous encounter	Next encounter
Very close encounter	2012-10-12	2050-10-19 ( $\pm 1$ day)

## Asteroid ground track

The asteroid ground track is provided below starting one day before the closest approach and extending for 1.5 days. The curve represents the movement of the sub-asteroid point over the Earth along the mentioned time interval. The track starts in the Pacific ocean at magnitude 16 and progresses westwards. It passes through its maximum brightness in the Southern Pacific almost 360° from the start (yellow diamond), reaches the minimum distance South of Australia (white square) with a magnitude slightly brighter than 15 and then starts to get farther and fainter as it moves over the South of Africa, the equatorial Atlantic and passes over the northern part of South America. Minimum distance and maximum brightness do not coincide in time and location due to the varying illumination of the asteroid.



## Links

NEO information:

<http://neo.ssa.esa.int/search-for-asteroids?sum=1&des=2012TC4>

Orbit visualizer:

<https://goo.gl/dymDeg>

Close approaches page:

<http://neo.ssa.esa.int/close-approaches>

The 2012 TC<sub>4</sub> Observing Campaign:

<http://2012tc4.astro.umd.edu/>

[neo.ssa.esa.int](http://neo.ssa.esa.int)

For further information please send an email to [neocc@ssa.esa.int](mailto:neocc@ssa.esa.int)

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