

## space situational awareness

### → NEAR-EARTH OBJECTS

#### Current NEO statistics

As expected, the month of August marked the crossing of the threshold of 1000 new NEOs discovered in 2018.

- Known NEOs: 18 565 asteroids and 107 comets
- NEOs in risk list\*: 764
- Number of NEOs designated during last month: 144
- NEOs discovered since 1 January 2018: 1110

#### Focus on

The Fly-Eye Telescope is an innovative project of ESA's SSA-NEO Segment that will focus on survey and follow-up of NEOs. Another important milestone on the way to build the telescope was achieved: from 30 July to 1 August ESA attended the acceptance test of the equatorial mount at its production site in Verona, Italy. The telescope mount will have to hold the 1.15 m mirror that shall help to detect asteroids with an unprecedented field-of-view of 45 square degrees. The light flowing into this huge field-of-view will be reflected into 16 cameras, just like the eye of a fly has many facets. The total mass of the equatorial mount is approximately 19 tonnes and it can point to any direction in the sky in less than 25 seconds.

#### Upcoming interesting close approaches

A large asteroid is having a distant fly-by in September.

- 2015 FP118 is a large asteroid, about half kilometre in diameter, which will pass at slightly less than 5 million kilometres from the Earth on 3 September.

#### Recent interesting close approaches

A bright fly-by of a new object happened in August.

- 2018 PD20 is a newly discovered asteroid, with a diameter of about 15 metres, which flew-by the Earth on 10 August at less than 30 000 km from the surface. It became brighter than magnitude 12 at close approach.

#### News from the risk list

The risk assessment for three high-ranked objects of the last month has been updated thanks to new observations.

- The cumulative impact probability for 2018 MC7 rose significantly after new observations collected during the month of August. It is now at approximately 1/300. New observations with large-aperture telescopes over the next couple of months should improve the assessment of the risk.
- The probabilities for 2018 NL and 2018 NJ, on the other hand, both dropped with new observations, and they are now at less than 1/5000 and 1/1500 respectively.

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\* The risk list of all known objects with a non-zero (although usually very low) impact probability can be found at <http://neo.ssa.esa.int/risk-page>

## In other news

- ESA's proposed Hera mission received funding for an additional study phase in preparation for a final decision to be taken at the next Ministerial Council in 2019. More details can be found at [http://www.esa.int/Our\\_Activities/Space\\_Engineering\\_Technology/Hera/Germany\\_s\\_OHB\\_to\\_bring\\_ESA\\_s\\_Hera\\_asteroid\\_mission\\_to\\_next\\_level](http://www.esa.int/Our_Activities/Space_Engineering_Technology/Hera/Germany_s_OHB_to_bring_ESA_s_Hera_asteroid_mission_to_next_level)

## Upcoming events

Relevant international meetings over the next months.

- Asteroids and comets—inside out workshop, 4–6 September 2018, Tampere, Finland  
<http://www.tut.fi/en/asteroids-and-comets-inside-out-workshop/>
- European Planetary Science Congress, 16–21 September 2018, Berlin, Germany  
<http://www.epsc2018.eu/>
- AAS Division for Planetary Sciences Meeting, 21–26 October 2018, Knoxville, USA  
<https://aas.org/meetings/dps50>

## List of past closest approaches with Venus

List of the ten closest approaches of known NEAs to the planet Venus since 1950.

Object name	Close approach date	Miss distance in au	Miss distance in km	Size range in m	H magnitude
2005 YR3	2012-12-21	0.00171	256 000	110 – 600	23.4
2001 TA2	1978-02-07	0.00255	382 000	220 – 1100	21.9
2010 HX107	1972-03-26	0.00288	431 000	64	23.5
(363599) 2004 FG11	1974-03-27	0.00321	480 000	150	21.0
2008 GL20	1989-04-18	0.00370	553 000	25 – 130	26.6
(511684) 2015 BN509	1977-10-30	0.00416	622 000	400 – 1800	20.9
2016 TZ19	1976-06-01	0.00443	662 000	130 – 600	23.1
2011 WS74	2017-12-13	0.00472	706 000	90 – 400	23.9
2018 PZ21	1988-10-15	0.00482	721 000	24 – 120	26.7
(194268) 2001 UY4	1970-03-10	0.00510	764 000	1244	18.3

## Links for more information

Website: <http://neo.ssa.esa.int>

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

Risk List: <http://neo.ssa.esa.int/risk-page>



Equatorial mount of ESA's Fly-Eye telescope under testing in Verona, Italy.

[Credit: OHB / ESA]

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