

ESA'S NEO Coordination Centre

Current NEO statistics

A new near-Earth comet, P/2019 M2, has been discovered by the ATLAS team. It is the first discovery of a new object in this class since late 2017.

- Known NEOs: 20 502 asteroids and 108 comets
- NEOs in risk list*: 865
- Number of NEOs designated during last month: 179
- NEOs discovered since 1 January 2019: 1215

Focus on

Asteroid 2006 QV89, an object that had a small chance of impact in September 2019, was the target of a dedicated observation performed by our team, in collaboration with ESO, using ESO's Very Large Telescope (VLT). Since the current position of the asteroid is poorly known, it could not be directly reobserved. Therefore, we targeted the specific area of the sky where it would have been, had it been in a possible collision course for September. The object was not visible in the area, thus allowing us to rule out a possible collision this year. The corresponding impact chance has been removed from our risk list, and 2006 QV89 is now present in it only due to some remaining low-probability impacts in future years.

Upcoming interesting close approaches

A large object with a well-established orbit will have a distant fly-by this month.

- 2006 QQ23, a 400-metre object, will have a distant fly-by at 20 lunar distances.

Recent interesting close approaches

A moderately large newly discovered object had a close fly-by in July.

- 2019 OK, discovered by the SONEAR Observatory in Brazil on 24 July, flew-by the following day at 0.19 lunar distances, and reached magnitude 9.5. The Arecibo radar detected it after fly-by. Its diameter is estimated between 60 and 120 metres.

News from the risk list

A new object appeared near top of the list, but quickly became unobservable. Another one was removed thanks to a detailed analysis published in the A&A journal.

- 2019 ND7, newly discovered by Pan-STARRS1, entered the top-10 of our risk list in July. It was quickly heading towards solar conjunction and becoming unobservable. Archival data by the ZTF and NEOWISE surveys, together with a challenging follow-up observation by the Magdalena Ridge observatory, were sufficient to reduce the impact threat down to a Palermo Scale value of -4 . This improved the orbit to a level that should make it recoverable later this year.
- (410777) 2009 FD, a well-known object with possible impacts in the 22nd century, has undergone a significant revision of its risk assessment: further observations obtained during 2019 allowed a better orbit determination and estimate of the Yarkovsky effect. This led to the exclusion of all but one of the possible impact dates in the next century.

* 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

- 2019 LF6, an asteroid discovered in June by the Zwicky Transient Facility, now holds the record of the shortest orbital period among the known asteroids. It takes only 5 months to complete a full revolution around the Sun.
- On 10 July JAXA's Hayabusa2 spacecraft executed its second touchdown and sampling collection from the surface of (162173) Ryugu. The sample was collected from inside the area exposed by the Small Carry-on Impactor (SCI) shot to the asteroid last April.

Upcoming events

Relevant international meetings over the next months.

- AIDA International Workshop, 11–13 September 2019, Rome, Italy
<https://www.cosmos.esa.int/web/aida-international-workshop/home>
- EPSC-DPS Joint Meeting 2019, 15–20 September 2019, Geneva, Switzerland
<https://www.epsc-dps2019.eu/home.html>

List of Atira asteroids

There are twenty known Atira-class asteroids. This table lists the ones discovered during the last decade.

Object name	Discovery date	Aphelion in au	Perihelion in au	Orbital period in days	Size range in m	H	Discovery site
2019 LF6	2019-06-10	0.794	0.317	151.1	1000–2200	17.2	Palomar Mountain-ZTF
2019 AQ3	2019-01-04	0.774	0.404	165.0	900–2000	17.4	Palomar Mountain-ZTF
2018 JB3	2018-05-13	0.882	0.485	206.3	800–1700	17.7	Catalina Sky Survey
2017 YH	2017-12-16	0.941	0.482	184.6	600–1400	18.2	ATLAS-MLO, Mauna Loa
2017 XA1	2017-12-05	0.973	0.646	266.1	140–300	21.4	Pan-STARRS 1, Haleakala
2015 ME131	2015-06-23	0.971	0.640	264.1	300–700	19.7	Pan-STARRS 1, Haleakala
2015 DR125	2015-02-18	0.981	0.352	198.7	230–500	20.3	Pan-STARRS 1, Haleakala
2014 F047	2014-03-30	0.956	0.548	238.2	220–500	20.4	Mt. Lemmon Survey
2013 TQ5	2013-10-02	0.894	0.643	248.6	250–600	20.1	Mt. Lemmon Survey
2013 JX28	2013-05-11	0.940	0.262	170.1	270–600	20.0	Pan-STARRS 1, Haleakala
2012 VE46	2012-11-06	0.971	0.455	219.9	240–500	20.2	Pan-STARRS 1, Haleakala
2010 XB11	2010-12-02	0.948	0.288	177.5	250–600	20.1	Mt. Lemmon Survey

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>

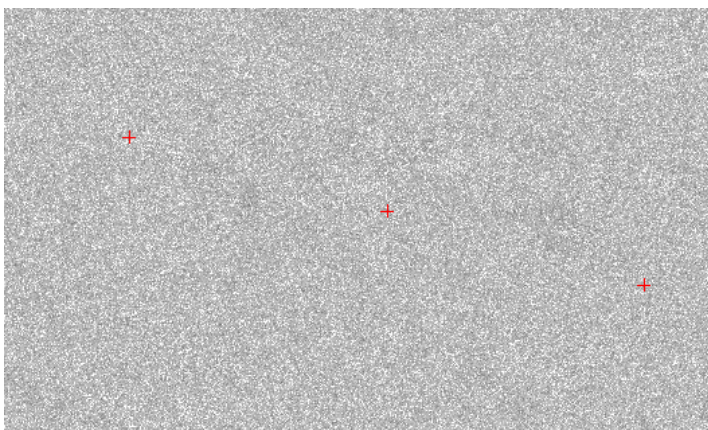


Image of the region of the sky corresponding to possible impact trajectories of 2006 QV89 in 2019, acquired on 5 July 2019 with the ESO's VLT. The segment delimited by the three red crosses in this image corresponds to the area where the asteroid would have appeared had it been on a collision course. The image has been processed to remove background star contamination, so the object would have appeared as a single bright round source inside the segment.

[Credits: ESO / O. Hainaut / ESA]

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