

INTERNATIONAL ASTEROID WARNING NETWORK (IAWN)¹**POTENTIAL ASTEROID IMPACT NOTIFICATION – HYPOTHETICAL SIMULATION**

Date: 1 August 2026

From: International Asteroid Warning Network (IAWN)

IAWN Coordinating Officer (NASA) for the IAWN Steering Committee

To: Chair (ESA), Space Mission Planning Advisory Group (SMPAG);

Planetary Defence Programme Officer, United Nations Office for Outer Space Affairs (UNOOSA)

Title: Update on Potential for Impact of Near-Earth Asteroid 2026 PDC27 on 10 July 2038

Impact Probability	19% as calculated by NASA JPL Center for NEO Studies, ESA Near-Earth Objects Coordination Centre (NEOCC), and NEO Dynamic Site (NEODYs)
Date of Potential Impact	10 July 2038
Impact Risk Corridor	Across the Pacific Ocean, United States of America, Canada, the Atlantic Ocean, Spain, France, Italy, Greece, Turkey, and the Mediterranean Sea
Asteroid Size	Most likely in the range 80–85 meters (260–280 feet) in diameter, but potentially in the range 75–90 meters (250–300 feet)
Expected Damage Level if Impact Occurs	Local to regional blast damage from a large airburst, ranging from window breakage to potential structure collapse.
When will there be new information?	New information will be available in December 2026 when the asteroid returns to the twilight and then night sky or if detections of the asteroid are found in archival data. The asteroid is currently unobservable.

ADDITIONAL DETAILS:

- **Relevant Thresholds:** 1% is the notification threshold for IAWN². IAWN and SMPAG recommend a terrestrial preparedness planning threshold of greater than 10% probability of an impact within 20 years for an object expected to be 20 m or larger in size².
- **Impact Probability:** There is a 19% probability that near-Earth asteroid (NEA) 2026 PDC27 could impact Earth on 10 July 2038. This represents an increase from the 16% impact probability in the 15 July 2026 initial IAWN notification. The impact probability increased because of continued tracking with optical telescopes through the end of July. While there is large uncertainty in whether the asteroid will impact Earth, if an impact occurs it will be on this date. There is an 81% probability that 2026 PDC27 will safely pass by Earth on this date.
- **Impact Probability Confirmation:** The impact probability was calculated by the NASA JPL Center for Near-Earth Object Studies (CNEOS), ESA Near-Earth Objects Coordination Centre (NEOCC), and NEO Dynamic Site (NEODYs), in coordination with the worldwide network of observatories in the International Asteroid Warning Network (IAWN) submitting observations to the Minor Planet Center (MPC).
- **Future Observability and Update to Impact Probability:** 2026 PDC27 was observed until 31 July 2026, after which it was positioned too close to the Sun in the sky for observations to continue.

Future observations will reduce the uncertainty in 2026 PDC27's trajectory and impact probability. The asteroid will be observable again from 2026 December to 2027 August, when it will be quite faint and will likely require large (2-meter and larger) telescopes. During that period, the impact probability will change as new data are incorporated. By the end of the 2027 observability window, the impact probability could increase up to 100% or it could more likely drop back below the notification threshold (1% impact probability). In the meantime, searches for detections of 2026 PDC27 in archival sky survey data continue.

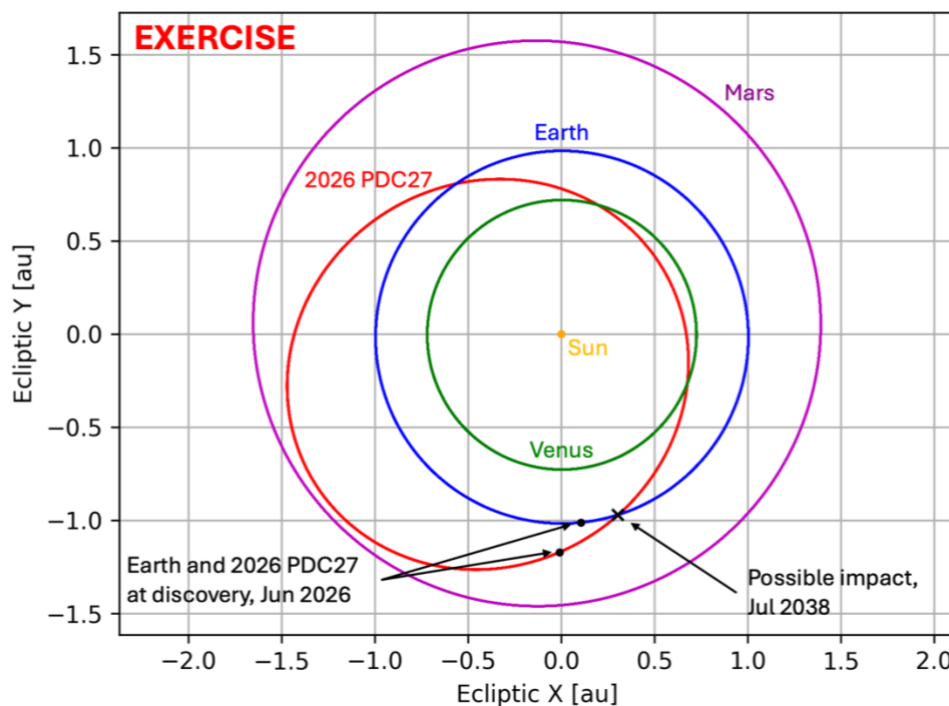
- **Impact Risk Corridor:** The impact risk corridor for 2026 PDC27, which is the region of Earth along which a potential impact could occur, extends across the Pacific Ocean, United States of America, Canada, the Atlantic Ocean, Spain, France, Italy, Greece, Turkey, and the Mediterranean Sea.
- **Asteroid Properties:** 2026 PDC27 is most likely 80–85 meters (260–280 feet) in diameter, but the size range could be as broad as 75–90 meters (250–300 feet). The James Webb Space Telescope observed 2026 PDC27 in the infrared on July 16 and 17, which led to the improved knowledge of the asteroid's size and possible composition (S-type or "stony", inferred from the observations). The asteroid is too distant for radar observations and will not come within radar range until 2038.
- **Expected Damage Level if Impact Occurs:** If the asteroid impacts Earth, the primary hazard would be a high-energy airburst causing a destructive blast wave. The blast damage would likely extend out to around 35–50 kilometers (22–31 miles) from the airburst location, and possibly as far as 100 kilometers (62 miles). The blast could potentially flatten structures near the damage center, extending out to larger areas of structural damage and broken windows. The energy delivered by the asteroid could be between 10–50 megatons of TNT, most likely in the 18–32 megaton range. Heat from the airburst fireball could also cause thermal damage or burns over smaller areas within the blast zones. Airbursts of this size over the ocean are not expected to cause significant tsunamis. Among the potential impact locations, there is roughly a 50% chance of damage to populated regions. With the current 19% chance of Earth impact, there is roughly a 10% total chance of damage to populated regions at this time. Estimated damage incorporates asteroid size and inferred composition from available JWST observations. Risk assessment information will be updated once new data on the asteroid's orbit or physical properties become available.
- **Discovery:** 2026 PDC27 was first reported on 28 June 2026 by Panoramic Survey Telescope and Rapid Response System 1 (Pan-STARRS1) station of the University of Hawai'i located at Haleakalā, Maui, during NEA search operations for NASA. The worldwide network of observatories of the IAWN continued to perform follow-up observations until the asteroid became unobservable on 31 July 2026. Detections were also found in archival images taken by the Vera C. Rubin Observatory's Legacy Survey of Space and Time (LSST) on 11, 17, and 23 May 2026 and 4, 10, and 16 June 2026.

¹ IAWN is a worldwide collaboration of asteroid observers and modelers that was recommended by the United Nations, pursuant to the General Assembly resolution [70/82 of 9 December 2015](#) notes with satisfaction the establishment and the work of the International Asteroid Warning Network (IAWN) and the Space Mission Planning Advisory Group (SMPAG) to implement recommendations for an international response to the near-Earth object impact that were endorsed by the Committee on the Peaceful Uses of Outer Space in 2013 ([A/68/20, para. 144](#)). See <https://iawn.net>.

² Agreed criteria and thresholds by the International Asteroid Warning Network (IAWN) and the Space Mission Planning Advisory Group (SMPAG), (see Status report by the IAWN and SMPAG to the 62nd session of the Scientific and Technical Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space, [A/AC.105/C.1/2025/CRP.6](#)). The Committee in its annual reports ([A/79/20](#), para. 135) notes that should a credible threat of impact be discovered by the IAWN, available information would be provided by IAWN and disseminated to all Member States through the Office for Outer Space Affairs. The threshold for issuing warnings of possible impact effects is a probability of impact greater than 1% and a rough size estimated to be greater than 10 meters.

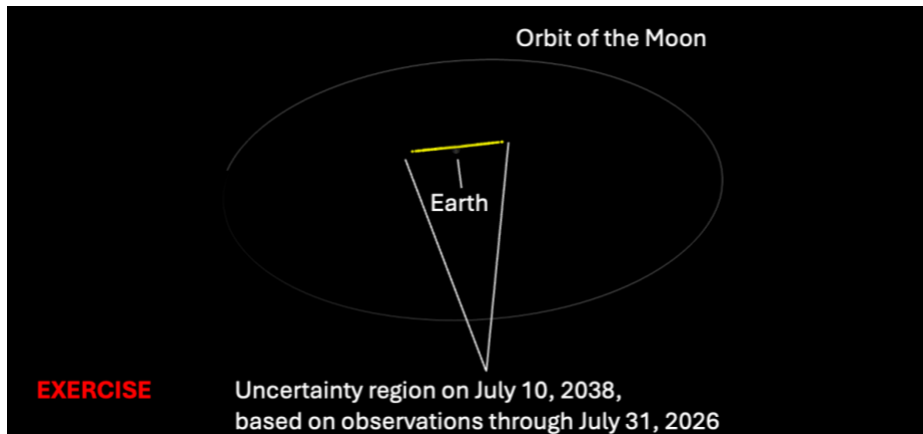
Graphics

1. Heliocentric orbit diagram of 2026 PDC27
 2. Possible locations of 2026 PDC27 relative to Earth on 10 July 2038 and impact risk corridor
 3. Damage risk assessment
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1. Heliocentric orbit diagram of 2026 PDC27, with position relative to Earth orbit of 2026 PDC27 at discovery in June 2026 and around the time of the possible impact on 10 July 2038.

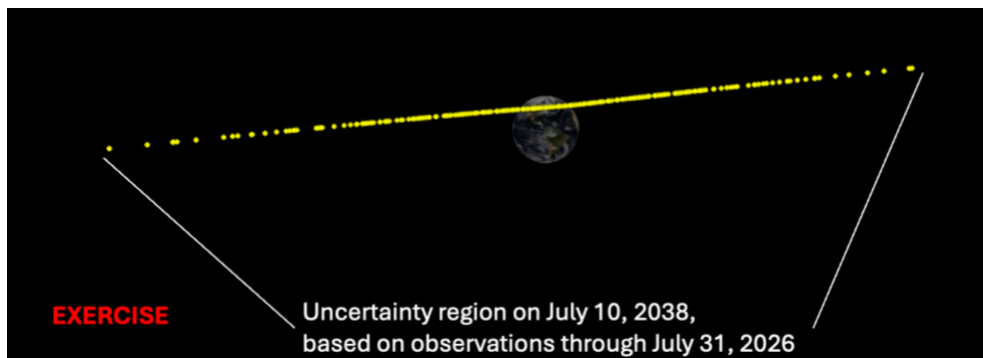


2. Possible locations of 2026 PDC27 relative to Earth on 10 July 2038 from Monte Carlo modeling.
- Panel 2a. Location uncertainty compared to the orbit of the Moon. The Earth-Moon distance is shown to scale.
- Panel 2b. Close-up of the location uncertainty. The size of the Earth is shown to scale.
- Panel 2c. Impact risk corridor: the portion of the location uncertainty that intersects the Earth.

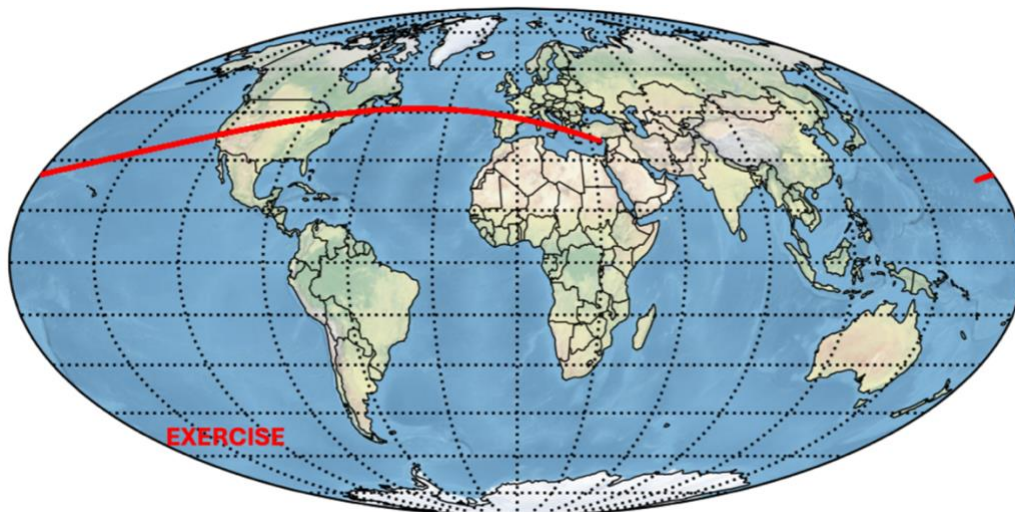
2a.



2b.



2c.



3. Damage risk assessment: Extent of regions *potentially* at risk for ground damage given the location uncertainty of the asteroid on 10 July 2038. The asteroid has a 19% probability of impact somewhere on this risk corridor and an 81% probability of safely passing Earth on that date. This damage risk corridor shows the *upper range* of the estimated damage extent based on currently available knowledge. Rings show *median* estimated damage sizes at sample locations.



Damage Level	Description	Chance of Occurring
Serious	Windows shatter, some structure damage	100%
Severe	Widespread structure damage or third-degree burns	98%
Critical	Residential structures collapse or clothing ignites	70%
Unsurvivable	Devastation, all structures flattened or burned	7%