

INTERNATIONAL ASTEROID WARNING NETWORK**Potential Asteroid Impact Notification: Hypothetical Scenario**

Date: 2 April 2024

From: International Asteroid Warning Network (IAWN)

To: Chair, Space Mission Planning Advisory Group (SMPAG);
United Nations Office of Outer Space Affairs (UNOOSA)

Title: Potential for the Impact of Near-Earth Asteroid 2023 TTX

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| Impact Probability | 72% as calculated by NASA JPL CNEOS & ESA NEOCC |
| Impact Date: | 12 July 2038 |
| Impact Risk Corridor: | Potential impact locations span a corridor from the South Pacific across North America, the Atlantic, Iberian Peninsula, Mediterranean coast of Africa, Egypt, to the coast of Saudi Arabia. |
| Approximate Size: | Highly uncertain based on brightness and unknown surface reflectivity: most likely ~100–320 m (350–1000 ft), but potentially ~60–800 m in diameter. |
| Expected Damage Level if Impact Occurs: | Uncertain, but regional- to country-scale. Energy release most likely to be in the range of 6 to 750 megatons TNT, but potentially up to 15 gigatons TNT. |

Additional details:

- There is a 72% probability that asteroid 2023 TTX will impact Earth on 12 July 2038, as calculated by the NASA JPL Center for Near-Earth Object Studies (CNEOS) and the ESA Near-Earth Objects Coordination Centre (NEOCC). While there is uncertainty in whether the asteroid will impact Earth, if an impact occurs it will be on this date.
- The impact risk corridor includes Mexico, United States of America, Portugal, Spain, Algeria, Tunisia, Libya, Egypt; a slight chance of very edges of Sudan and Saudi Arabia; and small chances of Vanuatu, Tuvalu, Kiribati in Melanesia/Polynesia. Figure 1 shows the risk corridor.
- There is a high probability that if the impact occurs, tens of thousands to millions of people could be affected by the potential damage from the impact based on the latest predicted impact corridor and risk modeling.
- The potential impact effects are highly dependent on the size of the asteroid and impact location. Nearly all cases cause large blast damage areas, likely reaching unsurvivable levels near the impact/airburst with larger outlying areas of structural damage, fires, and shattered windows. For the most likely size range, serious damage (including shattering windows, some structure damage) will occur over an area between 80–180 km (50–110 mi) in radius. The largest outer damage areas could extend over a region of 300 km (180 mi) or larger in radius. An impact in coastal waters could result in a tsunami that would inundate coastline areas, though tsunami risk and damage estimates are lower than local ground damage. Figure 2 summarizes the full impact risk, including damage assessments.

- The asteroid 2023 TTX was discovered on 4 October 2023 by an Earth-based telescope in the southern hemisphere. The asteroid's absolute magnitude is 21.5 ± 0.3 . Telescopes observed the asteroid almost daily between its discovery and 31 March 2024, when the asteroid became too close to the Sun to observe from the ground. The asteroid was identified in archival data, which helped refine the impact probability.
- Further observations will reduce the uncertainty in the asteroid's trajectory and impact probability. However, further ground-based observations will be impossible for the next seven months as the asteroid is too distant and appears too close to the Sun in the sky for telescopes to observe. Earth-based telescopes will be able to observe the asteroid again starting on 29 October 2024.
- The size of the asteroid cannot be estimated with further precision without radar observations or images from a spacecraft reconnaissance mission. The asteroid may come within radar range in July 2033 (5 years before potential impact). But, a successful detection depends on the asteroid's size and rotation period, both of which are highly uncertain at this time.

This notification is issued by the International Asteroid Warning Network (IAWN) in accordance with report SMPAG-RP-003 on "Recommended Criteria & Thresholds for Action for Potential NEO Impact Threat" that defines the threshold for issuing warnings of possible impact effects, which is a probability of impact is greater than 1% and a rough size estimated to be greater than 10 meters (33 feet).

IAWN is a worldwide collaboration of asteroid observers and modelers that was recommended by the United Nations (iawn.net)

Point of Contact: IAWN Coordinating Officer for the IAWN Steering Committee [email]

Graphics:

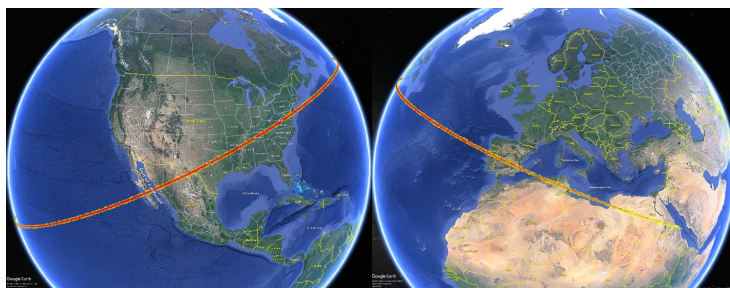


FIGURE 1. The impact risk corridor. If the asteroid is on track to impact Earth, the impact will occur at a point somewhere along the red swath. Potential impact locations span a corridor from the South Pacific across North America, the Atlantic, Iberian Peninsula, Mediterranean coast of Africa, Egypt, to the coast of Saudi Arabia.

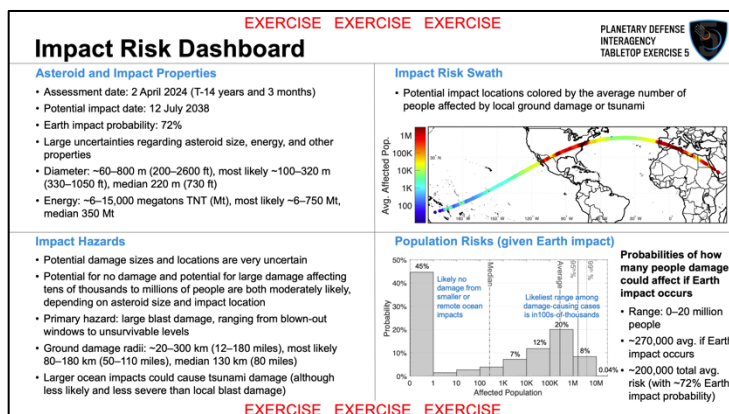


FIGURE 2. Impact risk summary, which provides a high-level overview of the asteroid threat and associated risks of impact.