

**NOT A REAL WORLD EVENT** *This is part of an asteroid threat exercise conducted during the 2015 IAA Planetary Defense Conference.*

## DAY 5: Update 1:

**PRESS RELEASE: JANUARY 18, 2021**

### **DEFLECTION MISSION PARTIALLY SUCCESSFUL, THREAT FROM SMALLER OBJECT BEING ASSESSED**

Images from the spacecraft sent to observe the impacts of the deflection spacecraft confirmed the successful impact of three of the high-speed kinetic impactors, but found that the deflection broke asteroid 2015 PDC into two pieces. The larger piece was successfully deflected enough that it will not impact the Earth, but a second, smaller fragment, roughly 60 to 100 meters (200 to 300 feet) in size, received only a partial deflection and may still be on an Earth-impact trajectory.

Ground-based observations of 2015 PDC resumed in November 2020, but the object was still very far from Earth and the small fragment was very faint. After over two months of tracking, the trajectory of the fragment is still not known with much accuracy. IAWN has determined that current probability of impact of the fragment is 54%.

IAWN has released the image below showing the impact footprint of the fragment. Nations that could be directly affected by the impact of the fragment are: Vietnam, Laos, Thailand, Myanmar, Bangladesh, India, Afghanistan, Pakistan, Iran, Iraq and Turkey.



**EXERCISE**

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Assuming a worst-case fragment size of 100 meters (300 feet), the impact would produce an explosion with energy of about 50 Megatons, much smaller than that predicted for the original object, and the region of total devastation would also be much smaller. If the fragment impacts on land, wood frame buildings would almost completely collapse out to a radius of 10 km (6 miles), and windows would shatter out to a radius of 25 km (16 miles). The equivalent earthquake magnitude would be 5.3, and a crater between 1 and 2 km (0.5 and 1.2 miles) diameter would be created. This would be approximately 10 times more energy than that delivered by the 30 to 50-meter (100-160 feet) asteroid that damaged over 2000 square kilometers (800 square miles) of forest in Siberia in 1908.

If the fragment impacts in water, it would produce a tsunami, but it would be considerably smaller than a tsunami from the original object. At 270 km (170 miles) from the impact point, the tsunami height would be about 1 meter (3 feet), and it would drop to 25 cm (1 foot) at a distance of 1000 km (600 miles). The tsunami is no longer a Pacific-wide threat but if it strikes near a coastline there is potential for widespread regional destruction. The worst-case impact would be in the South China Sea.

For more information, visit: <http://neo.jpl.nasa.gov/pdc15/day5-1.html>

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