2021 PDC Exercise Day 3: June 30, 2021 (<4 months to impact)

Space-Based Infra-Red Measurements Enable Improved Prediction of Asteroid’s Potential Impact Effects

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Astronomers around the world have tracked 2021 PDC nearly every night for the past 2 months, using some of the world’s largest telescopes. This has enabled a significantly more accurate estimation of its orbit.

The predicted impact zone has narrowed down considerably, to a region mostly within Germany, the Czech Republic and Austria (see next slide).

2021 PDC passed through NEOWISE’s narrow field of regard in early June, but at a very large distance (60 million km). It was not detected.

However, the NEOWISE team changed their survey pattern to repeatedly scan the asteroid’s predicted position for 3 weeks, and by combining the resulting hundreds of exposures, they achieved a marginal detection. They estimate the diameter of 2021 PDC to be $160 \pm 80$ m.

This result provides an important upper bound on the size of 2021 PDC, which significantly reduces the worst-case size and corresponding worst-case impact energies.

For more info: https://cneos.jpl.nasa.gov/pd/cs/pdc21/day3.html
Impact date: Oct. 20, 2021

Probabilities of Impact inside the shaded regions:

- Light red: 99%
- Mid red: 87%
- Dark red: 40%
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