

Number of undiscovered near-Earth asteroids revised downward

October 19 2017



An artist's impression of an asteroid breaking up. Credit: NASA/JPL-Caltech

Fewer large near-Earth asteroids (NEAs) remain to be discovered than astronomers thought, according to a new analysis by planetary scientist Alan W. Harris of MoreData! in La Canada, California. Harris is presenting his results this week at the 49th annual meeting of the

American Astronomical Society's Division for Planetary Sciences in Provo, Utah.

Observers have been cataloging [potentially hazardous asteroids](#) for decades. Based on the number of finds, the area of sky explored, and the limiting brightness our telescopes and cameras can reach, researchers can estimate what fraction of the NEA population has been detected so far and how many more objects lurk undiscovered. Harris has published numerous such estimates over the years. Recently he realized that his estimates have been plagued by a seemingly innocuous but nonetheless consequential round-off error. Once corrected, the estimated number of large (diameter > 1 kilometer) NEAs remaining to be discovered decreases from more than 100 to less than 40.

The population ("size-frequency distribution") of NEAs is usually given in terms of number versus brightness, since most discovery surveys operate in visible (reflected) light. Brightness isn't a reliable proxy for size, though, because asteroid surfaces don't all have the same albedo, or reflectivity. NEA brightnesses are expressed in units of absolute magnitude H , with lower numbers indicating brighter objects. The IAU Minor Planet Center—the world's clearinghouse for asteroid measurements—rounds off reported values of H to the nearest 0.1 magnitude. While this is mostly unimportant, amounting to a reduction in the estimated NEA population N (

Citation: Number of undiscovered near-Earth asteroids revised downward (2017, October 19) retrieved 3 May 2024 from

<https://phys.org/news/2017-10-undiscovered-near-earth-asteroids-downward.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.