



Terminology for Objects Below the “Potentially Threatening” Threshold

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Terminology: Background

- The term “Potentially Hazardous Asteroid” (PHA) has been in use for more than 20 years; it refers to an asteroid which has:
 - Minimum orbit intersection distance (MOID) ≤ 0.05 au, and
 - Absolute magnitude $H \leq 22.0$ (which implies $D \geq 140$ m, at albedo 14%)
- A smaller asteroid (e.g. 80m) would certainly be “hazardous” if it were on an impact trajectory, but it could not be classified as a PHA
- A new term (or redefinition of “PHA”) is warranted, and a single simple category name is appropriate, one that can be used equally by decision-makers, communications experts, and the public
- It has been proposed to redefine “PHA”, reducing (or eliminating) the size criterion, but at what smaller size does an asteroid cease to be “hazardous”?
 - This argues that the “loaded” word “hazardous” should not be used
 - A redefinition of “PHA” would require that future references to the term need to specify which definition was being used, “old” or “new”



Terminology Background (cont'd)

- It has been proposed to define a category of “threatening” objects, based on the risk list, but at what small probability and small size does an asteroid cease to be seriously “threatening”?
 - Communications colleagues suggest not using the word “threatening” in a new definition, because it is another “loaded” word that is difficult to define
- At the previous IAWN meeting, it was proposed to define “Potentially Impacting Object” (PIO) as being similar to the PHA definition with the size criterion removed (i.e. any object with MOID ≤ 0.05 au)
 - Advantage: “Potentially Impacting” is more precise, not necessarily implying that the object is “hazardous” or that the possible impact is “threatening”
 - Another advantage: PIOs would include comets
 - Disadvantage: The word “Impacting” still carries an ominous overtone for our communications colleagues and for the public, even if the qualifier “potentially” is used



Proposed New Terminology: PCA

- The term “Potential Close Approacher” (PCA) seems an appropriate descriptive term for the category of all objects with $\text{MOID} \leq 0.05 \text{ au}$
 - The PCA label does not use possibly inappropriate words like “hazardous” and “threatening”
 - It implies only that a close approach within 0.05 au is potentially possible
 - It aligns with the nominal default for what is meant by a “Close Approach” (e.g. 0.05 au is the default threshold on the CNEOS Close Approach table)
 - It includes comets (and for that matter, interstellar objects)
 - It differs by only one letter from “PHA”, although there might be some confusion that “A” in PCA does not stand for “Asteroid”
- A possible variation to consider is “Potential Close-Approach Object”, (PCAO) but a three-letter acronym is usually preferable