

Poster Presentation at Asteroids 2001 meeting

Title:

Quantifying the risk posed by potential Earth impacts

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Abstract:

Predictions of future potential Earth impacts by near-Earth objects have become commonplace in recent years, and the rate of these detections is likely to accelerate as asteroid survey efforts continue to mature. In order to conveniently compare and categorize the numerous potential impact solutions being discovered we propose a new hazard scale that will describe the hazard of a particular potential impact in both absolute and relative terms. To this end we measure each event in two ways, first without any consideration of the event's time proximity or its significance relative to the so-called background threat, and then in the context of the expected risk from other objects over the intervening years until the impact. The new scale characterizes impacts across all impact energies, probabilities and dates, and it is useful, in particular, when dealing with those cases which fall below the threshold of public interest. It also reflects the urgency of the situation in a natural way, and thus can guide specialists in assessing the computational and observational effort appropriate for a given situation. In this paper we describe the metrics introduced, and we give numerous examples of their application. This enables us to establish in rough terms the levels at which events become interesting to various parties.