



Empirical Tests of the Predicted Footprint for Uncontrolled Satellite Reentry Hazards

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By Mark Matney

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 30 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. A number of statistical tools have been developed over the years for assessing the risk of reentering object to human populations. These tools make use of the characteristics (e. g. , mass, material, shape, size) of debris that are predicted by aerothermal models to survive reentry. The statistical tools use this information to compute the probability that one or more of the surviving debris might hit a person on the ground and cause one or more casualties. The statistical portion of the analysis relies on a number of assumptions about how the debris footprint and the human population are distributed in latitude and longitude, and how to use that information to arrive at realistic risk numbers. Because this information is used in making policy and engineering decisions, it is important that these assumptions be tested using empirical data. This study uses the latest database of known uncontrolled reentry locations measured by the United States Department of Defense. The predicted ground footprint distributions of these objects are based on the theory that their orbits behave basically like simple Kepler orbits. However, there...



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