

SPACE DEBRIS SYMPOSIUM (A6)
Modeling and Risk Analysis (2)

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A NEW SPACE DEBRIS ENVIRONMENT MODEL SDEM

Abstract

Space debris environment modeling in china began at the year 2001. Space Debris Environment Model (SDEM) has gradually been set up and Space Debris Environment Analysis Software (SDEAS) has been developed at Harbin Institute of Technology and Nanjing University of Aeronautics and Astronautics. In this paper, the long-term evolution trend of space debris environment has been analyzed, taking into account a detail traffic model, explosions, collisions and the effects of air drag. The SDEM modeling process and the flowchart of SDEAS are also depicted. Business As Usual (BAU) and other scenarios with mitigation measures have been contrastively simulated in a 100 years span, the primary results show that spacecraft and rocket bodies passivation to avoid in-orbit explosions is a most efficiency measure to restrain the debris rapid growth. Of course, there are uncertainties in space debris environment modeling, so mathematical statistics is to be used to diminish the uncertainties in the subsequent working.