

SPACE DEBRIS SYMPOSIUM (A6)

Poster Session (P)

Author: Mr. Srikrishnan Subramanian
University of Petroleum and Energy Studies, India

Dr. Ugur Guven
United States

AN APPROACH FOR CLEARING SPACE DEBRIS USING KINETIC KILL VEHICLES

Abstract

Kinetic kill vehicles are satellites used in defense application in stopping high speed rockets and missiles from striking the populated areas. Satellites which have finished their life cycle is either shifted to the dead orbit or left in the same orbit due to the unavailability of fuel required for the orbital transfer. These dead satellites or parts are classified as space debris. Cleaning of space debris is the latest concern for many nations. Especially with the new mandates put forward by the United Nations: it has become more imperative to clean off space debris. As an innovative approach, the paper conceptualizes a new approach to use the kinetic kill vehicles (KKV's) as an aid to clear the orbital debris. Orbital debris is also traveling at a high speed similar to that of the live satellite. The KKV armed with a plasma laser is used for shooting at this debris to slow them down. As the speed of the debris is reduced they are forced to reenter the earth's atmosphere. By using such technology we may be able to reuse these satellite parts for the further utilization. Also it may be an effective way to clean the orbital debris. The KKV operate at a power range of 2 – 20 kw of power. Arming the KKV with a plasma laser will aid it to effectively reduce the speed of the dead satellite, thereby to force to reenter. For larger space debris, the KKV can be used directly as a projectile to transfer its kinetic energy to impart enough momentum to force the space debris object to enter the atmosphere.