Paper ID: 15801
student

SPACE DEBRIS SYMPOSIUM (A6)
Measurements (1)

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EISCAT SPACE DEBRIS AFTER THE INTERNATIONAL POLAR YEAR (IPY)

Abstract

We present results from analysis of space debris data collected with the EISCAT radar. Following the International Polar Year (IPY) in 2007-2009, EISCAT continued to measure space debris with its Svalbard radar. The dataset analyzed consist of 48 hours of measurements taken at the end of February 2008. Detection of events was accomplished using the match function, which provides ranges, Doppler velocity and Radar Cross Section (RCS) of detectable debris. The location of the EISCAT radar and the measurements taken allow observation of the January 2007 Chinese anti-satellite (ASAT) test; the subject of the test was the FENGYUN 1C polar-orbiting weather satellite, which was in Sun-synchronous LEO prior to being impacted. These results along with the quality set extracted during the IPY by EISCAT from 2007-2008 are compared to NASA's collision model. NASA's model is known to underestimate the amount of debris that is produced; results skew towards the range of detectable pieces larger than 10 cm in diameter. Piecing together data spanning over a year, we observe the evolution of the debris cloud and total amount of debris generated, including the orbital parameters, velocity and mass distribution of the collision.