

SPACE DEBRIS SYMPOSIUM (A6)
Measurements (1)

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DEBIE2 (DEBRIS-IN-ORBIT-EVALUATOR) ON BOARD OF ISS: RESULTS FROM THE IMPACT
DATA AND POST-FLIGHT ANALYSIS

Abstract

DEBIE2 (Debris-in-orbit-evaluator) was launched in February 2008 as part of the European Technology Exposure Facility (EuTEF) and installed on the exterior of Columbus on ISS. DEBIE2 is an active detector, composed by 3 sensor units that monitor dust and debris flux. Each DEBIE sensor consists of 2 sets of wire electrodes sensitive to the plasma generated by impacting particles, mounted in front of a thin aluminium foil. On the foil there are also 2 piezoelectric sensors which measure the momentum transferred by an impacting particle. If the particle penetrates the foil, this can be detected by a third electron plasma detector located just behind the foil. EuTEF and DEBIE2 were retrieved on 1st September and returned to Earth with the Space Shuttle Mission STS-128. In this paper, the results of the analysis of impact data will be presented, as well as the results of the post-flight inspection (optical and chemical analysis) carried out on the one DEBIE2 sensor that after retrieval presented a broken wire as a result of an impact.