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ORIGINAL ARTICLE

Influence of the Earth on the background and the sensitivity of the GRM and ECLAIRs instruments aboard the Chinese-French mission SVOM

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Abstract SVOM (Space-based multi-band astronomical Variable Object Monitor) is a future Chinese-French satellite mission which is dedicated to Gamma-Ray Burst (GRB) studies. Its anti-solar pointing strategy makes the Earth cross the field of view of its payload every orbit. In this paper, we present the variations of the gamma-ray background of the two high energy instruments aboard SVOM, the Gamma-Ray Monitor (GRM) and ECLAIRs, as a function of the Earth position. We conclude with an estimate of the Earth influence on their sensitivity and their GRB detection capability.

Keywords Gamma-ray background · Earth occultation · Monte-Carlo simulation · Gamma-Ray Burst

1 Introduction

After forty years of studies, we are still far from a full understanding of Gamma-Ray Bursts (GRBs). Accurate measurements of GRB parameters, such as their position, redshift, peak-energy and so on, are needed to further understand GRBs themselves and their use as astrophysical tools. SVOM

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