

Flat fielding in gamma-ray astronomy through Monte Carlo background modeling

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Background noise is a major problem in gamma-ray astronomy as the telescopes, simple radiation detectors, are obliged to operate within the space radiation environment. In a low earth orbit and with uncollimated detectors such as those of the BATSE experiment on board the CGRO satellite, the situation is even worse as the background is strongly modulated by the position of the spacecraft in the earth's magnetic field, the pointing direction of detectors (earth in/out the field of view of detectors) and irradiation history. A method has been devised for removing these slowly varying background components through the intensive use of Monte Carlo modeling, the results being comparable to the flat fielding existing in optical astronomy. The method and its application to the earth occultation analysis will be described.