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Simulating the Operations and Observations of BurstCube

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Fermi's observations of gamma-ray bursts (GRBs) allow us to model the next generation of GRB instruments, including CubeSats such as the soon-to-be launched BurstCube. Over the first 14 years of its operation, GBM has studied nearly 3500 GRBs, many in stunning detail, which is a significant sample for simulating aspects of BurstCube's observations when combined with detailed simulations of the orbit and pointing profile. In this poster, we describe how we have used these observations of the prompt emission to seed a bootstrap analysis of BurstCube's predicted on-orbit performance. During operation, BurstCube will primarily point zenith, scanning the entire unocculted sky for gamma-ray transients, with some deviations to minimize drag and maximize power to the solar panels. The four CsI scintillator detectors will take data continuously except for tracks through the South Atlantic Anomaly. Onboard triggers will be downlinked as quick binned data via TDRSS and automatically add the time-tagged event data to the next ground station pass. We will describe how this simulation predicts the on-orbit performance.

Track

Future Missions/Instruments

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