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Nine years of gamma-ray burst observations with the CALET Gamma-ray Burst Monitor

Gamma-ray bursts (GRBs) are high-energy phenomena from distant galaxies that emit intense gamma rays in short durations. GRBs are a key target in multi-messenger astronomy, and various X-ray and gamma-ray instruments have searched for GRBs associated with gravitational waves or high-energy neutrinos. The CALorimetric Electron Telescope (CALET), a scientific payload for cosmic-ray observations on the International Space Station, also contributes instantaneous sky coverage in X-rays and gamma-rays. The CALET Gamma-ray Burst Monitor (CGBM), the secondary scientific instrument of CALET, can observe GRB prompt emissions in the energy range from 7 keV to 20 MeV. The CALorimeter, the primary instrument of CALET, is sensitive to gamma rays above 1 GeV. CGBM has continued flight operations without serious issues over 9 years since the observation started in October 2015. As of October 2024, CGBM has been triggered 371 times by GRBs out of 1751 total triggers. If we consider a threshold duration of 2 seconds, 49 of the CGBM GRBs were classified as short GRBs. Since CGBM is sensitive to short GRBs, we also have searched for electromagnetic counterparts of gravitational waves reported by LIGO/Virgo/KAGRA. We will present the overview of the CGBM observations and searches for electromagnetic counterparts of gravitational waves with CGBM.

Collaboration(s)

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