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Exploring Gamma-Ray Burst at Very High Energy : Insights from 15 Years of H.E.S.S. Observations

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The detection of GRBs at very high energy (> 100 GeV) was a long-awaited result, and many observations by multiple instruments were needed before achieving this goal. The study presented here for the first time is based on a complete re-analysis of 15 years of H.E.S.S. GRBs observations, aiming to understand the reasons behind the previous lack of detections.
Through the utilisation of advanced reconstruction techniques, we have improved the sensitivity and lowered the energy threshold compared to previous results. This work also includes numerous unpublished observations. By comparing these observations with recent detections of GRB in the VHE domain, we seek to enhance our understanding of the physical properties of GRBs and the necessary conditions for their detection at VHE gamma-rays.
Furthermore, we have identified the most interesting events within our dataset and conducted a thorough investigation into the constraints that can be derived from these specific observations.

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