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Sensitivity of the High Altitude Water Cherenkov Experiment to observe Gamma-Ray Bursts

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Abstract content

Ground based telescopes have marginally observed very high energy emission (>100GeV) from gamma-ray bursts(GRB). For instance, Milagrito observed GRB970417a with a significance of 3.7 sigmas over the background. Milagro have not yet observed TeV emission from a GRB with its triggered and untriggered searches or GeV emission with a triggered search using its scalers. These results suggest the need of new observatories with higher sensitivity to transient sources. The HAWC (High Altitute Water Cherenkov) observatory is proposed as a combination of the Milagro tecnology with a very high altitude (>4000m over see level) site. The expected HAWC sensitivity for GRBs is at least >10 times the Milagro sensitivity. In this work HAWC sensitivity for GRBs is discussed for different detector configurations such as altitude, distance between PMTs, depth under water of PMTs, number of PMTs required for a trigger, etc.

If this papers is presented for a collaboration, please specify the collaboration

HAWC

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 3 (OG part 2), pages 1191-1194

Primary author(s) : Dr. GONZALEZ SANCHEZ, Maria Magdalena (Instituto de Astronomia, Universidad Nacional Autonoma de Mexico)

Presenter(s) : Dr. GONZALEZ SANCHEZ, Maria Magdalena (Instituto de Astronomia, Universidad Nacional Autonoma de Mexico)

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