



Contribution ID : 1013

Type : Oral

## The combined AMANDA and IceCube Neutrino Telescope

*Tuesday, 10 July 2007 12:05 (0:12)*

### Abstract content

The IceCube Neutrino Telescope is currently under construction at the geographic South Pole and will eventually instrument a volume of one cubic kilometer by 2011. It currently consists of 22 strings with 60 Digital Optical Modules each. Additionally the AMANDA detector has been fully integrated into IceCube operation. This includes hardware synchronisation, combined triggering, common event building and a combined data analysis strategy. Monte Carlo simulations of a combined AMANDA + IceCube detector will be presented. Online filtered data as provided by the Joint Event Builder (JEB) collecting data from both detectors serves for MC verification. We study particularly low energy fully and partially contained events. As most of their energy is deposited inside the array, energy can be reliably reconstructed. These events are especially interesting for atmospheric neutrino studies, as IceCube's sensitivity lies above the range accessible by other atmospheric neutrino detectors. Furthermore the analysis of starting tracks is not limited to muon neutrinos from the northern hemisphere. We discuss the impact of the AMANDA integration on the track reconstruction and event selection for the muon neutrino detection channel and the sensitivity to astrophysical neutrino sources.

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

IceCube

### 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 1253-1256

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**Session Classification :** OG 2.5

**Track Classification :** OG.2.5