

Abstract Submitted
for the MAS16 Meeting of
The American Physical Society

Observing the Antarctic Ozone Layer with IceCube's High Energy Cosmic Ray Muon Bundles¹ JONATHAN CLIFFORD, SERAP TILAV, University of Delaware, TAKAO KUWABARA, Chiba University, ICECUBE COLLABORATION — IceCube is a high energy neutrino telescope located at the South Pole, consisting of a cosmic ray air shower array on the surface and a neutrino detector in the Antarctic ice at depths of 1450-2450m. While the in-ice sensors look for rare upgoing astrophysical neutrinos as signal, downgoing muon bundles with energies above 400 GeV are able to penetrate and trigger the detector at a 2.1kHz rate. These downgoing muons are created by cosmic ray interactions in the stratosphere and we observe both seasonal modulation in their rate and short term correlations with the stratospheric temperatures. We find that the observed muon rate best correlates with the temperature variations in the Antarctic ozone layer.

¹NSF

Jonathan Clifford
Univ of Delaware

Date submitted: 16 Sep 2016

Electronic form version 1.4