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Atmospheric neutrinos in SNO CHARLES CURRAT[1], Lawrence Berkeley National Lab, SUDBURY NEUTRINO OBSERVATORY COLLABORATION — High energy muons and neutrinos are produced by the interaction of primary cosmic rays in the Earth's upper atmosphere. SNO is in a unique position amongst world experiments located underground. At the depth of over 6 km water equivalent, it is the deepest underground laboratory currently in operation. SNO can make a number of novel measurements using muons. First, SNO's great depth and uniform overburden makes possible an accurate determination of the muon range spectrum. Second, SNO's depth allows for a measurement of atmospheric neutrinos above the horizon (via the detection of neutrino induced muons) at inclinations as large as $\cos(\theta_{\text{Zenith}}) \simeq 0.4$. Also, muons in SNO can be separated in energy, whether they traverse or stop in the detector. Though SNO is a modest-size Cherenkov detector, its unique niche allows to make important model independent checks of atmospheric neutrino oscillations. We will review SNO's capabilities for measurements of muons and neutrinos of atmospheric origin. Progress on the ongoing analysis, including the projected sensitivity to the atmospheric neutrino oscillation parameters, will be shown.

[1]On behalf of the SNO collaboration

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