

Abstract Submitted
for the APR06 Meeting of
The American Physical Society

Muon Flux at Proposed US Sites for Underground Labs¹ KREGG PHILPOTT, Department of Physics and INT, University of Washington — Because the next generation of solar neutrino, dark matter, and double beta decay experiments will require sites with extremely low cosmic-ray muon backgrounds, the establishment of a US deep underground laboratory has been under discussion. As some of the proposed sites involve irregular mountain topographies, a detailed calculation of muon production and penetration can be important both in properly positioning a laboratory and in assessing the potential cleanliness of that laboratory. Such calculations can influence engineering decisions, such as the tradeoffs between depth and rock quality and tunneling costs. Following Gaisser's semi-analytic formulation of atmospheric muon production and muon energy loss in rock and employing available Digital Elevation Models, we have evaluated several proposed sites and made comparisons to the existing laboratories at Kamioka and Gran Sasso. Results will be presented for the Henderson (CO), Homestake (SD), and Kimballton (VA) mines, for San Jacinto Peak (CA) and for the Mt. Stuart batholith (Cowboy and Cashmere Mts, WA).

¹Work supported by the US Department of Energy and in collaboration with W. Haxton

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Date submitted: 13 Jan 2006

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