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## SIMULATION OF BACKGROUND SIGNALS OF ATMOSPHERIC MUONS FOR P-ONE

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Neutrino Astronomy is proceeding with the development of new neutrino telescopes. The opacity of the Universe to the photons at high energies makes the neutrino an excellent probe to study most of the energetic objects of the cosmos. With this aim, the Pacific Ocean Neutrino Telescope (P-ONE) is planned to be deployed at the Cascadian Basin in the Pacific Ocean, off the coast of Vancouver Island, Canada. The site utilizes the Ocean Networks Canada (ONC) infrastructure for power and data transfer. P-ONE will be complementing the other existing neutrino observatories to provide a full sky coverage. P-ONE is also suitable for its sensitivity towards the galactic plane region.

The dominant background to such telescopes is the atmospheric muons. Reducing background signals is critical due to the low neutrino signal rates. Simulations using CORSIKA and MUPAGE have been conducted to model muon energy spectra, multiplicity, and arrival directions. MUPAGE's efficiency facilitated the estimation of the expected muon flux at the detector site, aiding in background rejection and enhancing astrophysical neutrino detection.

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