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## Modelling muon and neutron fluxes and spectra on the Earth's ground induced by primary cosmic rays

*Thursday, July 30, 2015 3:30 PM (1 hour)*

The SecondaryCR model evaluates particle fluxes and spectra of secondary  $e^-$ ,  $e^+$ ,  $\mu^+$ ,  $\mu^-$ , gammas, protons, neutrons, Cherenkov light etc. at different positions, altitudes and times in the Earth atmosphere.

We developed this model of secondary cosmic rays production in the Earth's atmosphere in the previous studies. It is based on existing models evaluating particles transport in heliosphere, magnetosphere and interactions of primary cosmic rays with the atmosphere. For the evaluation at 1AU on magnetopause we use results of HelMod model. Transparency of magnetosphere was obtained by GeoMag model and finally secondary production in the Earth's magnetosphere was simulated by Corsika package.

The fluxes and spectra of neutrons and muons propagated to the ground over the globe during 22nd and 23rd solar cycle were simulated. The results are discussed in connection with neutron monitor measurements. Possibility to evaluate a neutron monitor response function from the SecondaryCR model simulations is discussed.

### Collaboration

– not specified –

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