Contribution ID: **65** Type: **Short Talk (5')**

Estimation of energy levels for cosmic rays affected during a Forbush decrease from data from the LAGO Observatory

Friday 4 December 2020 15:25 (5 minutes)

Abstract

The space weather phenomena have an important impacts in science and current technological structure. This work is focused on the interaction between solar transient events and cosmic rays, specifically on Forbush Decrease (FD) events. A FD consists in a decrease/affectation on the counts of radiation a ground level during an Interplanetary Coronal Mass Ejection (ICME) crossing the Geomagnetic field. Here we show a method to estimated the cosmic rays affected during the FD of March of 2012 in terms of the Geomagnetic rigidity cut-off. For this, we have used the data registered at San Carlos de Bariloche, Argentina, by one of the detectors of the LAGO observatory (an extended cosmic radiation observatory over Latin American, from México to the Antartic). This detector is a water Cherenkov detector that works as muon counting, i.e. we could followed the rate of muon at ground and because these muon coming from hadronic interactions, we built a Rigidity cut-off function to estimate which primaries, according with their magnetic rigidity,were deflected out of their track to the atmosphere. To verify this approach, we validity this function through the LAGO's toolkit ARTI, a framework of computational techniques and codes (CORSIKA, GEANT4, C++, Python), i.e. we calculated the secondaries produced by this rate of cosmic rays and then, the signal produced by those secondaries into the Geant4 detector model.

Author: PARADA JAIME, Karoll Michely

Co-author: Dr SUAREZ DURAN, Mauricio

Presenter: PARADA JAIME, Karoll Michely

Session Classification: Common Session