New Detector for Space Weather research at mt. Aragats

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The Nor-Amberd Muon Multidirectional Monitor (NAMMM) consists of two layers of plastic scintillators above and below one of the two sections of the Neutron Monitor NM-64. The lead filter of the NM absorbs electrons and low energy muons. The threshold energy of the detected muons is estimated to be 350 MeV. Therefore detector simultaneously measures particles of 3 types: low energy charged component, neutrons and high energy muons. The data acquisition system of the NAMMM can register all coincidences of detector signals from the upper and lower layers, thus, enabling measurements of the arrival of the muons from different directions.

In the report we will demonstrate the sensitivity of the different species of secondary cosmic ray flux to geophysical conditions, taking as examples the extremely violent events of 2003 and 2005. We introduce correlation analysis of the different components of registered time-series as a new tool for the classification of the geoeffective (events on earth affected by solar activity) events and for the forecasting of the severity of the upcoming geomagnetic storm.