BAROMETRIC COEFFICIENTS FOR THE ARAGATS SOLAR ENVIRONMENT CENTER INSTALLATIONS

V.Babayan, K.Arakelyan, K.Avakyan, N.Bostanjyan, A.Chilingarian, V.Eganov, N.Gevorgyan, A.Hovanissyan, G.Hovsepyan, G. Gharagyozyan, S. Ghazaryan A.Garyaka, V.Ivanov, H.Martirosian, R.Martirosov, E.Mnatsakanian, L.Melkumyan, A.Oganissian, E.Sarkissian, H.Sogoyan, S. Sokhoyan, S.Tsarunyan, A.Vardanyan, and M.Zazyan.

Cosmic Ray Division

Yerevan Physics Institute, 2 Alikhanyan Brothers st., Yerevan, Armenia.

Aragats Solar Environment Center (ASEC) includes several installations for the cosmic ray intensity monitoring at mountain altitudes. To detect variation induced by the solar activity it is necessary to correct the data on the variation of atmospheric origin.

To do that the barometric coefficients for two neutron monitors, solar neutron telescope and underground muon telescope were calculated.

The time periods in years 2001-2002, when the sufficient changes of the barometric pressure and non-atmospheric variations of the cosmic rays were negligible were chosen for calculations.

For two neutron monitors, located on the 2000 m and 3200 m above sea level correspondingly barometric coefficients were defined to be 0.715±0.009%/ mb and 0.726±0.01%/ mb in correspondence with earlier measurements.

Aragats Solar Neutron Telescope SNT1 has four pulse discrimination levels corresponding to different energy thresholds of detected particles. Values of barometric coefficients were measured for each of 4 thresholds to be equal to 0.419±0.001%/mb, 0.442±0.002%/mb, 0.607±0.002%/mb and 0.745±0.002%/mb.

The comparison with the results of the Japananese authors for the similar Tibet installation was made and the good accordance was obtained, excluding the first level, due to absence of complete anti-coincidence system at SNT1. The new Aragats Neutron Telescope SNT2, now under commission will have full coverage with system of proportional counters vetoing charge particle flux.

The barometric coefficient for the Aragats muon telescope, partly operated since 2002, equals 0.0586±0.0005.1%/mb. Rather low value of coefficient is explained by high energy threshold of detected muons, equals to 5 GeV.

Contact person: Valeri Babayan
Tel. 3741344377
Fax. 3741344377
E-mail: babayan@jerewan1.yerphi.am
Session SH.