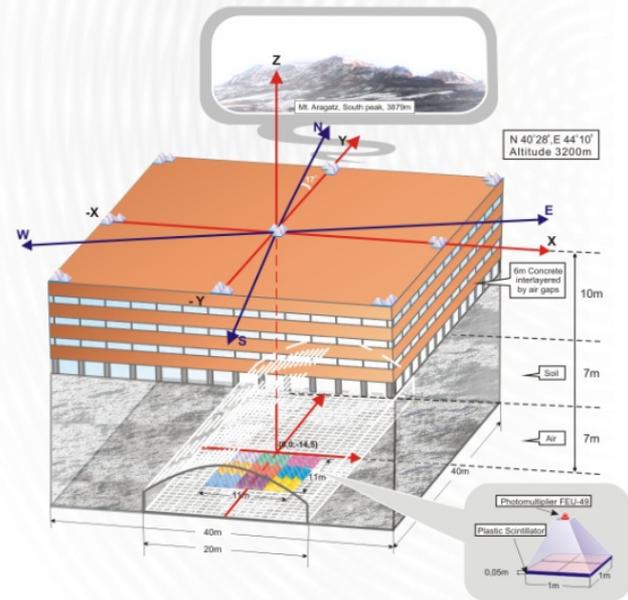
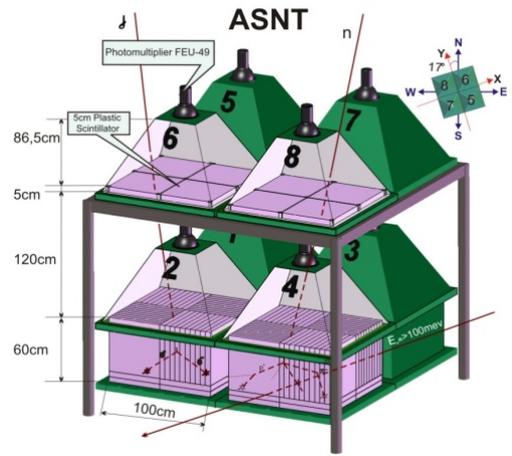
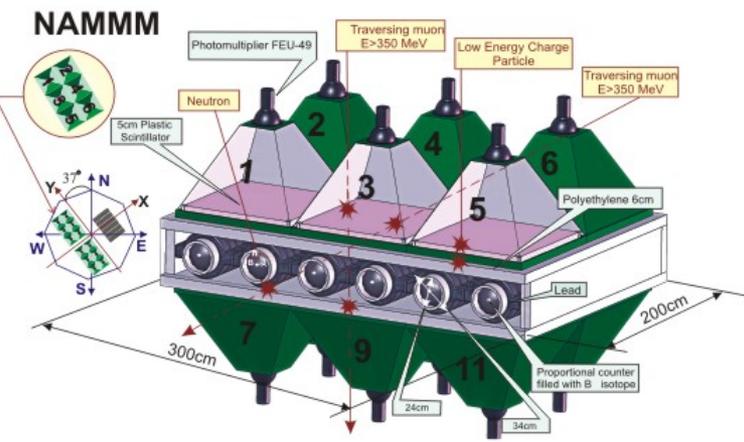
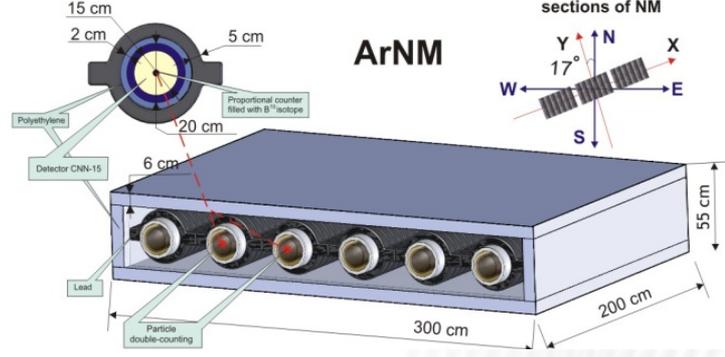
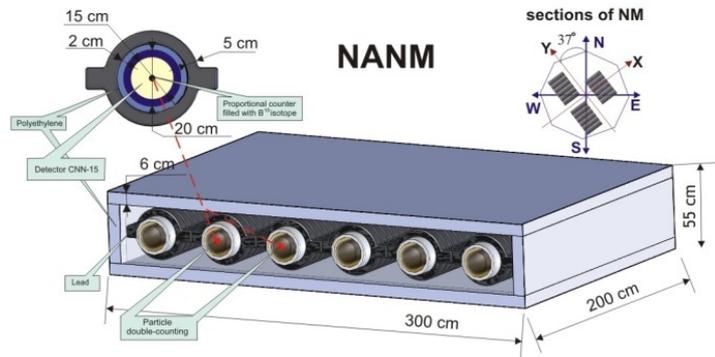


# Barometric coefficients of the particle detectors of Aragats Space Environmental Center (ASEC) as measured at the beginning of the 24th Solar activity cycle

T. Karapetyan

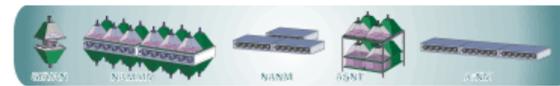
*Alikhanyan Physics Institute, Yerevan, Armenia*





## Barometric Coefficient Estimation Method

We have estimated barometric coefficient by following method. Changes in intensity secondary cosmic rays, where pressure changes from  $P_0$  to  $P$ , can be presented in a following way` 
$$H_2 = H_1 e^{-\mu(P - P_0)}$$
, where  $\mu$  is barometric coefficient .

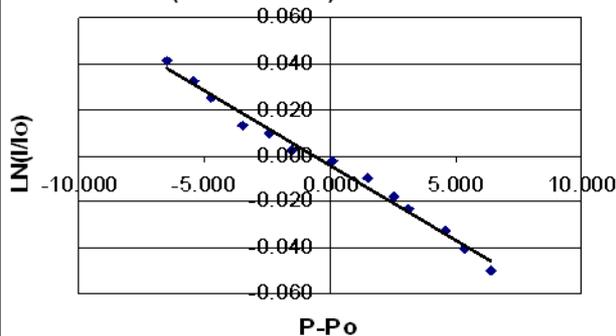


# Calculation of Barometric Coefficient for Nor-Amberd Neutron Monitor

Barometric coefficient for Nor Amberd neutron monitor 1250us (18.19.20.21)-02-2008

$$y = -0.0067x - 0.004$$

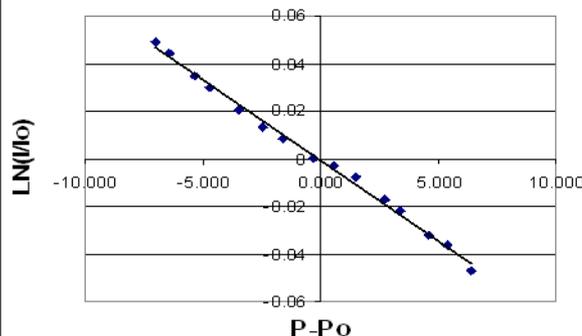
$$R = 0.995$$



Barometric coefficient for Nor Amberd neutron monitor 250us (18.19.20.21)-02-2008

$$y = -0.0068x - 0.0005$$

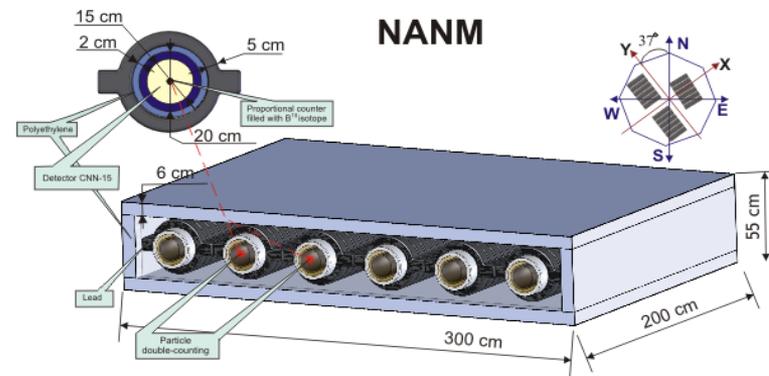
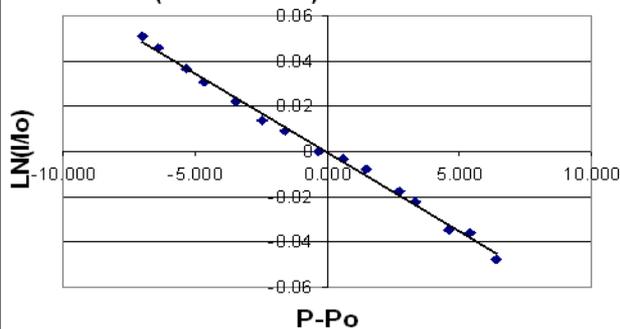
$$R = 0.997$$

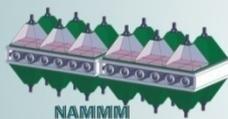


Barometric coefficient for Nor Amberd neutron monitor 0.4us (18.19.20.21)-02-2008

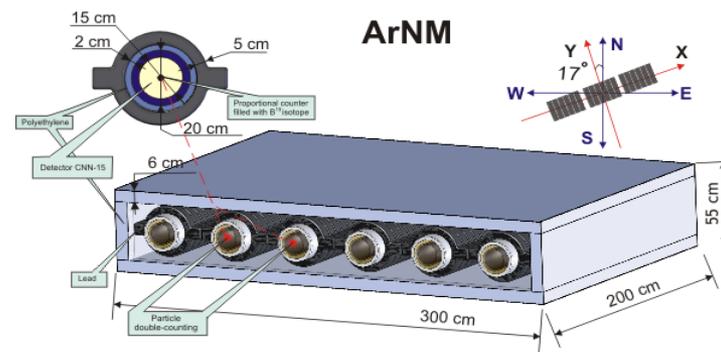
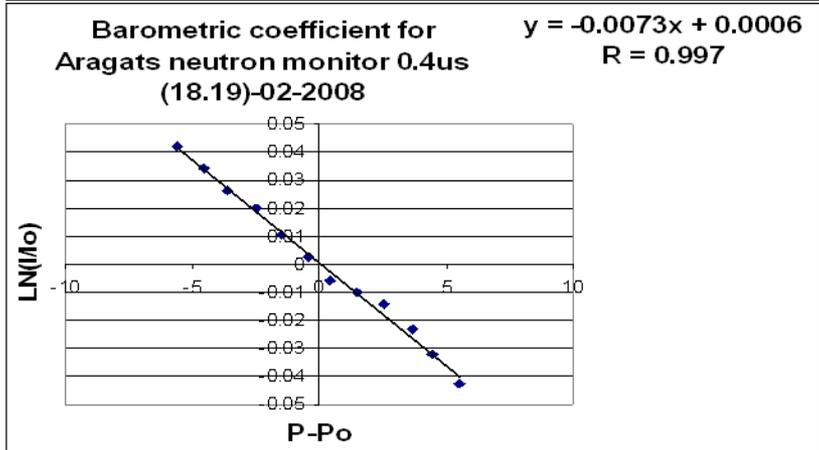
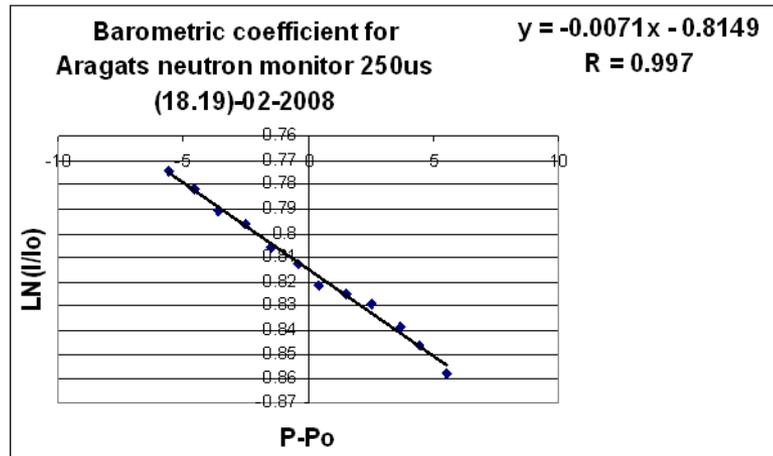
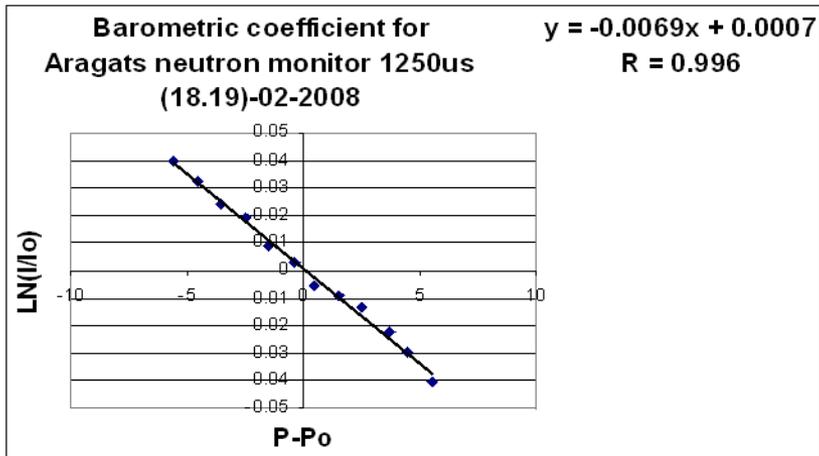
$$y = -0.00695x - 0.0008$$

$$R = 0.997$$





# Calculation of Barometric Coefficient for Aragats Neutron Monitor



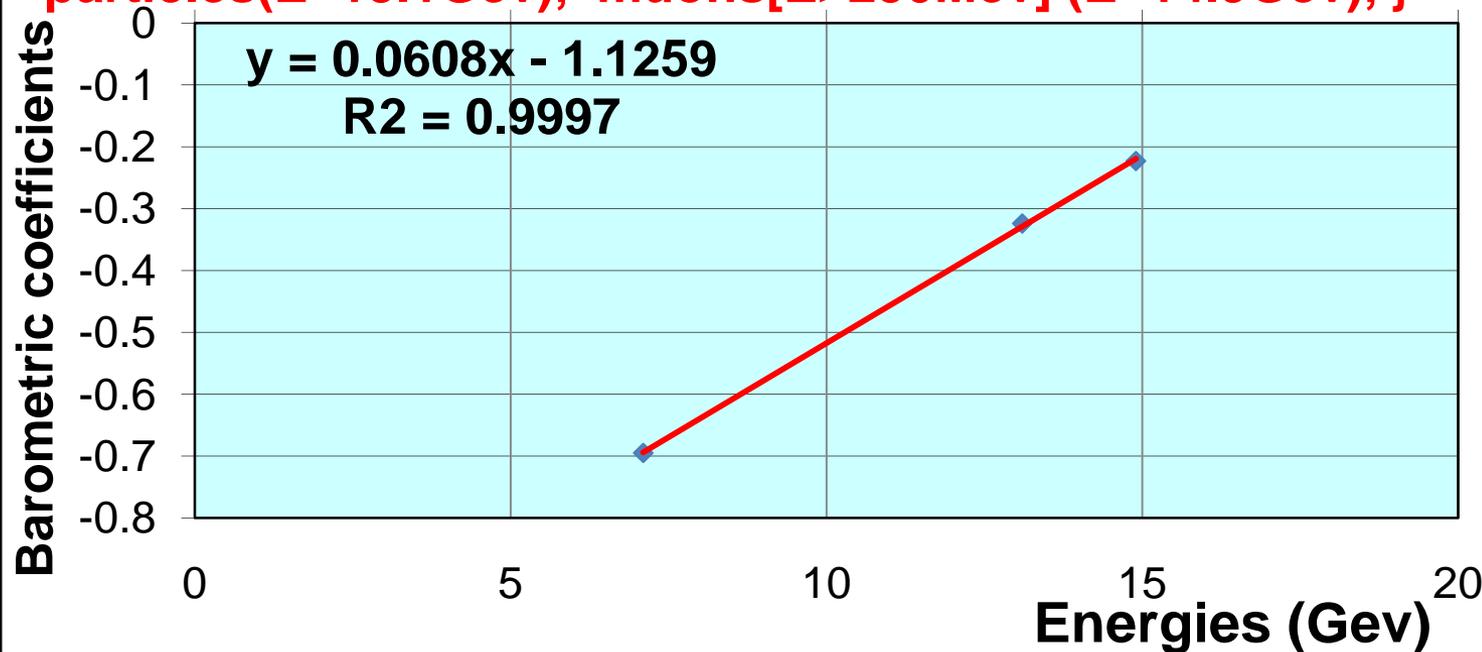
## Barometric Coefficients of ASEC Monitors

MONITORS	BAROMETRIC COEFFICIENT	ERROR	CORRELATION COEFFICIENT
Nor Amberd neutron monitor 0.4us	-0.695 %/mb	$\pm 0.0133$	0.997
Nor Amberd neutron monitor 250us	-0.678 %/mb	$\pm 0.0127$	0.997
Nor Amberd neutron monitor 1250us	-0.670 %/mb	$\pm 0.0216$	0.995
Aragats neutron monitor 0.4us	-0.730 %/mb	$\pm 0.0185$	0.997
Aragats neutron monitor 250us	-0.713%/mb	$\pm 0.0183$	0.997
Aragats neutron monitor 1250us	-0.688%/ mb	$\pm 0.0182$	0.996
Nor Amberd multidirectional muon monitor(1) (upper layer)	-0.324%/mb	$\pm 0.012$	0.992
Nor Amberd multidirectional muon monitor(1) (lower layer)	-0.223%/mb	$\pm 0.0135$	0.987
Nor Amberd multidirectional muon monitor(2) (upper layer)	-0.323%/mb	$\pm 0.0136$	0.991
Nor Amberd multidirectional muon monitor(2) (lower layer)	-0.225%/mb	$\pm 0.0135$	0.987
Aragats underground muon Telescope E>5 Gev	-0.08%/mb	$\pm 7.57E-05$	0.924
Aragats Solar Neutron Telescope (5 cm)	-0.507%/mb	$\pm 0.022$	0.994
Aragats Solar Neutron Telescope (60 cm)	-0.427%/mb	$\pm 0.017$	0.994

# Dependence of barometric coefficients from primary energy (Nor Amberd 2000m)

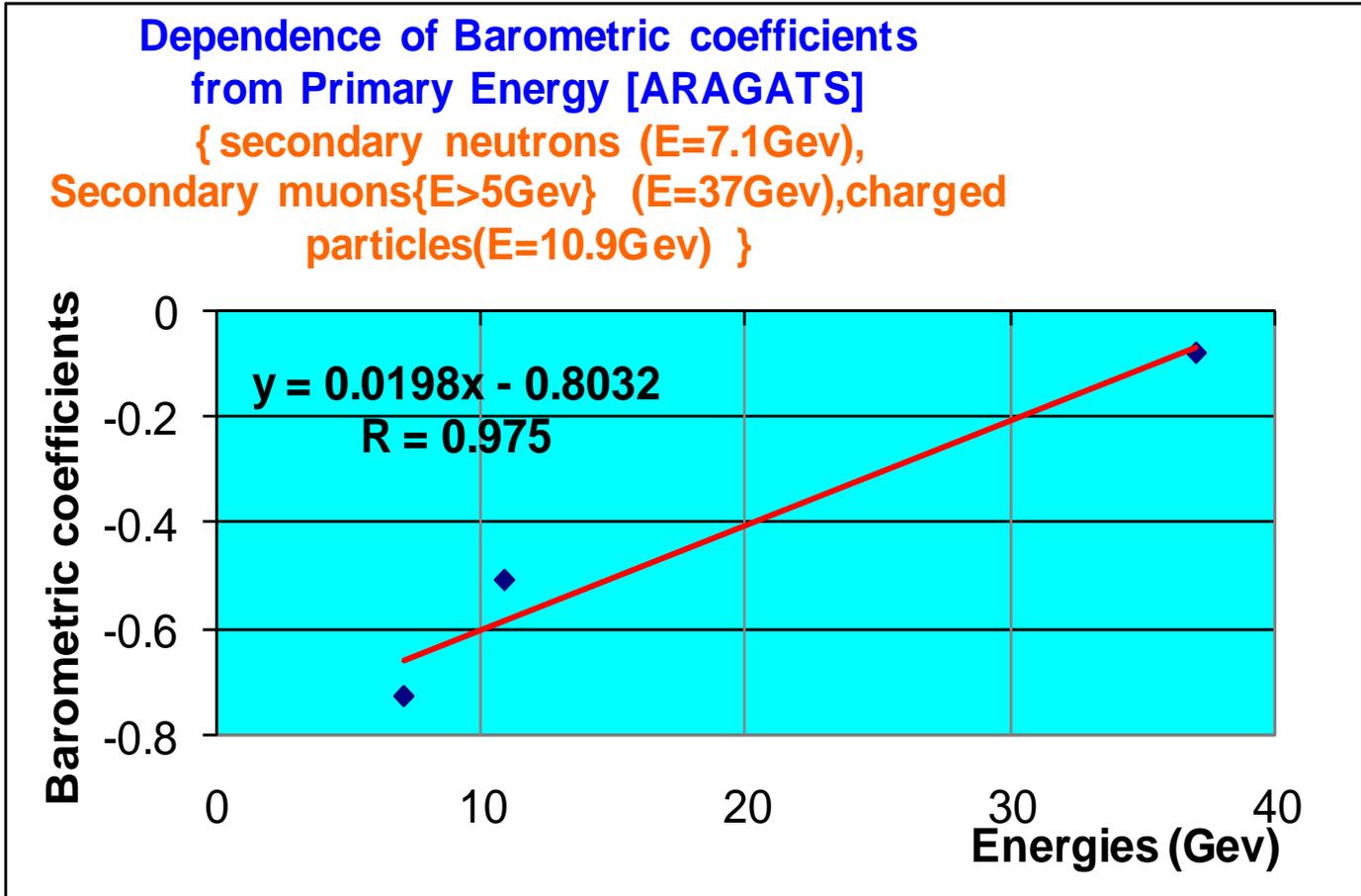
## Dependence of Barometric coefficients from Primary Energy [NOR AMBERD]

{ secondary neutrons (E=7.1Gev), charged particles(E=13.1Gev), muons[E>250Mev] (E=14.9Gev), }





# Dependence of barometric coefficients from primary energy (Aragats 3200m)





# Conclusions

- The diapason of variation of the barometric coefficient from  $-0.73$  to  $-0.08$  demonstrates rather wide possibilities of the ASEC particle detectors to access primary rigidities from 7 till 50 GV