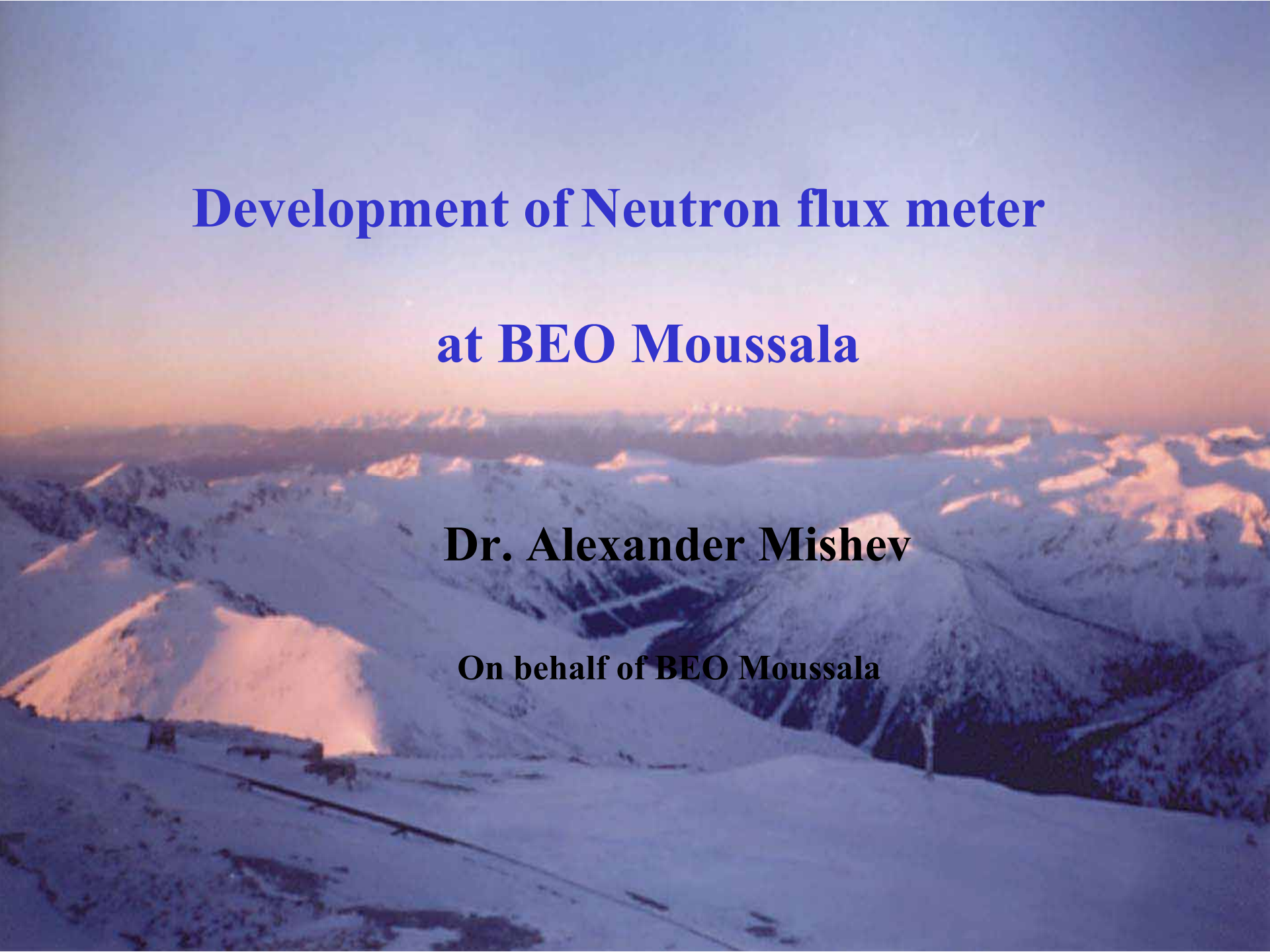




Development of Neutron flux meter at BEO Moussala

Dr. Alexander Mishev

On behalf of BEO Moussala



Outlook

Present activities

Neutron measurements

Future plans

Discussion

BEO Moussala

Coordinates:

Latitude - $42^{\circ} 11'$

Longitude - $23^{\circ} 35'$

Altitude - 2925m



The Sun-Earth Connected System

Variable Star



Varying

- Radiation
- Solar Wind
- Energetic Particles

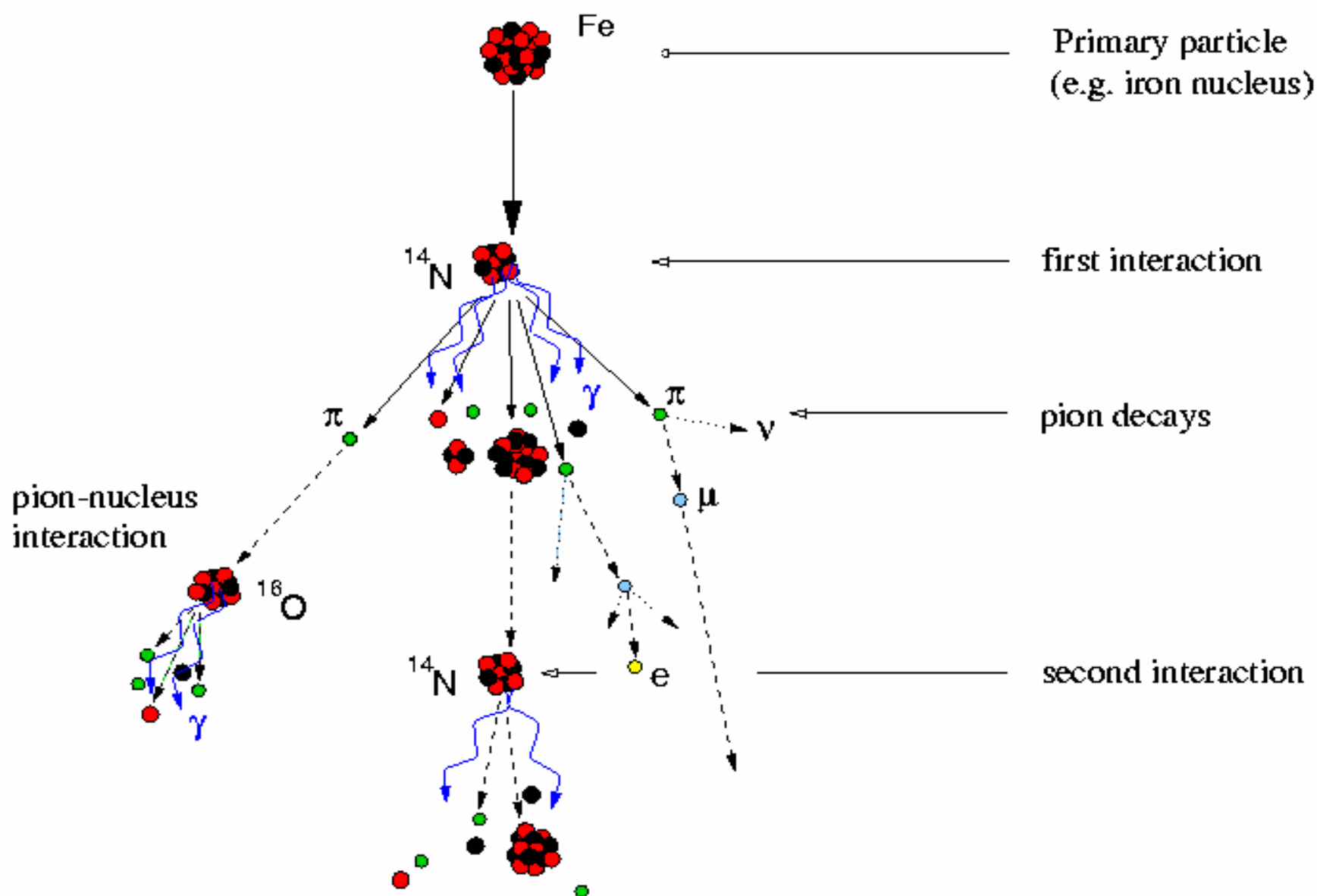
Planet

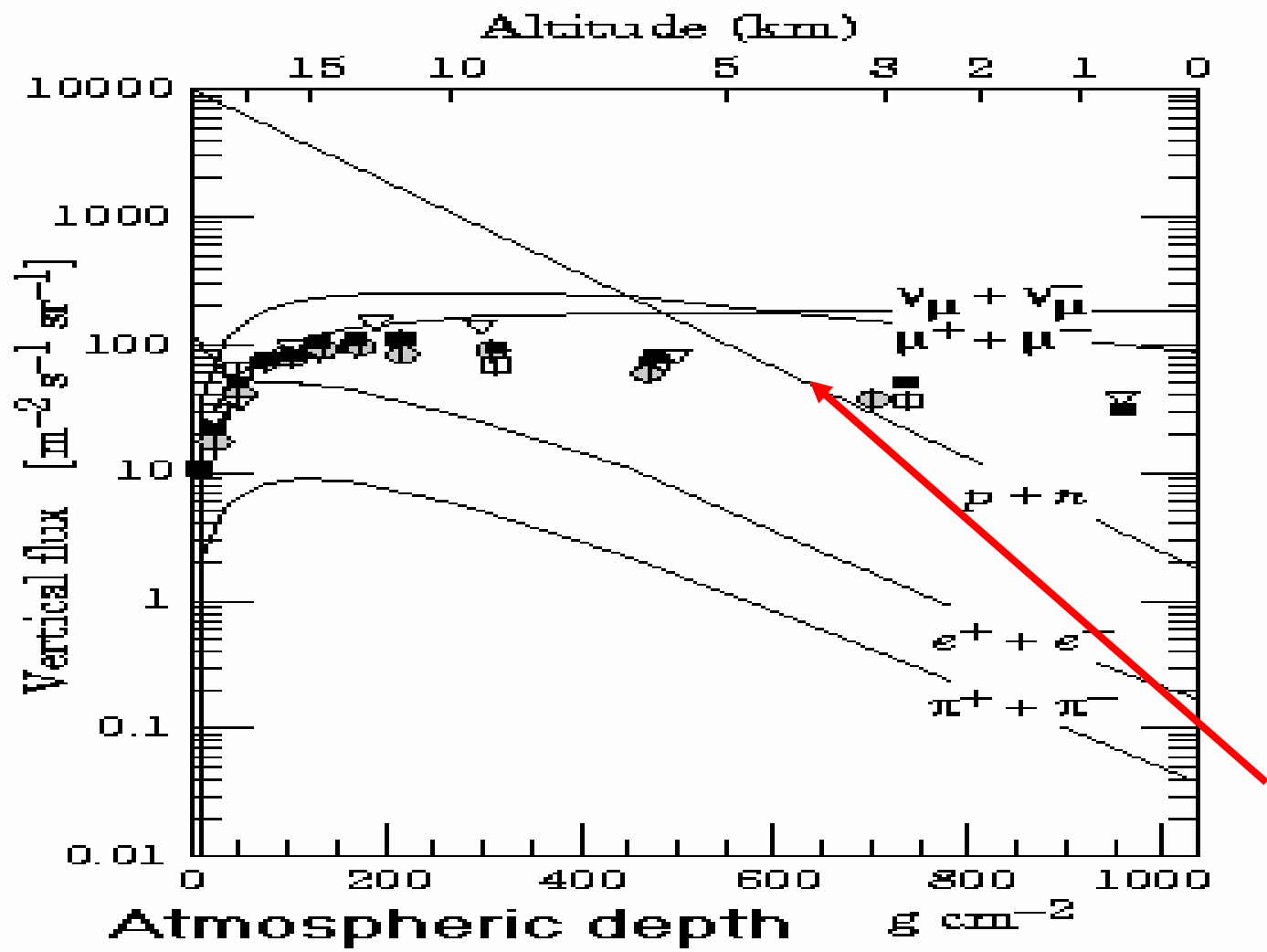


Questions:

- *How and why does the Sun vary?*
- *How does the Earth respond?*
- *What are the impacts on humanity?*

Development of cosmic-ray air showers

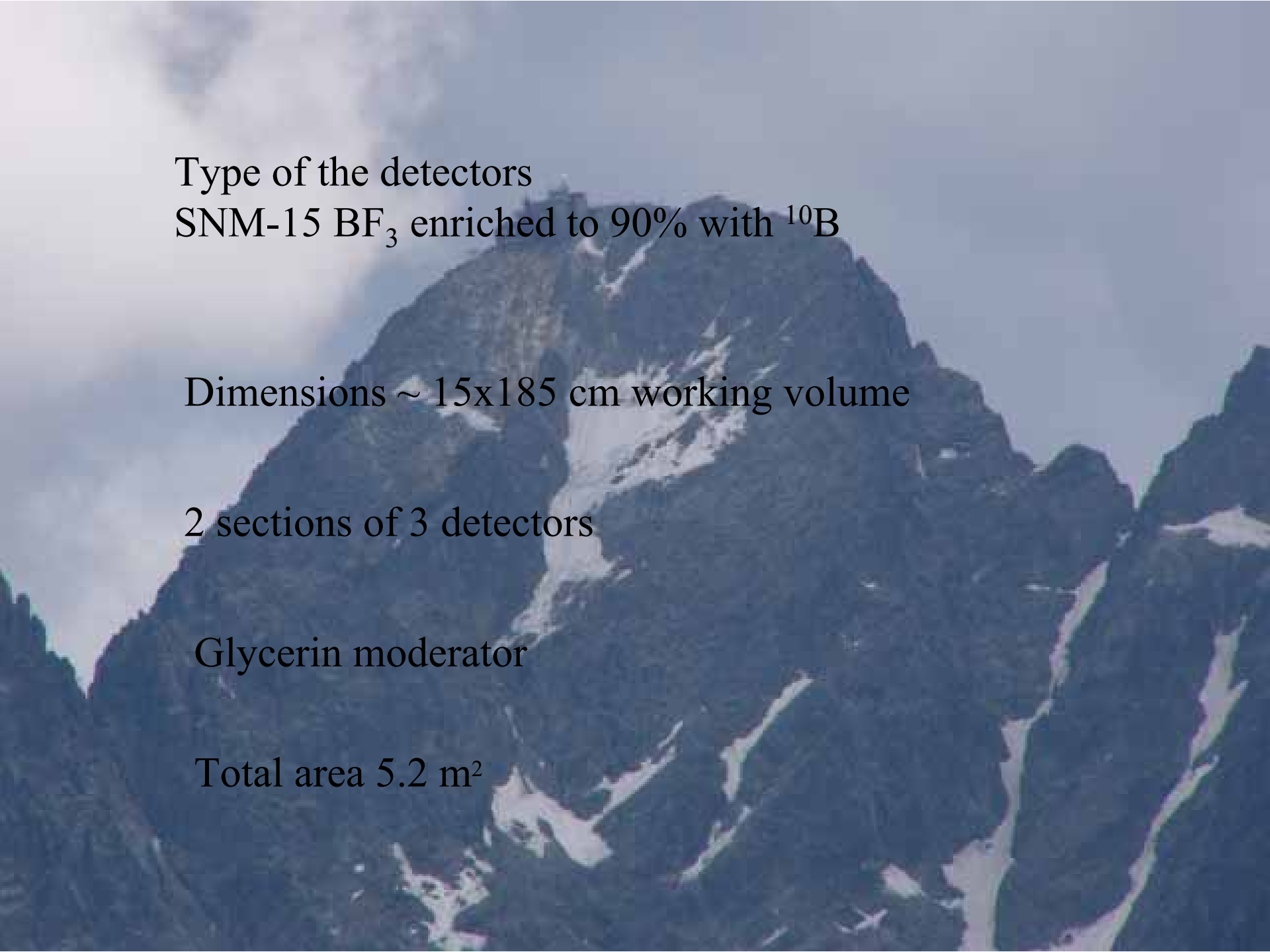




Neutron flux meter







Type of the detectors

SNM-15 BF_3 enriched to 90% with ^{10}B

Dimensions $\sim 15 \times 185$ cm working volume

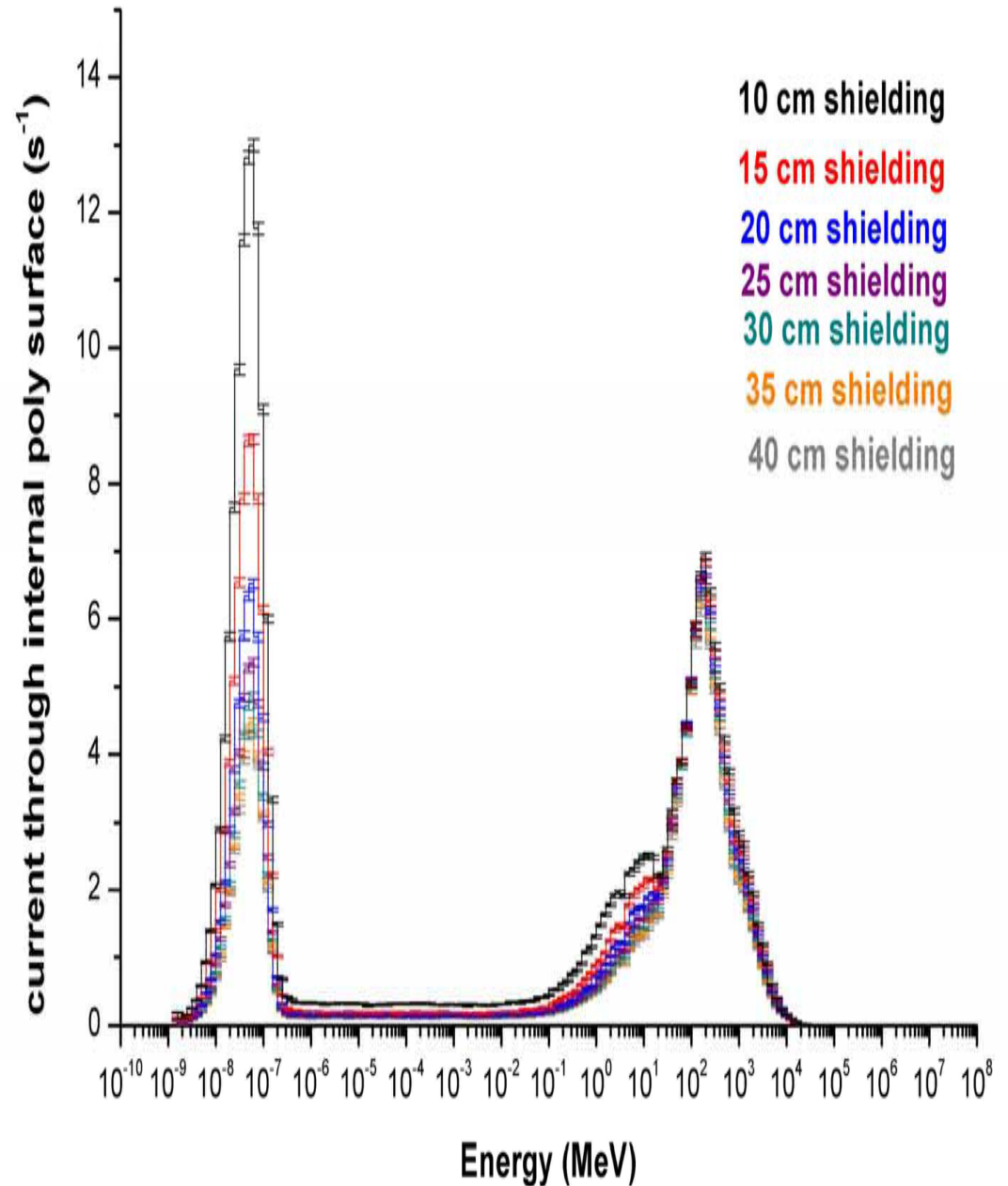
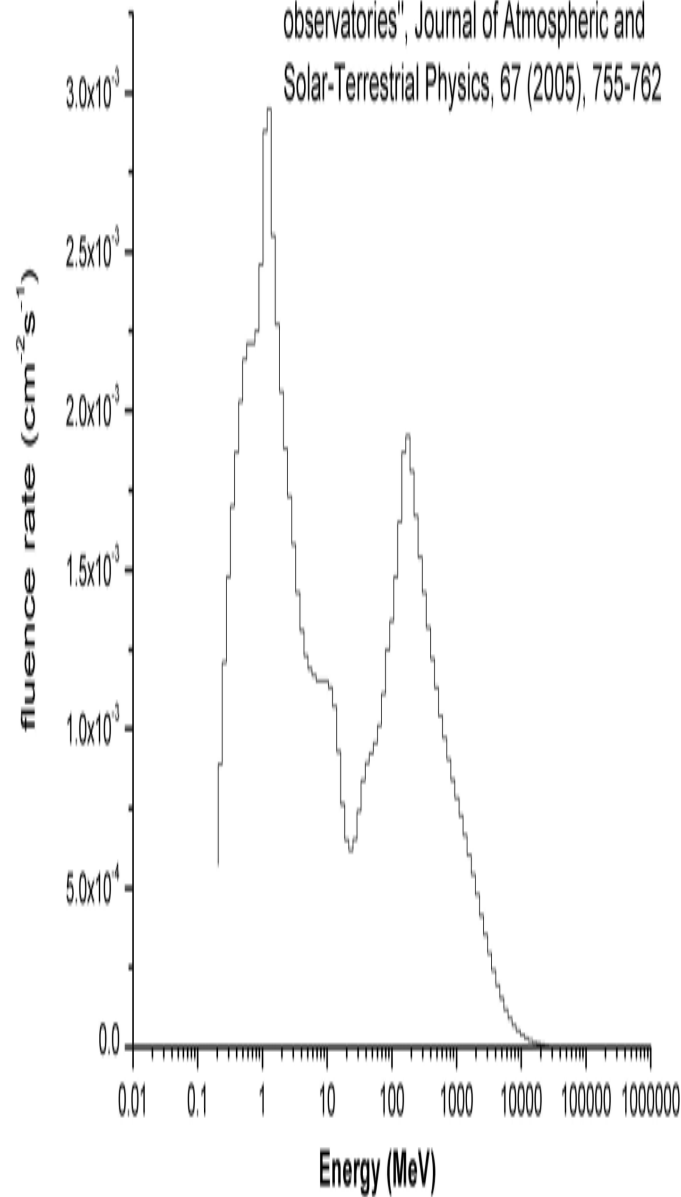
2 sections of 3 detectors

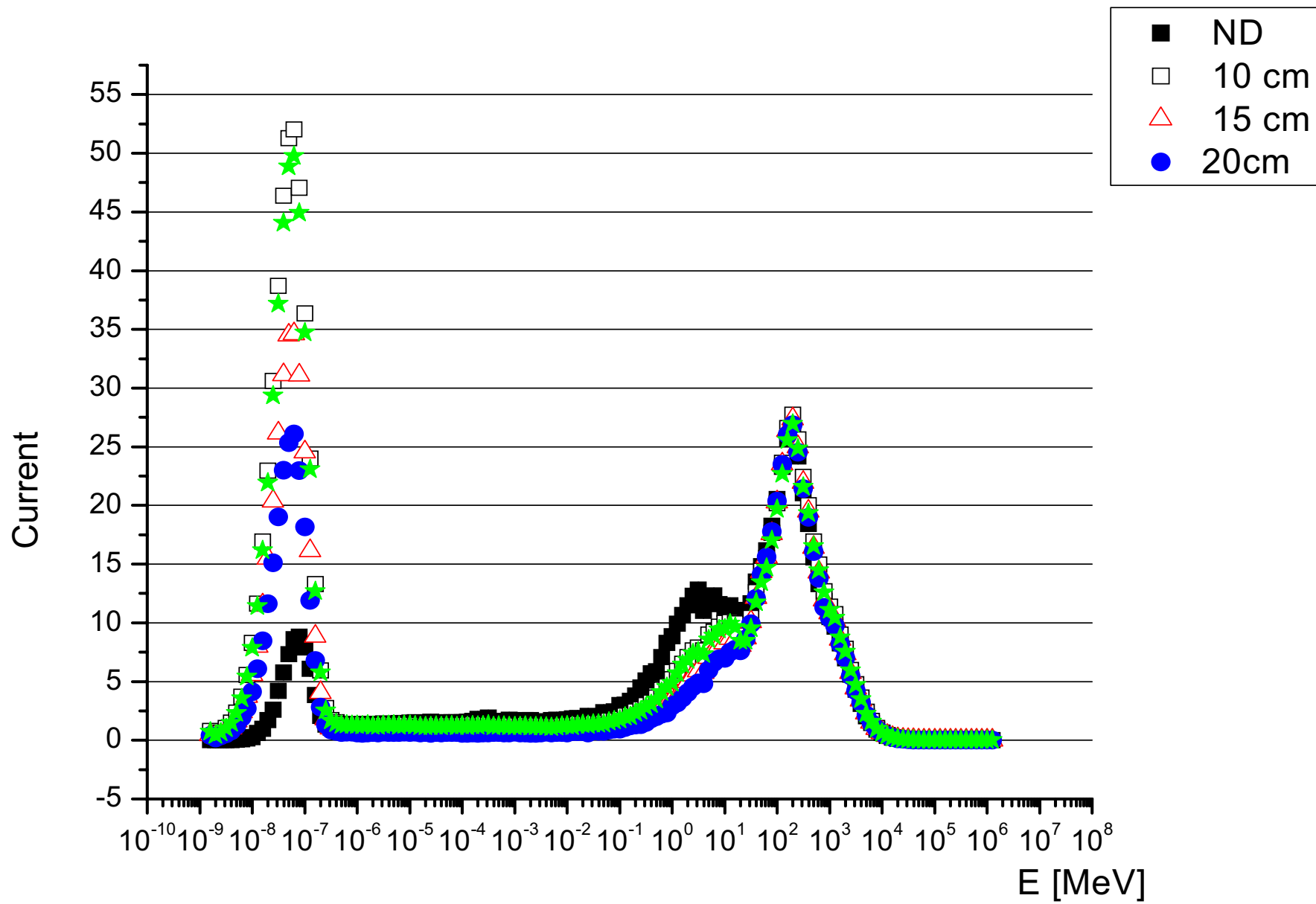
Glycerin moderator

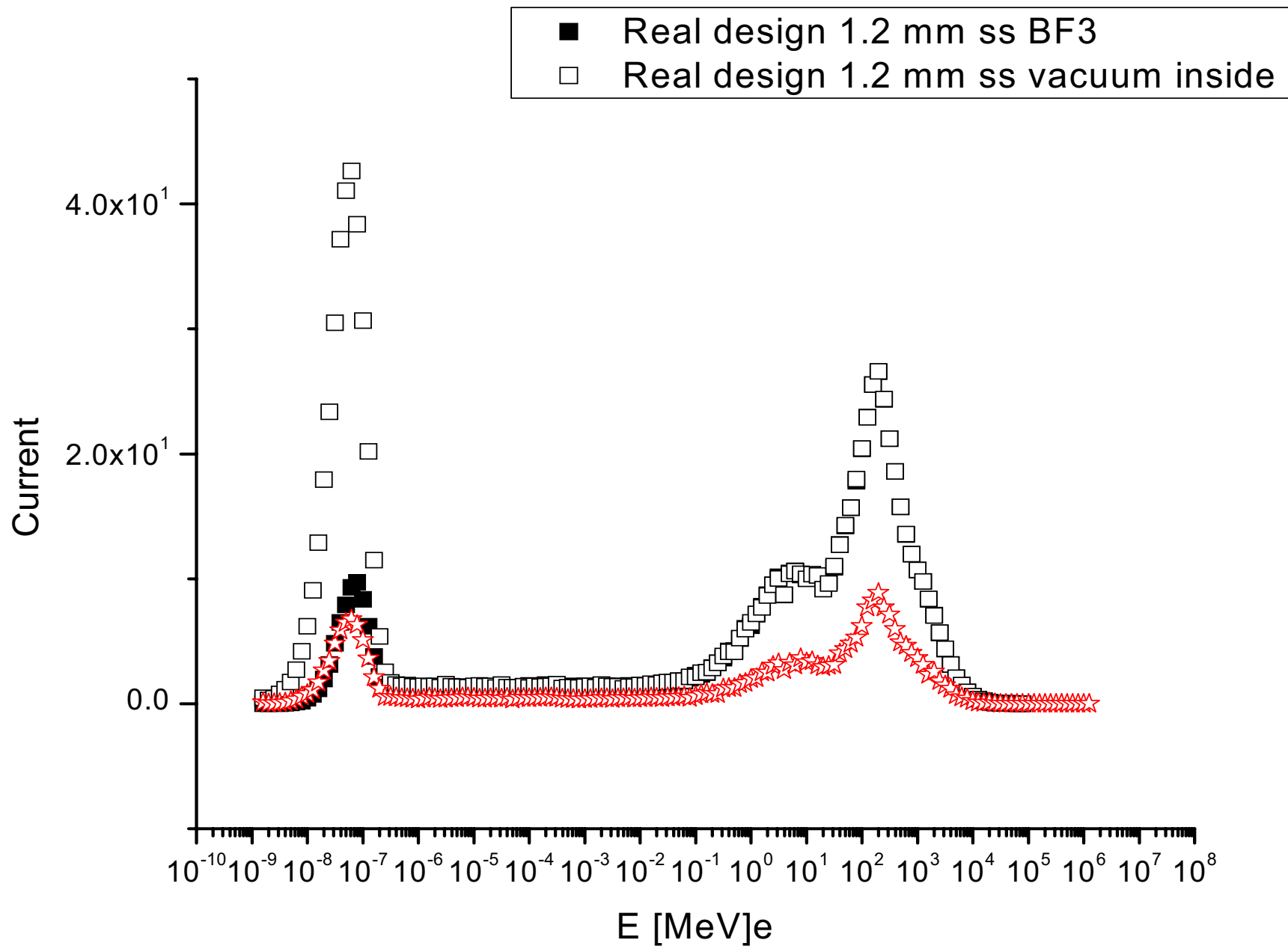
Total area 5.2 m^2

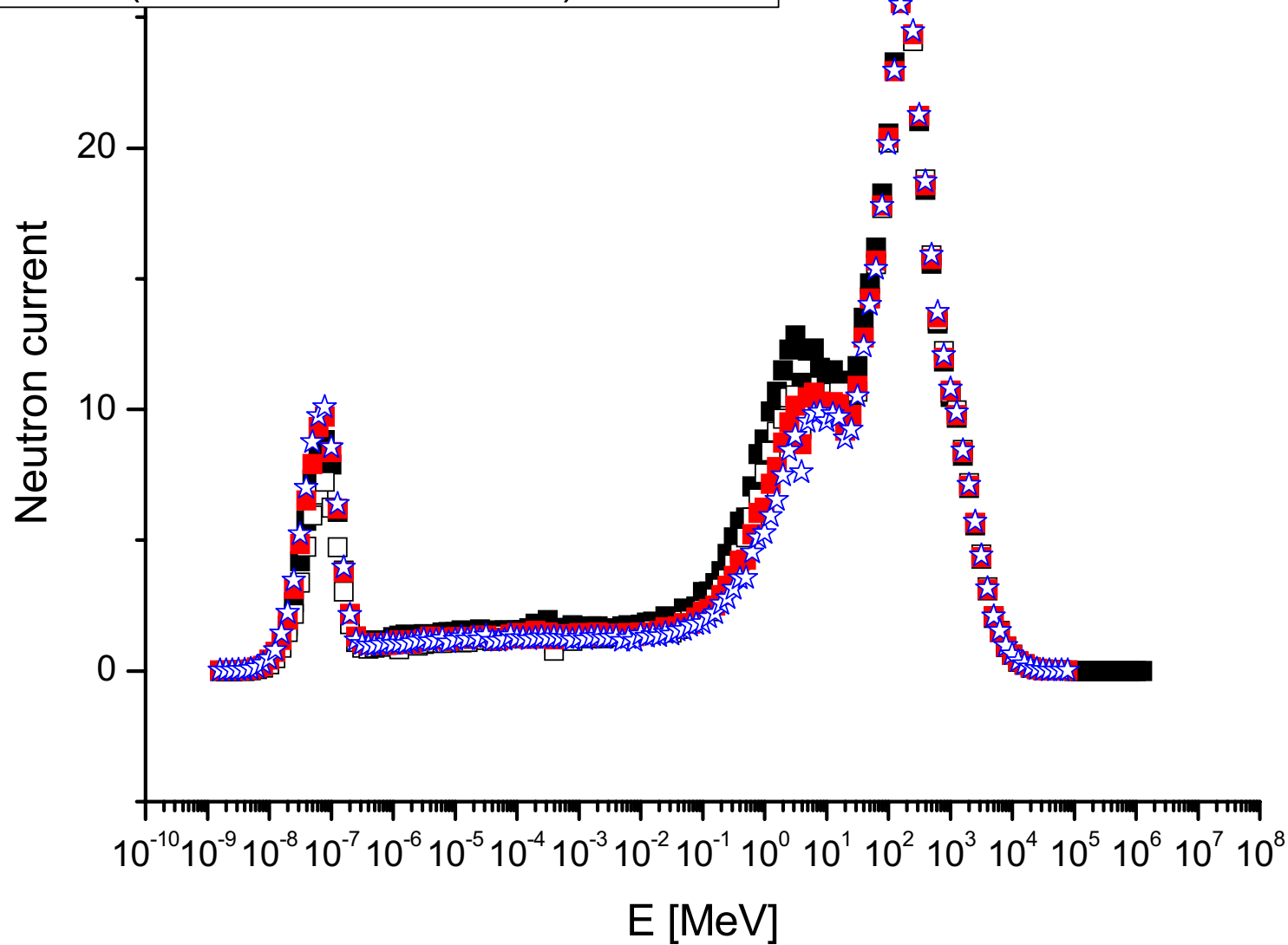
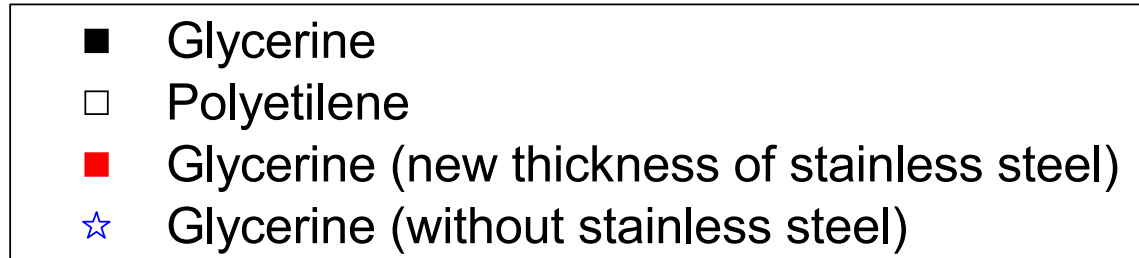
Testa Grigia neutron spectrum:

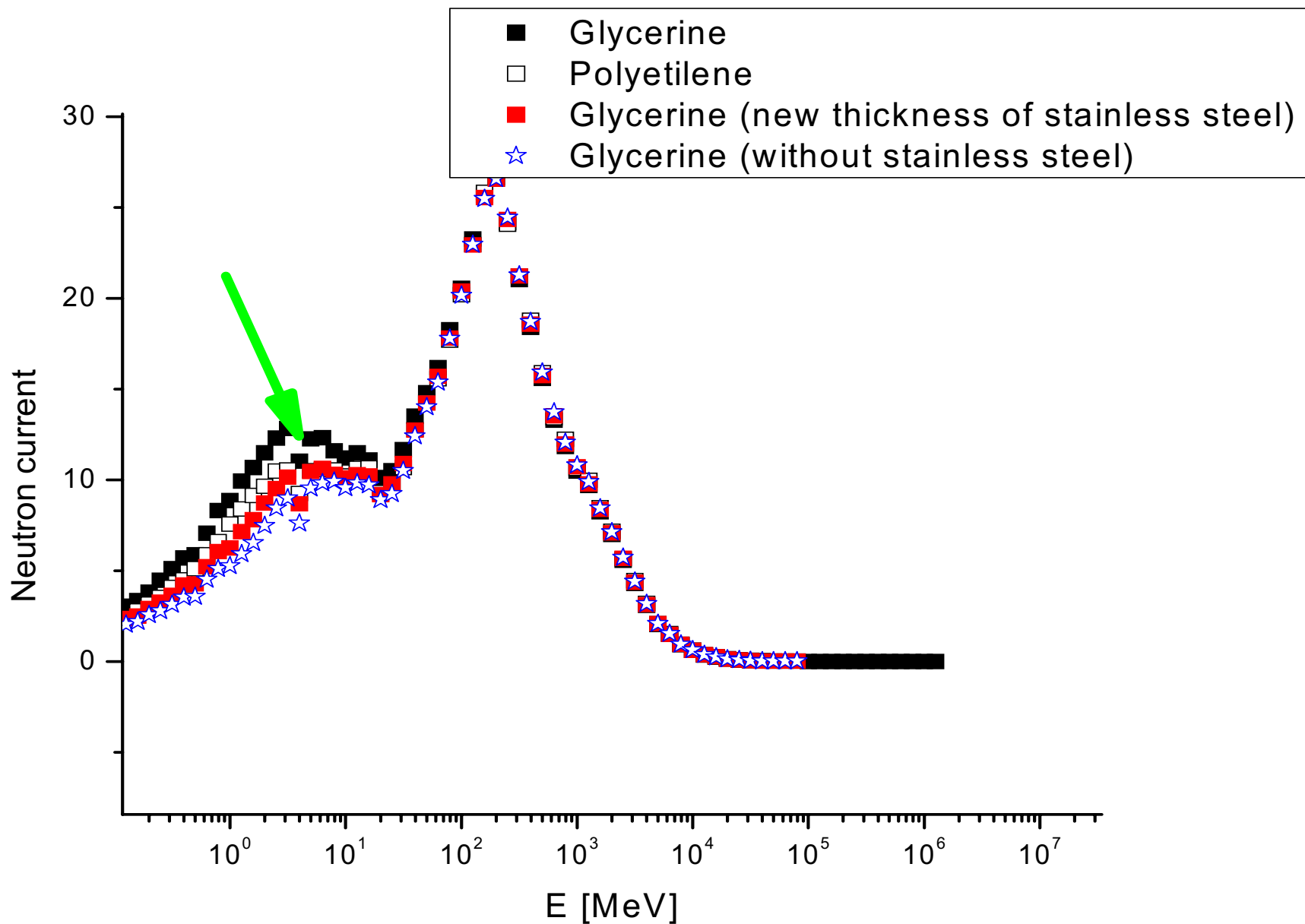
A. Zanini et al. "Neutron spectrometry at high mountain observatories", Journal of Atmospheric and Solar-Terrestrial Physics, 67 (2005), 755-762

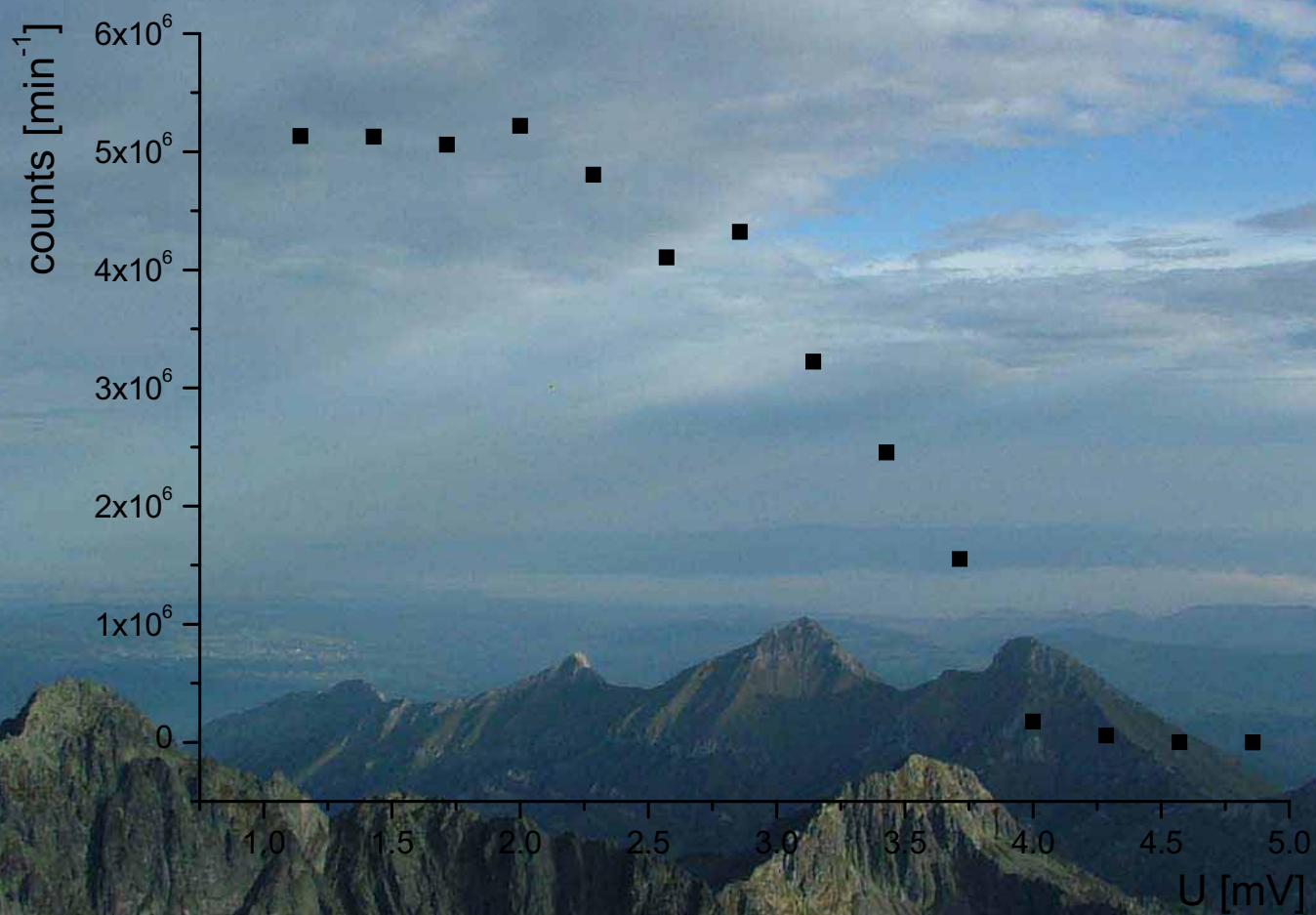












Future work

Detailed Monte Carlo simulations ~ INFN Torino

Estimation of the ambient dose rate

Small neutron monitor

**Photomultiplier FEU-49
in Housing**

**4 Plastic Sintilators
Each 50x50x5cm**

5cm Thick Lead

**Neutron Detector
25cm Thick
50x50cm**

Box for Electronics





Thank You for Your Attention