

# Performance of the current and extended global NM network for solar particle registration and analysis

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Over the years the global neutron monitor network (NMN) was extensively and successfully used to study variable fluxes of Galactic cosmic rays accelerated solar ions, the latter known as energetic solar particles. Recently, the NMN has been used also for space weather purposes, specifically event alerts, and to provide crucial information necessary for the assessment of the exposure to radiation at flight altitudes. Here, we discuss the current status and applications of the global NMN, specifically its capability to study solar energetic particles, including assessments of their spectral and angular distributions during large strong solar proton events e.g. ground level enhancements. Several examples are presented, accordingly. We also discuss the existing gaps in the network and propose an improvement of the network, namely a plan for an extension of the existing network with several new monitors, in order to provide a more precise analysis of strong solar proton events and to respond to the enhanced need for the current space weather services. We discuss the ability of the optimized global neutron monitor network to study different populations of solar energetic particles and to provide reliable space weather services.

## Keywords

neutron monitor, solar energetic particles, space weather

## Collaboration

## other Collaboration

## Subcategory

Future projects

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