

Compiled “multi-NM” recommended dataset of global NM network

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The global neutron monitor (NM) network historically consists of over a hundred stations, that measure the galactic cosmic ray (GCR) flux all over the globe. This flux of GCR is modulated by solar/heliospheric magnetic activity, which is affected by the solar cycle and other solar activity manifestations. Thus, the temporal evolution of GCR flux can be ultimately used to study solar variability and probe the heliosphere. The combined measurements of the NM network can be viewed as essentially one huge spectrometer measuring the GCR flux, and they can give us considerable insights into the evolution of the heliosphere and the Sun.

We have used the recommendation list presented by Väisänen et al. (2020) to compile a combination of 147 NM stations. The result is separated into three different combinations according to the stations' rigidity cutoffs, which depend on the geomagnetic shielding effect at the stations' location. The high-statistics verified datasets will improve the quality and accuracy of the forthcoming studies based on these data.

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