



NMDB: real-time database for high resolution neutron monitor measurements

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The worldwide network of standardized neutron monitors is, after 50 years, still the state-of-the-art instrumentation to measure variations of the primary cosmic rays in the energy range 500 MeV-60 GeV. These measurements are an ideal complement to space based cosmic ray measurements. Unlike data from satellite experiments neutron monitor data has never been available in high time resolution from many neutron monitor stations in real-time. The data is often available only from the individual station's website, in varying formats, and not in real-time. To overcome this deficit, the European Commission is supporting the Neutron Monitor database (NMDB) as an e-Infrastructures project in the Seventh Framework Programme in the Capacities section. Stations that do not yet have 1-minute resolution will be supported by software and the development of an affordable standard registration system to submit the measurements to the database via internet in real-time. This resolves the problem of different data formats and for the first time allows use of real-time cosmic ray measurements for space weather applications. Besides creating a database and developing applications that use this data, a part of the project is dedicated to create a public outreach website to inform about cosmic rays and possible effects on humans, technological systems, and the environment.