

Topical Discussion Meeting report

Applications of neutron monitors to space-weather and NMDB working meeting.

Conveners: **Danislav Sapundjiev** (Royal Meteorological Institute of Belgium), **Christian Steigies** (University of Kiel)

2017-11-28 ; 15-16:15 ; room Delvaux

Nr of participants: 30

Objective of the TDM

The Real-time database for high-resolution neutron monitor measurements (NMDB) pursues the idea that was behind the establishment of the worldwide network of neutron monitors in the 1950s: all neutron monitors operated in Europe and some neighboring countries pool their data to make them available to scientists and other users. Ten years after creation the data from the NMDB is already utilized in several space-weather forecasting and alert platforms. It is also undergoing expansion and improvements in data access, storage and quality. The purpose of this meeting is to discuss the applications of the NMDB to space-weather forecasting and monitoring services, to improve the data access and quality and to investigate additional applications of the database.

Some discussion highlights

The main discussion was focused on the data quality and the future of the database. Examples were given of erroneous data regarding pressure and date. Spurious peaks are still present on a random basis. None of the participating stations representatives reported manually corrected (revised) was negative. A rigorous data revision can be carried out on a voluntary basis (often the reason behind is lack of manpower).

The expansion of the data contained in the NMDB was also discussed (adding a time-stamp of the record insertion) or introduction of the World Data Center (WDC) data format was also discussed (for export/import into the database with the purpose to correct erroneous records elsewhere). The general question was whether we are going to keep NMDB as a data storage as it is or we will continue working on an improved database of high quality neutron monitor revised data.

It was suggested that the individual station compare their data correction and manipulation software by applying it to data from other stations.

A short presentation about the use of the NMDB in combination with an extensive database containing **108** geomagnetic and solar parameters was given by Eugenia Eroshenko (see the attached documents). The database is freely accessible (at <http://spaceweather.izmiran.ru/eng/dbs.html>) and contains more than 7000 events dating back to the beginning of the neutron monitor operation.

Finally a possibility to include neutron intensity measurements from Mars detectors was also discussed.

Main conclusion of the meeting

A general conclusion was that the data quality is vital for the application of NMDB to space weather research and forecast. As a member of the NMDB every station should provide revised and reliable data

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preferably revised by an operator.

Annexes

Eugenia Eroshenko filename: ForESWW14-NMDB.pptx