GLE database

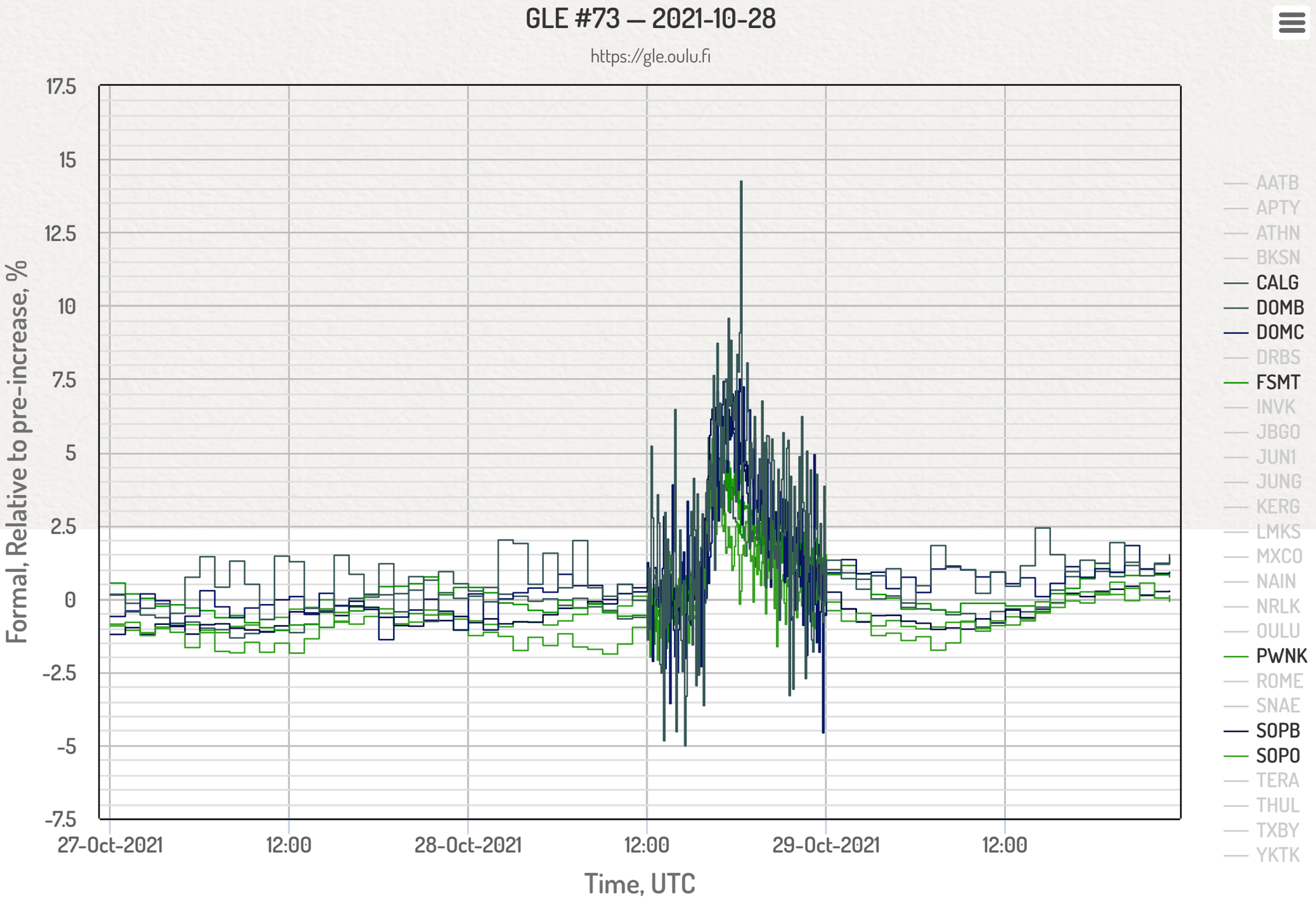
Display ◉ **Formal GLE data,** ○ **De-trended GLE data,** ○ **availability grid** ○ **or Effective dose rate**

Select a GLE: #73 — 2021-10-28

Show all stations | Hide all stations | Show 7 best stations — Show table of GLE dates

Toggle individual stations (when detrended data is shown, some stations are not on the chart and are disabled):

AATB	APTY	ATHN	BKSN	CALG	DOMB	DOMC	DRBS	FSMT	INVK	JBGO	JUN1	JUNG	KERG	LMKS	MXCO	NAIN	NRLK
OULU	PWNK	ROME	SNAE	SOPB	SOPO	TERA	THUL	TXBY	YKTK								



Download all stations | Download chosen stations

This is the official database of Neutron Monitor count rates during Ground Level Enhancements (GLEs) caused by solar energetic particles.

*The formal definition of a ground-level enhancement (GLE): *A GLE event is registered when there are near-time coincident and statistically significant enhancements of the count rates of at least two differently located neutron monitors including at least one neutron monitor near sea level and a corresponding enhancement in the proton flux measured by a space-borne instrument(s)"* (Poluianov et al., 2017). The definition of a sub-GLE: *"A sub-GLE event is registered when there are near-time coincident and statistically significant enhancements of the count rates of at least two differently located high-elevation neutron monitors and a corresponding enhancement in the proton flux measured by a space-borne instrument(s), but no statistically significant enhancement in the count rates of neutron monitors near sea level"* (Poluianov et al., 2017). The anisotropic cosmic-ray enhancement (ACRE) event is described in Gil et al. (2018).

After being created and maintained by Louise Gentile, Peggy Shea, Don Smart and Marc Duldig, this database has been moved to the University of Oulu, Finland in 2014. Please acknowledge this website when using the data. The data is served from a database, that keeps a copy of original data files, which can be found at this link. Data in the original files takes precedence over database content if these appear different. The database is hosted and managed by the Oulu Cosmic Ray Station of the University of Oulu, Finland. **Data manager:** Prof. Ilya Usoskin, Ilya.Usoskin@oulu.fi. **Website issues:** Dr. Askar Ibragimov, askar.ibragimov@gmail.com. **Acknowlegements:** we appreciate contribution by A. Belov, M. Duldig, E. Eroshenko, L. Gentile, J. Humble, H. Moraal, M. Shea, D. Smart, V. Yanke, and an army of individual NM station managers who performed tremendous work on collecting data presented in this database. We acknowledge the use of data from NMDB and also from WDC CR for calibration of the data in some cases.