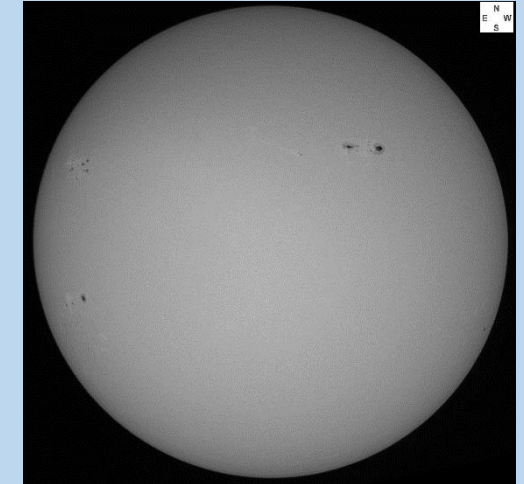


Space Weather activities in Slovakia

Ivan Dorotovič

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- The research related to **space weather (SWE)** has one of the longest history among other space research topics in Slovakia.

ISWI Steering Committee Meeting, 11 February, 2022

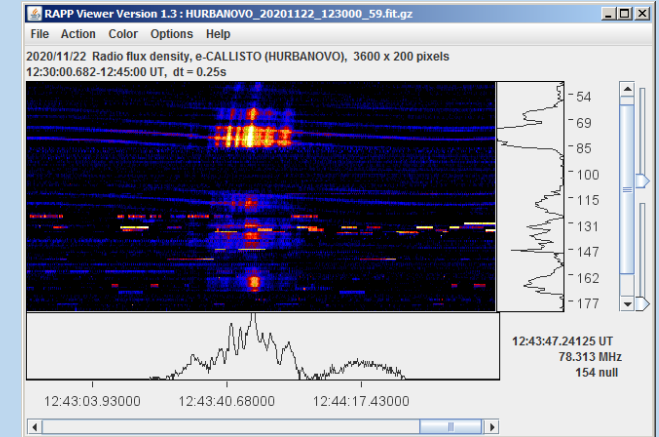
ISWI Instruments:

1. **CALLISTO** in the Slovak Central Observatory in Hurbanovo

- operational since **December 2011**

http://newserver.stil.bas.bg/SUNGEO/00SGArhiv/SG_v9_No1_2014-pp-105-107.pdf

Data available at: <http://soleil.i4ds.ch/solarradio/callistoQuicklooks/>



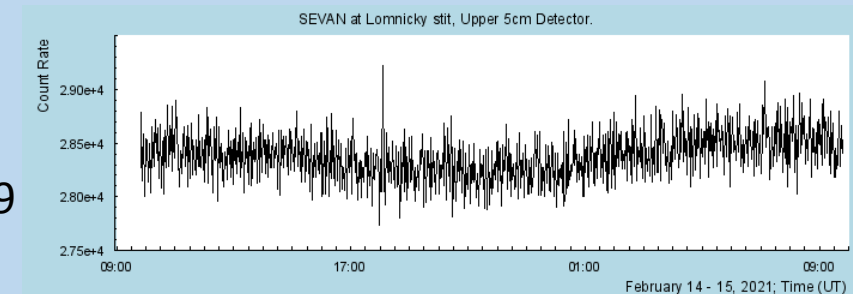
2. **SEVAN** in the Department of Space Physics of the IEP SAS,

Lomnický Peak Observatory

- operational since **March 2014**

<https://earth-planets-space.springeropen.com/articles/10.1186/s40623-020-01155-9>

Data available at: http://crd.yerphi.am/Lomnicky_stit_SEVAN_Data



■ Events:



- **National Solar Physics Meetings (NSPMs)**
 - **26th NSPM** in **June 2022**, onsite (?) in Piešťany
 - contributions on space weather events and studies as well
- **European Associated State Agreement with ESA**
August 2022

- **Astronomical Institute (AI) of the SAS, Tatranská Lomnica**
- **Solar Weather:**
 - New instrument for spectropolarimetry of the solar corona and prominences:
COMP- S: Coronal Multi-channel Polarimeter for Slovakia (VIS and IR, 500–1100nm)
At the Observatory Lomnický Štít <https://www.astro.sk/l3.php?p3=iso>
* * *
- **Institute of Experimental Physics (IEP), SAS, Košice
(Department of Space Physics)**
- **Heliospheric Weather:** - energetic particles by own instruments on space missions: Radioastron, Double Star, BepiColombo, JUICE, and etc.; - infrastructure for Space R&D projects
- **Space Radiation:** - Cosmic Rays measurements (ground based Neutron monitor and SEVAN monitor) [<http://neutronmonitor.ta3.sk>]
- **Ionospheric Weather**
 - AMON (Airglow MONitor) - processes in the thermosphere-ionosphere system
 - ASPIS - predictions of ionospheric scintillations

More at <https://websrv.saske.sk/uef/en/> * <http://space.saske.sk/?lang=1>

- **Solar telescopes for solar atmosphere observations at public observatories:**
 - Slovak Central Observatory in Hurbanovo, Astronomical Observatory in Prešov, Astronomical Observatory in Rimavská Sobota, Astronomical Observatory in Hlohovec → **SIDC in Belgium**

Hurbanovo:

- **Solar Weather:**
 - Study of solar activity during solar cycles, differential rotation profile:
 - Refracting and reflecting telescopes for optical observation of the sunspots in the solar photosphere (sunspot patrol obs.)
 - LUNT telescope with H-alpha filter for photographic observation of the solar chromosphere and prominences
 - Radio spectrometer CALLISTO: registration of solar radio bursts at 45 – 800 MHz (ISWI instrument)
 - Spectrometer Ocean Optics HR4000 and horizontal solar telescope (50/3500 cm): measurements of solar continuum in VIS spectral band with the aim to detect solar flares (Astronomical institute, CAS, Ondřejov, Czech Republic)
 - publication of Modified Coronal Index (MCI, <https://suh.sk/online-data/modifikovany-koronalny-index>) and Modified Homogeneous Data Set (MHDS, <https://suh.sk/online-data/modifikovany-homogenny-rad>) of solar coronal intensities.

- **Earth Science Institute (ESI), Slovak Academy of sciences (ESI SAS), Bratislava**
 - Geomagnetic Observatory located in Hurbanovo
- **Faculty of Mathematics, Physics and Informatics (FMPI) of the Comenius Univ., Bratislava**
 - Astronomical and Geophysical Observatory (AGO), located in Modra

- **Geomagnetic Conditions**

- Registration of the Earth's magnetic field:

Technical details of instruments in HURBANOVO within the **INTERMAGNET**:

- DI-fluxgate magnetometer (type ELSEC 810, Zeiss Theo 015B)
- DI-fluxgate magnetometer (type LEMI 203)
- proton magnetometer (type PMG 1)
- Torsion photoelectric magnetometer (TPM) employing Bobrov-type quartz variometers
- Magson fluxgate magnetometer
- Investigation of the **geomagnetic bursts**.
- <http://www.geomag.sk> ... Magnetograms