RTGMS – REAL-TIME GNSS MONITORING SYSTEM FOR POLAND

Reliable and uninterrupted access to satellite navigation data is nowadays a key element for various branches of economy, security and safety. At the same time, GNSS systems are not 100% reliable and the issue of interference (both unintentional and intentional) affecting their operation is becoming more and more significant – especially in current geo-political situation. That is why a constant monitoring of GNSS signals and detection of interference is so important.

The main goal of this project is development of the concept, pilot implementation and functional tests of national, Polish system for GNSS signals monitoring. Major functions of this system will include:

- detection of interference and/or unavailability of GNSS signals on the territory of Poland,
- generating alarms regarding any instances where satellite navigation systems may work incorrectly,
- real-time visualizations via a dedicated web service available to all interested users.

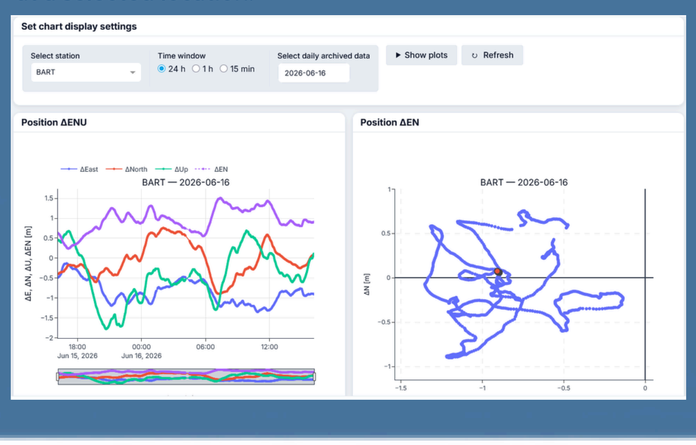
The system monitors interference at three levels:

High Level

Monitoring – high level – displays the status of the stations based on NMEA and RTCM data, as well as the data most relevant for users of satellite systems, such as

- station position,
- number of tracked satellites,
- DOP factors,
- Carrier-to-noise ratio (C/N0),

which allow the user to assess the measurement conditions at a selected location.



Medium Level

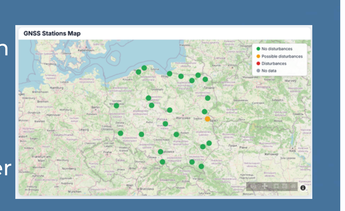
Monitoring – medium level – presents the results of a detailed analysis of RINEX files at the reference stations.

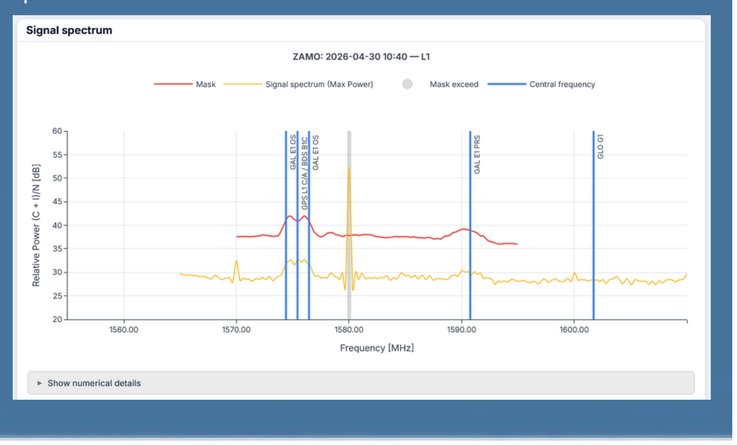
Medium Level Monitoring is a component that uses standard geodetic techniques to monitor the quality and completeness of GNSS data from RINEX files.



Low Level

Monitoring – low level – displays the status of the stations based on an analysis of the GNSS signal spectrum. The page allows the user to select a station and time interval for which the signal power spectrum and any exceedance of the mask at given frequencies are presented.





The project is carried out under the European Space Agency NAVISP – Element 3 programme addressed to government agencies of member states.

Status: On Going
Activity Code: NAVISP-EL3-038
Start date: 21/10/2024
Duration: 18 Months
Cost: 305 000 €

https://www.rtgms.pl/

Consortium:
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Head Office of Geodesy and Cartography