

NATIONAL REPORT



SLOVAKIA



Geodetic and Cartographic Institute Bratislava

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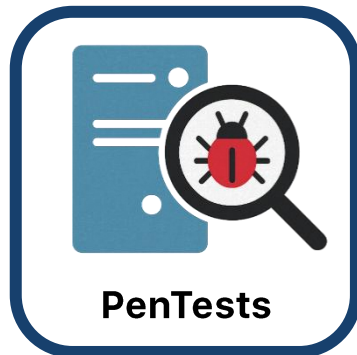
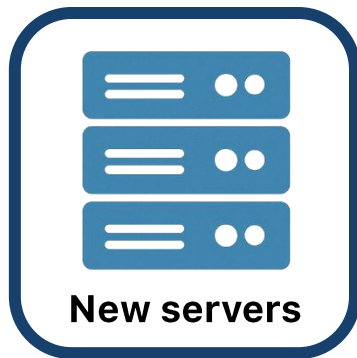


EUREF 2026 SYMPOSIUM

23th – 25th June 2026 | Paris

The screenshot displays the Trimble Pivot Platform software. On the left, a sidebar lists various management tools: Alarm Manager, Code Base Calculator, Device Manager, Data Watch, Customer Download, Customer Manager, and various Connect and Fleet management options. The main window shows a network map with numerous nodes (labeled with IDs like A10001, A10002, etc.) and connecting lines. A large red padlock icon with a white 'X' is overlaid on the network map, indicating a security warning. Below the padlock, a red-bordered box contains the text: "DATA HAS BEEN ENCRYPTED", "Access to RTK Network service has been blocked", and "403 - Forbidden". At the bottom of the screen, a log window shows a list of messages with timestamps and details about network connections and errors.

"HAPPY NEW YEAR"
2025

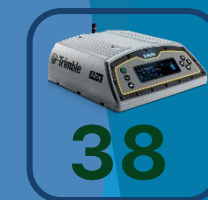
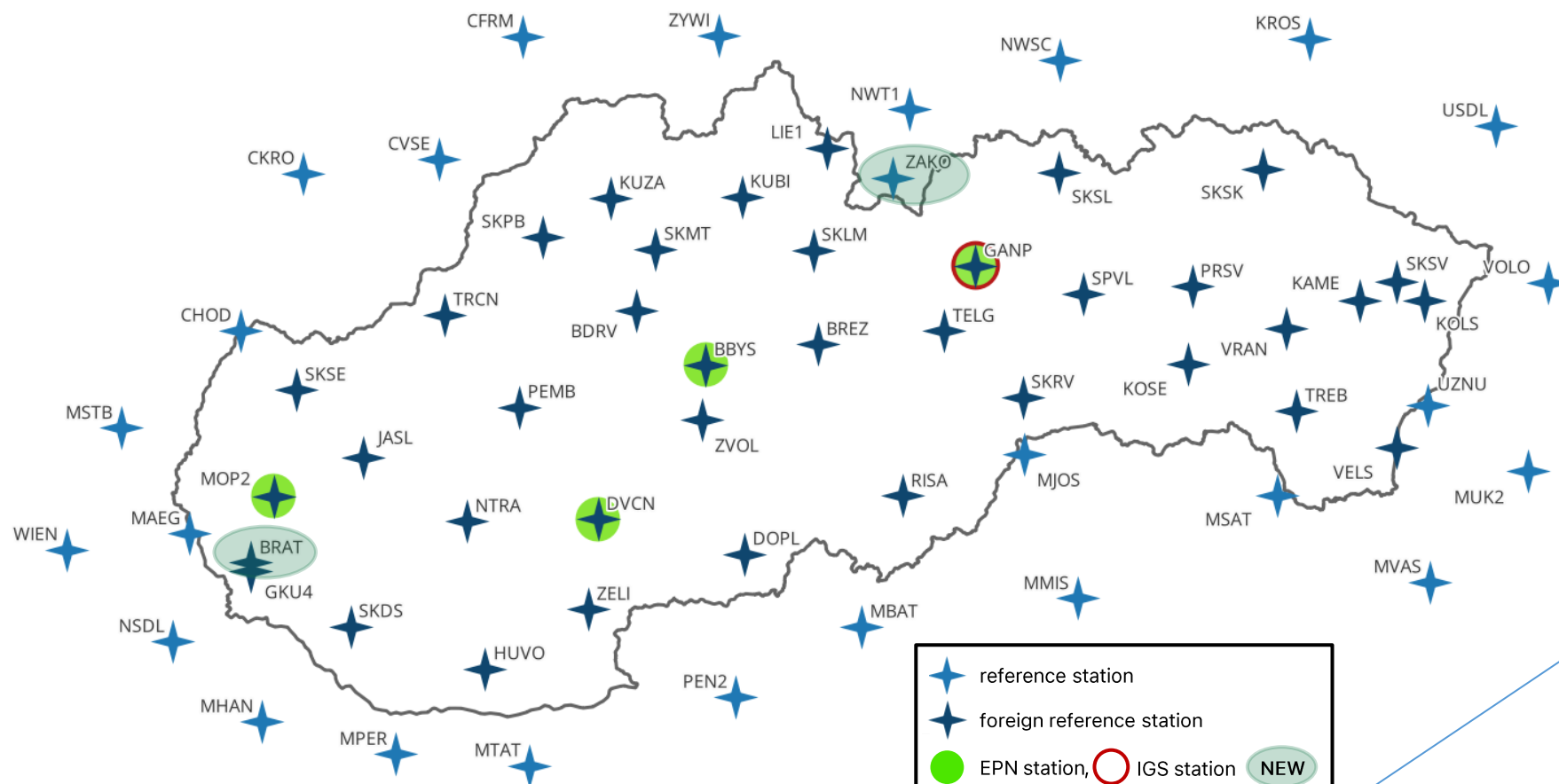


CORS Network

SKPOS®

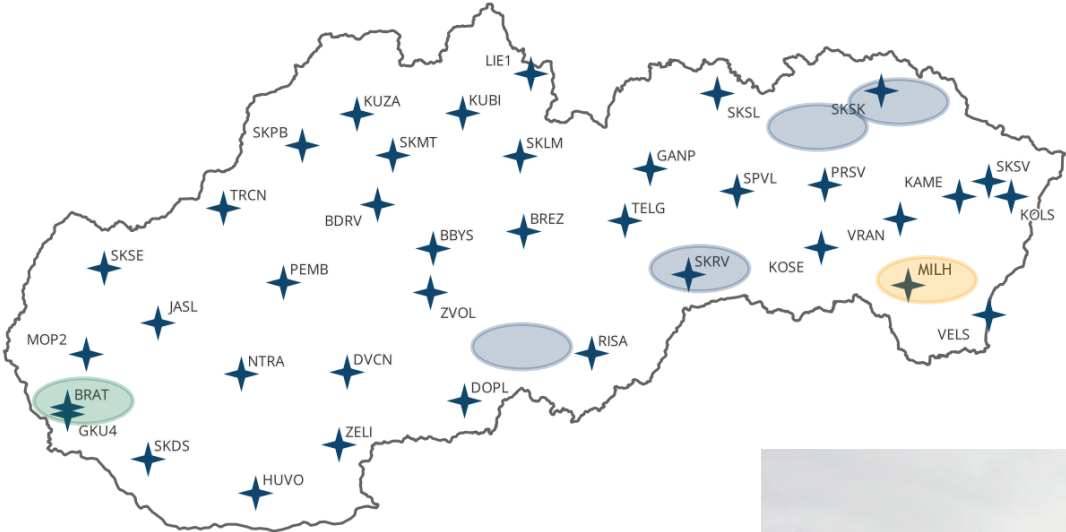
 **38** (+1)
STATIONS

26 (+1)
FOREIGN
STATIONS



CORS Network

NEW STATIONS



BRAT

in operation



MILH

under construction



STRP



BDJV

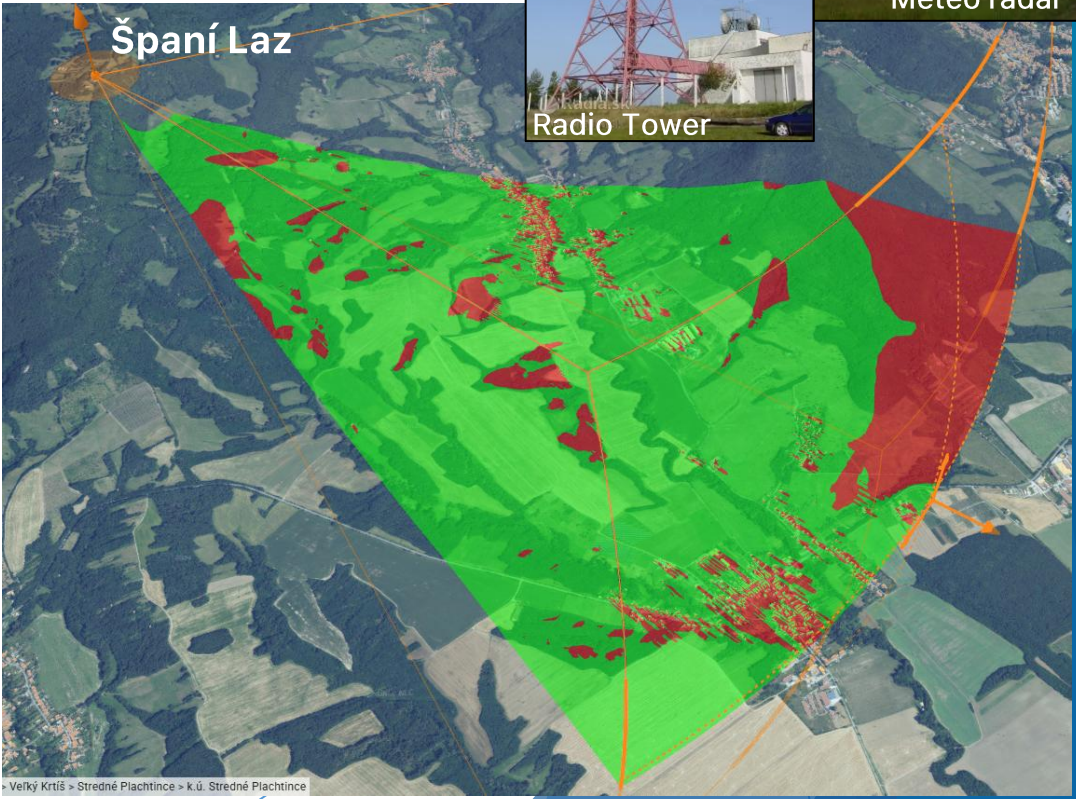
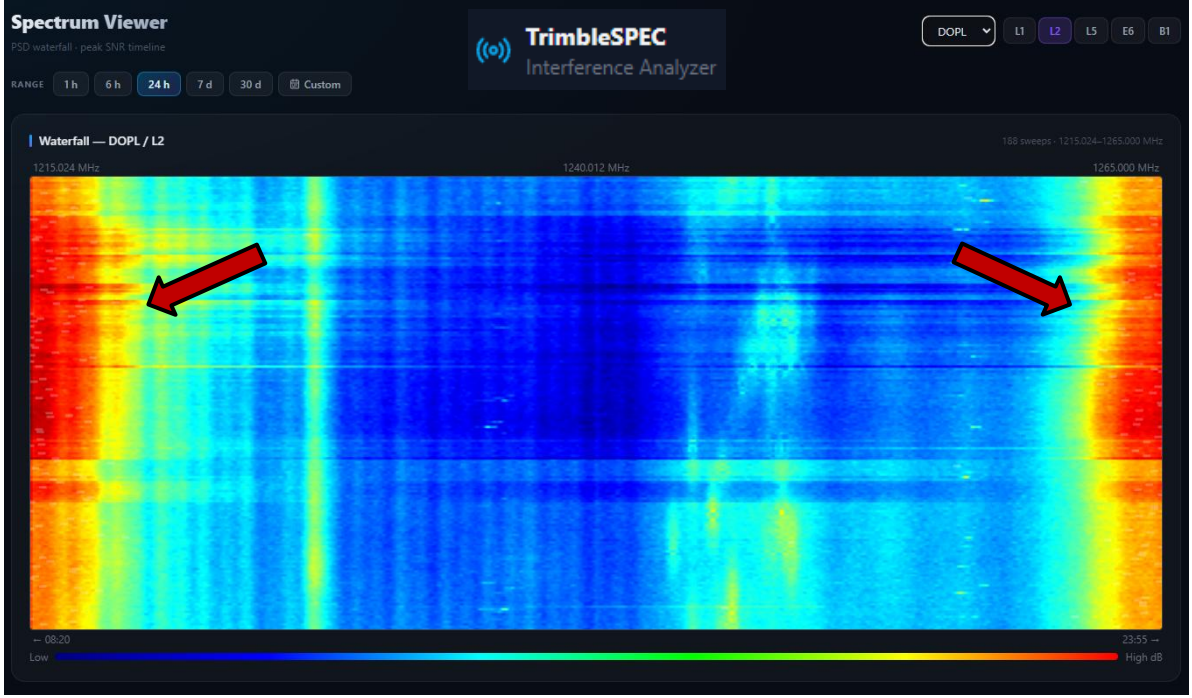
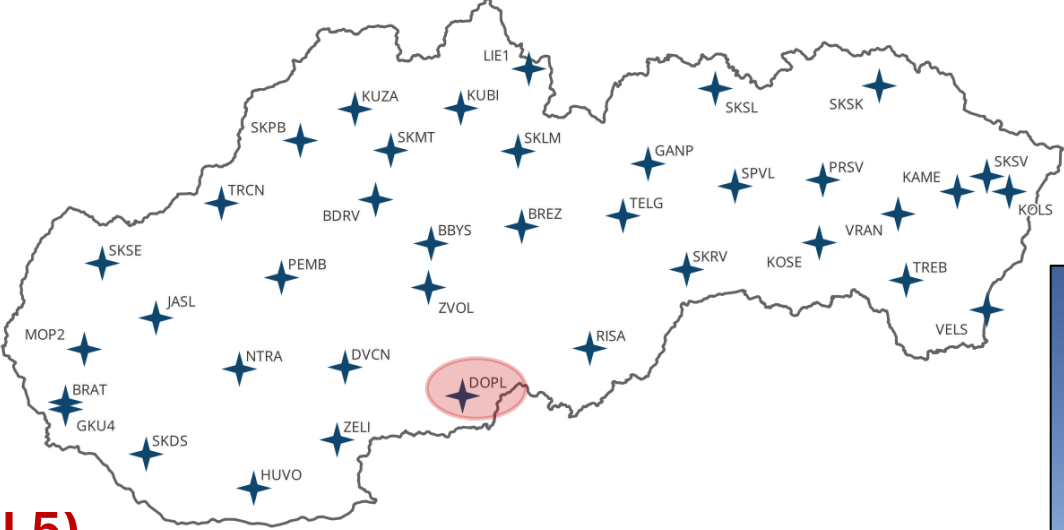
under planning

CORS Network

PROBLEMATIC STATIONS

DOPL

Assumption: Interference (L2/L5)

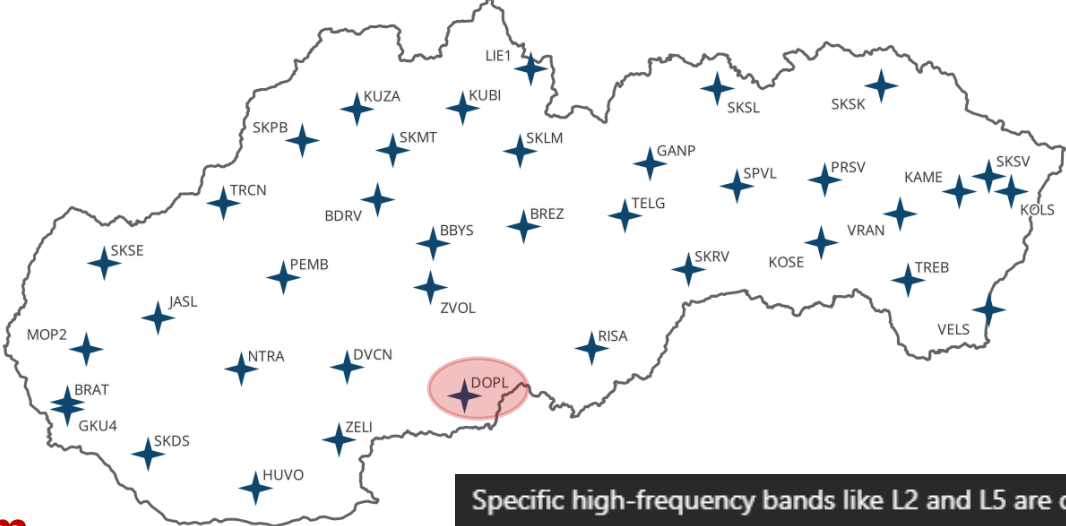


CORS Network

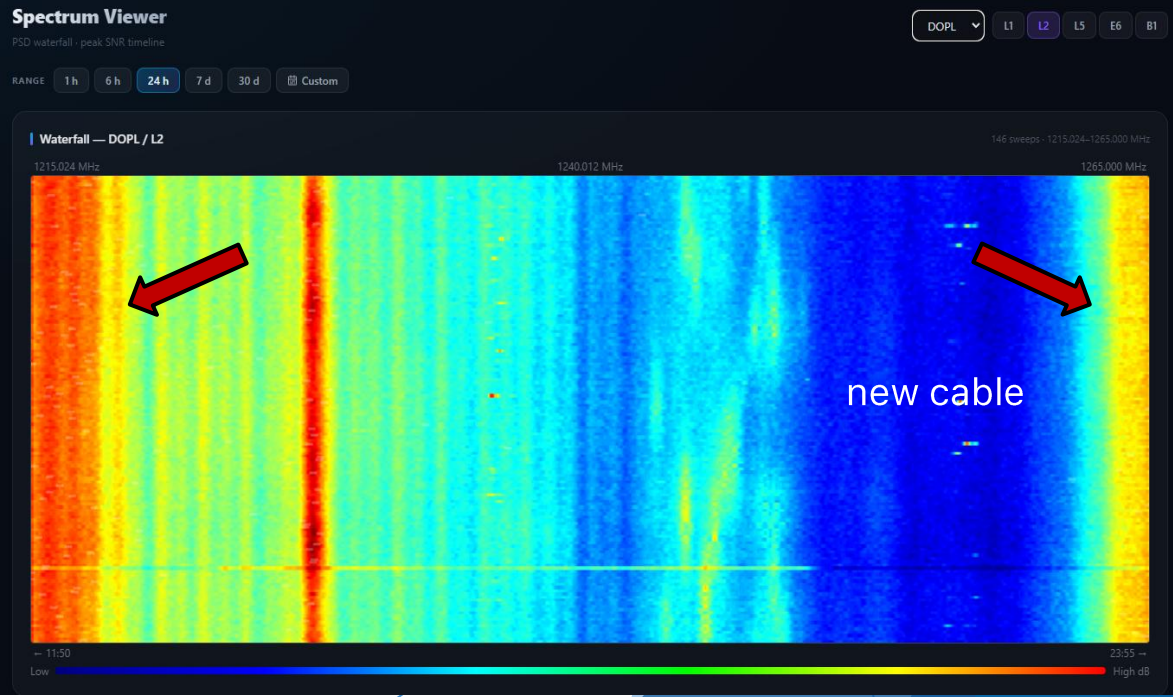
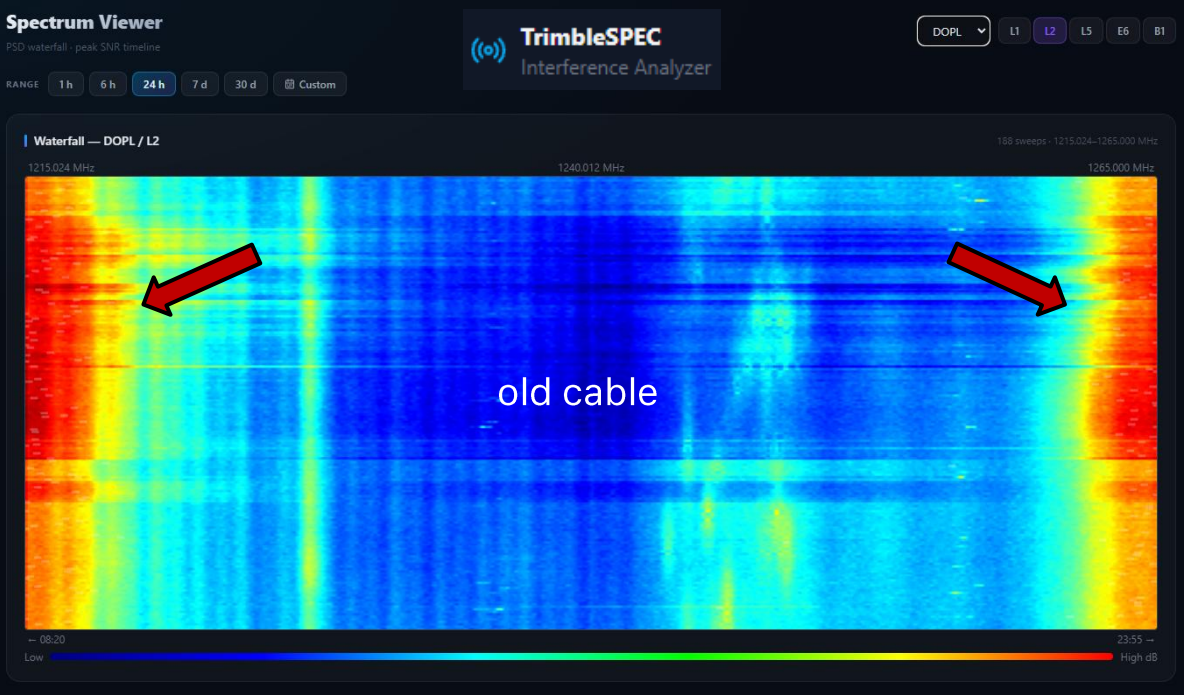
PROBLEMATIC STATIONS

DOPL

Reality: Antenna cable problem



Specific high-frequency bands like L2 and L5 are often the first to degrade due to cable issues (such as minor water ingress, internal kinking, or loose connectors), while L1 can still appear normal.

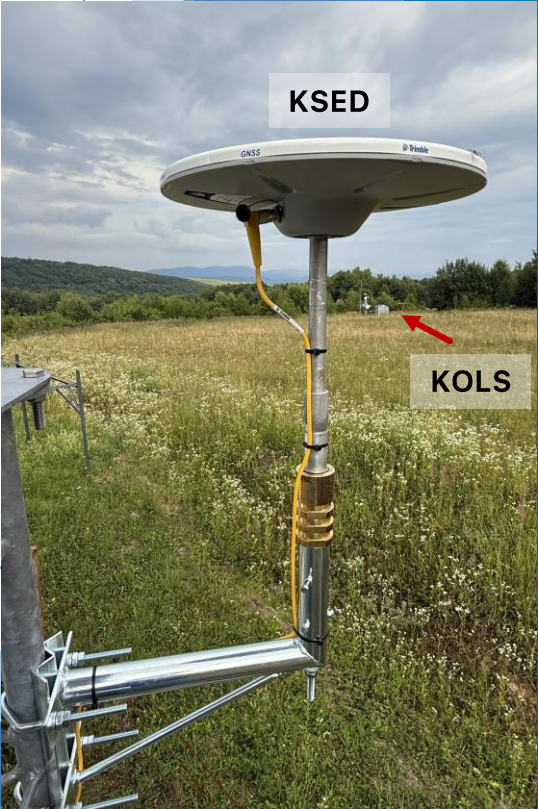
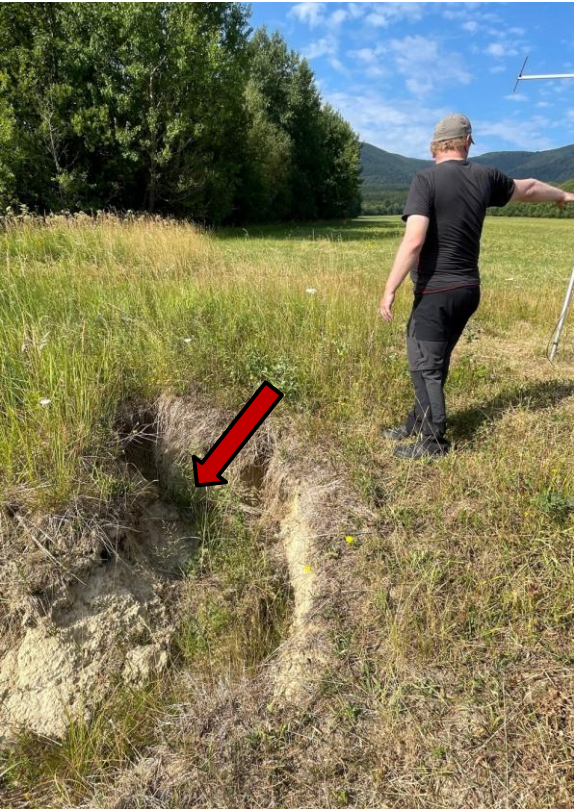
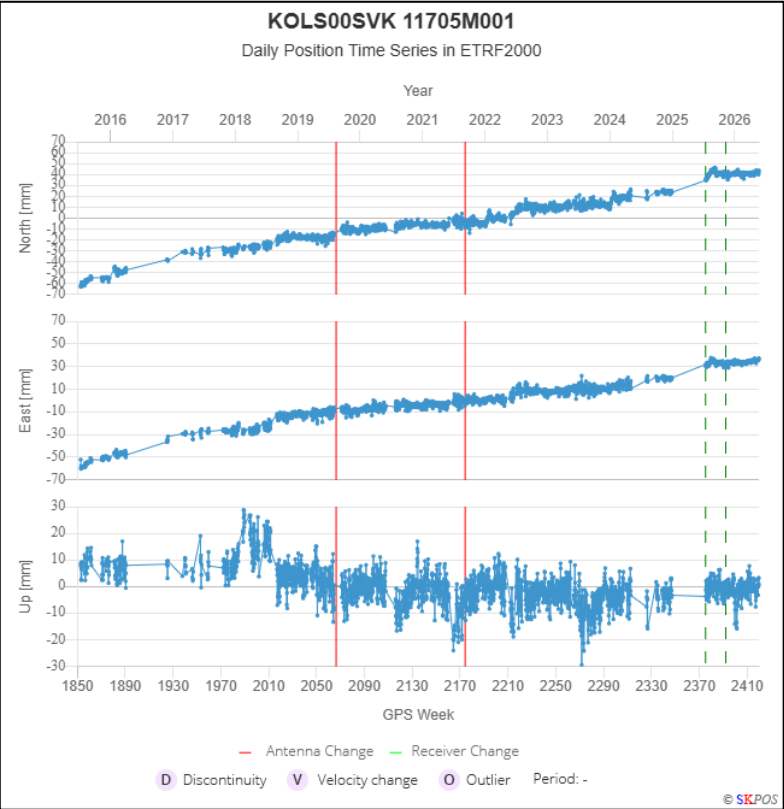


CORS Network

PROBLEMATIC STATIONS

KOLS

Assumption: Landslide

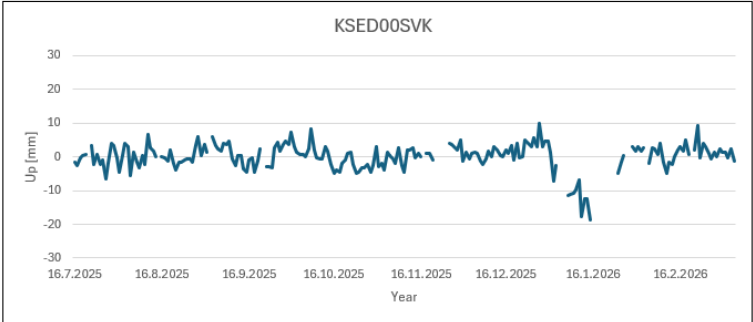
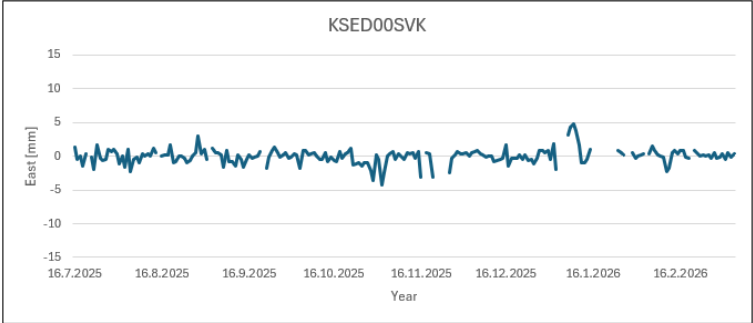
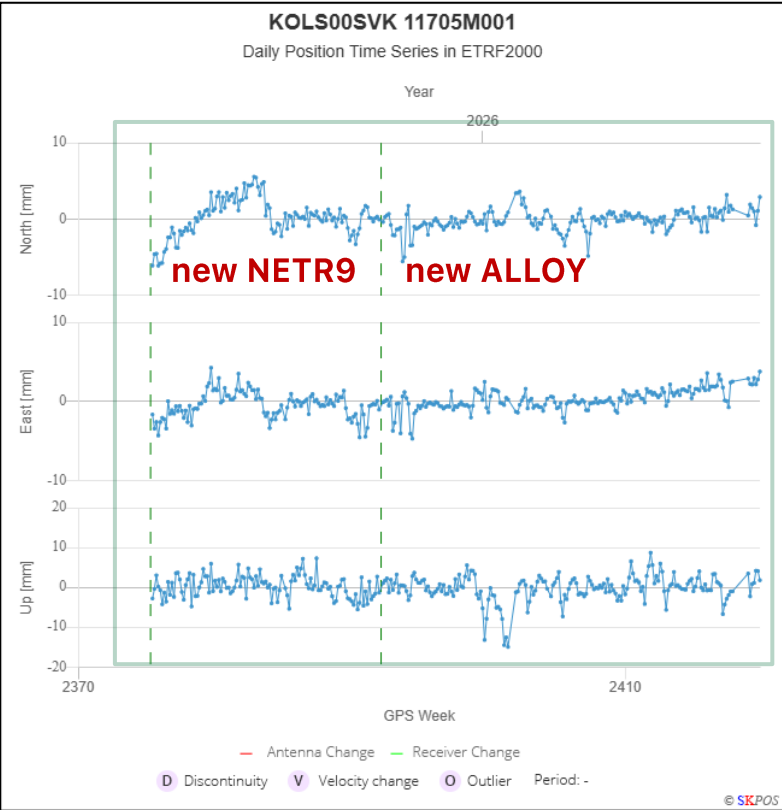
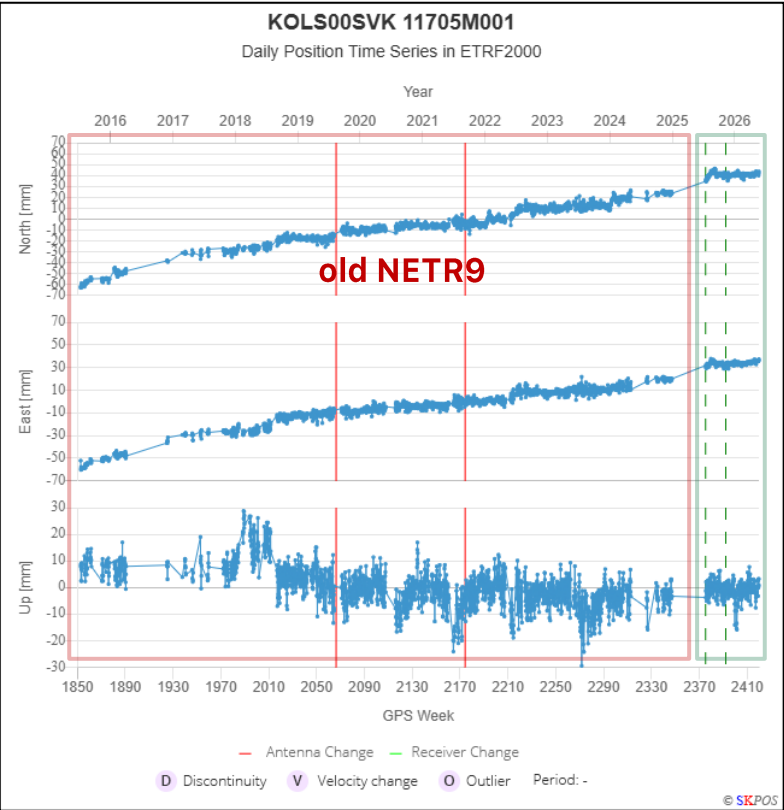
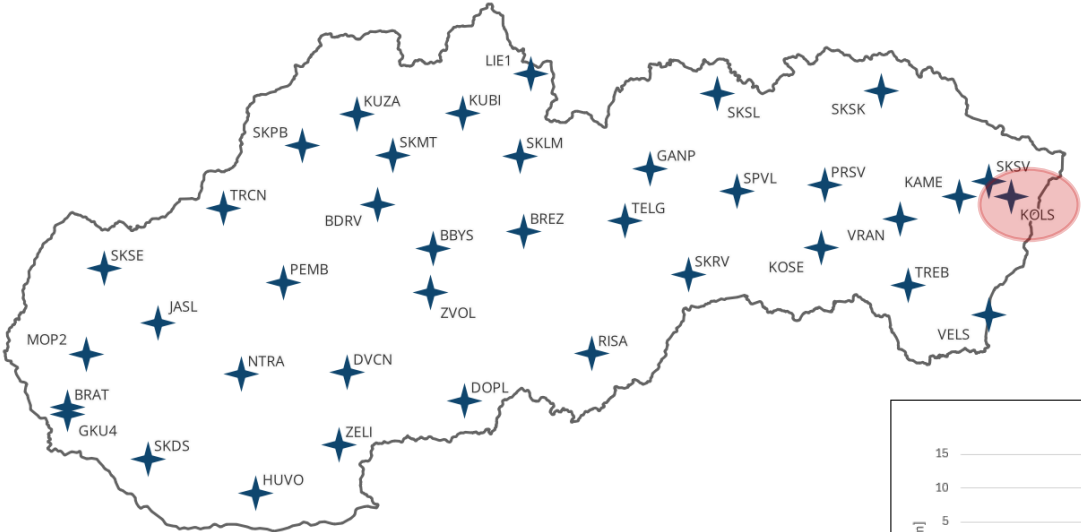


CORS Network

PROBLEMATIC STATIONS

KOLS

Status: OK, but ...

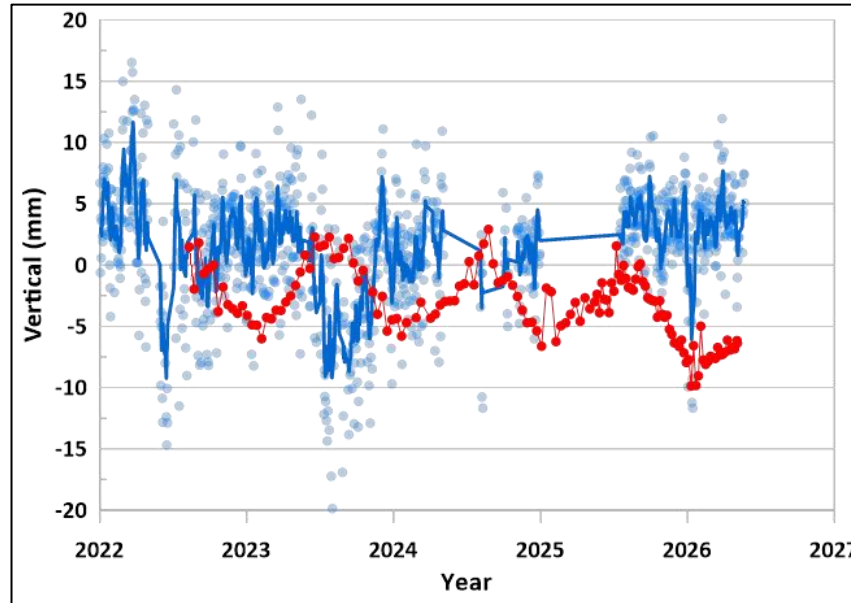
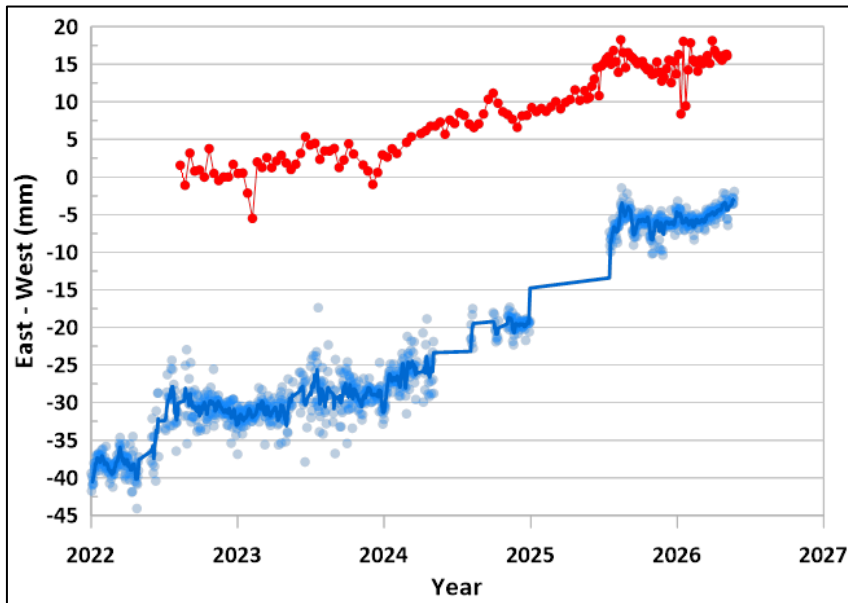


CORS Network

PROBLEMATIC STATIONS

KOLS

Status: OK, but ...

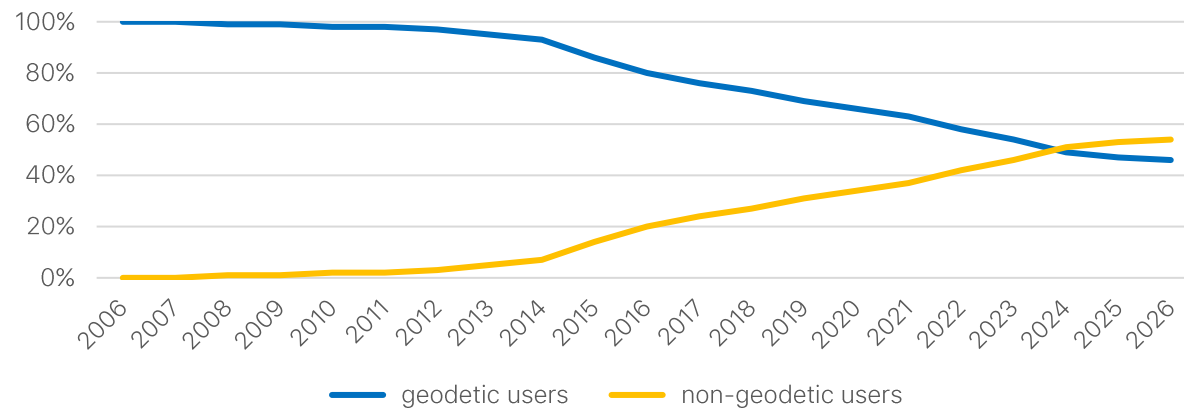


GNSS/InSAR analysis by Juraj Papco, SUT Bratislava

Longer time series and further investigation needed

Network RTK Service

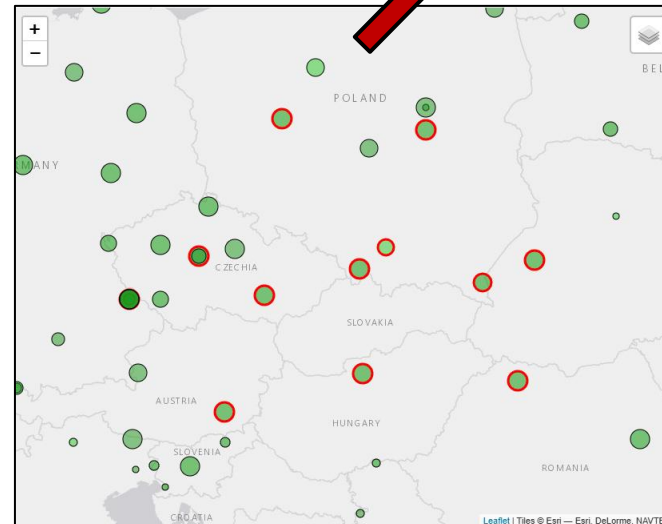
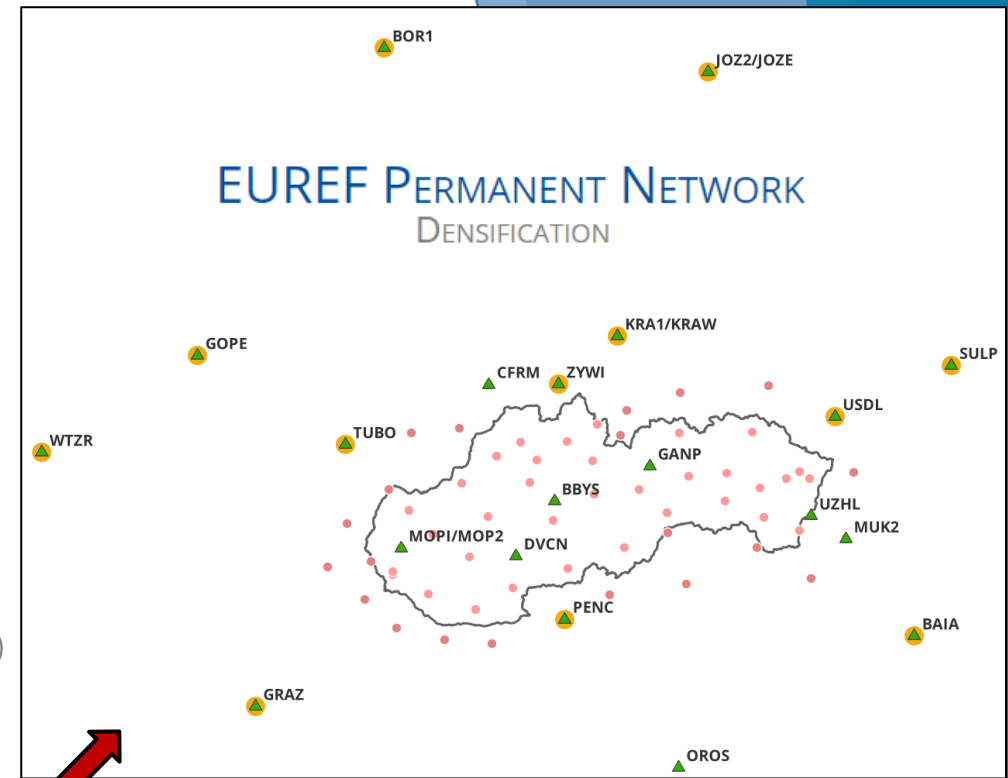
SKPOS®



EPND Analysis Center (GKU)

SKPOS network processing:

- ▶ Bernese 5.4
- ▶ **New processing strategy (adapted from WUT)**
 - ▶ GKU_D20 – preliminary daily CRD solutions
 - ▶ GKU_ELI – finding outliers in prelim. daily sol. + excluded (EPN API)
 - ▶ GKU_WEK – final weekly CRD solution
 - ▶ GKU_TRP – final daily TRP solutions
 - ▶ GKU_DAY – final daily CRD solutions
- ▶ **Update of EPN reference stations**
 - ▶ EPN Selection Tool (EPN C2385)
 - ▶ only recommended stations (12)



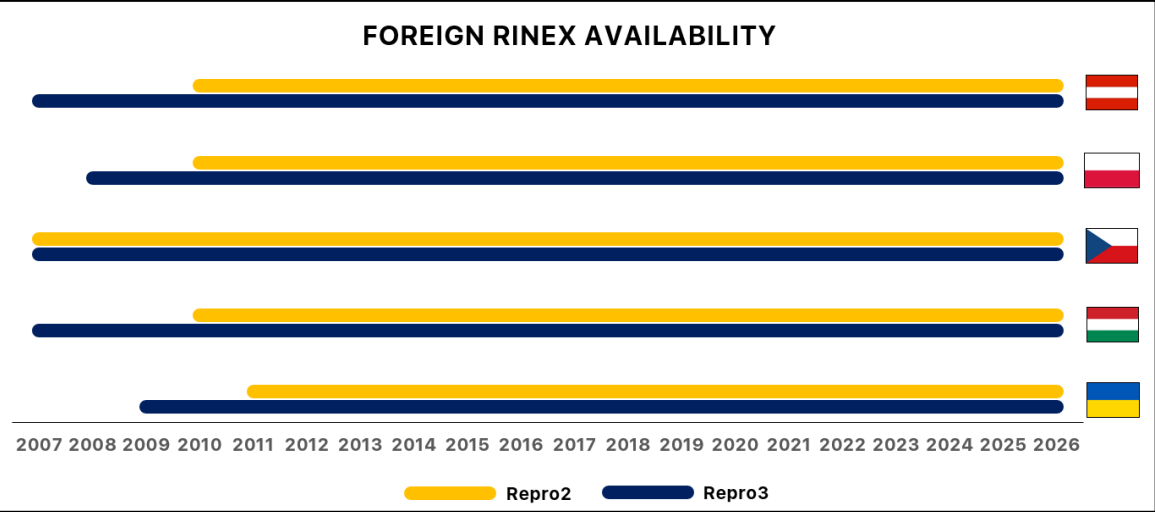
EPN STATIONS		EPN CLASSIFICATION	
BAIA00ROU	C0		Recommended
BOR100POL	C0		Recommended
GOPE00CZE	C0		Recommended
GRAZ00AUT	C0		Recommended
JOZ200POL	C0		Recommended
KRA100POL	C2		Recommended
PENC00HUN	C0		Recommended
SULP00UKR	C0		Recommended
TUBO00CZE	C0		Recommended
USDL00POL	C0		Recommended
WTZR00DEU	C0		Recommended
ZYWI00POL	C0		Recommended

EPND Analysis Center (GKU)

SKPOS repro3 (2007 – 2026):

- ▶ started May 2026
- ▶ **Used RF Product: EPN C2385 (IGc20)**
- ▶ 2 servers (24 cores, maxj = 14)
 - ▶ **each 25 GPS weeks processed in a single day**

Key improvements comparing to SKPOS Repro2:



```
# Redefine mandatory variables
# -----
$$bpe{PCF_FILE}      = 'REPRO';
$$bpe{CPU_FILE}      = 'USER';
$$bpe{BPE_CAMPAIGN}  = 'REPRO';
$$bpe{YEAR}          = $ARGV[0];
$$bpe{SESSION}       = $ARGV[1];
$$bpe{NUM_SESS}      = '1';
$$bpe{SYSOUT}        = 'REPRO';
$$bpe{STATUS}        = 'REPRO.RUN';
$$bpe{TASKID}        = 'GKU';
$$bpe{MODULO_SESS}   = '1';
$$bpe{SCRIPT_START}  = '';
$$bpe{NEXTSESS}      = '7';

# Run sessions in parallel

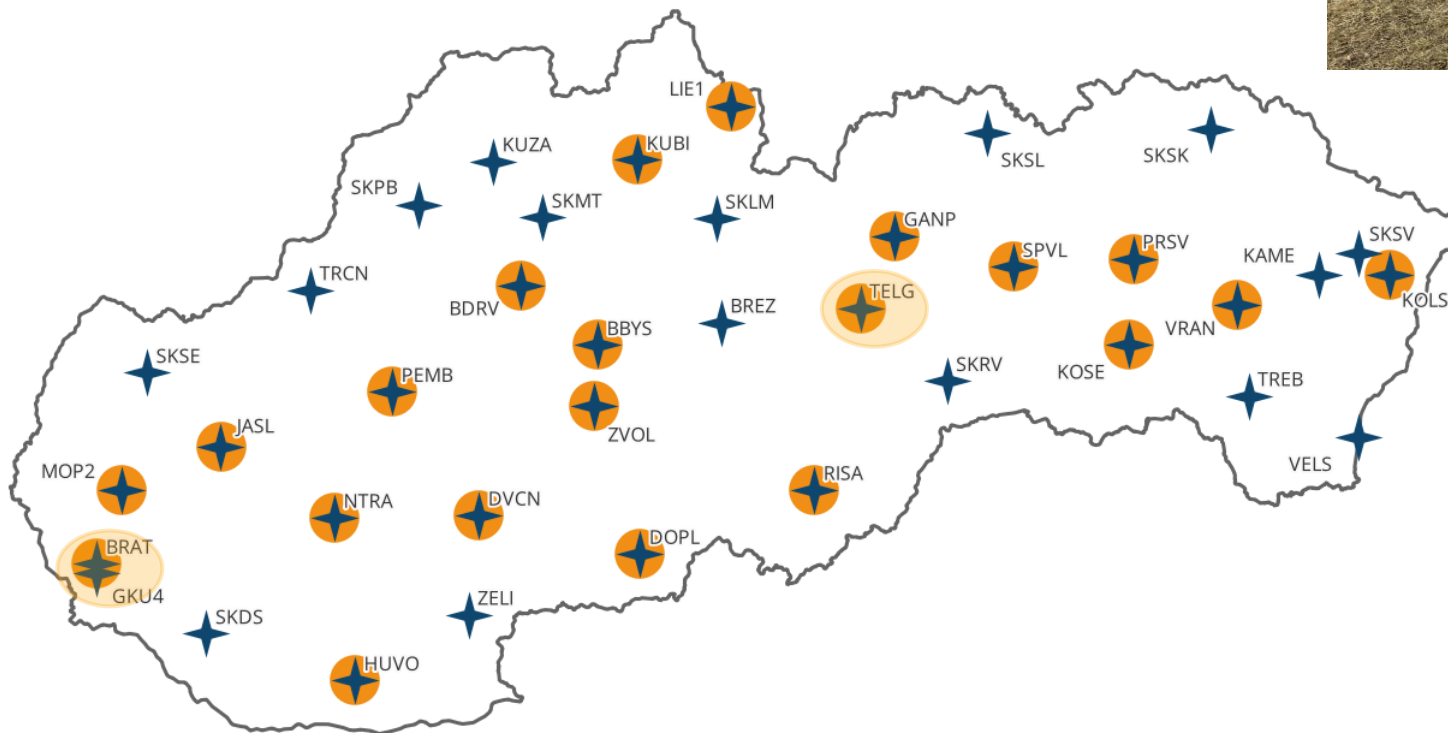
$$bpe{SUPERBPE}      = '1';
$$bpe{RADIO_P}       = '1';
$$bpe{MAXSESS}       = '14';
$$bpe{REPR_MODE}     = '1';
$$bpe{REPR_MODE_PATH} = '${P}/REPRO';
$$bpe{REPR_MODE_CAMPAIGN} = 'SK';
$$bpe{REPR_MODE_ON_SUCCESS} = 'keep';
$$bpe{REPR_MODE_ON_SUCCESS_PATH} = '';
$$bpe{REPR_MODE_ON_ERROR} = 'keep';
$$bpe{REPR_MODE_ON_ERROR_PATH} = '';
$$bpe{REPR_REUSE_CAMP} = '0';
```

	REPRO 2	REPRO 3
GPS+GLO+ GAL	since 2019 (GPS week 2086)	since 2014 (GPS week 1801)
Final GKU products	weekly	daily

InSAR

National InSAR reflector network:

- ▶ 21 GNSS/InSAR collocated stations
 - ▶ 2 new passive corner reflectors installed
 - ▶ 21/21 measured 3D offsets

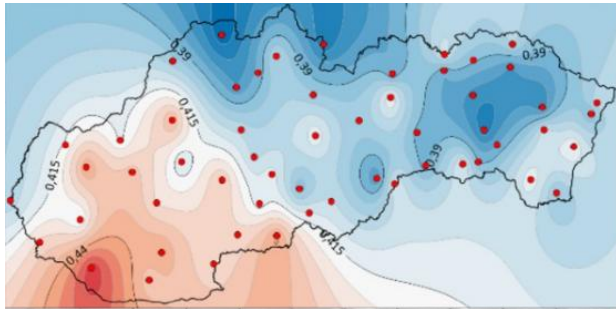


Quasigeoid for EVRF2019

ETRS89 (ETRF2000) $\longleftrightarrow$ EVRS (EVRF2019)

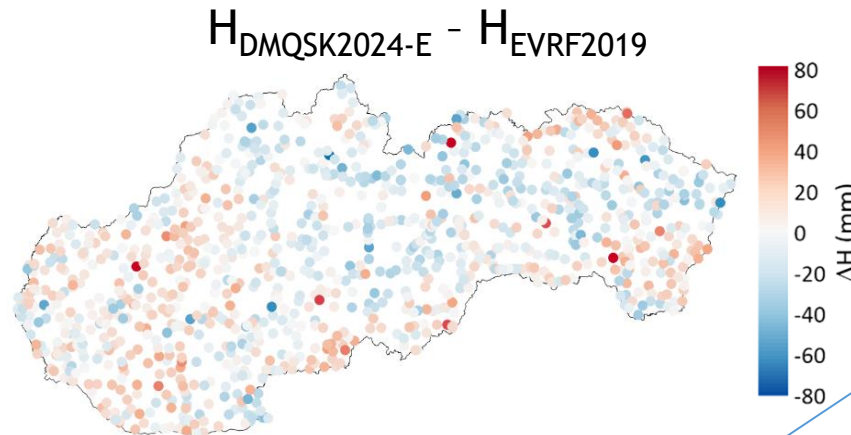
DMQSK2024-E:

- ▶ **new quasigeoid for EVRF2019**
- ▶ based on **GMSQ2024A** (Bucha, 2024)
- ▶ 56 fitted GNSS/levelling points



Testing:

- ▶ **1102 points (SPS)**
- ▶ **RMS_h (SPS):**
 - ▶ SKPOS (36): 1 cm
 - ▶ SPS-B/C (1066): 2.5 cm

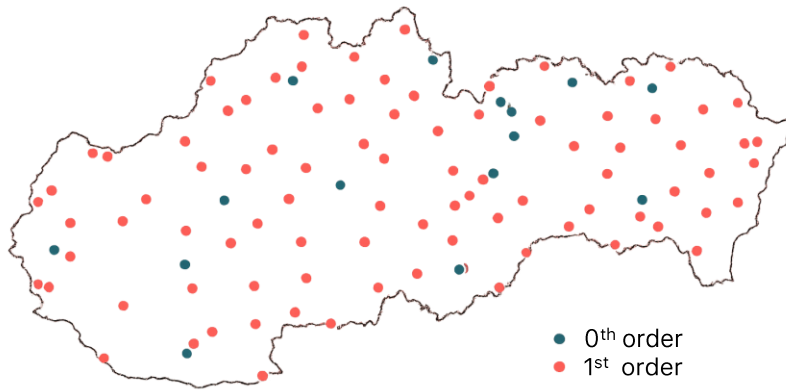


Testing points	1102
MIN	-81,29 mm
MAX	86,42 mm
MEAN	-0,81 mm
STD	18,97 mm

Gravimetry

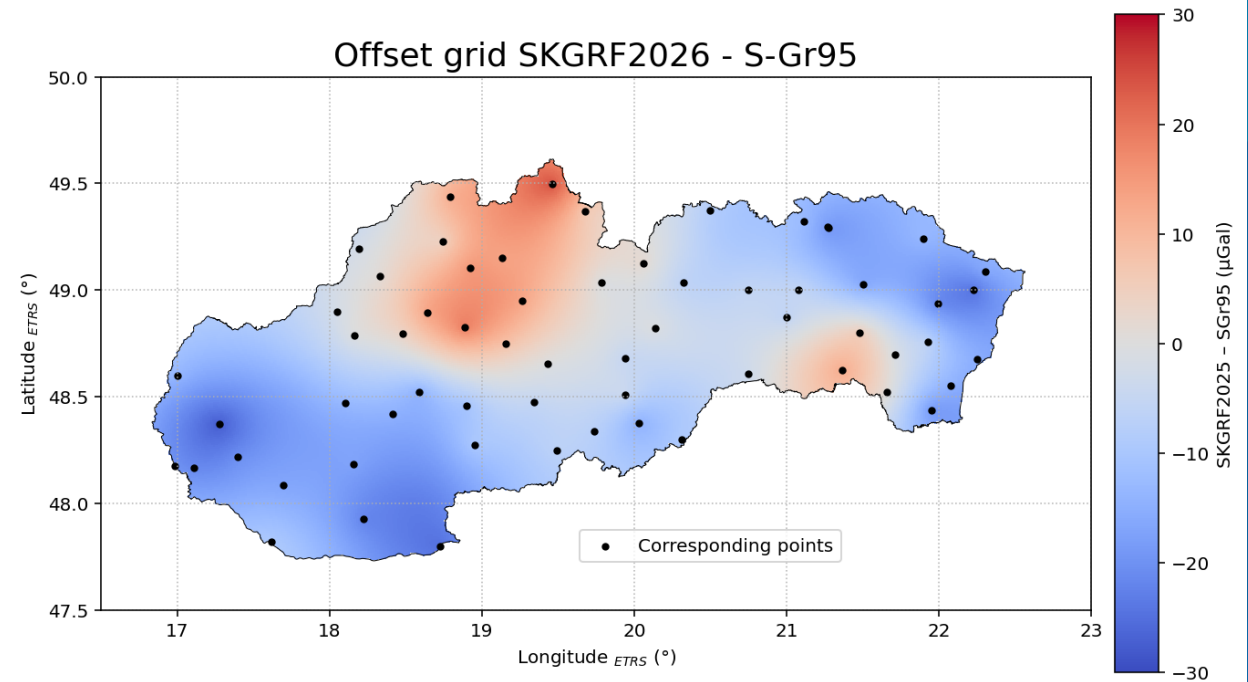
New National Gravimetric Network:

Order	# Points	Measured by	Gravimeter	STD
0 th order	19	SUT Bratislava	FG5X-247	5 μGal
1 st order	104	IGiK (PL)	A10-020	10 μGal



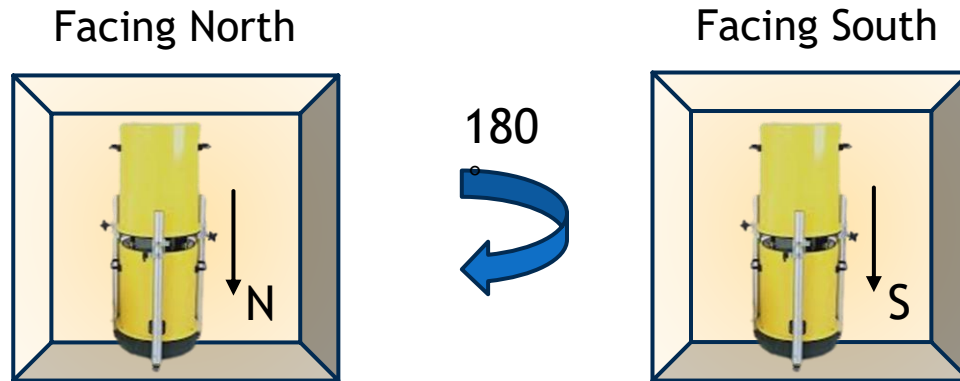
NEW SKGRF2026:

- ▶ new national realization of S-Gr
- ▶ new grid (link to previous realization S-Gr95)

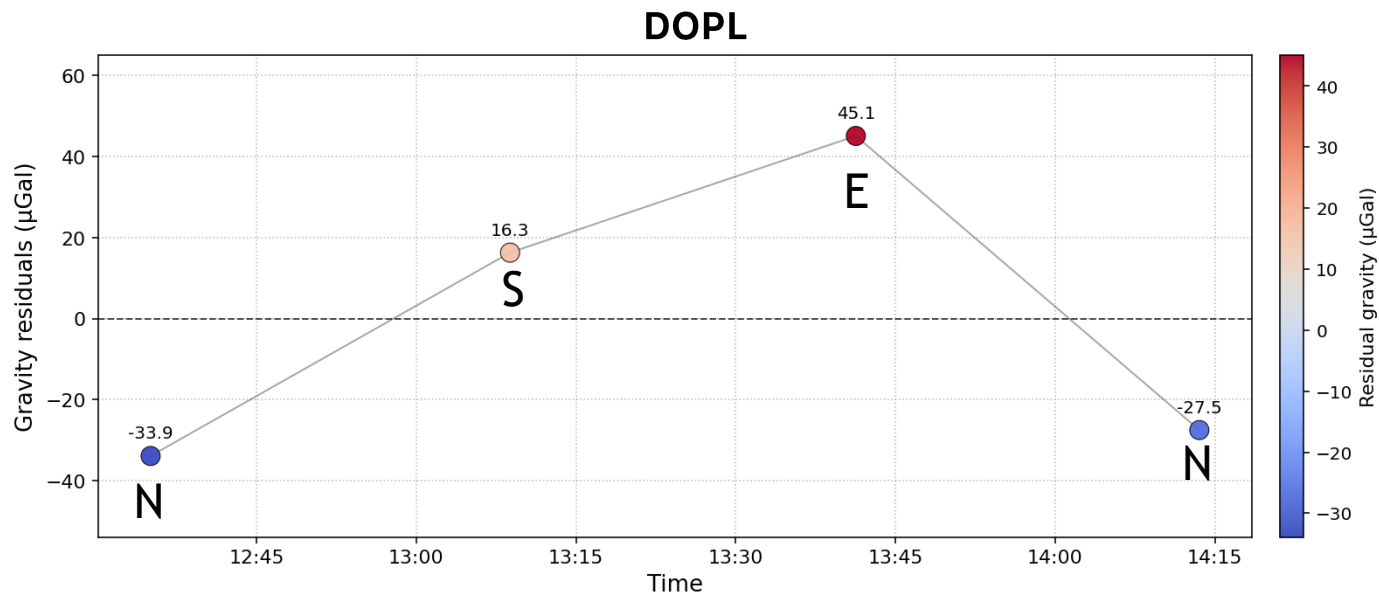


Gravimetry

Azimuth dependency during A10 gravity measurements at SKPOS



Potential source of error: reinforcing / ant. cable impacting gravity measurements



THANK YOU



Martin Ferianc



<https://skpos.gku.sk>



skpos@skgeodesy.sk



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