

National Report of Poland

T. Liwosz¹, P. Dykowski²

¹Warsaw University of Technology, Poland

²Institute of Geodesy and Cartography, Poland

WUT



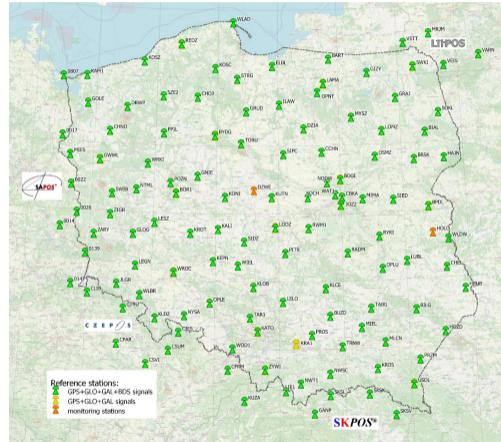
EUREF Symposium

Zagreb, Croatia, June 1–3, 2022

- Head Office of Geodesy and Cartography (GUGiK)
- Institute of Geodesy and Cartography (IGiK)
- Military University of Technology (MUT)
- Space Research Centre of the Polish Academy of Sciences (SRC)
- University of Warmia and Mazury in Olsztyn (UWM)
- Warsaw University of Technology (WUT)
- Wrocław University of Life Sciences (WUELS)

Head Office of Geodesy and Cartography

- presently all stations (but one) observe 4 GNSS (GPS, GLONASS, Galileo, BeiDou)
- automatic post-processing module updated to support GPS/GLONASS calculations
- since 2021 data stored in RINEX 3 format
- densification of the network to increase availability and accuracy of real time services:
 - 4 new GNSS stations expected in 2022
 - additional 14 stations by 2023
- ASG-EUPOS MUT solutions contribute to EPND project (solutions up to March 2021 included in D2150 release)



Two **EPN Analysis Centres** continued regular processing of GNSS EPN data:

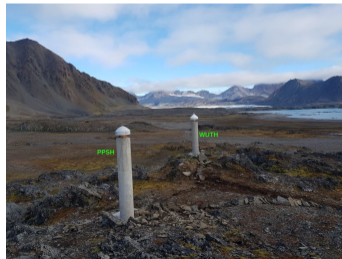
- 1 Military University of Technology (**MUT**) (final and rapid solutions, 152 EPN stations)
- 2 Warsaw University of Technology (**WUT**) (final and rapid solutions, 144 EPN stations)

Continuing work as **EPN Analysis Combination Centre (WUT/MUT)**:

- regular combination of EPN AC solutions (final, rapid, ultra-rapid)
- maintaining the ACC web site

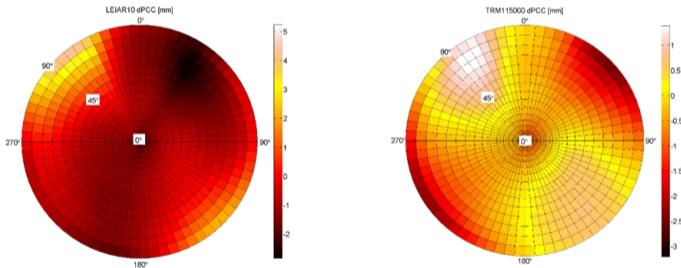
New EPN GNSS stations

- 2 new EPN stations (PPSH00NOR and WUTH00NOR) included in EPN in 2022
- installed and operated by **WUT**
- located at Polish Polar Station Hornsund, Svalbard, Norway managed by the the Institute of Geophysics of the Polish Academy of Sciences



University of Warmia and Mazury in Olsztyn (UWM)

- In 2019 UWM in cooperation with Astri Polska started an ESA project on the development and implementation of field calibration procedure for multi-frequency and multi-GNSS
 - based on a "Hannover" concept
 - preliminary results were published



Differences between Astri/UWM model and IGS type mean model
(left: LEIAR10/NONE, right TRM115000.00/NONE)

Military University of Technology (MUT)

- In 2021 MUT completed work on the GNSS Data Research Infrastructure Centre database as part of the EPOS (European Plate Observing System) project
- portal allows searching and downloading GNSS observations from Polish reference stations from the last 26 years (over 3 million RINEX files in the repository)

Centrum Infrastruktury Badawczej Danych GNSS

Portal Główny CIBDG Unia Europejska

HOME O PORTALU ANALIZY CIBDG EPOS EPOS-PL

Wyszukiwanie:

Stacja	CRS	Identyfikator	Adres	Obszar danych
DAK1	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
MALC	CR	LEGA-CDS	TOWARUW030303	2021-12-11
DAK2	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK3	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK4	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK5	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK6	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK7	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK8	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK9	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK10	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK11	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK12	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK13	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK14	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK15	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK16	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK17	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK18	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK19	CR	TOWARUWETRO	TOWARUW030303	2021-12-11
DAK20	CR	TOWARUWETRO	TOWARUW030303	2021-12-11

Wyświetl wszystkie

Wyszukiwanie zakończono

Alty wyświetlać jedną stację na mapie, należy skrócić/zwiększyć skalę w prawym kolumnie tabeli. W celu wyświetlenia wszystkich stacji stacji, należy je zobaczyć poprzez kliknięcie wiersza stacji w pierwszej kolumnie tabeli na mapie.

Projekt współfinansuje Dział WZ ANI-IB EPOS-PL

Infrastruktura Danych EPOS-PL współfinansowana ze środków Europejskiego Funduszu Inicjatyw Regionalnych w ramach Programu Operacyjnego Inteligentny Rozwój 2014-2020. Projekt jest dofinansowany przez Centrum Infrastruktury Badawczej Unii Europejskiej.

Finansujące Europejskie (współpracy budżet)

Rzeczpospolita Polska

Unia Europejska Europejski Fundusz Rozwoju Regionalnego

Homepage of CIBDG portal: www.gnss.wat.edu.pl

Head Office of Geodesy and Cartography (GUGiK)

In 2021 regulations in the field of geodetic, gravimetric and magnetic control networks were updated in terms of classification of geodetic control points, naming convention and implementation of modern measurement techniques used for highest control networks.

Vertical network

- Head Office of Geodesy and Cartography (GUGiK) continued works related to the new levelling campaign in Poland.
 - in 2021, GNSS levelling surveys were performed for more than 100 UELN benchmarks.
 - in 2022 GUGiK plans to start the designing works of the levelling campaign for about 25% area of Poland.
- The implementation of the the PL-EVRF2007-NH done in 70% by local authorities (to be completed by 2023)
- New quasi-geoid model for the PL-EVRF2007-NH was developed for Poland by Wrocław University of Life Sciences and published on the GUGiK website and on ISG service as well.

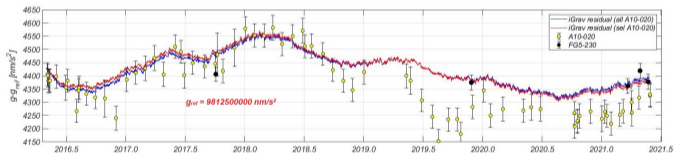
Current status of reference frames in Poland (2)

Institute of Geodesy and Cartography (IGiK), Warsaw University of Technology (WUT)

Gravimetric

Maintenance of gravity reference value in Poland (Borowa Gora Geodetic-Geophysical Observatory)

- Gravity determinations with A10-020 (Institute of Geodesy and Cartography) and FG5-230 (Warsaw University of Technology) absolute gravimeters along with continuous gravity record with iGrav-027 superconducting gravimeter (more than 5 years).



- Actions towards becoming a reference station of the International Gravity Reference Frame (IGRF)
- Installation and first measurements with the Absolute Quantum Gravimeter B07 (new potential tool) at BG Observatory

Head Office of Geodesy and Cartography (GUGiK), Institute of Geodesy and Cartography (IGiK)

Magnetic control network

At the request of GUGiK in 2021 works on magnetic control network in Poland were performed by the Institute of Geodesy and Cartography

- establishing of 3 additional fundamental magnetic control points
- measurements of components of magnetic field on fundamental and base control points.



Other geodetic and scientific activities in Poland in 2021 included:

- modelling precise geoid
- the use of data from satellite gravity missions
- development of GNSS positioning algorithms
- GNSS for meteorology
- monitoring of ionosphere
- monitoring gravity changes and geodynamics
- activities in Satellite Laser Ranging

The full report describing geodetic and scientific activities in Poland will be also available in written form.