

# GNSS signals interferences in Poland

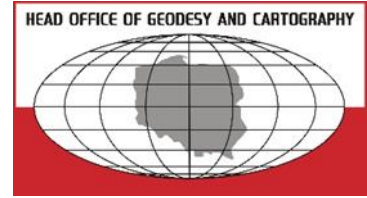
**Szymon Wajda**

**Prime specialist**

**Geodesy and Reference Frames Division**

Ljubljana, 15–16 November 2022

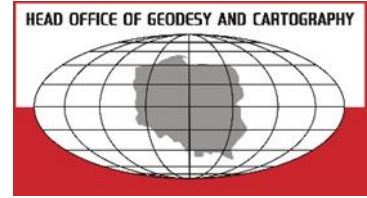
# ASG- EUPOS – 3rd level of cybersecurity



**Since 22.02.2022 ASG-EUPOS is in 3rd level of cybersecurity risk.**

- **3rd level in 4 levels scale implemented by Prime Minister**
- **24/7 monitoring of the system**
- **daily reports with current status and any incidents**
- **Since July in addition 2nd level of national security**
- **Additional control of facilities and power supplies**

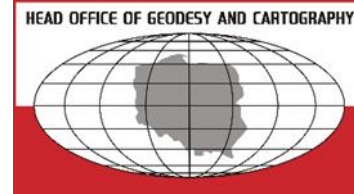
# Interference – case 1



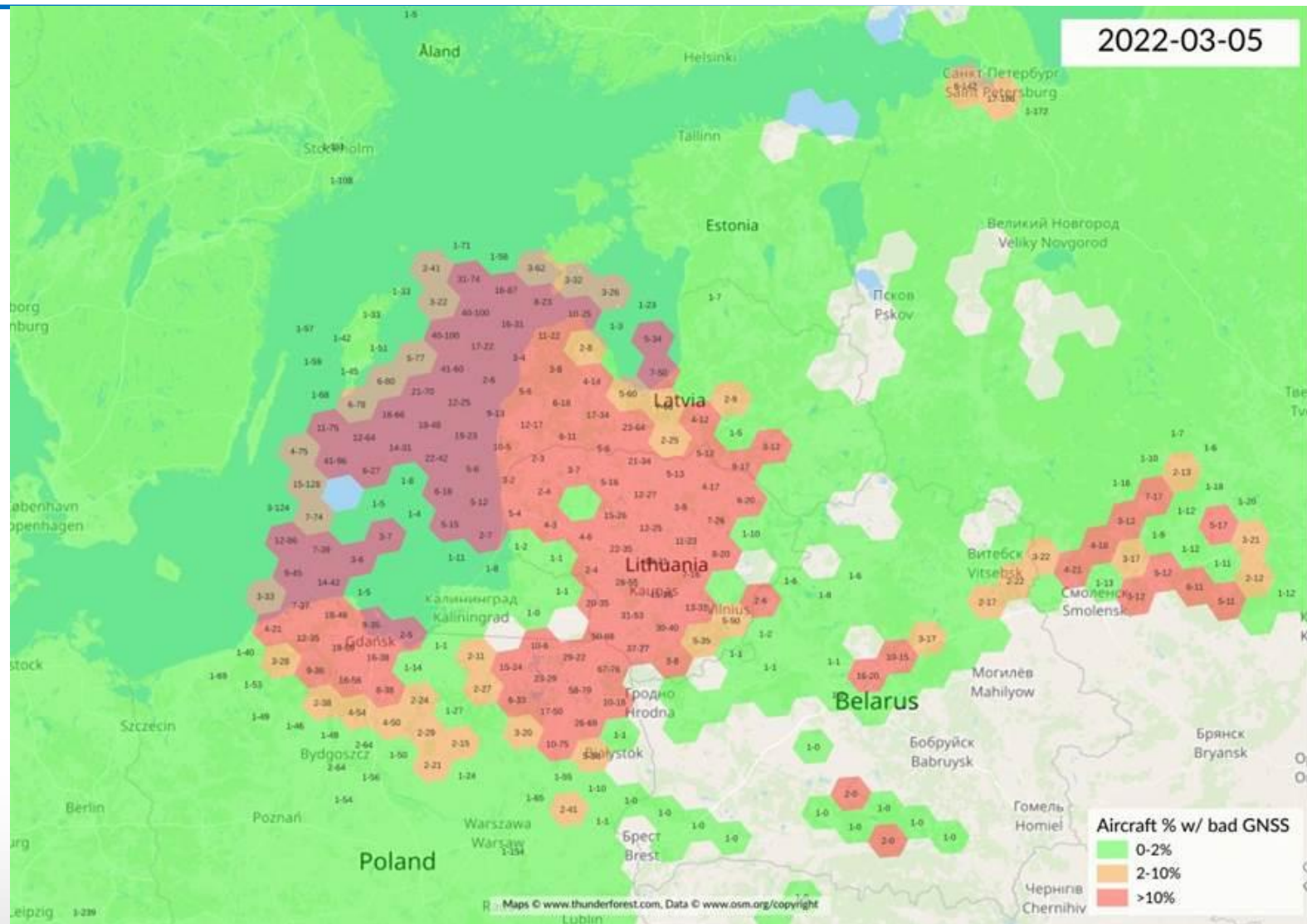
**Polish Aviation Agency reports that in north-eastern Poland some problems in days 03-06.03:**

- **Many aircrafts in that region reported that their GPS systems lost positions**
- **NOTAM - Notice to Airmen was released for that region**
- **Analyses observations from their GNSS stations located close to airports didn't give any anomalies**
- **After 3 days everything reports from aircrafts stopped**

# Interference – case 1



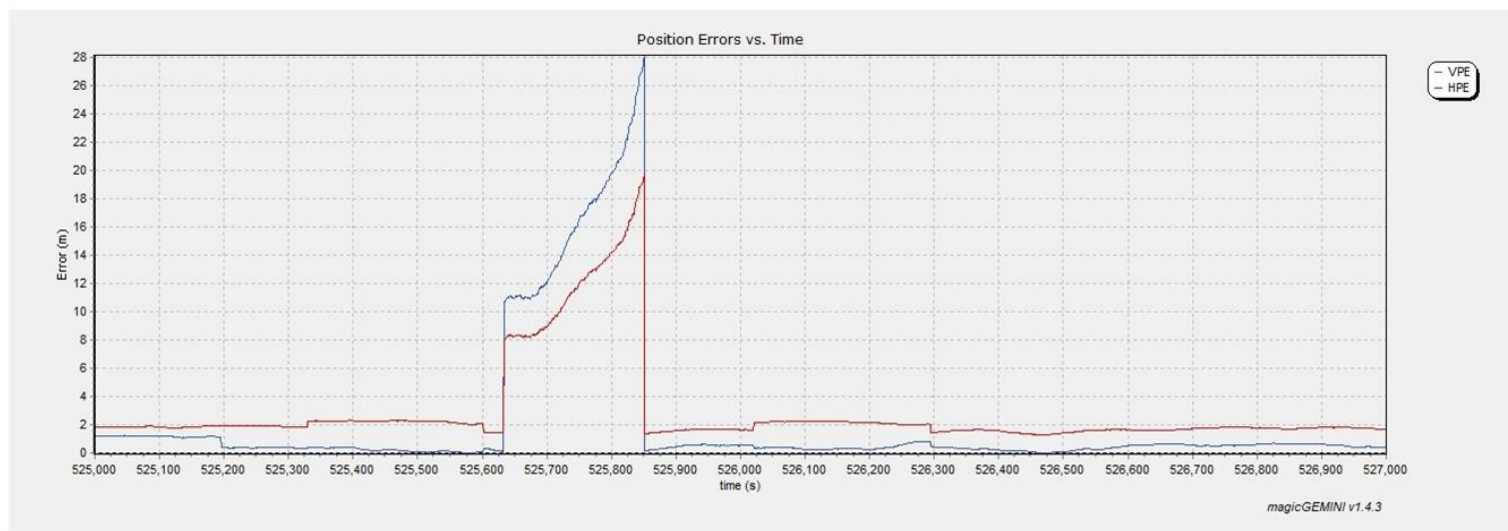
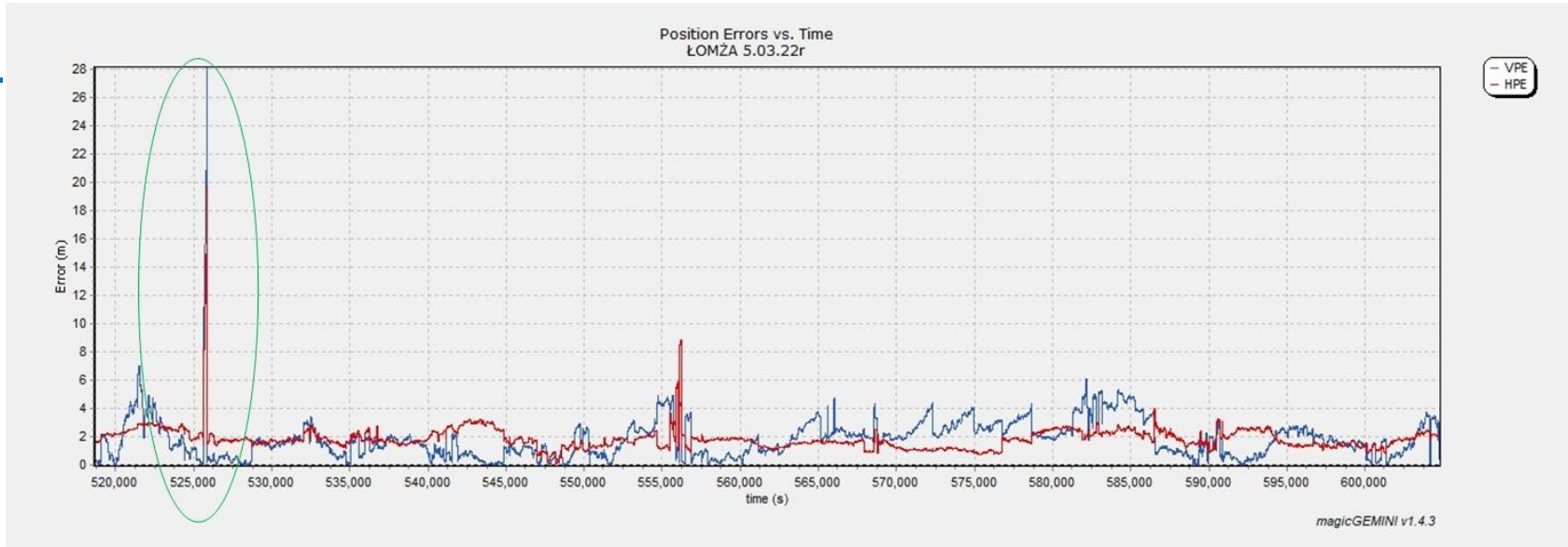
2022-03-05



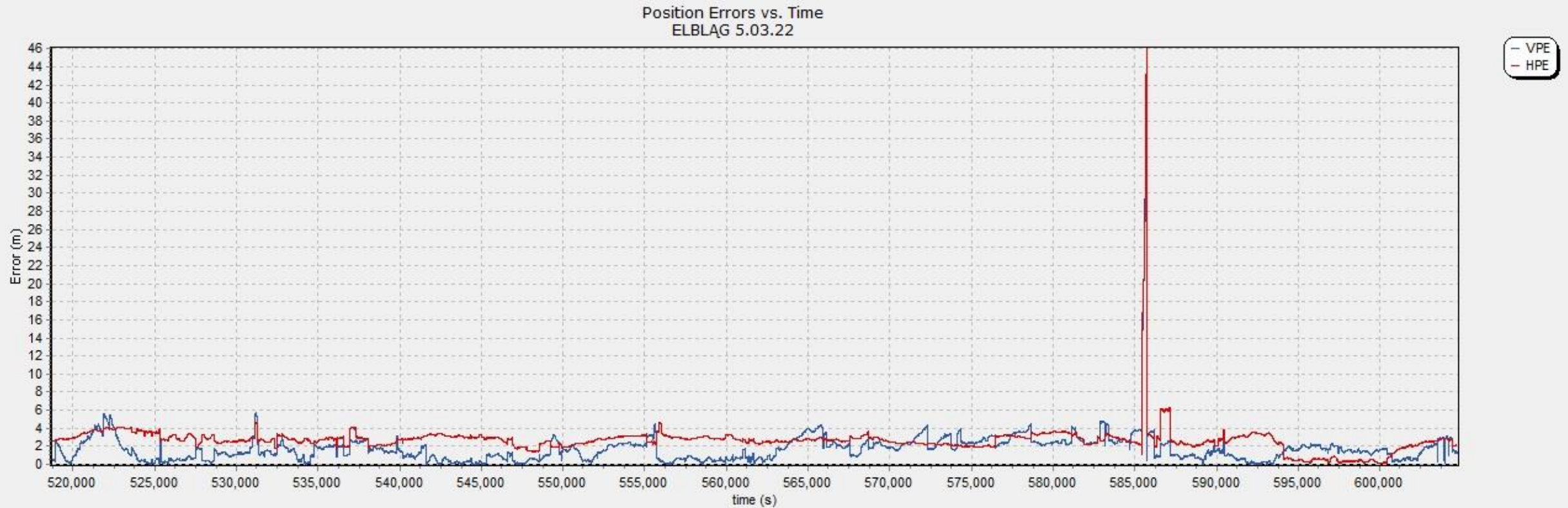
- The biggest influence was noticed 05.03.2022
- Some flights in Finland was canceled
- The center of area where problems occurred was close to Kaliningrad



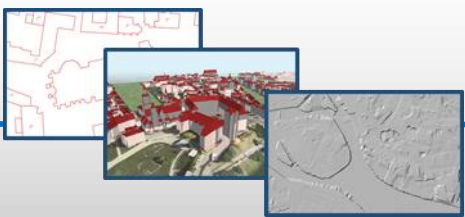
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magicGEMINI v1.4.3



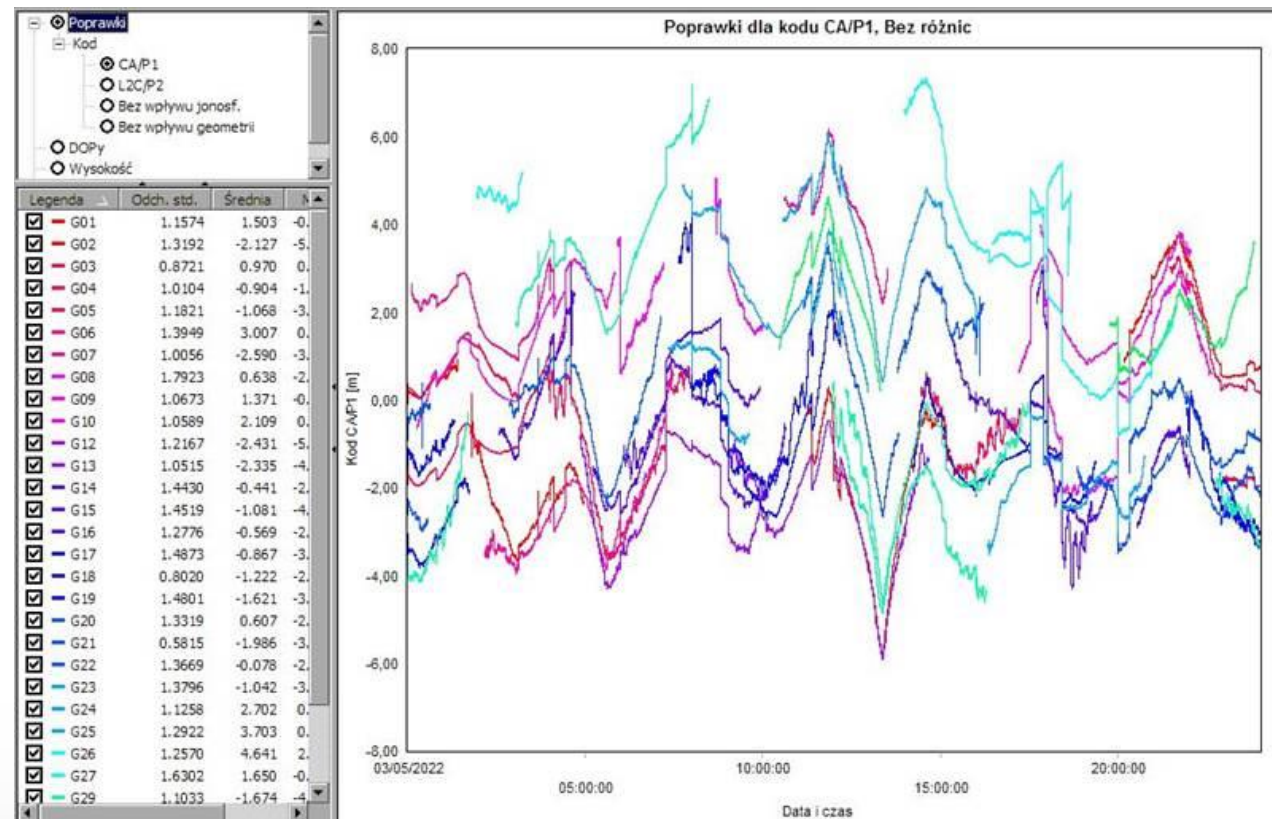
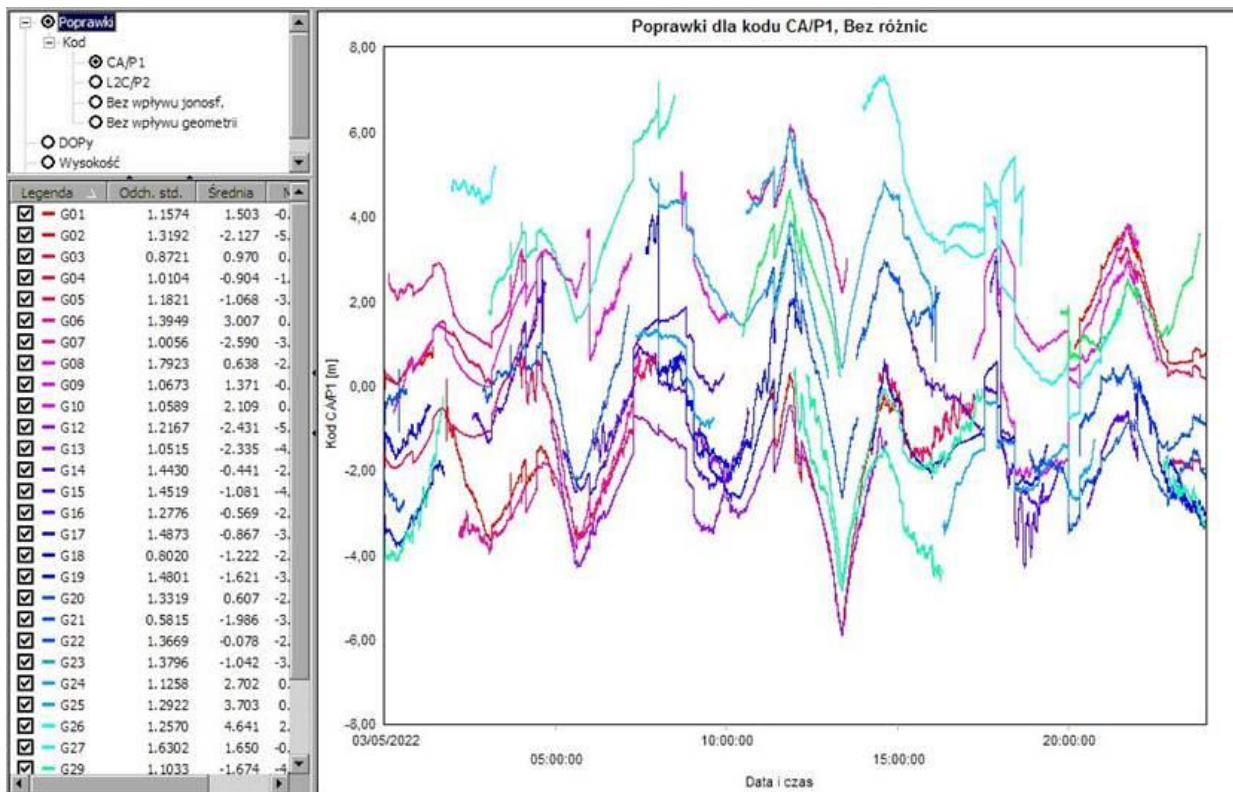


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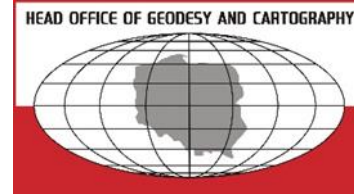


## LOMZ

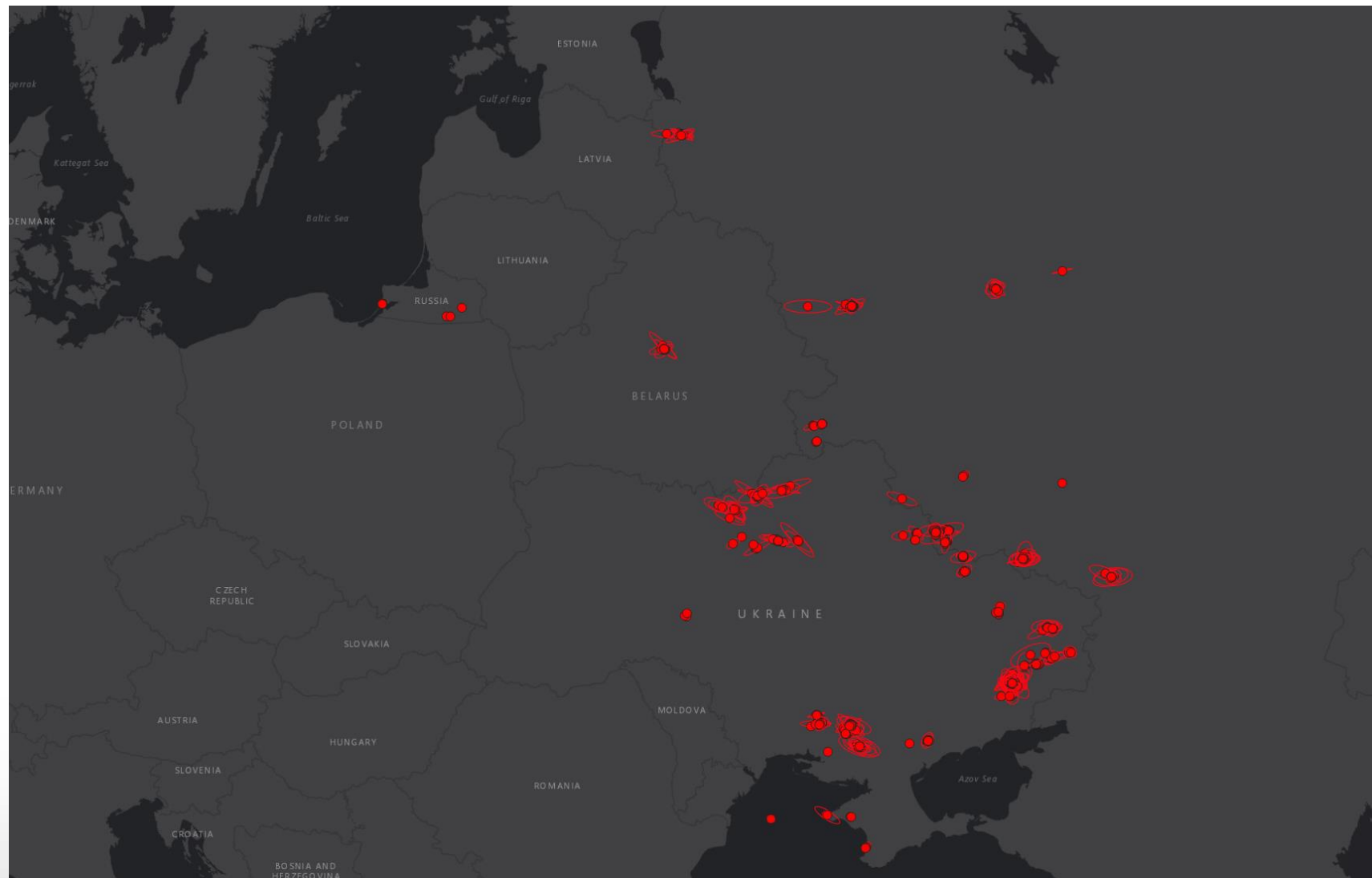
## ELBL



# Interference – case 1

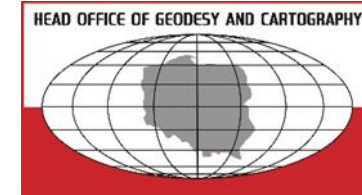


- **HawkEye360 service**
- **Sattelite monitoring of radio interference**
- **One of their channells is GNSS spectrum**

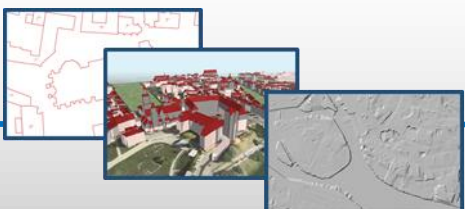
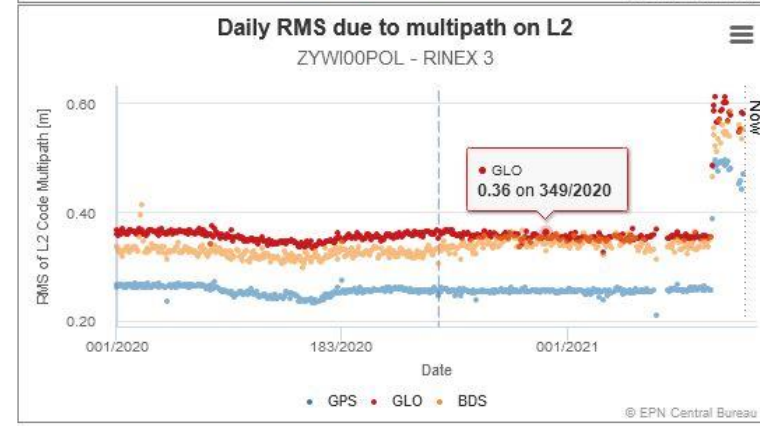
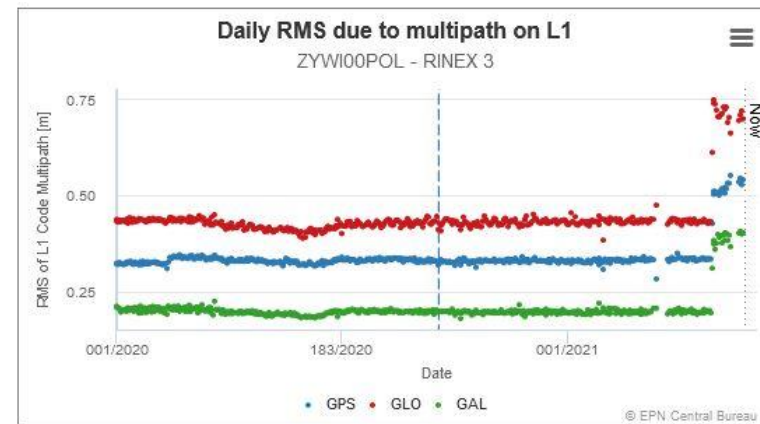
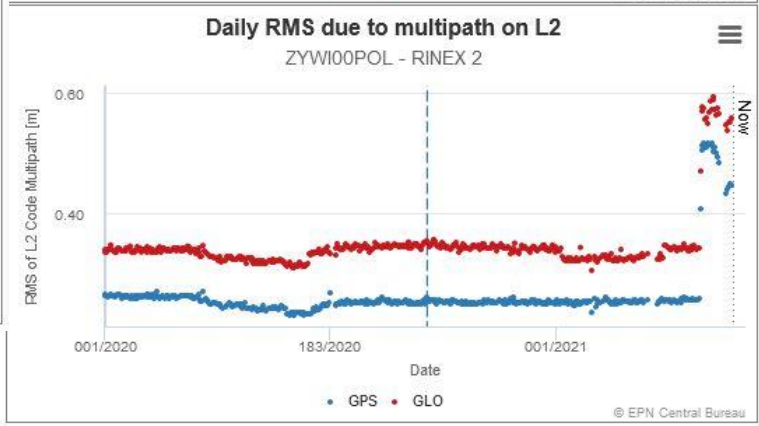
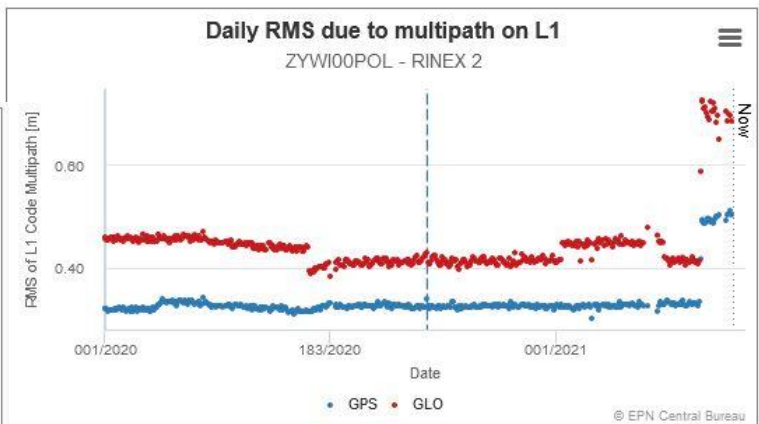
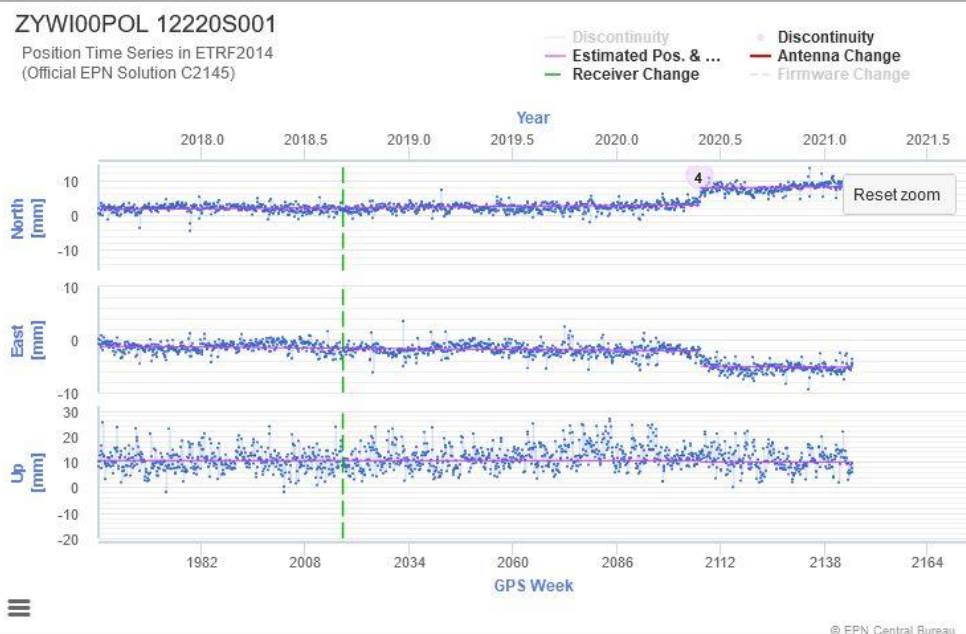




# Interference – case 2

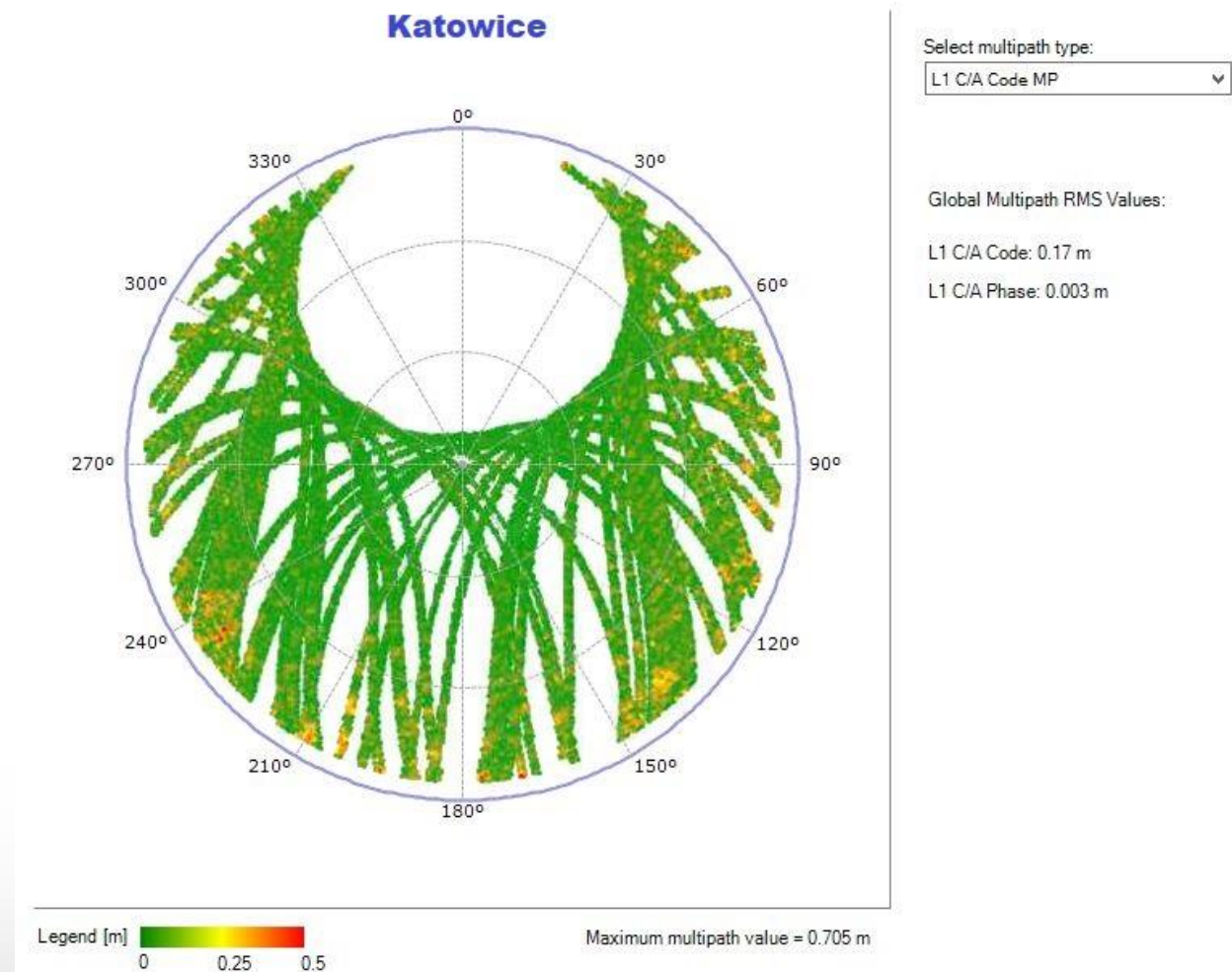
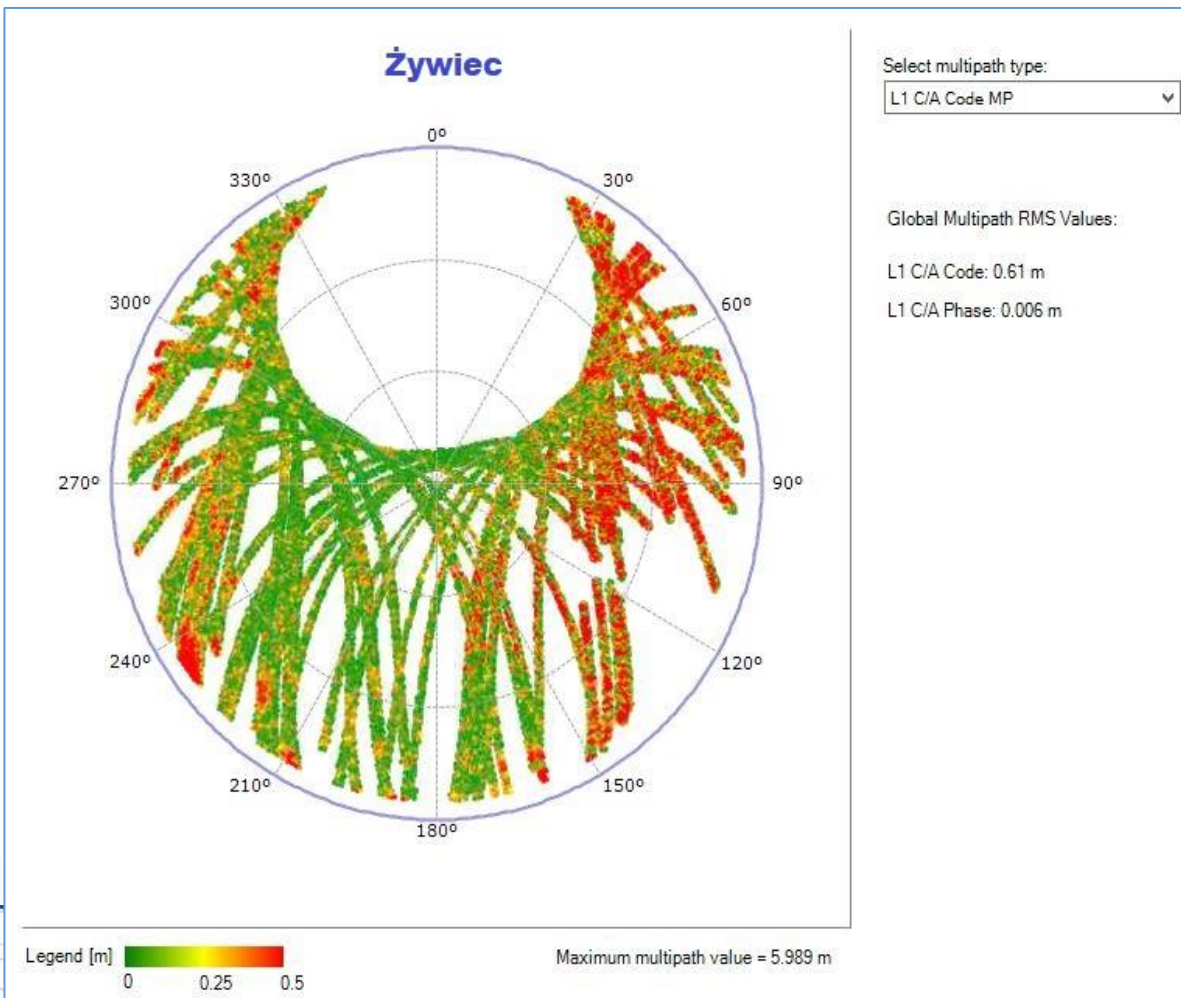


- EPN station ZYWI performance dramatically decreased
- Some source of multipath?



# Interference – case 2

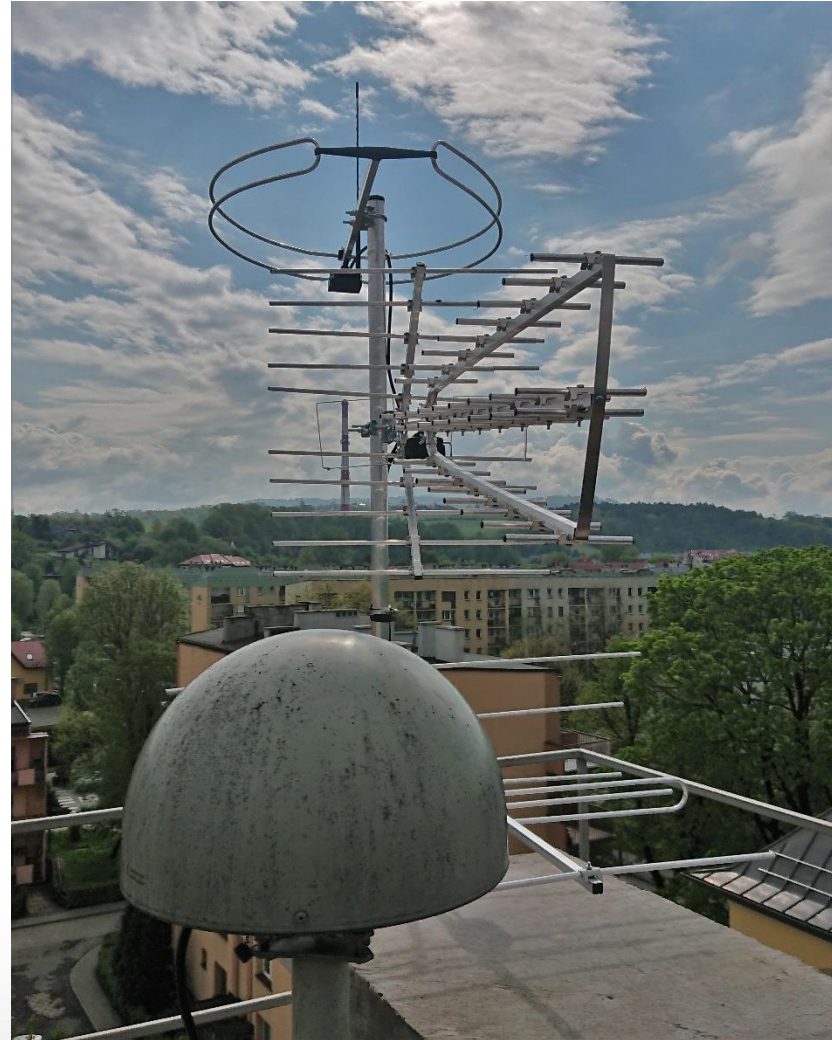
- Multipath observed in Trimble Pivot Platform





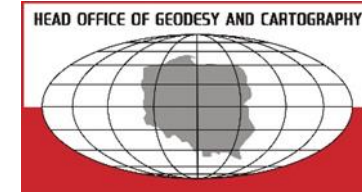
# Interference – case 2

- Inspection in the site:

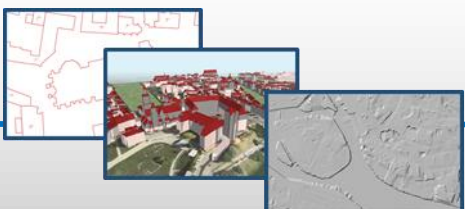
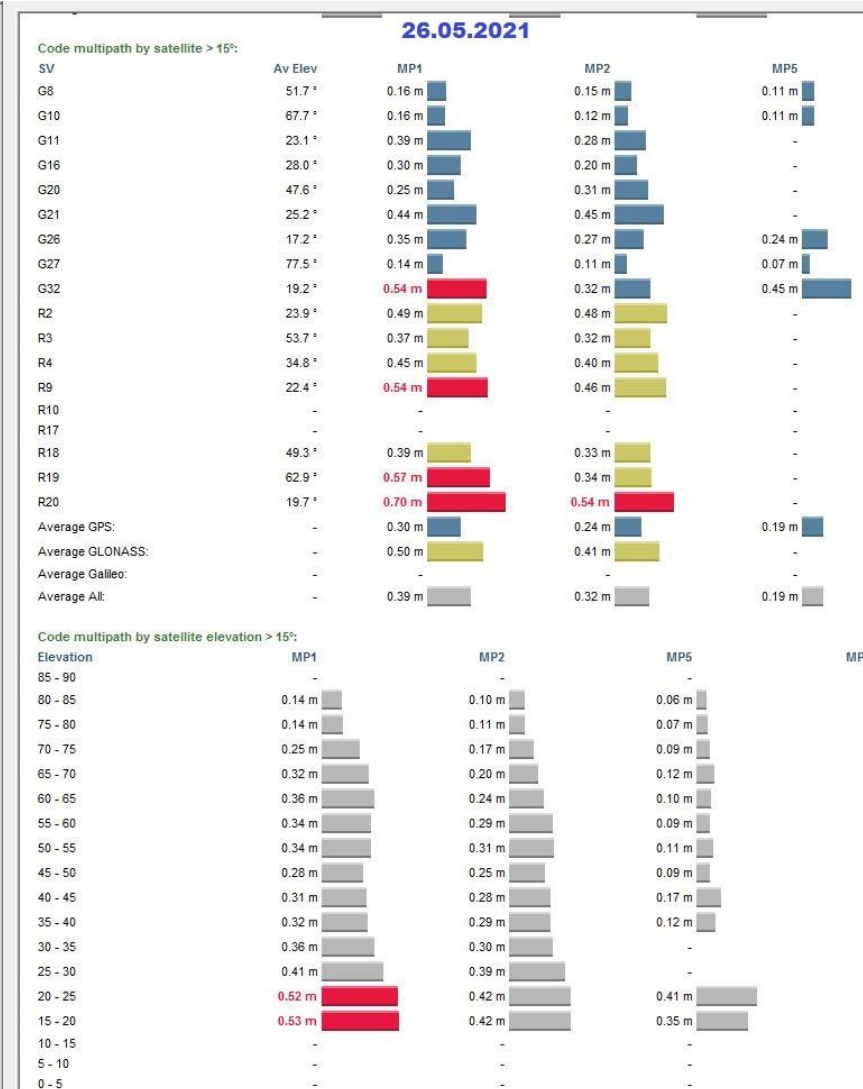
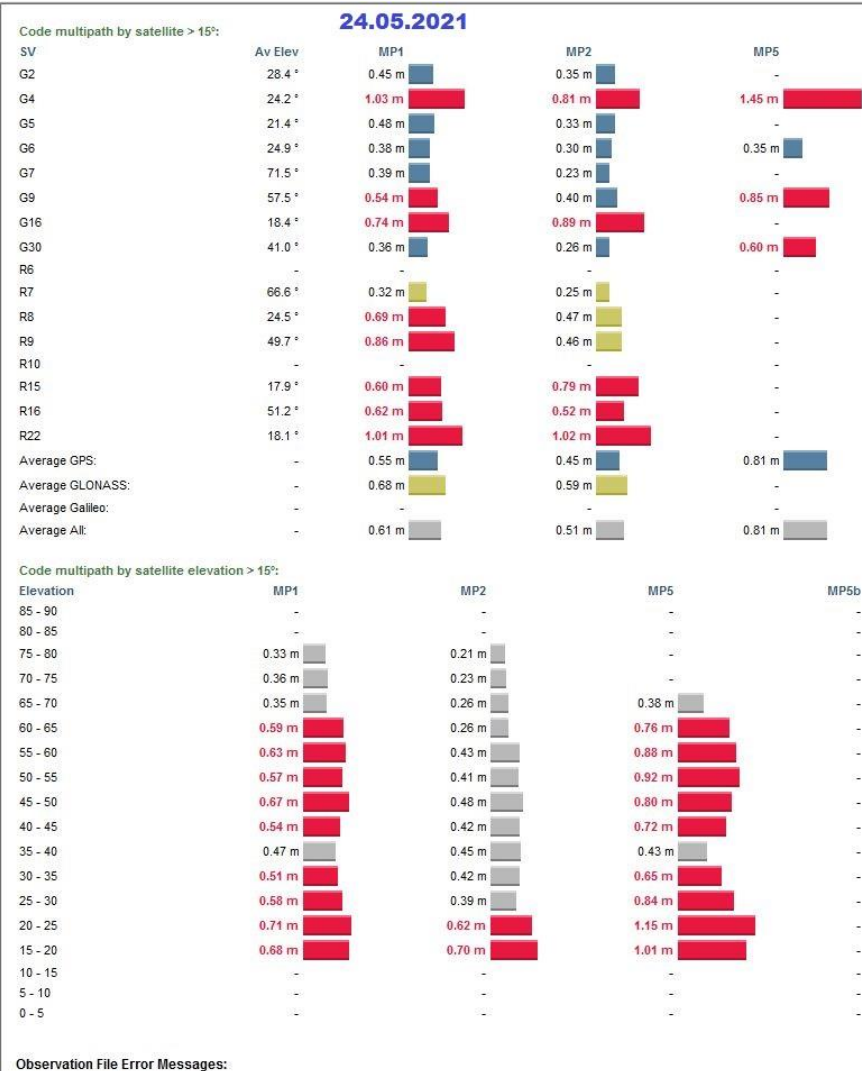




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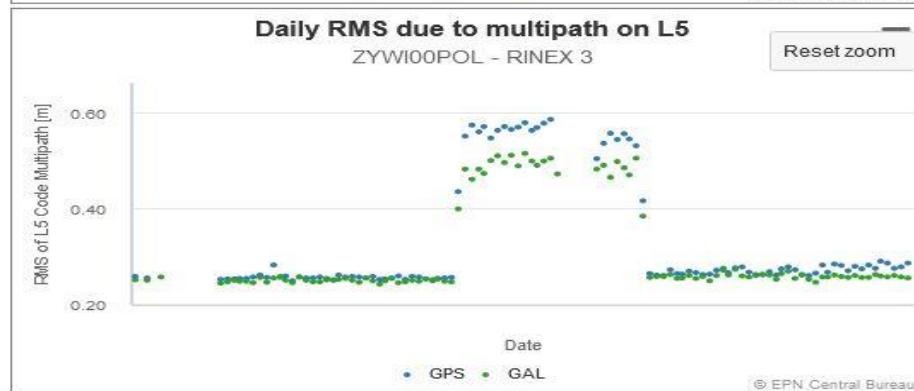
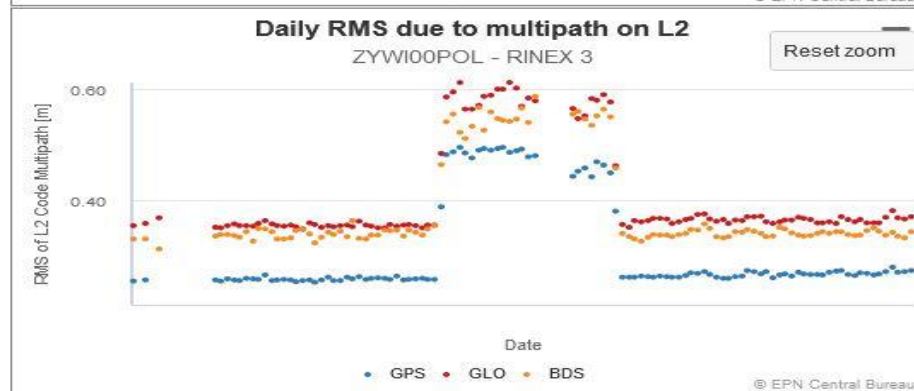
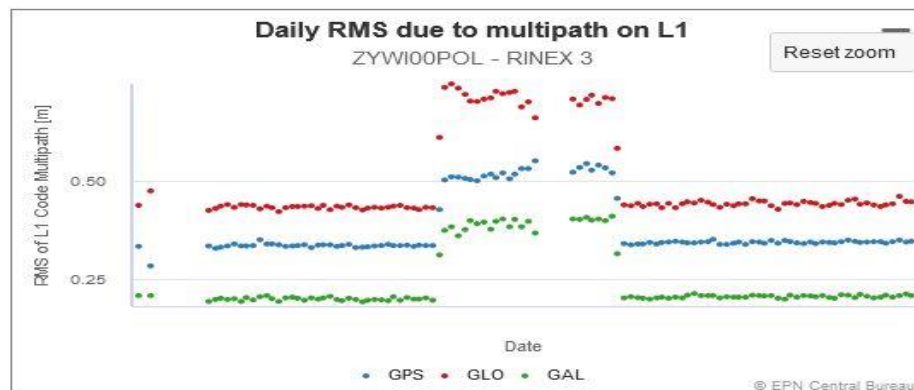


- After removal of TV/radio antennas:



# Interference – case 2

- And also behaviour of station in EPN came back to normal:



# Thank you for your attention

**Szymon Wajda**