



# Service Quality Monitoring Working group status

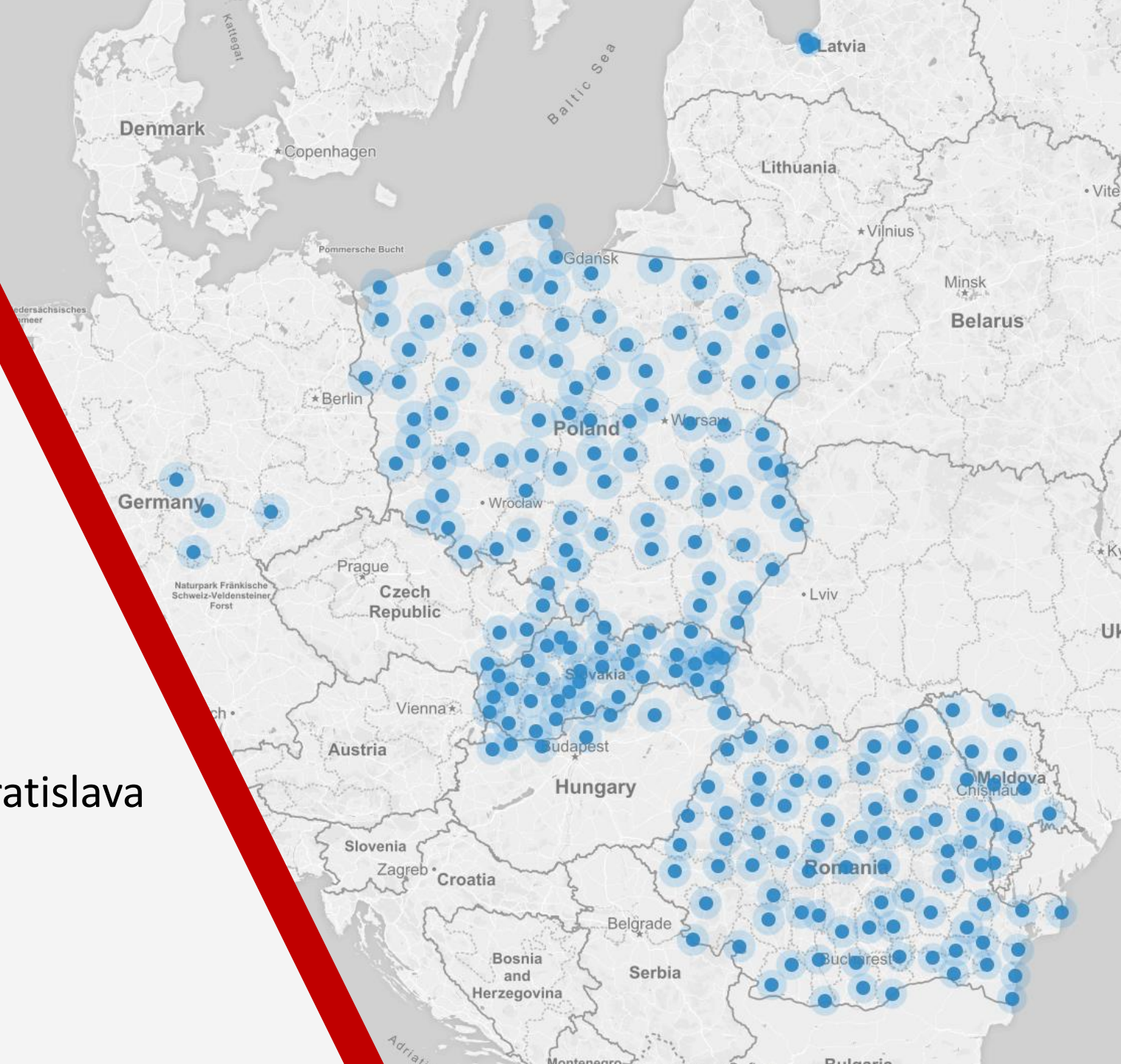
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8th EUPOS Council and Technical Meeting  
November 15-16 2022, Ljubljana, Slovenia

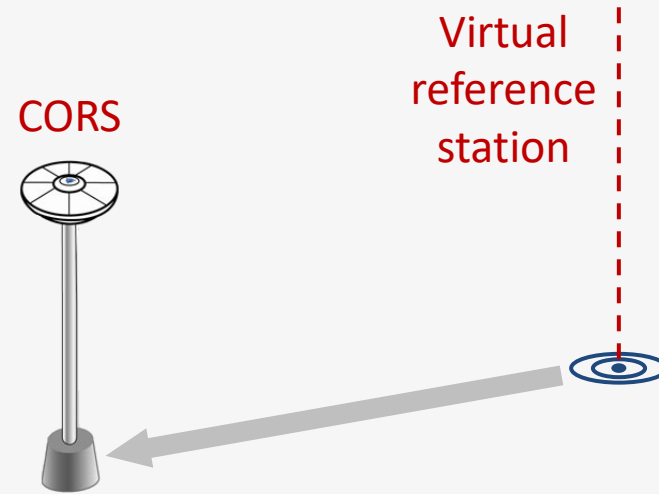


# How we can monitor Network RTK quality?



## Monitoring by physical monitoring stations

- 👍 real values of deviations
- 👎 higher costs
- 👎 the inability to monitor the entire network



## Monitoring by Virtual stations



EUPOS Service  
Quality Monitoring

- 👍 no physical monitoring stations
- 👍 lower costs
- 👍 monitoring of the entire network
- 👎 virtual principle  $\neq$  real deviation

# Virtual solution vs physical monitoring station

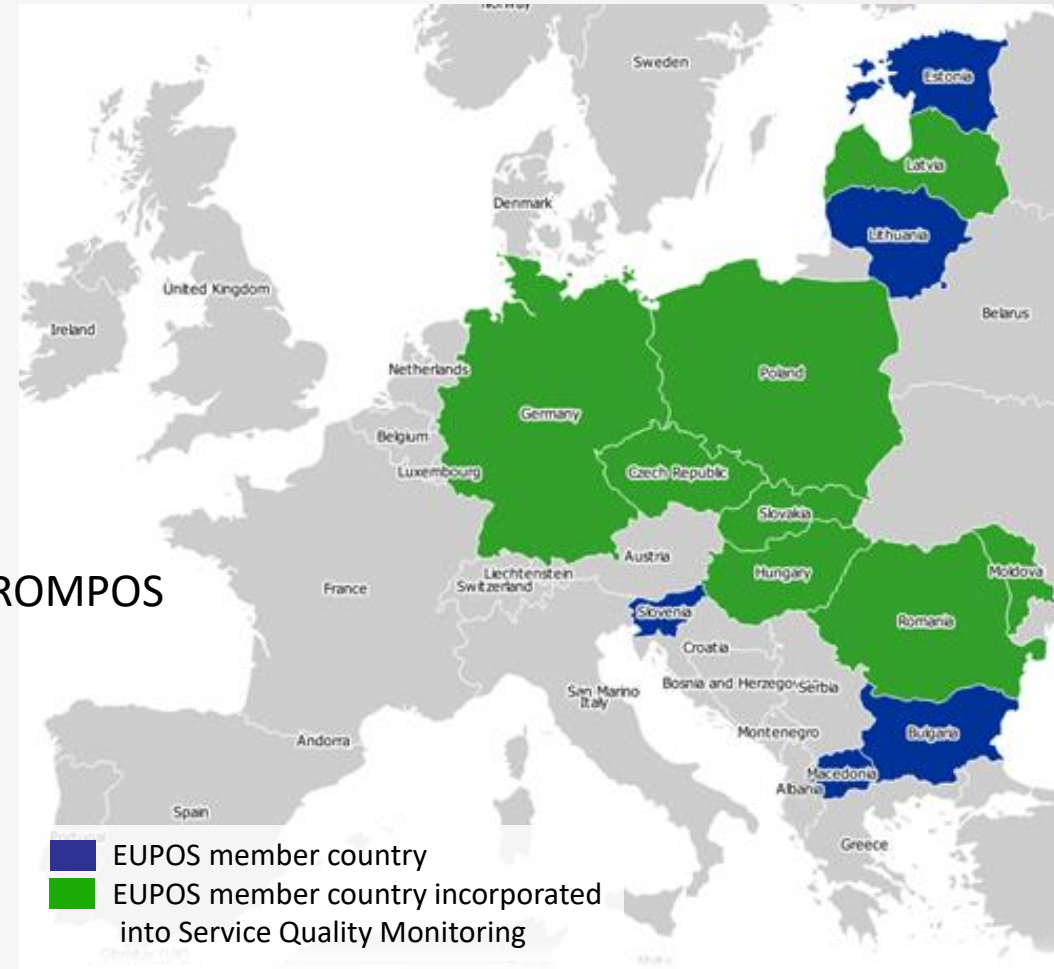
- Results from 2 years

	ne (cm)	u (cm)
Virtual solution	0.9	1.5
Physical station	1.0	1.2



# EUPOS WG on Service Quality Monitoring

- Working group members
  - Karol Smolík (Slovakia) - chair
  - Branislav Droščák (Slovakia)
- WG cooperators **No new member**
  - Szymon Wajda (Poland) – ASG-EUPOS
  - István Galambos (Hungary) – gnsnet.hu
  - Vlad Sorta, Miluta Flueraș, Victor Crasnopolschi (Romania) – ROMPOS
  - Christian Trautvetter (Germany) – SAPOS
  - Rolands Pinta (Latvia) – EUPOS-RIGA
  - Pavel Ivancenco (Moldova) – MOLDPOS
  - Jan Řezníček (Czech Republic) – CZEPOS



# *EUPOS* service quality monitoring Status (November 2022)

	35 stations
	87 stations
	7 stations
	75 stations
	4 stations
	3 stations
	10 stations
	4 stations
<hr/> <hr/>	
	<b>225 stations</b>

No improvement

## **GNSS receiver manufacturers**

- Trimble
- Javad
- Leica
- Astech
- Topcon










## **Network softwares:**

- Trimble Pivot Platform
- Geo++ GNSMART
- Leica Spider



# EUPOS networks deviations comparison

## Statistics

RTK network										
Control Software		Trimble Pivot Platform			Leica Spider			Geo++ GNSMART		$\Sigma$
Time period		9 years	8 years	7 years	8 years	5 years	4 year	8 years	7 years	
Number of monitored stations		35	87	4	75	10	4	7	3	225
Maximal	ne	49.9 cm	46.8 cm	51.9 cm	49.8 cm	41.3 cm	38.4 cm	49.1 cm	49.8 cm	
	u	49.8 cm	49.3 cm	48.8 cm	49.9 cm	43.5 cm	47.9 cm	69.9 cm	59.9 cm	
Average	ne	1.0 cm	0.9 cm	0.9 cm	1.1 cm	1.0 cm	0.8 cm	1.0 cm	1.1 cm	1.0 cm
	u	2.4 cm	1.2 cm	1.9 cm	2.4 cm	1.5 cm	3.0 cm	1.2 cm	2.1 cm	2.0 cm
No fix		13%	7%	8%	15%	28%	10%	12%	20%	14%

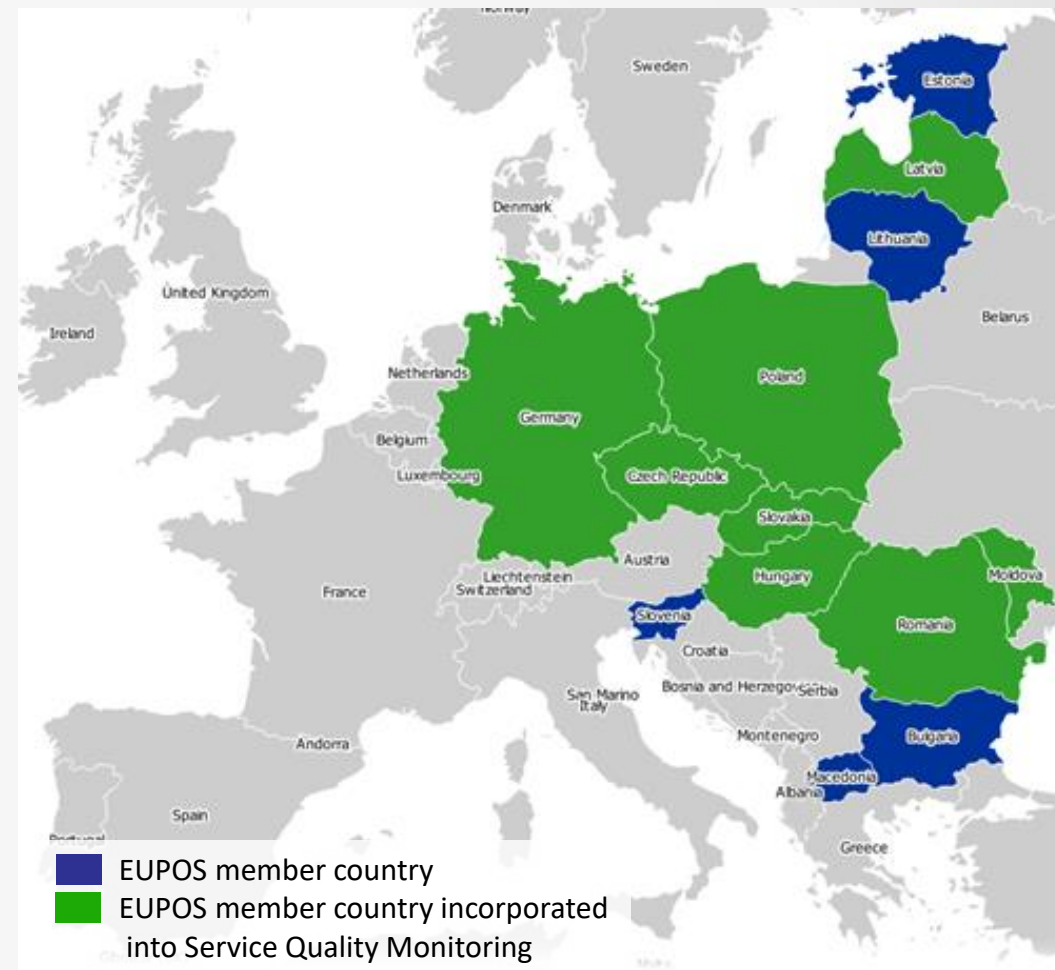
# Summary

- EUPOS network RTK quality monitoring tool works right
- tool is available for public on <http://monitoringEUPOS.gku.sk>
- results from the monitoring confirm „cm“ quality of EUPOS countries network RTK
- we plan to continue our activity and do more analysis in future



# Join us - join EUPOS SQM!

- What you will get?
  - feedback about quality of your service
  - comparison of your service with other countries
- E-mail contact:
  - [karol.smolik@skgeodesy.sk](mailto:karol.smolik@skgeodesy.sk)
- What we need for joining:
  - login and password which allows us to get
    - access to the network RTK solution (VRS concept)
    - access to permanent stations via NTRIP Caster
  - corrections provided in RTCM 3.x format
  - CORS coordinates





**Thank you for your attention**

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