GNSS Data Quality Monitoring Service

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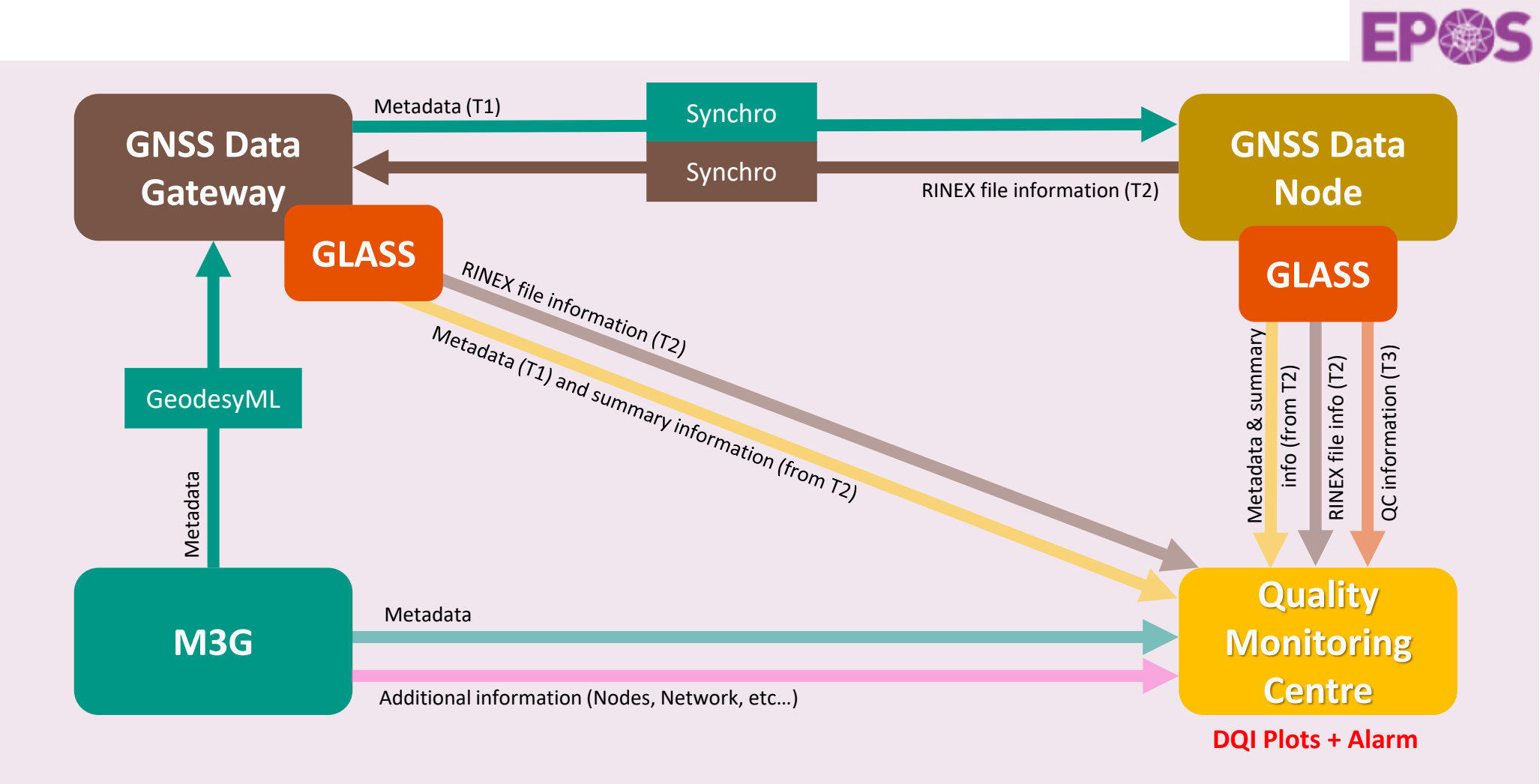
ROYAL OBSERVATORY OF BELGIUM

EPOS-GNSS Technical Workshop, May 5-6, 2022

GNSS DATA AND PRODUCTS

General EPOS RINEX Data Flow



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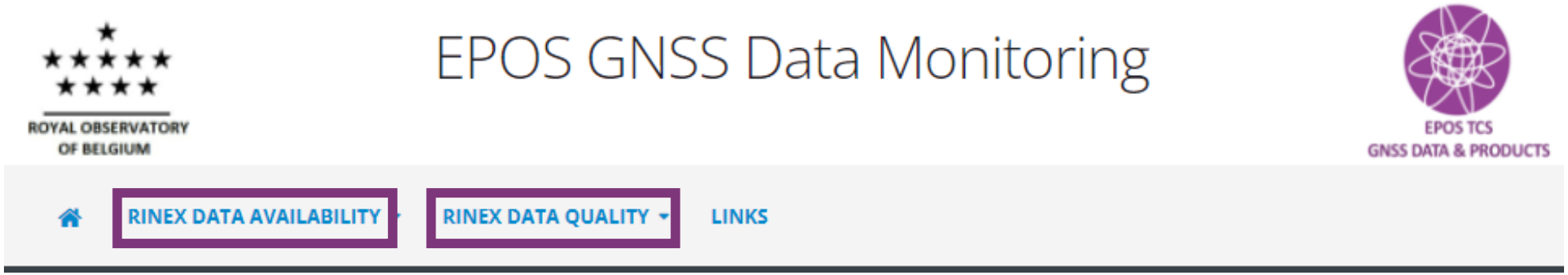
GNSS DATA AND PRODUCTS

EPOS GNSS Data Monitoring

https://gnssquality-epos.oma.be



RINEX Data Availability

This web page gives an overview (on 2022-05-04) of the RINEX data discoverable from the **EPOS GNSS Data Portal** as well as from each of the individual **EPOS GNSS Data Nodes**.

Fully operational and pre-operational GNSS Data Nodes are accessible (unlike the planned ones).

EPOS GNSS Data Portal		
DGW	FRA	http://gnssdata-epos.oca.eu:8080

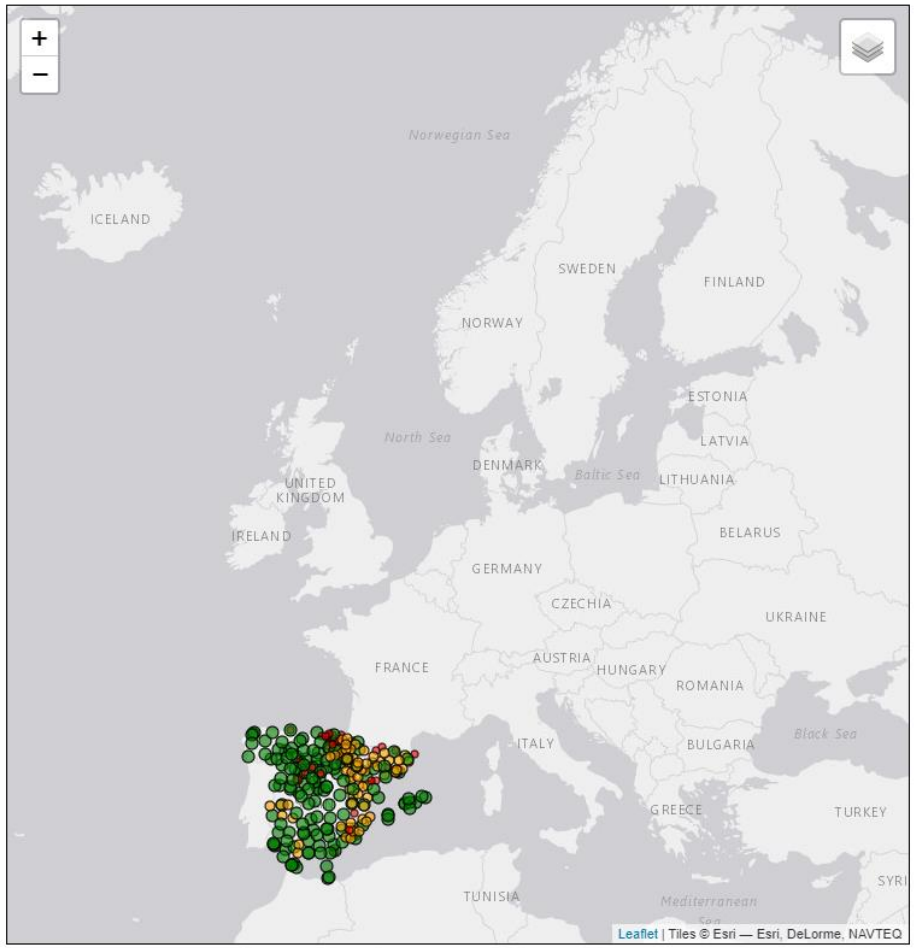
EPOS GNSS Data Nodes		
Belgian-node	BEL	
C4G	PRT	https://glass.c4g-pt.eu:8081
CzechGeo	CZE	http://vm-epos.pecny.cz:8080
IGE	ESP	https://redgae-epos.ign.es
INGV	ITA	http://glass.ingv.it:8080
IPGP	FRA	http://glass.ipgp.fr:8080
NIEP	ROU	http://gnss.infp.ro:8080
NOA	GRC	http://194.177.194.250:8080
Pan-European	PRT	https://glass.gnss-epos.eu
ROB-EUREF	BEL	http://eposvm-as.oma.be:8080

280 EPOS Stations at IGE

- 157 stations with more than 30 days of RINEX data
- 75 stations with less than 30 days of RINEX data
- 48 stations without RINEX data

Station List

- select a station -



This map has been made to check whether the RINEX files are discoverable within EPOS

New maps under preparation:

1). Active stations providing recent data

2). Stations ready to:
proposed → included in EPOS
(4 weeks of recent data/ 3 years of data over full history)

RINEX Data Availability (By data node/GNSS Networks)

This table page displays, for each **EPOS-GNSS Data Node**, the stations whose data are expected to be discoverable through that node (based on the information provided by the station owner to M3G).

The numbers in the table are retrieved using the GLASS API at each node. The table is refreshed hourly (last update on: 03-05-2022 08:31 UTC).

IGE View

Copy CSV Excel PDF Print Show all entries Search:

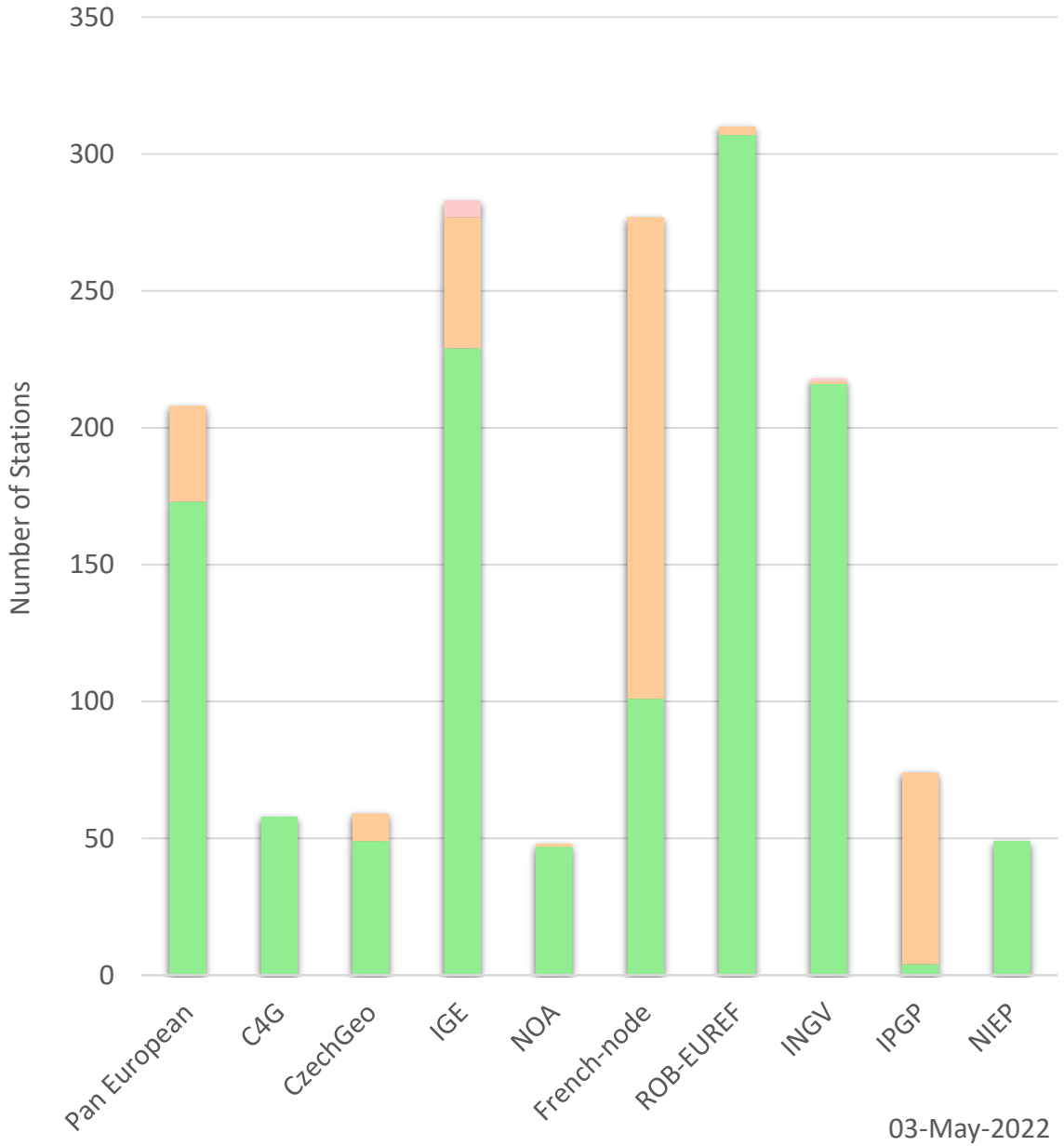
Stations	# RINEX files	
ABAN00ESP	14	2022-05-01
ACAL00ESP	0	
ACIN00ESP	1	2021-12-19
ACNS00ESP	491	2022-05-01
ACOR00ESP	381	2022-05-01
AGRD00ESP	107	2022-05-01
AGUI00ESP	0	
AIO200ESP		
AIRM00ESP	14	2022-05-01
AJAL00ESP	130	2022-05-01
ALAC00ESP	461	2022-05-01
ALBA00ESP	469	2022-05-01
ALBO00ESP	331	2022-04-30

indicate that the station RINEX data are available from the node

indicate that the station RINEX data are not available from the node, but the station was already set up at the node.

indicate that the station has not been set up at the EPOS-GNSS Data Gateway or has not been linked to the node by EPOS-GNSS Data Gateway

RINEX Data Availability (Statistic for each data node)



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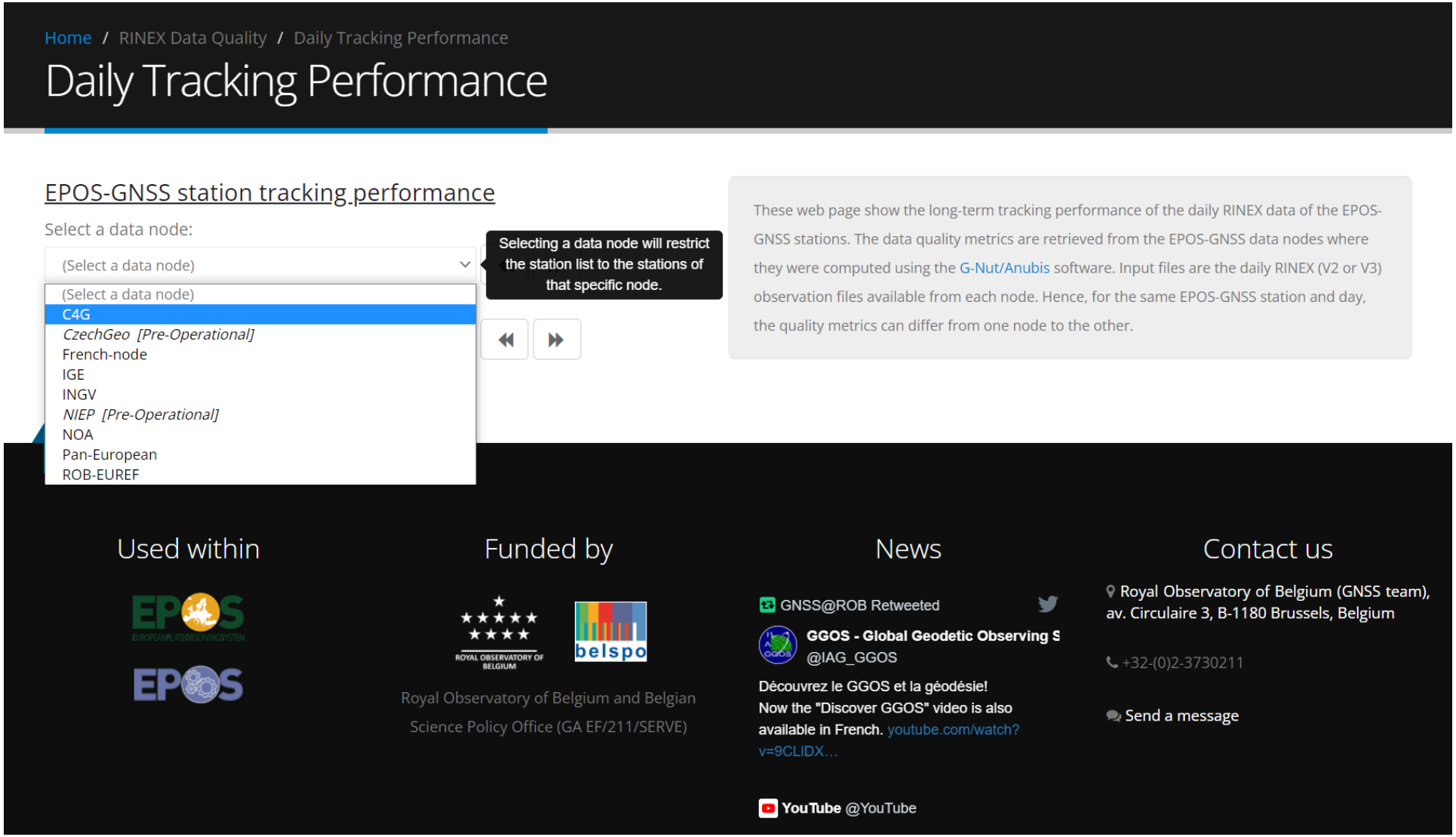
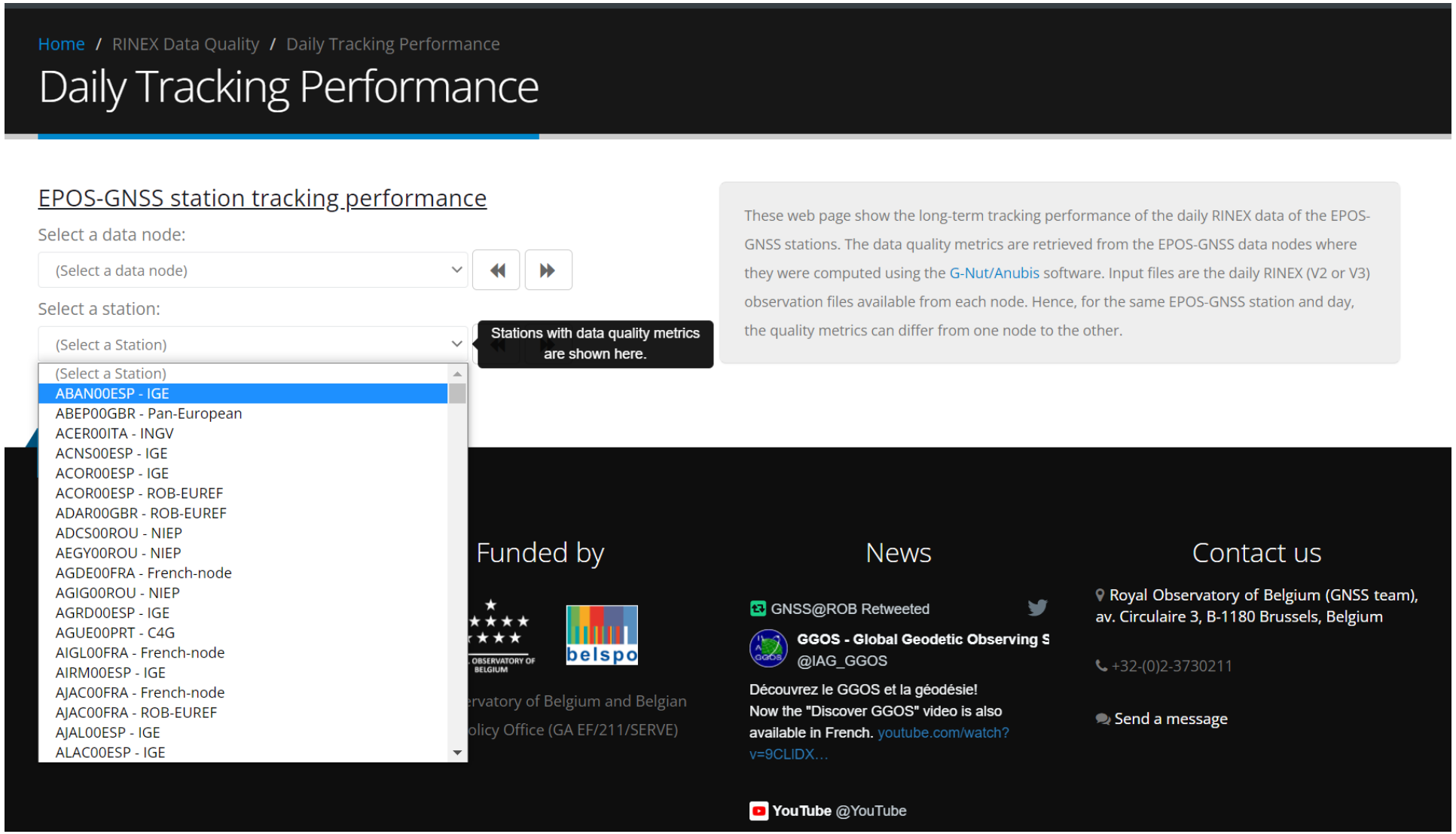
RINEX Data Quality Page (Selecting a data node)



RINEX Data Quality Page (Selecting a station)



RINEX Data Quality Page

EPOS-GNSS station tracking performance

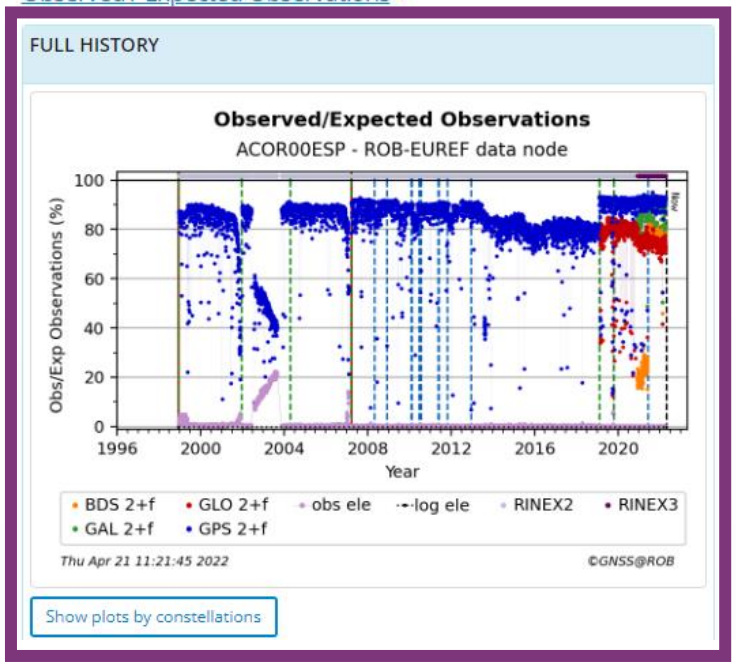
Select a data node: ROB-EUREF

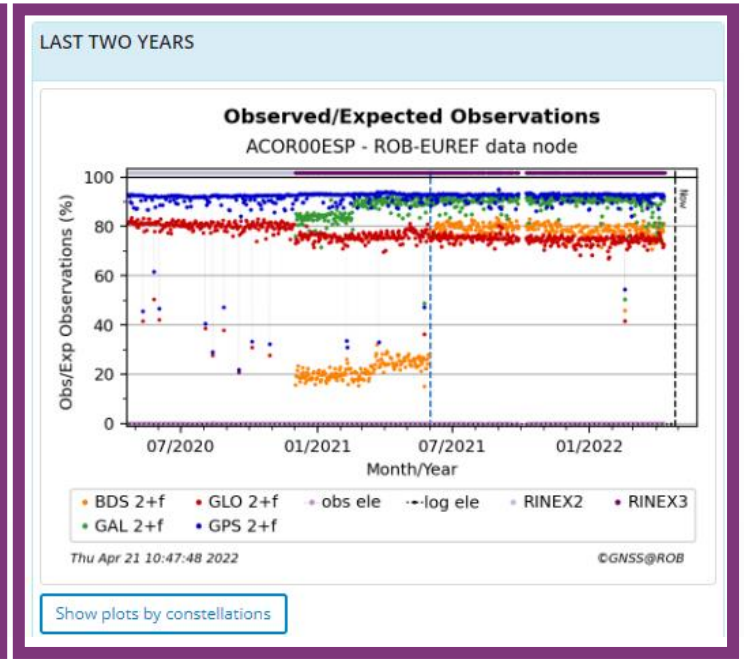
Select a station: ACOR00ESP

The plots below present the long-term tracking performance of the EPOS-GNSS station ACOR00ESP based on the daily RINEX data available from the ROB-EUREF EPOS-GNSS data node. The data quality metrics have been computed at the data node using the G-Nut/Anubis software. Input files are the daily RINEX (V2 or V3) observation files available from ROB-EUREF EPOS-GNSS data node. The EPOS-GNSS station ACOR00ESP is also available at the IGE EPOS-GNSS data node, you can compare the results here.

General | Position | Multipath

Observed / Expected Observations

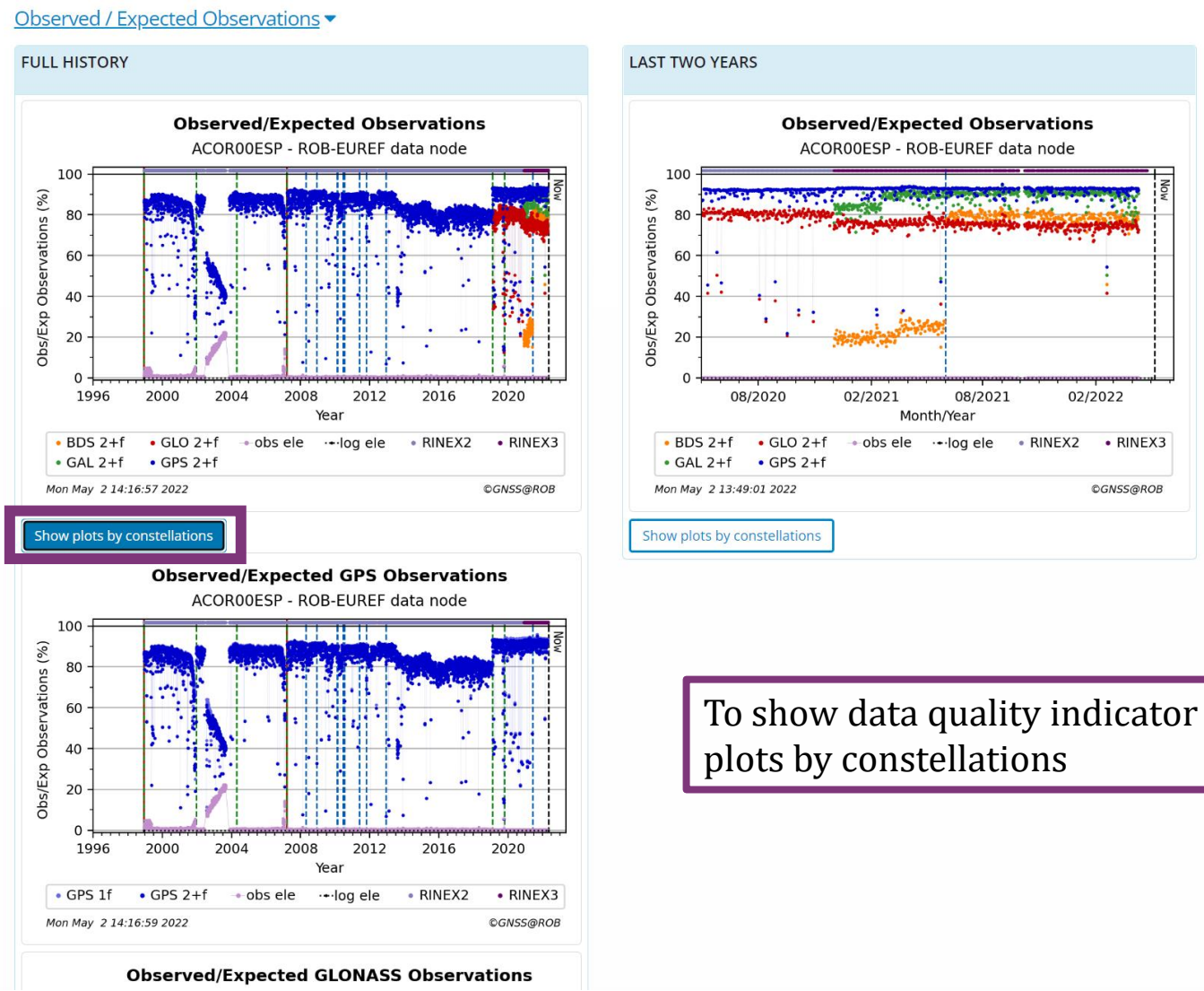




Full history

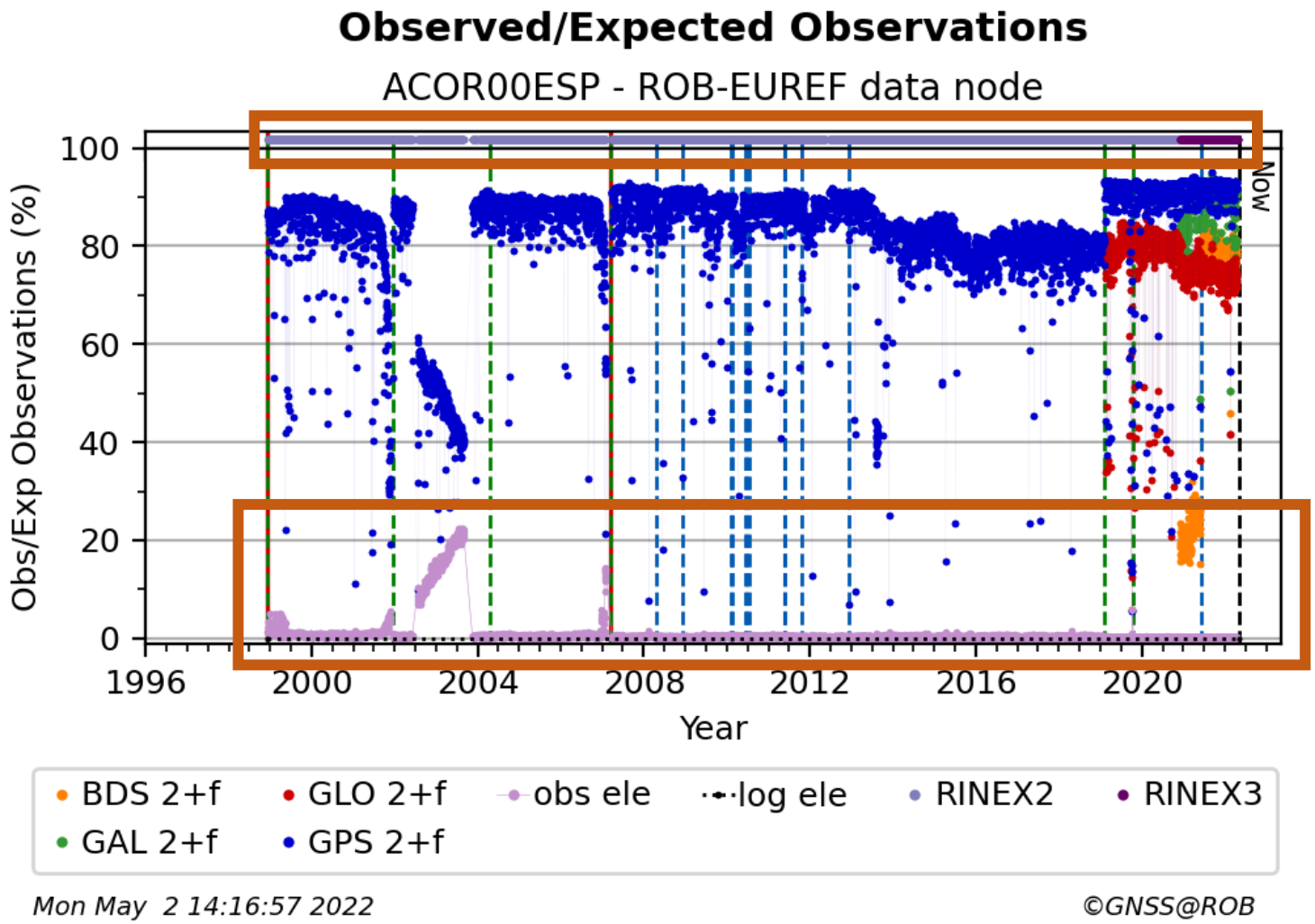
Last two years

RINEX Data Quality Page (Plots by constellations)



To show data quality indicator plots by constellations

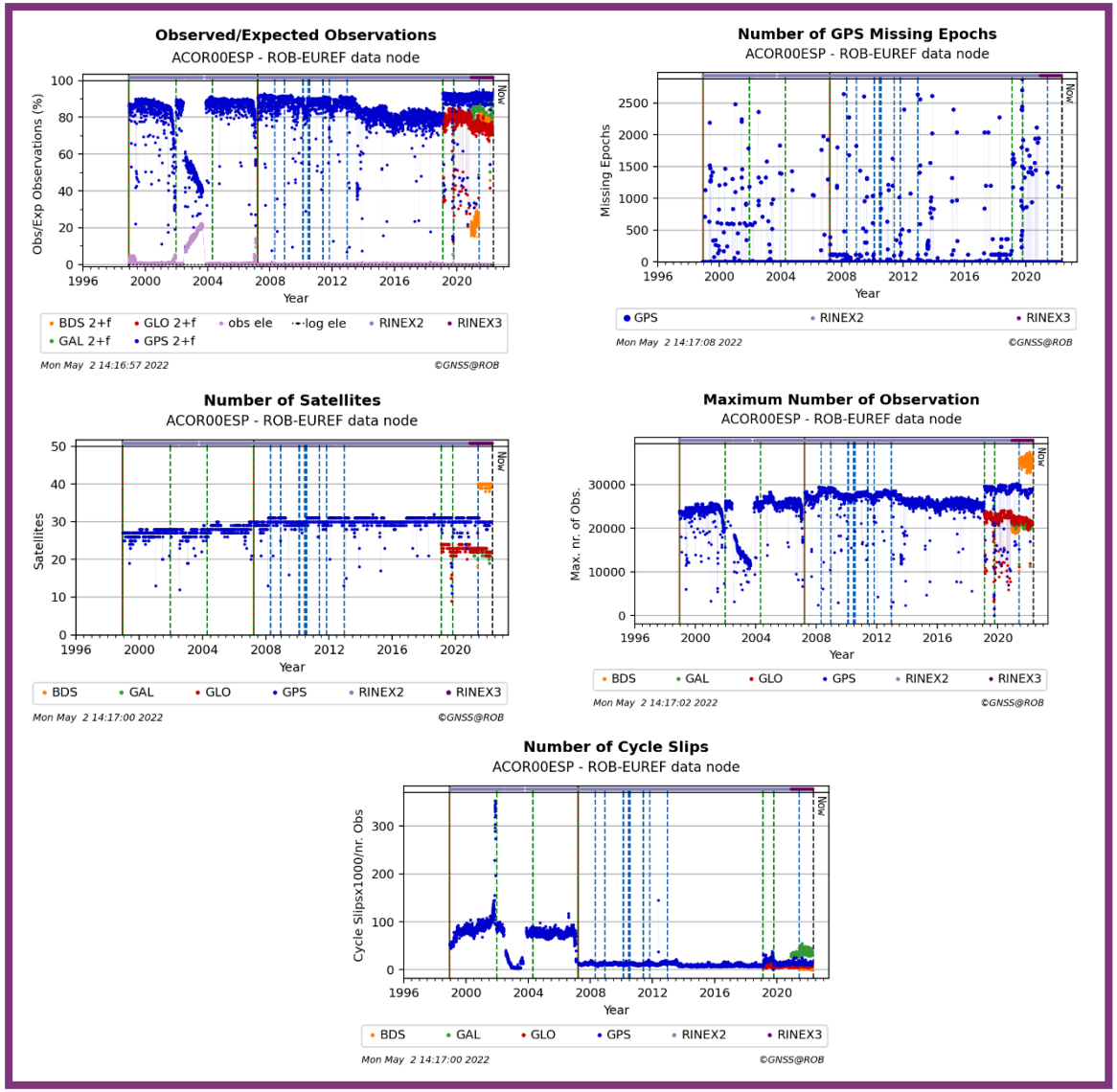
Data Quality Indicators

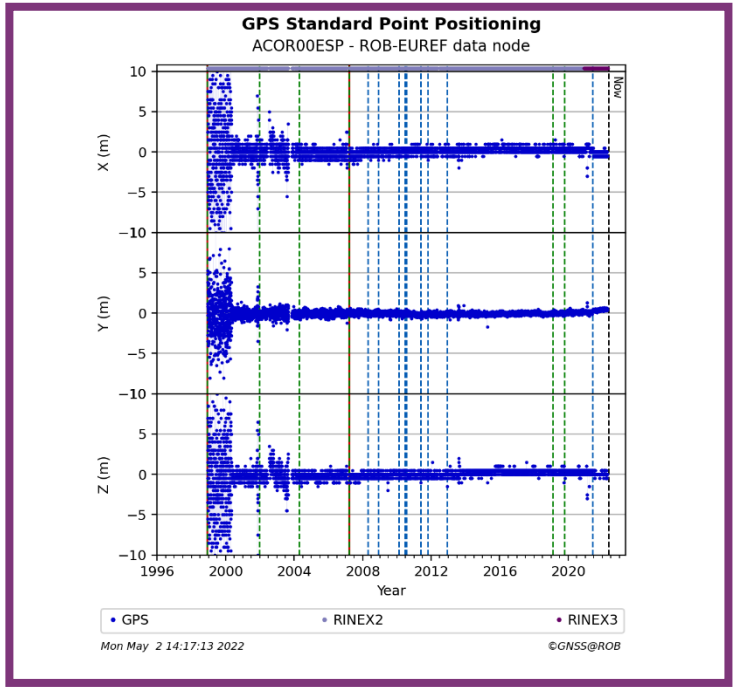


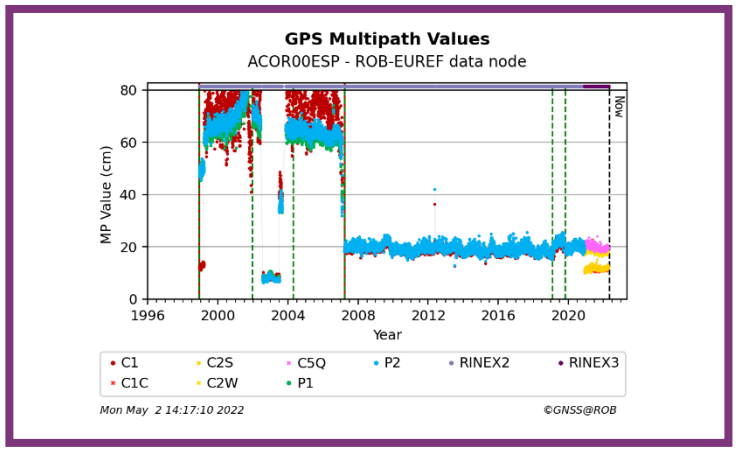
RINEX 2 and RINEX 3

Elevation Cut Off from site log and Observed Elevation Cut Off

Data Quality Indicators Plots







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Station Comparison Pages

EPOS-GNSS station comparison

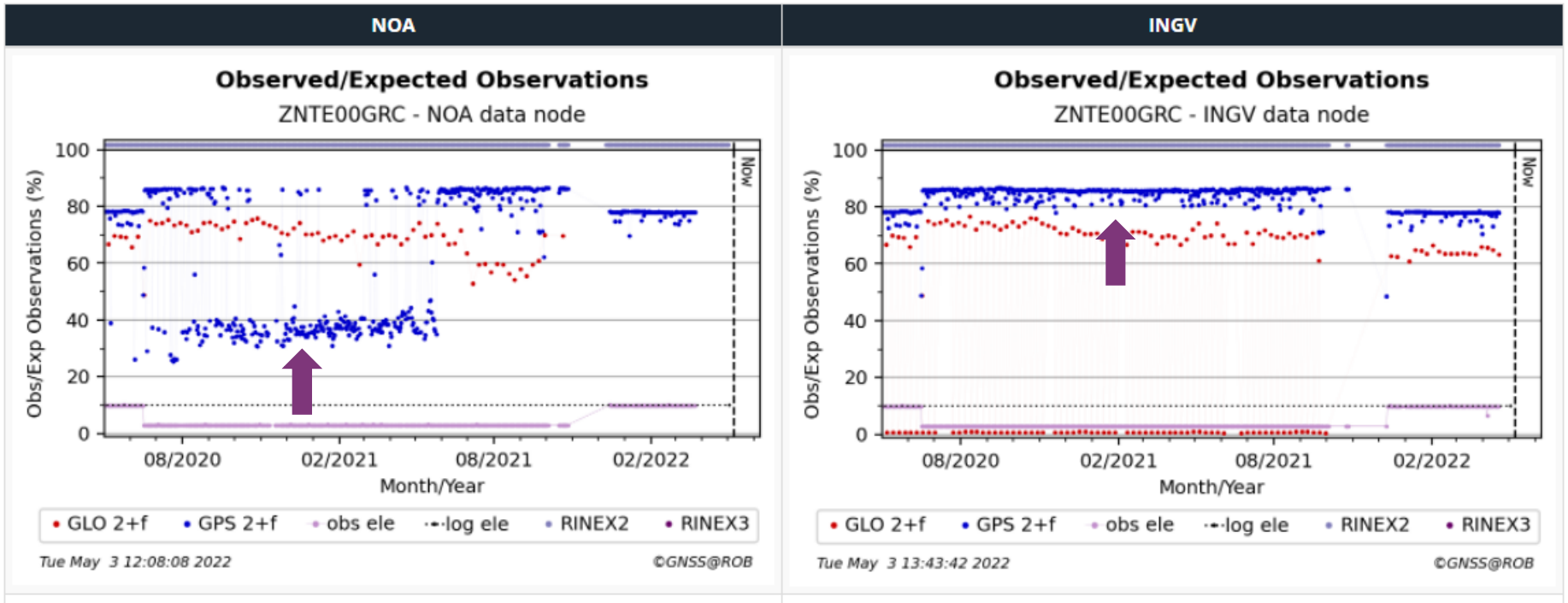
Select a station:

ZNTE00GRC (NOA - INGV)

Show full history

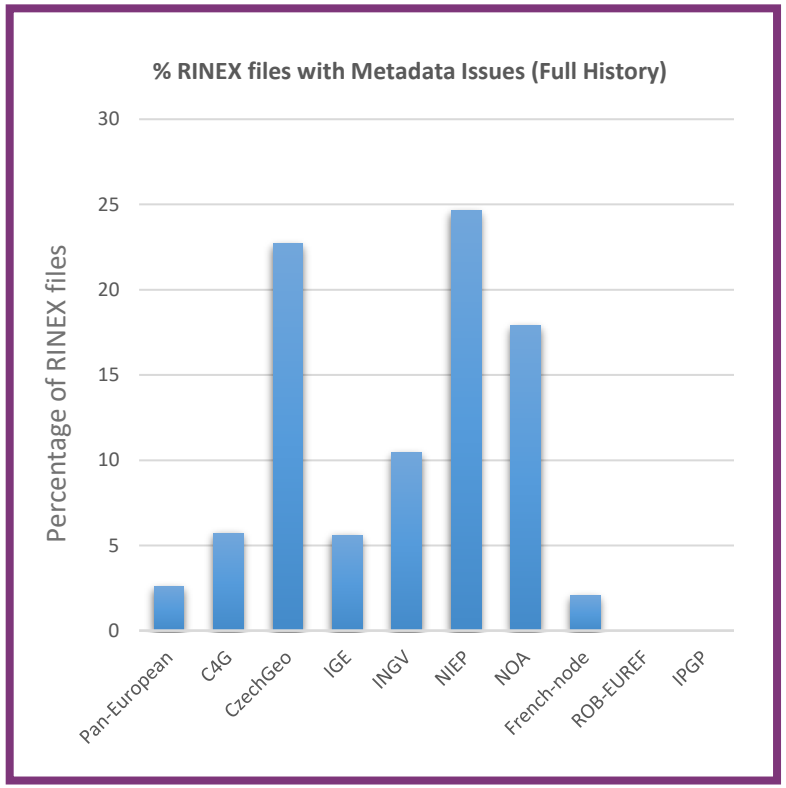
Show the last two years

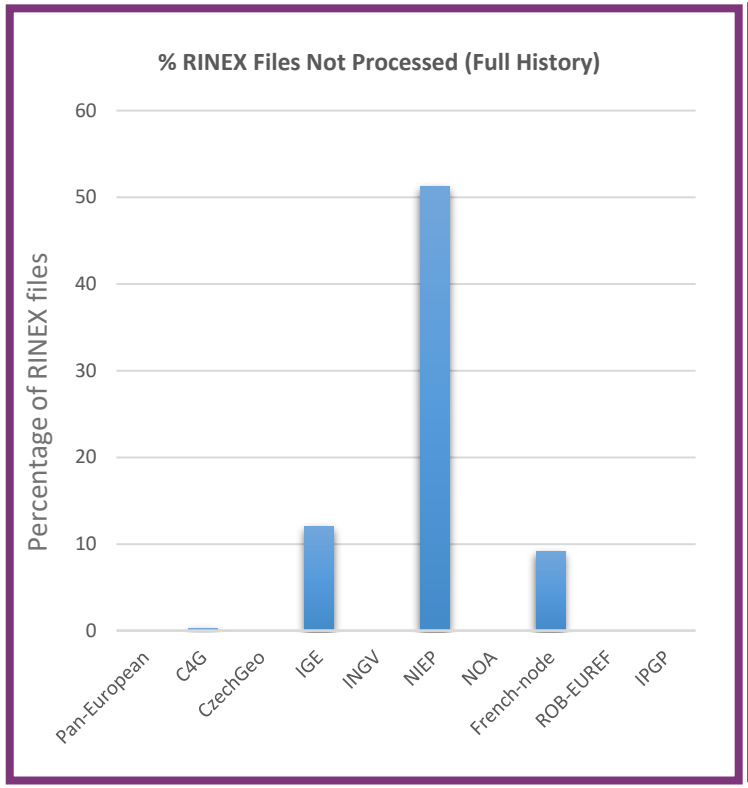
These plots allow to compare the daily data quality metrics of the daily RINEX data of the station ZNTE00GRC respectively retrieved from the NOA and INGV EPOS-GNSS data nodes. The data quality metrics were computed independently at each node using G-Nut/Anubis software based in the daily RINEX data in the data repository connected to the node. For more information, please refer to the station tracking performance pages (you can access them by clicking on the plots below).

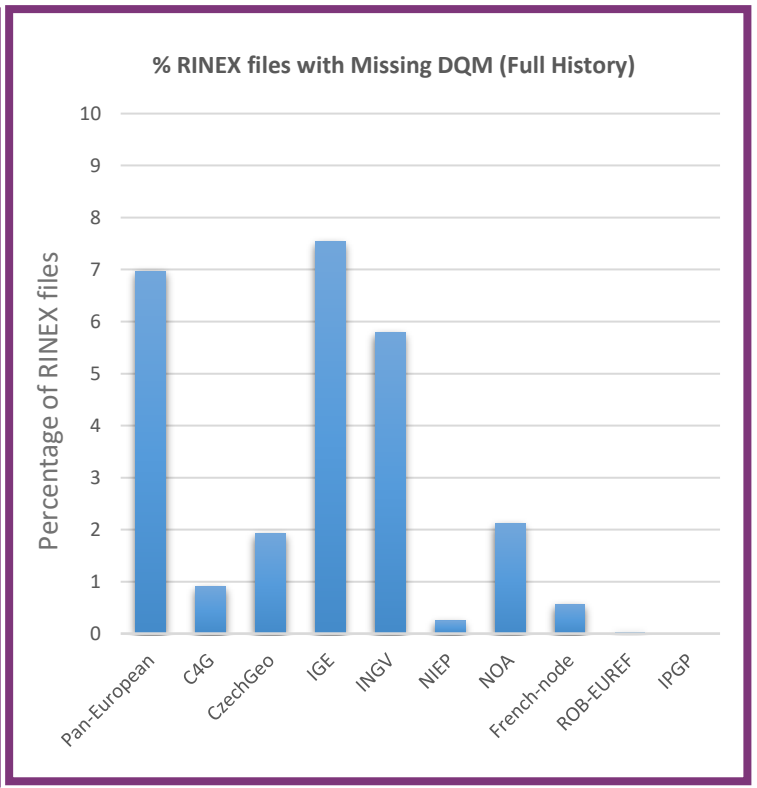


Compare data quality metrics from two nodes

DQM Status (Statistic per Node):

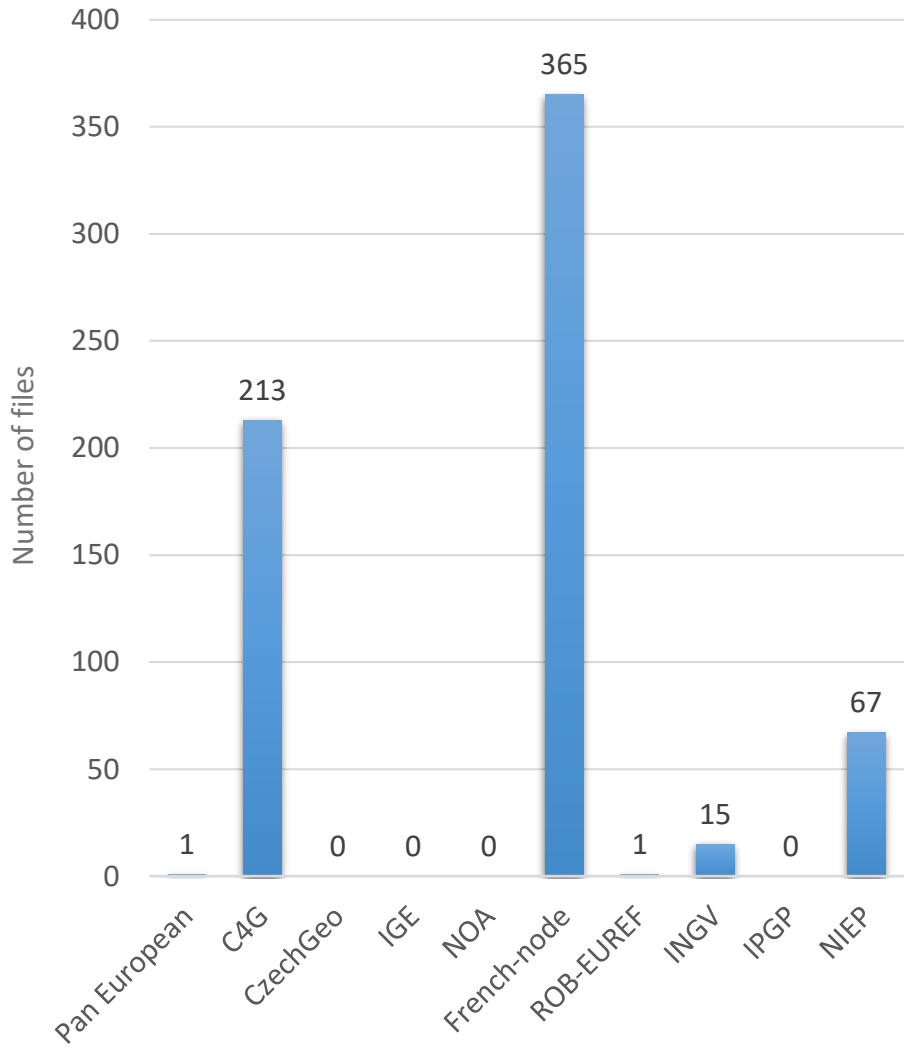






Solve metadata issues at your data node	Make sure that RunQC is running on all your RINEX files	ROB will provide RINEX files list which need to be reprocessed to solve this issues

Redundant RINEX files:



Redundant RINEX files can occur due to:

- Different file naming (uppercase and lowercase)
- Different file status (metadata issues, to run, validated)
- Hardware changes
- RINEX 2 and RINEX 3

Should we notify the data nodes?

And in which cases?

Conclusion:

- Quality Monitoring Center have published webpages which providing information on the RINEX data availability and RINEX data quality monitoring.
- Please send your feedback of your ideas and your needs to epos@oma.be

Actions for the data nodes:

- Please have a look at gnssquality-epos.oma.be website.
- Please check the RINEX files with metadata issues.
- Please make sure that RunQC is running on all your RINEX files.
- ROB will provide some help to solve Missing DQM issues.
- We need clear rules about redundant data handling and warning in EPOS.

Outlook:

- Provide an alarm for RINEX data quality

Thank you