

How to Integrate a GNSS Station in EPOS ?

Presenter: Carine Bruyninx

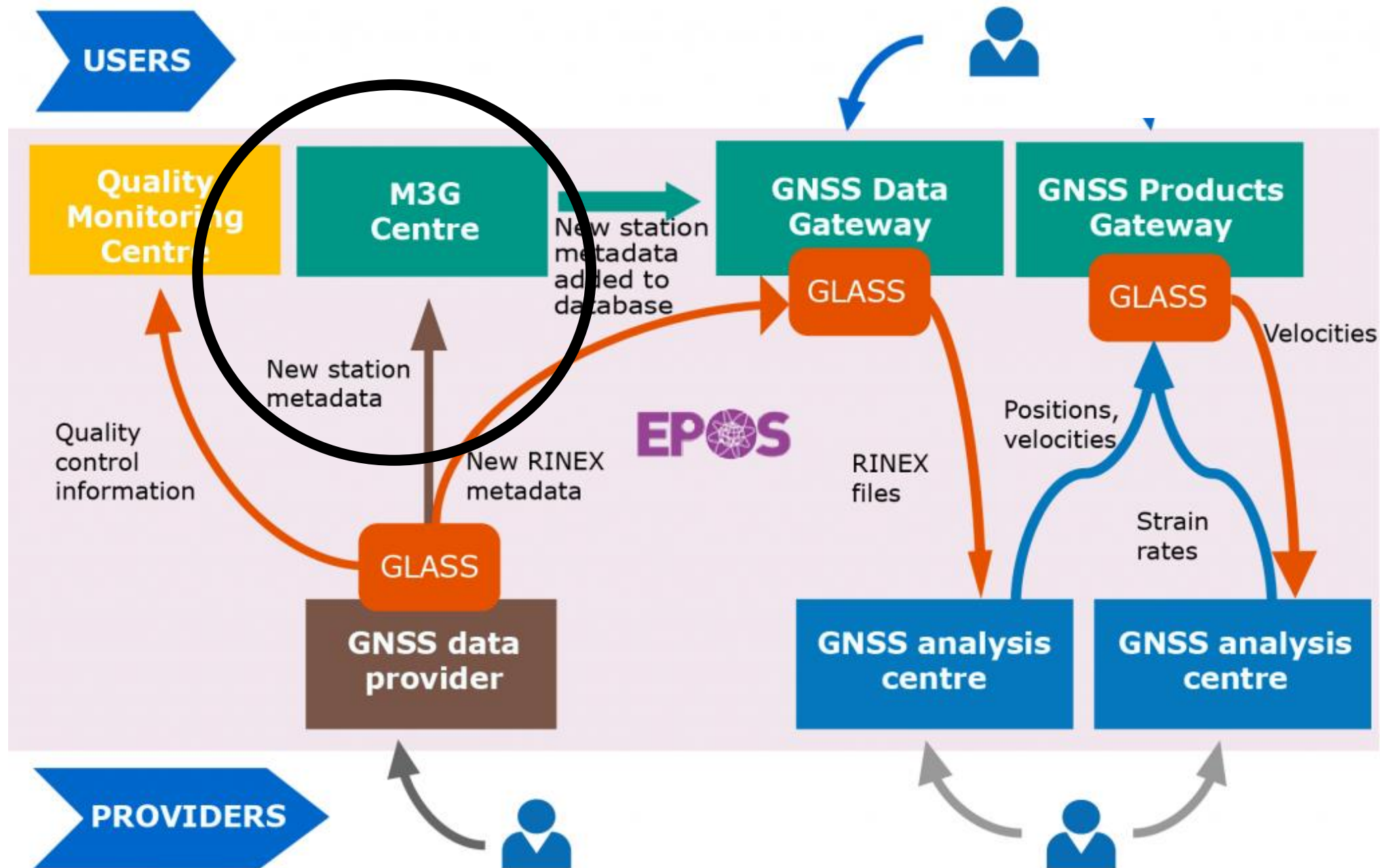
Contributors: Andras Fabian, Anna Miglio, Juliette Legrand

Royal Observatory of Belgium

m3g@oma.be

EPOS-GNSS Webinar
18-19 January 2021





EPOS Pilot-Operational Phase

Not all EPOS-GNSS services are fully operational:

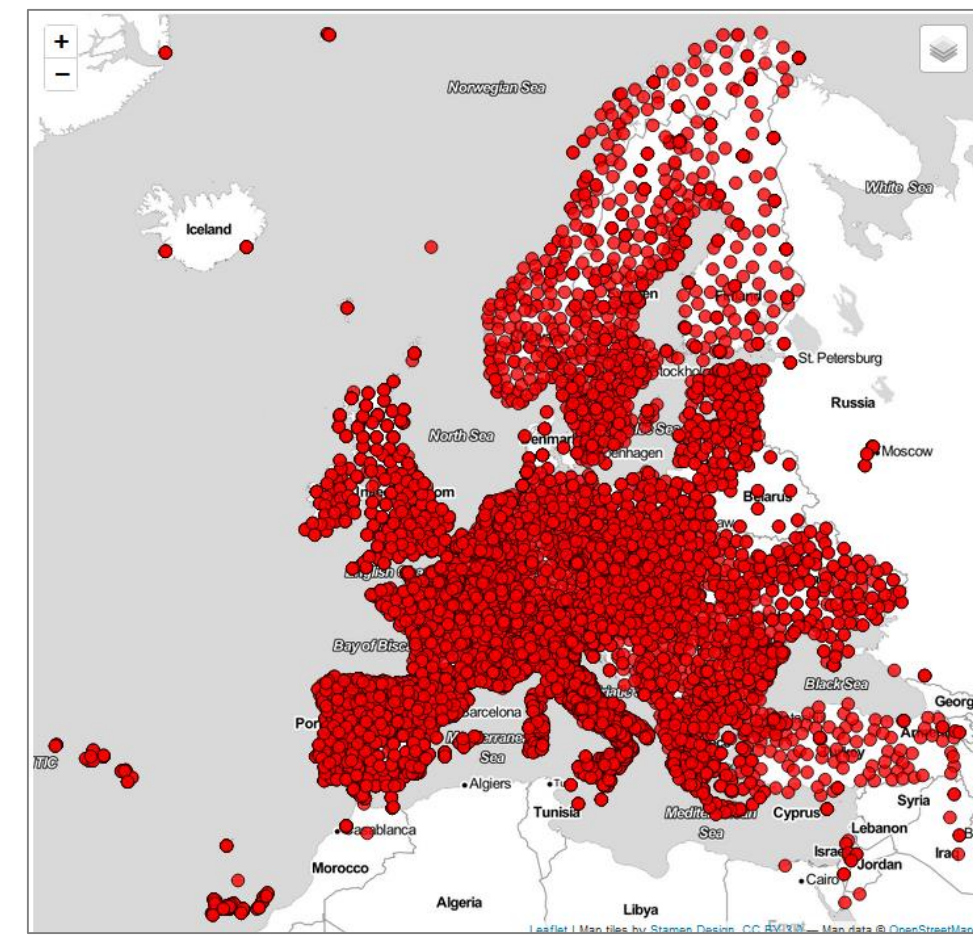
- GNSS network is being build
- GNSS data flow is set up
- GNSS products are being refined

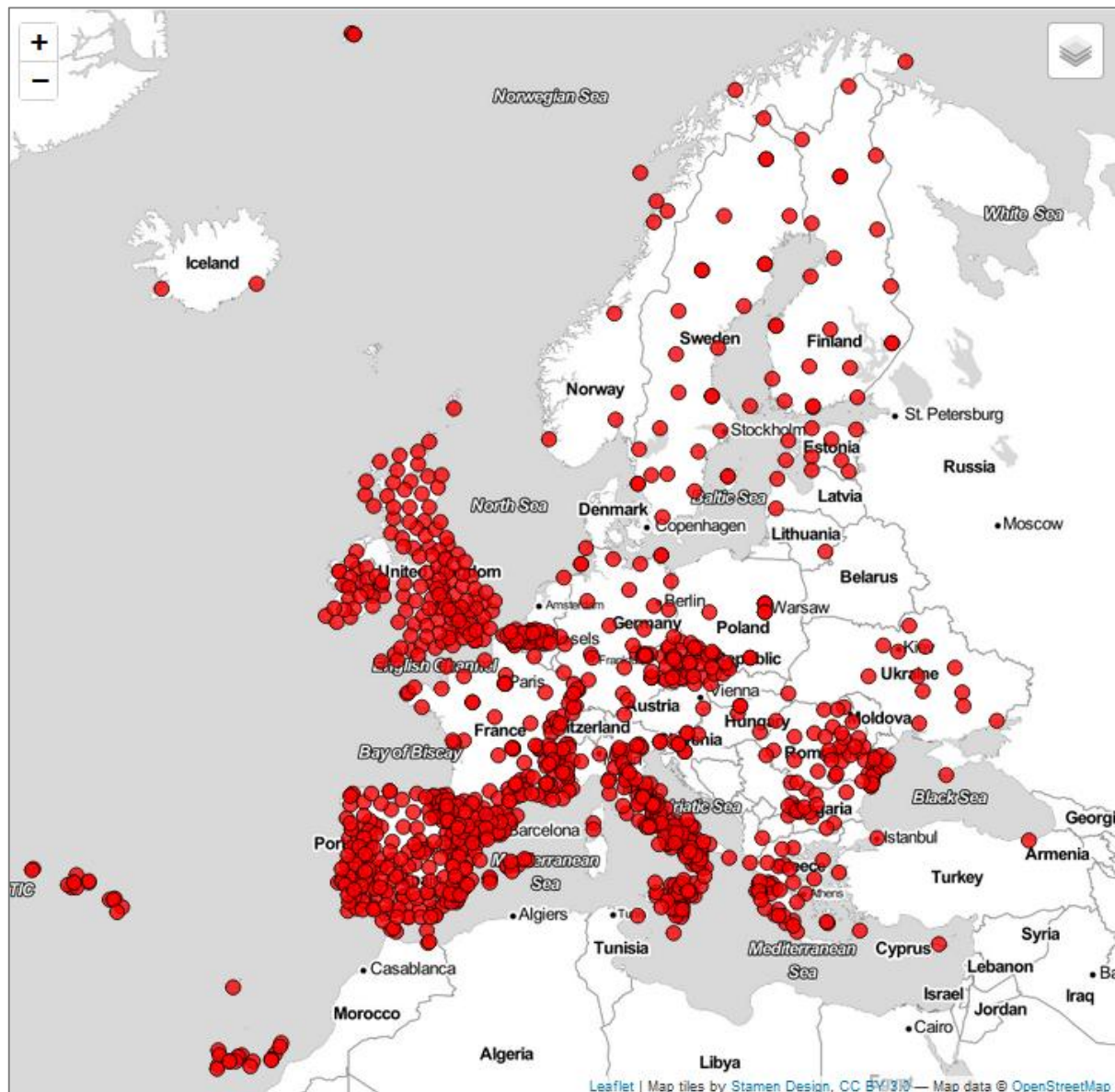
The services that are working are under test

EPOS ambition

Provide access to data from ~3000 GNSS stations

~ 5000 permanent GNSS stations







General GNSS station requirements

1. Permanently tracking GNSS stations
 - a) Presently active
 - or
 - b) Decommissioned stations that worked for minimally 3 years
2. Provide free access to daily RINEX data (v2 or v3)
3. Maintain station metadata (site log + other metadata)

<https://gnss-metadata.eu>




Metadata Management and Distribution
System for Multiple GNSS Networks


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Welcome!

Supported GNSS networks


EUREF Permanent Network (EPN)



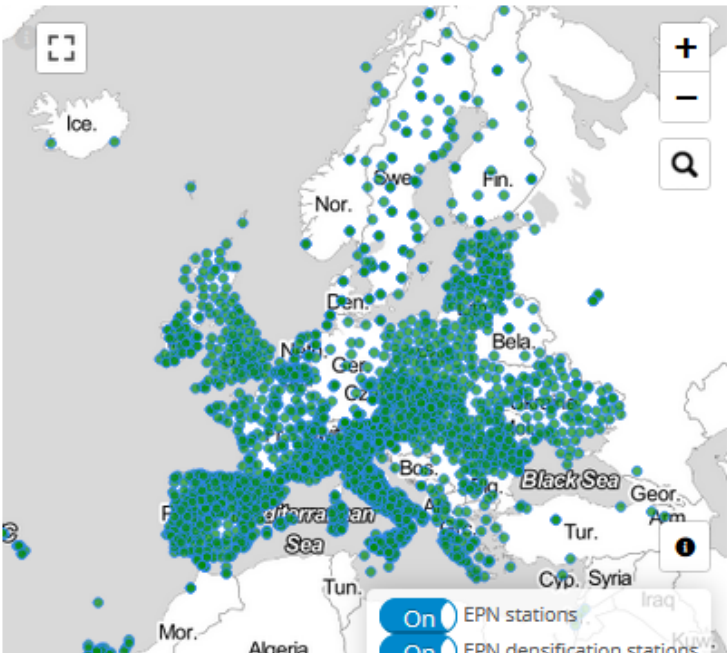
EPN Densification Network



European Plate Observing System



2577 GNSS stations with metadata in M³G



Updates

TPOL00HUN yesterday

Receiver changed to LEICA GRX1200GGPRO (SN:356558)

TATA00HUN yesterday

Antenna changed to LEIAR20 LEIM (SN:21304011)

SZFO00HUN yesterday

Antenna changed to LEIAR20 LEIM (SN:21274024)

PUSP00HUN yesterday

Receiver changed to LEICA GRX1200GGPRO (SN:352257)

MONO00HUN yesterday

Receiver changed to LEICA GRX1200+GNSS (SN:456749)


JASZ00HUN yesterday

Antenna changed to LEIAR20 LEIM (SN:21274011)


BOLG00ITA yesterday

Section 11

<https://gnss-metadata.eu>




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Supported GNSS networks


EUREF Permanent Network (EPN)



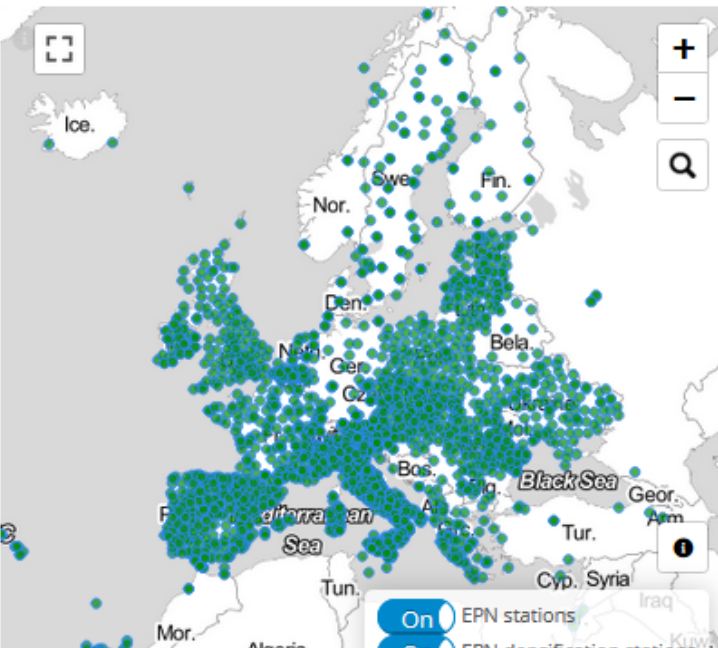
EPN Densification Network



European Plate Observing System



2577 GNSS stations with metadata in M³G



On EPN stations
On EPN densification stations

Updates

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Station 11



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Agencies maintaining GNSS station metadata in M³G


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UNIQUE AGENCY ID#	ABBREVIATION	FULL NAME	COUNTRY	INTERNATIONAL NETWORK(S)	LOCAL NETWORK(S)	STATION(S)
(all)	(all)	(all)	(all)	(all)	(all)	(all)
AGG	AGG_DITS	University of Rome 'La Sapienza' Area di Geodesia e Geomatica	Italy (ITA)	EPN, EPOS		+
AGH	AGH-UST	AGH University of Science and Technology	Poland (POL)	EPN, EPOS		+
ARA	ARA	ARANZADI Society of Sciences	Spain (ESP)	EPN, EPN densification, EPOS	BFA, GFA	+
ASGEUPOS	ASGEUPOS	ASG-EUPOS Management Center Head Office of Geodesy and Cartography	Poland (POL)	EPN, EPN densification	ASGEUPOS	+
ASI	ASI	Agenzia Spaziale Italiana	Italy (ITA)	EPN		+
BEV	BEV	Federal Office of Metrology and Surveying Austria	Austria (AUT)	EPN, EPN densification		+
BKG	BKG	Bundesamt fuer Kartographie und Geodaesie	Germany (DEU)	EPN, EPN densification, EPOS		+
BMEDGS	BMEDGS	Budapest University of Technology and Economics	Hungary (HUN)	EPN, EPOS		+
BYGEO	BYGEO	State Enterprise Belgeodesy	Belarus (BLR)	EPN		+
CANT	CANT	Gobierno de Cantabria	Spain (ESP)	EPN densification		+

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Agencies maintaining GNSS station metadata in M³G

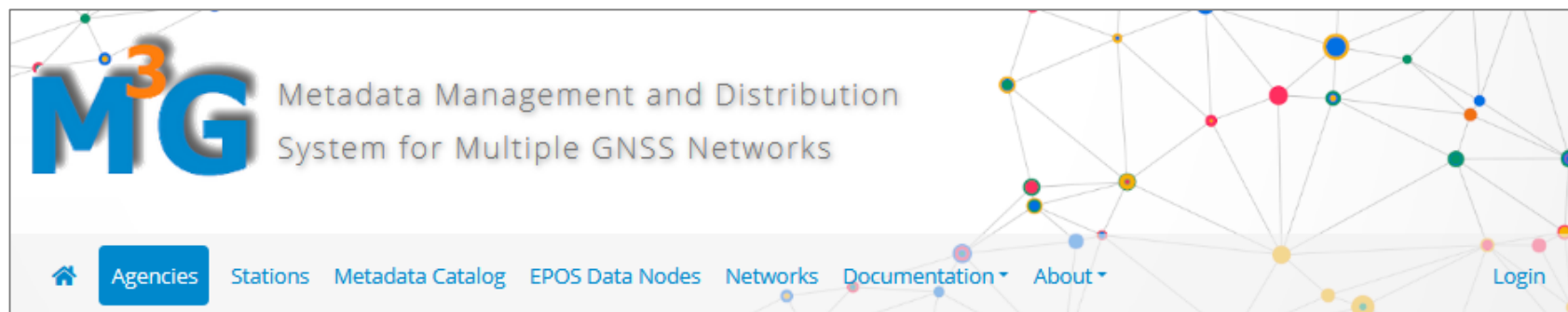
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Agencies maintaining GNSS station metadata in M³G

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AUBG00DEU, BAUT00DEU, BFO100DEU, BORJ00DEU, BRMG00DEU, DAUN00DEU, DIEP00DEU, DILL00DEU, DRES00DEU, EFBG00DEU, ERLA00DEU, FFMJ00DEU, GELL00DEU, GOET00DEU, GOR200DEU, HEL200DEU, HELG00DEU, HOER00DEU, HOFJ00DEU, HOL200DEU, HUEG00DEU, KARL00DEU, LDB200DEU, LEIJ00DEU, MOX200DEU, MUJ00DEU, RANT00DEU, SAS200DEU, SASS00DEU, TIT200DEU, TITZ00DEU, WARN00DEU						
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CANT	CANT	Gobierno de Cantabria	Spain (ESP)	EPN densification		+

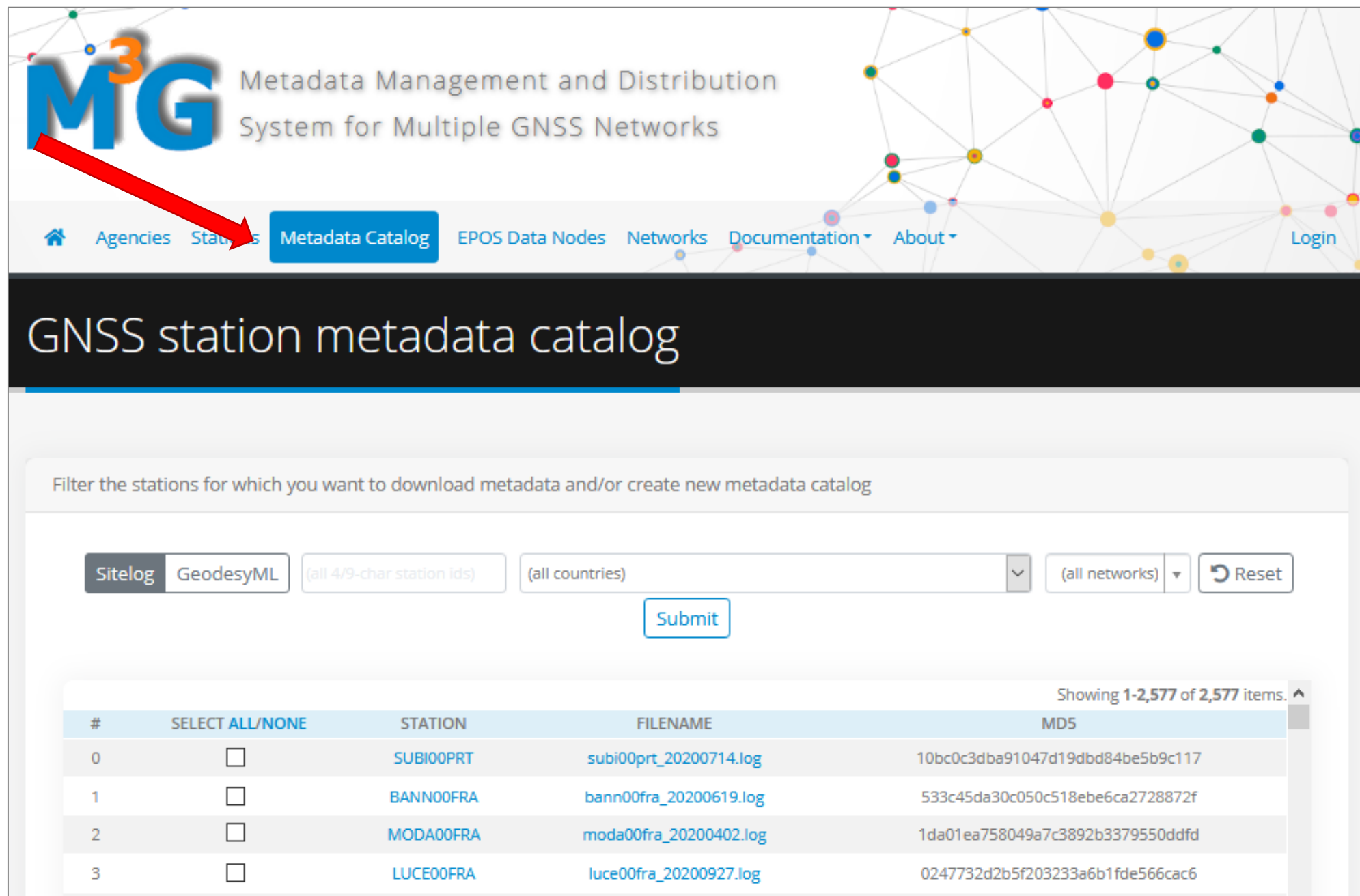


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GNSS stations with metadata in M³G

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9-CHAR ID#	NETWORK (I)=INCLUDED (P)=PROPOSED	STATUS	METADATA	COUNTRY	DOMES NUMBER	DATE INSTALLED	LAST UPDATE	GNSS RECEIVER	SATELLITE SYSTEM	GNSS ANTENNA	LICENSE
(all)	(all)	(all) ▾	valid ▾	(all) ▾	(all)	(from-to)	(from-to)	(all)	(all)	(all)	(all) ▾
AARS00BEL	EPOS(P), EPN densification(I), FLEPOS(I)	active	valid	Belgium (BEL)	13141M001	2002-10-04	2019-11-20	LEICA GRX1200+GNSS	GPS+GLO	LEIAR25.R3	CC0-1.0
ABAN00ESP	EPOS(P), EPN densification(I), REGAM(P)	active	valid	Spain (ESP)	19430M001	2013-02-11	2020-12-14	LEICA GRX1200+GNSS	GPS+GLO	LEIAR25	CC-BY-4.0
ABAS00ITA	EPN densification(I)	active	valid	Italy (ITA)	19581M001	2013-08-18	2020-06-08	TPS NETG3	GPS+GLO+GAL	TPSG3_A1	(not set)
ABEP00GBR	EPOS(P), EPN densification(I), GEMINI(P)	active	valid	United Kingdom of Great Britain and Northern Ireland	19160M001	2005-07-21	2020-09-24	TRIMBLE ALLOY	GPS+GLO+GAL+BDS	LEIAR25	CC-BY-4.0



M³G Metadata Management and Distribution System for Multiple GNSS Networks

Agencies Stations **Metadata Catalog** EPOS Data Nodes Networks Documentation About Login

GNSS station metadata catalog


Filter the stations for which you want to download metadata and/or create new metadata catalog

Sitelog GeodesyML (all 4/9-char station ids) (all countries) (all networks) Reset

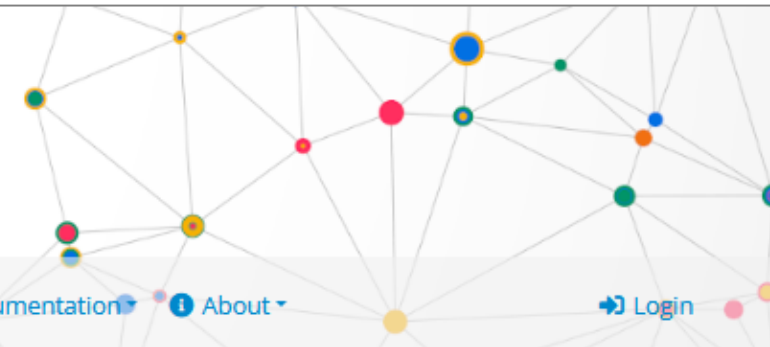
Submit









Showing 1-2,577 of 2,577 items. ^

#	SELECT ALL/NONE	STATION	FILENAME	MD5
0	<input type="checkbox"/>	SUBI00PRT	subi00prt_20200714.log	10bc0c3dba91047d19dbd84be5b9c117
1	<input type="checkbox"/>	BANN00FRA	bann00fra_20200619.log	533c45da30c050c518ebe6ca2728872f
2	<input type="checkbox"/>	MODA00FRA	moda00fra_20200402.log	1da01ea758049a7c3892b3379550ddfd
3	<input type="checkbox"/>	LUCE00FRA	luce00fra_20200927.log	0247732d2b5f203233a6b1fde566cac6




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EPOS Data Nodes



ACRONYM	NAME	AGENCY	COUNTRY	CONTACT NAME	CONTACT EMAIL	ADDITIONAL INFORMATION
(all)	(all)	(all)	(all)			
C4G	Portuguese EPOS-GNSS National Node	C4G	Portugal (PRT)	José Manteigueiro	jose.manteigueiro@c4g-pt.eu	The C4G/UBI node disseminates GNSS data from stations managed by: C4G (Collaboratory for Geosciences), DGT (Direção Geral do Território), REPRAA (Rede de Estações Permanentes Região Autónoma dos Açores), RAEGE (Rede Atlântica de Estações Geodinâmicas e Espaciais), SEGAL (UBI/IDL) (Space & Earth Geodetic Analysis Center). This node accepts data from Portuguese GNSS Stations that comply with minimum quality levels of operation and with the Node representative establishes an agreement with.
CzechGeo	CzechGeo	GOP	Czechia (CZE)	Dr. Jan Douša	jan.dousa@pecny.cz	This node distributes GNSS data from Czech Republic.
French-node	French-node	OCA	France (FRA)	Dr. Mathilde Vergnolle	mathilde.vergnolle@geoazur.unice.fr	This node distributes GNSS data from France, including the RESIF GNSS networks.
GLASS-EE	Estonian GLASS node	ELB	Estonia (EST)	Jaanus Metsar	jaanus.metsar@maaamet.ee	Estonian GLASS node
IGE	Spanish data node	IGE	Spain (ESP)	Jose Antonio Sanchez Sobrino	jassobrino@fomento.es	Accepts data from Spanish EPOS stations
INGV	INGV	INGV	Italy (ITA)	Dr. Antonio Avallone	antonio.avallone@ingv.it	Node distributing the RING GNSS data
	GNSS					

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Supported GNSS networks

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ABBREVIATION†	NETWORK NAME	NETWORK TYPE	COUNTRY	NETWORK MANAGER ?	DOI	STATION(S)
(all)	(all)	(all) ▼	(all) ▼	(all)	(all)	(all)
AGN	Active Geodetic Network	Local	Belgium (BEL)	NGI		+
AGRS.NL	Active GNSS Reference System for the Netherlands	Local	Netherlands (the) (NLD)	DUT		+
ASGEUPOS	ASG-EUPOS	Local	Poland (POL)	ASGEUPOS		+
BFA		Local	Spain (ESP)	ARA		+
C4G	C4G stations	Local	Portugal (PRT)	SEGAL		+
CNMSU	Coordinate Navigation Maintenance System of Ukraine	Local	Ukraine (UKR)	CSIRP&NFC		+
CZEPOS	Network of GNSS Permanent Stations of the Czech Republic	Local	Czechia (CZE)	ZU		+
EPN	EUREF Permanent GNSS Network	International		ROB		+
EPN densification	EPN Densification Network (EPND)	International		ROB		+
EPOS		International		ROB		+
FLEPOS	Flemish Positioning Services	Local	Belgium (BEL)	AIV		+
GEONAS	GEOdynamic Network of the Academy of Sciences	Local	Czechia (CZE)	IRSM		+
GFA		Local	Spain (ESP)	ARA		+
GFZ	Global network of the German Research Centre for Geosciences (GFZ)	Local	Germany (DEU)	GFZ	https://doi.org/10.5880/GFZ.1.1.2020.001	+
	Integrated Geodetic Reference Stations for					

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Documentation

Quick Start

- Get started!
- Quick Start
- Videos

1. Login
2. Provide information on your agency and third-party agencies
3. Provide information on networks
4. Set up/add a new station
5. Edit the site log of an existing station

Documentation Menu:

- Quick Start
- FAQ
- Guidelines
- Glossary
- M³G API
 - Intro & Examples
 - Swagger User Interface

The screenshot shows the M³G website interface. At the top, the navigation bar includes links to Agencies, Stations, Metadata Catalog, EPOS Data Nodes, and Networks. A red arrow points to the 'Documentation' menu, which is open, showing options like Quick Start, FAQ, Guidelines (highlighted with a red circle and an 'update' button), Glossary, and M³G API. Below the menu, the 'Guidelines' section is titled 'EPOS GUIDELINES' and lists several documents with their last update dates. The first item, 'PROCEDURE FOR INCLUDING GNSS STATIONS IN EPOS', is highlighted with a red rectangle.

M³G Metadata Management and Distribution System for Multiple GNSS Networks

Agencies Stations Metadata Catalog EPOS Data Nodes Networks Documentation About Login

Documentation Guidelines

- Quick Start
- FAQ
- Guidelines** update
- Glossary
- M³G API

EPOS GUIDELINES



PROCEDURE FOR INCLUDING GNSS STATIONS IN EPOS	Last Update: January 6, 2021
PROCEDURE FOR INCLUDING EPN STATIONS IN EPOS	Last Update: August 5, 2020
EPOS-GNSS DATA SUPPLIER LETTER	Last Update: May 14, 2020
GUIDELINES FOR EPOS-GNSS STATIONS, DATA SUPPLIERS, AND OPERATIONAL CENTRES	Last Update: January 6, 2021
GUIDELINES FOR SETTING-UP AND OPERATING AN EPOS GNSS DATA NODE	Last Update: January 31, 2020
EPOS-GNSS DATA NODE LETTER	Last Update: January 21, 2020
EPOS-GNSS GLASS NODE CONFIGURATION LETTER	Last Update: April 6, 2020
EPOS DATA POLICY	Last Update: July 1, 2018

Procedure for including GNSS stations in EPOS

<https://gnss-metadata.eu/Guidelines/EPOS-GNSS Procedure for EPOS Stations.pdf>

Stepwise guide on how to include GNSS stations in EPOS

Before starting contact m3g@oma.be



Integrating European Research Infrastructures for solid Earth Sciences

PROCEDURE FOR INCLUDING GNSS STATIONS IN EPOS

C. Bruyninx
EPOS-GNSS Executive Board

*Available from the M³G-Bureau at <https://gnss-metadata.eu/site/guidelines/>
Questions and comments are welcome at C.Bruyninx@oma.be.*

Updates:
January 6, 2021: Restructuring of procedure to better reflect practice
August 5, 2020: Corrected links and added clarifications based on user feedback
January 15, 2020: Process of selecting a data node clarified
March 27, 2019: Refinement
Feb. 19, 2019: Revision of "Data Supplier/OC" terminology
Feb. 2, 2018: Revision of "Data Centre/Node" and "Agency" terminology
Jan. 10, 2018: Revision to reflect higher maturity of M³G system
July 17, 2017:

- Added M³G-bureau information in the Supplier Letter
- Relation Operational Centre – Data Supplier clarified

January 13, 2017: Initial version discussed at TCS-ICS Integration Workshop (02/2017)

Intended for:
This document describes the procedure to be followed by the **Station Owners** wishing to integrate GNSS stations in EPOS.

Step 1: Check EPOS station guidelines

Is my GNSS station suitable to be integrated in EPOS?

EPOS has an **open data policy** (see https://gnss-metadata.eu/Guidelines/EPOS-Data_Policy.pdf).

EPOS requires that the daily RINEX data of the station are made freely available and that its site log is kept up to date.

EPOS is interested to integrate

- ✓ permanently tracking GNSS stations that are presently active
- or
- ✓ permanent GNSS stations that are not tracking at this moment, but for which minimally 3 years of data can be made available to EPOS. These stations can already be decommissioned.


Step 1: Check EPOS station guidelines

Is my GNSS station suitable to be integrated in EPOS?

“Guidelines for EPOS-GNSS Stations, Data Suppliers, and Operational Centres”

Available from M³G (Guidelines section):

[https://gnss-metadata.eu/Guidelines/EPOS-GNSS Guidelines Station DataSupplier OperationalCentre.pdf](https://gnss-metadata.eu/Guidelines/EPOS-GNSS_Guidelines_Station_DataSupplier_OperationalCentre.pdf)



Version January 6, 2021

GUIDELINES FOR EPOS-GNSS STATIONS, DATA SUPPLIERS, AND OPERATIONAL CENTRES

C. Bruyninx
EPOS-GNSS Executive Board

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2.2 MARKER AND MONUMENT	4
2.3 NEW STATIONS	4
2.4 RECOMMENDED CHARACTERISTICS	4
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Step 1: Check EPOS station guidelines

Is my GNSS station suitable to be integrated in EPOS?

EPOS GNSS station guidelines have been inspired by EUREF and IGS station guidelines
But, less strict, to allow inclusion of as much as possible GNSS stations in EPOS.

Most important EPOS requirements – to *ensure proper analysis and interpretation of the data*:

- multi-GNSS not required
- DOMES number not mandatory
- Antenna calibration required, not antenna+radome
- Information on receiver cut off setting not required
- Daily RINEX 2 or RINEX 3 data

Similar to IGS and EUREF

- Receiver and antenna+radome type must be known to IGS so that they have a standard name
- Antenna/radome, antenna height changes must be documented
- Respect best practices for monumentation, but it is not a criteria to exclude new stations.

Step 2: Identify involved Agencies

Data Supplier

Who is going to sign the EPOS-GNSS data supplier letter and ensure data transmission to EPOS?

Data supplier = Data owner

- “Agency” that decides who can have access to the data
- “Agency” that decides to keep station alive or decommission it

→ One agency
→ Co-owned stations
→ Stations owned by consortium

Operational Centre

Who is going to maintain the station metadata (site log+) in M³G?



Step 2: Identify involved Agencies

Royal Observatory of Belgium (ROB) :

- Owns and operates ROB-GNSS network
- Agrees to make its GNSS data available to EPOS

➔ ROB is EPOS data supplier

- Maintains its GNSS station metadata in M³G

➔ ROB is EPOS Operational Centre for ROB stations

- ✓ *ROB must sign EPOS-GNSS Data Supplier Letter*
- ✓ *ROB has account on M³G where it manages*
 - *Metadata of ROB stations*
 - *Metadata of AIV stations (third-party stations)*

Flemish Information Agency (AIV) :

- Owns and operates FLEPOS network
- Agrees to make its GNSS data available to EPOS

➔ AIV is EPOS data supplier

- ROB maintains AIV GNSS station metadata in M³G

➔ ROB is EPOS Operational Centre for AIV stations

- ✓ *AIV must sign EPOS-GNSS Data Supplier Letter*
- ✓ *AIV has no account on M³G*

Step 3: Prepare station list using unique 9-char codes

How am I going to make sure my stations are uniquely identified within EPOS?

EPOS uses RINEX 3 station naming conventions

4-char station ID + "00" + 3-char ISO country code

BRUX 00 BEL → BRUX00BEL

The 9-char code will be used for all future reference to your stations (data and documentation)

Step 4 : Data Availability and Restrictions

How do I want to provide my data to EPOS?

Selection of the EPOS data node

Identification of restriction on data distribution and access



Step 4 : Data Availability and Restrictions

Which EPOS data node do I want to select?

Get in touch with M³G to discuss find optimal EPOS data node

How to choose a data node :

- EPN stations will be available from ROB-EUREF node, no need to select additional node (so nothing to do)
- Non-EPN stations:
 - Set up your own EPOS data node
 - or
 - Use the services provided by one of the existing EPOS data nodes

Potential data nodes :

- National nodes: Portugal, Estonia, Romania, Spain, Czech Republic, Greece, France, ... more to be added
- Pan-European EPOS node in Portugal

Step 4 : Data Availability and Restrictions

Do I want to impose restrictions on data distribution and data access?

Restrictions on data distribution

- Default no restriction: any EPOS data node can distribute the station data
- Possible restriction: Data Supplier gives only specific EPOS data nodes to distribute its data

Restrictions on data access

- Embargo time: e.g. data are only made available 1,5 years after observation
- Data license
 - Default EPOS Creative Commons license : CC:BY (see <https://creativecommons.org/about/cclicenses/>)
 - Other data licenses possible, to discuss with M³G team



Step 5: EPOS-GNSS Data Supplier Letter

Template available from M³G: https://gnss-metadata.eu/Guidelines/EPOS-GNSS_Supplier_Letter.docx

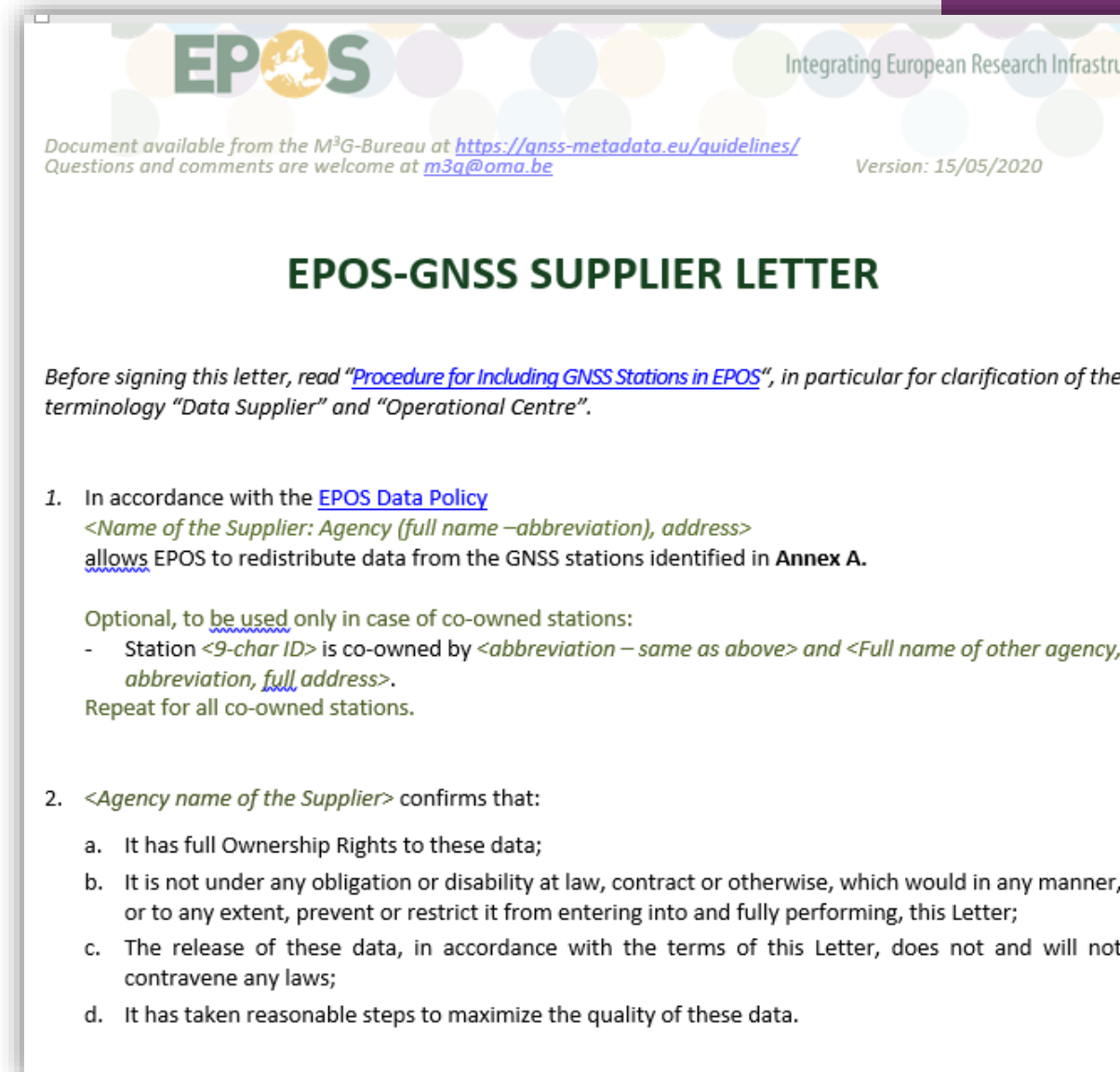
Declare that your agency have full ownership over the data
(first page)

Allow EPOS to

- Affix CC-BY license on data (if no license yet) (first page)
- Redistribute my data (first page)

Inform EPOS

- Station list + Operational Center for each station (Annex A)
- Contact information for the Operational Center (Annex B)
- If you want to restrict the distribution of your data to specific EPOS-GNSS data nodes (Annex C)



EPOS Integrating European Research Infrastructure

Document available from the M³G-Bureau at <https://gnss-metadata.eu/guidelines/>
Questions and comments are welcome at m3g@oma.be Version: 15/05/2020

EPOS-GNSS SUPPLIER LETTER

Before signing this letter, read "[Procedure for Including GNSS Stations in EPOS](#)", in particular for clarification of the terminology "Data Supplier" and "Operational Centre".

- In accordance with the [EPOS Data Policy](#)
<Name of the Supplier: Agency (full name – abbreviation), address>
allows EPOS to redistribute data from the GNSS stations identified in **Annex A**.

Optional, to be used only in case of co-owned stations:
- Station <9-char ID> is co-owned by <abbreviation – same as above> and <Full name of other agency, abbreviation, full address>.
Repeat for all co-owned stations.
- <Agency name of the Supplier> confirms that:
 - It has full Ownership Rights to these data;
 - It is not under any obligation or disability at law, contract or otherwise, which would in any manner, or to any extent, prevent or restrict it from entering into and fully performing, this Letter;
 - The release of these data, in accordance with the terms of this Letter, does not and will not contravene any laws;
 - It has taken reasonable steps to maximize the quality of these data.

Step 5: EPOS-GNSS Data Supplier Letter

Send completed **DRAFT** letter to m3g@oma.be BEFORE signature

and

wait for feedback from M³G

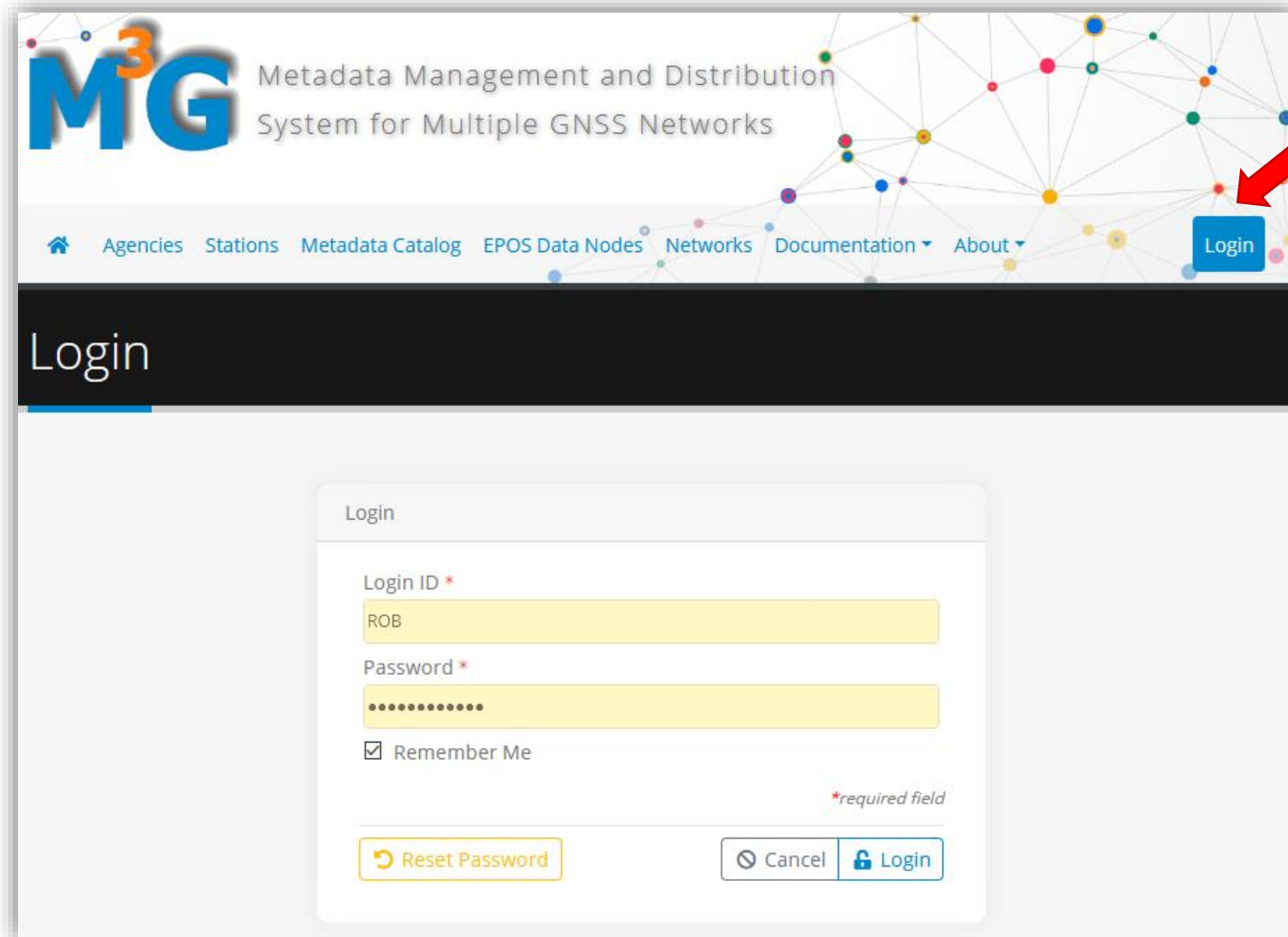
Send scanned version of signed letter to m3g@oma.be and the original letter to address indicated in the letter.



Step 6 : Complete Agency and Station Metadata in M³G

Once DS letter is received by M³G

1. The contact person of the Data Supplier indicated in the Data Supplier Letter will be invited to be a member of the EPOS-GNSS Data Supplier Committee
2. The Operational Center will get email invitation from M³G to complete all metadata in M³G portal.



M³G

Metadata Management and Distribution System for Multiple GNSS Networks

- Home
- Agencies
- Stations
- Metadata Catalog
- EPOS Data Nodes
- Networks
- Documentation
- About

ROB

ROB / Station metadata

Manage site logs

« 1 2 3 4 5 6 »

(all)	(all)	(all) ▼	(all) ▼	(all) ▼	(from-to)	(all)	(all)	(all)	(all)
AARS00BEL	EPOS(P), EPN densification(I), FLEPOS(I)	active	valid	Belgium (BEL)	2019-11-20	LEICA GRX1200+GNSS	LEIAR25.R3	GPS+GLO	CC0-
ANTW00BEL	EPOS(P), EPN densification(I), FLEPOS(I)	former	valid	Belgium (BEL)	2019-11-20	LEICA GRX1200+GNSS	LEIAR25.R3	GPS+GLO	CC0-
ATWR00BEL	EPOS(P), EPN densification(P), FLEPOS(I)	active	valid	Belgium (BEL)	2020-03-11	TRIMBLE NETR9	TRM57971.00	GPS+GLO+GAL+BDS	CC0-
BERT00BEL	EPOS(P), EPN densification(I),	active	valid	Belgium (BEL)	2015-06-22	LEICA GRX1200+GNSS	LEIAR25.R3	GPS+GLO	CC0-

STATION METADATA

- Manage site logs
- Manage site pictures
- New station
- Link to networks
- Link to agencies
- Provided RINEX
- License & embargo

GENERAL METADATA

- My agency
- Third-party agencies
- Managed networks



Step 6 : Complete Agency and Station Metadata in M³G

M³G Metadata Management and Distribution System for Multiple GNSS Networks

Agencies Stations Metadata Catalog EPOS Data Networks Documentation About ROB

Documentation

Quick start

Get started!

Quick start

Videos

1. Login

2. Provide information on your agency and third-party agencies

3. Provide information on networks

4. Set up/add a new station

5. Edit the site log of an existing station

6. Upload a site log of an existing station

Quick start

Videos

2. Provide information on your agency and third-party agencies

First, provide the information regarding your agency: go to the agency-specific tab (top right in the menu) and click on "My agency".

Then:

- Fill in the information in all mandatory fields (marked with *)
- Enter all contact persons present in your site logs
- (optional, but recommended) Add a public central contact email, which does not contain any personal information

If any other agency is involved in the operation of the stations (e.g. the agency owning the stations or the agency of the on-site contact) managed by your agency: go to the agency-specific tab (top right in the menu) and click on "Third-party agencies" and follow the steps above, as you did for the information regarding your agency.

3. Provide information on networks

1. Go to the agency-specific tab (top right in the menu) and click on "Managed networks"
2. Use + to create a new local or national network if the network is not in the list. Make sure you do not try to set up a network that is already defined in M³G. In the main menu, "Networks" lists all networks already set up in M³G. Each network must have a unique abbreviation.

4. Set up/add a new station

1. Go to the agency-specific tab (top right in the menu) and click on "New station"
2. Follow the on-line help
3. Click on "Third-party station", if your station is owned by another agency (included as third-party agency in the agency-specific menu "Third-party agencies")
4. Propose your station to at least one network. Stations proposed to EPOS must also be submitted to a local/national network.

Step 6 : Complete Agency and Station Metadata in M³G

M³G Metadata Management and Distribution System for Multiple GNSS Networks

Agencies Stations Metadata Catalog EPOS Nodes Networks

Documentation
Quick start

Get started!
Quick start
Videos

1. Login
2. Provide information on your agency
3. Provide information on networks
4. Set up/add a new station
5. Edit the site log of an existing station
6. Upload a site log of an existing station

In M³G, the Operational Centre must

- in “My Agency”: verify/update its **Agency information**
- in “Third-Party Agencies”: add any **Third-party Agencies** (if any). For stations whose Operational Centre is different from the Station Owner, the Station Owner must be mandatory included as a Third-Party Agency.
- in “New station”: add the new proposed **station(s)**. For stations whose Operational Centre is different from the Data Supplier, the station must be indicated as a Third-party station. Follow the wizard and complete all mandatory information (e.g. data license and embargo time, if any).
- in “Link to networks”: propose the station(s) to EPOS
- In “Update”: upload, validate and save the **station site log**. Make sure that the Data Supplier is correctly indicated in *Section 12 Responsible Agency* of the site log and that it is exactly the same agency as the agency that has signed the EPOS Data Supplier Letter.

Quick start
Videos
2. Provide information on your agency and third-party agencies

... agency: go to the agency-specific tab (top right in the menu) and

... fields (marked with *)

... your site logs

... public central contact email, which does not contain any personal

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... e a unique abbreviation.

... t in the menu) and click on “New station”

2. Follow the online help

3. Click on “Third-party station”, if your station is owned by another agency (included as third-party agency in the agency-specific menu “Third-party agencies”)

4. Propose your station to at least one network. Stations proposed to EPOS must also be submitted to a local/national network.

Step 7 : Provide daily RINEX data to EPOS data node

Once all metadata are inserted in M³G, notify the M³G team.

M³G team will inform EPOS of

- ✓ *new stations proposed to EPOS*
- ✓ *EPOS data nodes where station data will be made available*

Your station(s) is (are) now formally “Proposed to the EPOS network” and its metadata are discoverable in EPOS.

Start providing your data to the selected EPOS data node (do not forget the historical data!)

As soon as a significant amount of RINEX data are discoverable in EPOS, **your station(s) is (are) officially “Included in the EPOS network”**

- ✓ For active stations (which have a receiver and antenna installed): minimally 4 weeks of recent RINEX data must be discoverable, taking into account embargo times indicated in M³G. Exceptions are allowed for stations at remote locations unable to submit regular data.
- ✓ For inactive stations (which have temporarily no receiver or antenna installed), decommissioned stations (which will never track again), or stations temporarily unable to submit data: Minimally 3 years of RINEX data over the full station history must be discoverable.

Step 7 : Provide daily RINEX data to EPOS data node

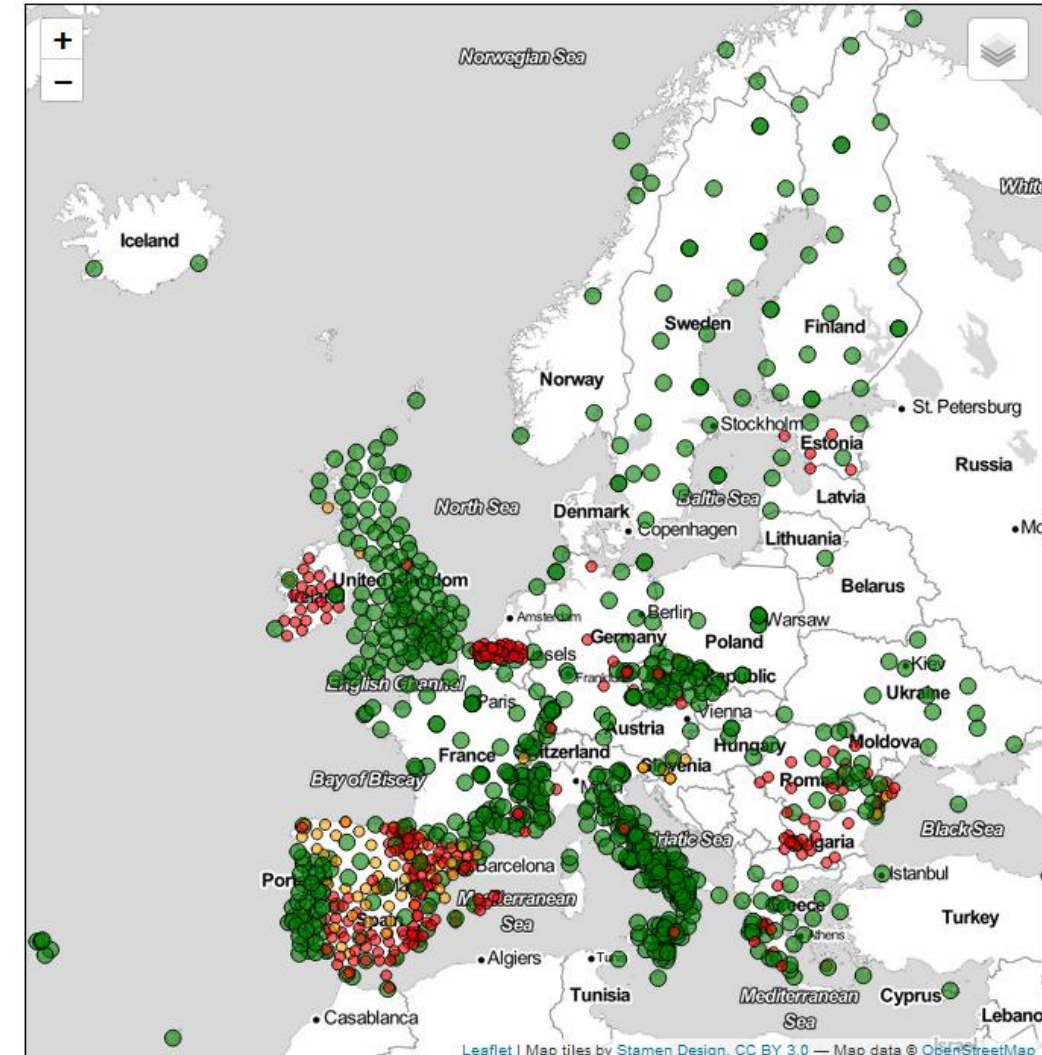
Pilot-operational phase!

All stations are still labelled as “station proposed to EPOS network”

2021: Proposed → “Included in EPOS network”

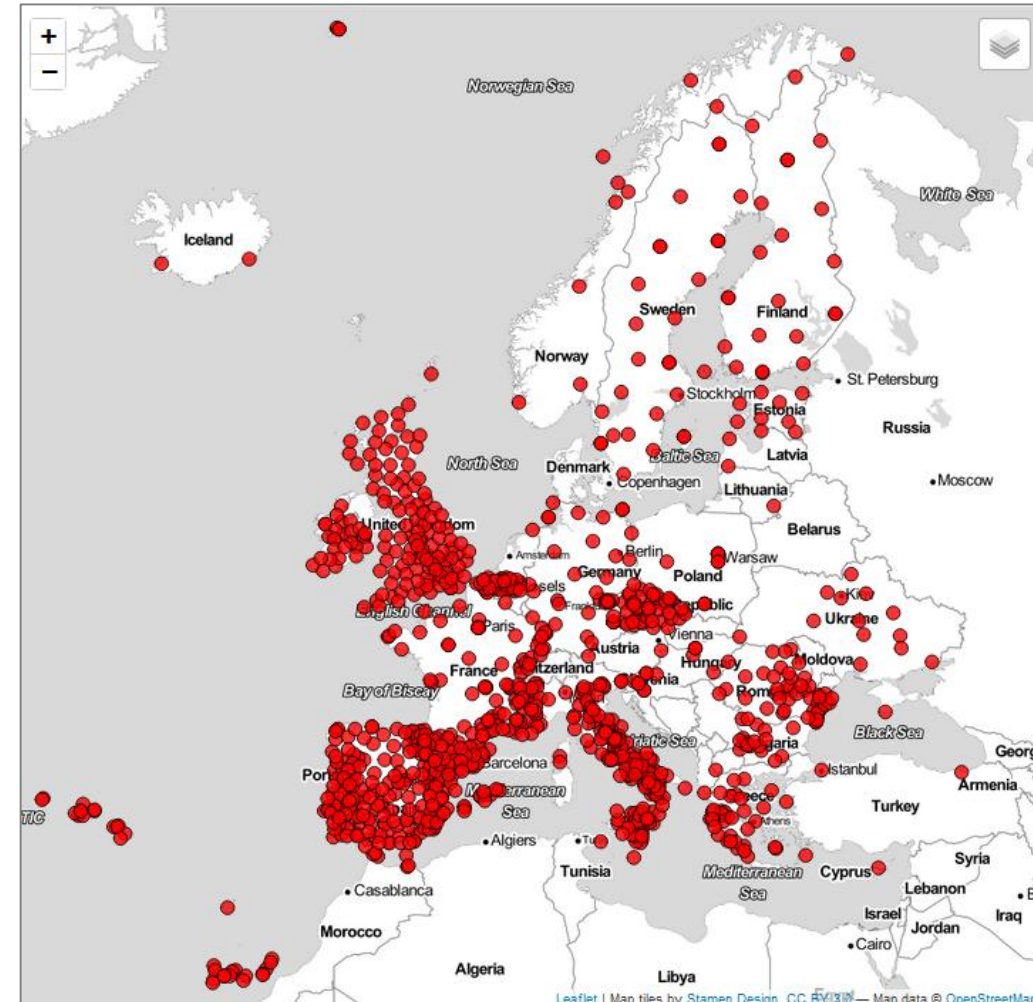
Next steps:

- Attach each station to EPOS data node
- Ensure enough station data become discoverable through EPOS-GNSS data gateway



Summary

1. EPOS station guidelines
2. Agency responsibilities
3. Station list
4. Data availability and restrictions
5. EPOS-GNSS data supplier letter
6. Agency and station metadata in M³G
7. Daily RINEX data



Thank you for your attention!

Contact:

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m3g@oma.be

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Royal Observatory of Belgium



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