**Introduction**

In response to the new GeodesyML metadata format and the requirements of the evolving EPN and EPOS networks, the Royal Observatory of Belgium is developing an on-line GNSS station site log and other metadata management and dissemination system. The web site of the metadata management system has e.g.
- A completely new design to navigate through the web site and the basic information.
- An improved site log submission system focused on the user’s needs.
- A completely new metadata validation system to serve the requirements of multiple networks.
- A new network terminology in order to distinguish International, Virtual and Local networks.
- An additional metadata information for the stations (e.g. datacenters for every international network, license information, embargo time, nominal data submission).

**Termiology**

**Network terminology**
- International networks: A station can belong to more than one international network. Each international network has its own requirements/rules. (e.g. EPN, EPN densification and EPOS)
- Virtual networks: The virtual network is just a search keyword used to regroup stations (e.g. Vulcanology)
- Local/Network: When a station is set up in M3G, it can belong to one (or more) national network(s). Each network can have a DOI.

**Agency terminology**
- Operational center (OC): Agency that has a login in M3G and is in charge of submitting station metadata. Normally the OC is the owner of the station.
- Station owner (SO): Agency that decided to install the station, which can remove it and paid for it. Section 12 “Responsible Agency” of site log.
- On-site point of contact: The local point of contact for the station. Section 11 “On-Site, Point of Contact Agency Information”.

**New functionalities**

**Agency/Contact Information in M3G**

Contact information is the hardest to keep up to date. Centralizing this information will facilitate its maintenance. The main philosophy in the user interface is to:
- Define all agencies and contact information in a centralized place (Associated Agency: The station owner/On-site point of contact, if it is different from OC)
- Link to the Agencies/Contact Information inserted in the “Profile” from all other places in M3G where agency/contact information is required.

**Interoperability export/import format (GeodesyML)**

The GeodesyML is an extension of the Geography Markup Language (GML) and Geographic information (ISO/TS 19139:2007) standards.
- It is defining how the GNSS metadata transferred to the XML format.
- M3G supports the machine-readable XSD standard for GNSS station metadata.

**Site log validation concept**

1. M3G allows a unique submission of a site log that belongs to several international networks, while handling the different site log validation rules for each network.
2. After validation, M3G distribute the site log to the portals of each international network to which the station belongs: to EPN CB for EPN stations and to the EPOS-GNSS data gateway for EPOS stations.

**Additional information during the station importation**

During the station set up, the OC indicates for each station:
- International – Local – and/or virtual network
- Upload datacenters for each international network
- License info, default is “CC:BY”
- Embargo time, default is “none”
- Nominal data submission (e.g. hourly/daily, RINEX 2/3)

**Personal Data Policy**

M3G will be compliant with the EU GDPR. OC will be asked explicitly if they agree to make their personal data available to the outside world. If not, ROB will keep these data internally in its database.

**Philosophy behind the M3G system**

1. Import station names from a list
2. Propose networks to the stations
3. Propose datacenters to the stations
4. Add nominal information for the stations
5. Define the license and/or the embargo time for the stations
6. Overview the changes
7. Save it to the database

**GNSS metadata migration from EPN**

M3G was developed in the frame of EPOS, but it is also used in the EPN. Today the EPN CB is migrating the EPN and EPN densification OCs. 29 out of the 99 OCs at EPN CB have already been migrated to the M3G. After the migration, OCs have to use the M3G for the site log submission instead of the old site log submission system.

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