



<https://gnss-metadata.eu>

Quality Assurance of EPOS-GNSS station metadata provided by M³G

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The GNSS station metadata distributed by the EPOS TCS "GNSS Data and Products" (EPOS-GNSS) is sourced from the "Metadata Management and Distribution System for Multiple GNSS Networks" (M³G). M³G includes both a web portal (<https://gnss-metadata.eu>) and an Application Programming Interface (API).

GNSS station operators manage their station metadata through M³G, which ingests, validates, standardizes, and distributes the information provided. The metadata collected by M³G includes a comprehensive description of each GNSS station, digital images of the installations and surrounding environment, the license governing the use of the station's dataset, its Digital Object Identifier (DOI), and details about the data providers. The metadata can be uploaded using the standard "site log" format maintained by the International GNSS Service (IGS) and/or entered through an online form that uses controlled vocabularies and code lists.

For each GNSS station, M³G designates one unique registered agency responsible for editing and uploading the station's metadata. The list of GNSS stations associated with each agency is manually maintained by the M³G administrator.

M³G enforces several validation rules to ensure the quality and consistency of metadata. Metadata will not be accepted or distributed unless these rules are met, including:

- Mandatory fields must be complete.
- Controlled vocabularies must be used for GNSS antenna and receiver types.
- GNSS station ownership must align with the ownership specified in the EPOS-GNSS data supplier letter.

Additional verifications performed by M³G adhere to the standards established by EUREF (<https://epncb.oma.be>) and the International GNSS Service (<https://igs.org>). If the metadata fails to meet these standards, M³G will request corrections before storing or distributing the information.

Once validated, the GNSS station metadata can be exported in the standard IGS site log format, the GeodesyML format, or EPOS-JSON format. The metadata is then made available through the M³G portal (<https://gnss-metadata.eu>) or via the M³G API (<https://gnss-metadata.eu/site/api-docs>).

To maintain up-to-date information, the data nodes of the EPOS TCS "GNSS Data and Products" compare the station metadata in their GNSS data files with the metadata from M³G. If critical inconsistencies are detected, the affected GNSS data will not be made discoverable in the EPOS ICS. The data nodes will notify the data provider, who will then update the metadata in M³G or correct it within the GNSS data files.

An RSS feed (<https://gnss-metadata.eu/site/rss>) enables users and applications to access M³G metadata updates in a standardized machine-readable format (XML).