CERTIFICATION OF NON-EUREF PERMANENT STATIONS

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MOTIVATION

certification by EUREF of GPS permanent stations that cannot be integrated in the EPN because of the density threshold stipulated by EUREF but fulfill, in principle, all the other requirements

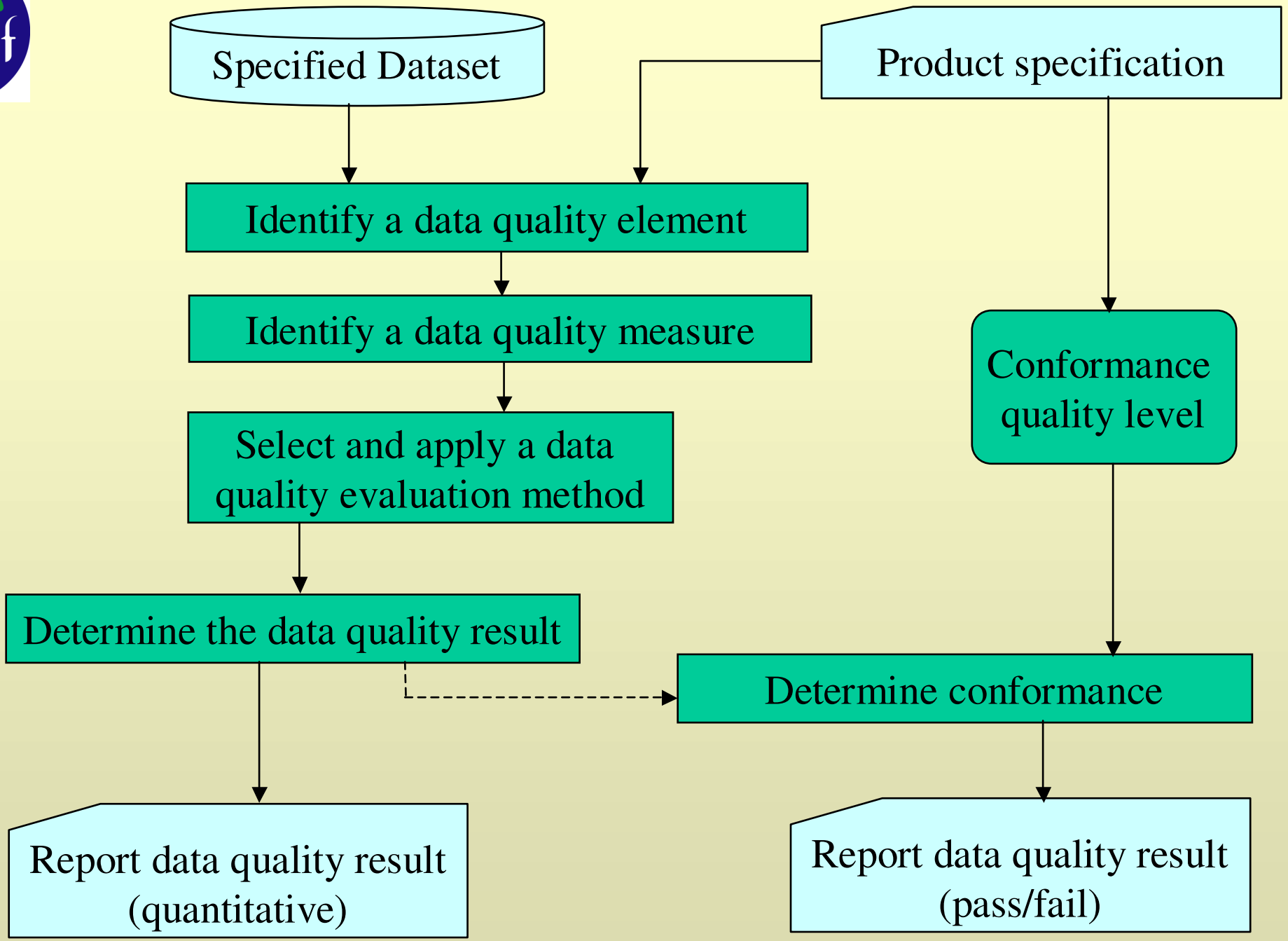
working paper (Caporali, A.) presented at the TWG meeting in Paris, March 2003

FOLLOW-UP

- ISO 19100 approach to certification

paper (Torres, J.) presented at the EUREF Symposium in Toledo, June 2003

- Contacts and exchange of information with Anton Kösters, Rijwaterstaat (The Netherlands)


Specified Dataset
Product specification
Identify a data quality element
Identify a data quality measure
Conformance quality level
Select and apply a data quality evaluation method
Determine the data quality result
Determine conformance
Report data quality result (quantitative)
Report data quality result (pass/fail)

THE PRODUCT SPECIFICATIONS

The coordinates

expressed in ETRS89 with an accuracy within class A or B, as defined by EUREF

The data

at least similar to the data of the EPN stations and have the guarantee of free access

The station

site installation (location, stability, guarantee of access)
equipment (GNSS equipment, complementary equipment)
guarantee of operation for a certain time

ITEMS FOR QUALITY EVALUATION

The coordinates

values of coordinates
accuracy
associated reference system

The data

available GNSS data
accessibility

The station

location
equipment
information on stability
expected period of operation
accessibility
purpose

TYPES OF STATIONS

Private stations

commercial GNSS data providers, RTK arrays, etc.

Public stations

data free available (independent of the station's owner statute)

- *A: not routinely processed by a LAC*
  (ETRS89 densification – campaign type)
- *B: routinely processed by a LAC*
  (EPN densification)

PRIVATE STATIONS

Items for quality evaluation

The coordinates

values of coordinates
accuracy
associated reference system

PUBLIC STATIONS

Items for quality evaluation

The coordinates

values of coordinates
accuracy
associated reference system

The data

available GNSS data
accessibility

The station

location
equipment
information on stability
expected period of operation
accessibility
purpose

CERTIFICATION MEANING

Type of station	Compliance
Private stations	*Coordinates in ETRS89 (EUREF class B)*
Public stations A	*Coordinates in ETRS89 (EUREF class B)* *Free data availability* *Location on a stable place; accessibility for checking purposes; good quality equipment; knowledge of station's purpose; guarantee of operation for at least 3 years*
Public stations B	*Coordinates in ETRS89 (EUREF class A)* *All EPN requirements (except density)*

GENERAL EPN REQUIREMENTS (STATION AND DATA)

- the station is installed in a place with good stability, homologous to the EPN stations;

- the GNSS equipment and the complementary equipment have the quality requested by the EPN;

- there is the guarantee of operation for at least 3 years;

- the GNSS data have a quality similar to the majority of the EPN stations;

- there is free access at least to the GNSS data similar to the data used in the EPN processing;

EUREF CERTIFICATION

Type of station	Certification
Private stations	*Issue of certificate by the NMA following EUREF specifications*
Public stations A	*Inclusion of the station in the EUREF database of campaigns*
Public stations B	*Inclusion in the EPNCB list of EPN associated sations*

PRIVATE STATIONS

Procedure

- *computation of ETRS89 coordinates to guarantee Class B accuracy (NMA)*
- *complementary information (station owner, manager, location, monumentation, equipment) (NMA)*
- *optional inspection (NMA)*
- *certification's validity (NMA)*
- *registry (NMA)*
- *information to the TWG on the stations certified (ExG-G)*

a kind of quality assessment of the NMA by the TWG is needed (TWG-ExG-G)

PUBLIC STATIONS A NOT ROUTINELY PROCESSED BY A LAC

Procedure

- *optional inspection (NMA)*
- *computation of ETRS89 coordinates to guarantee Class B accuracy (NMA)*
- *delivery of complementary information (station owner, manager, location, monumentation, equipment) (NMA)*
- *report to the TWG on the computation procedure (NMA)*
- *approval by the Plenary (TWG)*
- *registry: inclusion in the data base of campaigns (TWG)*

PUBLIC STATIONS B
ROUTINELY PROCESSED BY A LAC

Procedure

- *application (information about the station, associated LDC and AC; declarations about accessibility to station -for optional inspection- and data, long-term operation; supporting letters from NMA, LDC and AC) (NMA)*
- *analysis of pre-requirements (purpose and location; stability; equipment; completeness of the documentation) (EPNCB- TWG)*
- *data submission (to the associated LDC according to EPN standards) (station manager)*
- *data analysis and computation of ETRS89 coordinates to guarantee Class A accuracy (quality evaluation and report) (AC)*
- *reporting on quality, expressing the acceptance or rejection (data accessibility, station performance, data quality, accuracy) (AC-EPNCB-TWG)*
- *decision on acceptance (TWG)*
- *registry as associated station (EPNCB)*

TWG TASKS

Type of station	Task
Private stations	*- Quality assessment of the NMA* *- Tracking of the process* *(in cooperation with ExG-G)*
Public stations A	*- Analysis of the computation report* *- Approval of the solution* *- Preparation of the Plenary's resolution* *- Registry*
Public stations B	*- Analysis of the pre-requirements* *- Analysis of the AC report* *- Decision on acceptance* *- Registry*