

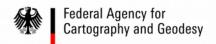
EUREF Products and Services for Positioning and Geo-Referencing

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- Which EUREF products do we have?
- Which EUREF services do we have?
- Who/what are the users and applications of EUREF products and services
 - in positioning?
 - in geo-referencing?
- Which EUREF products and services are missing?



GNSS data

- GPS + GLONASS (+ Galileo) observational and navigational data
- Available file formatted as well as real-time streams
- Archived (historical) data

GNSS products

- Weekly coordinate and troposphere parameters
- Cumulative solutions (coordinates, velocities)
- Station position time series
- Station velocities
- Station ZPD parameter time series
- Real-time corrections (satellite orbits and clocks)



GNSS meta data / products

- Antenna calibration parameters
- Station site logfiles
- DCBs
- Satellite properties and status

EUREF products

ETRS89

- Transformation parameters (memo)
- ETRF2000 coordinates (and others)
- Comparison national ETRS89 coordinates with EUREF coordinates?

EVRS

- EVRF2000/2007
- EUVN?
- UELN data base?
- Transformation parameters between national systems and EVRF2007



- **GNSS** datacentres
- **GNSS**databroadcastersreal-time datacentres
- ETRS89
 - ETRS89/ITRS transformation (EPN CB)
 - **CRS-EU**
 - For ETRS89, EVRS2000 and 2007



NM(C)As

- Positioning and geo-referencing
- GNSS data
- Positions & velocities
- Wide range of accuracy levels

Engineering surveying

- Positioning
- GNSS data
- Real-time products
- Wide range of accuracy levels



Service provider

GNSS data

Navigation, machine guidance etc.

- Kinematic positioning
- Real-time products
- Mainly lower accuracy level

Scientific users

- Positions&velocities
- Highest accuracy

Usersand Applications

GIS applications

- Spatial data for geo-referencing
- Interfaces to GNSS products (e.g. via NMEA)
- INSPIRE directive including Annex I spatial data theme "Coordinate Reference Systems"
- Positions with lower accuracy level
- Datum transformation parameters

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Re-vitalization of EUREF product catalogue?

- Implemented in reduced form at www.euref.eu/euref_pr.html
- →Differentiation between products and services necessary?

Which products on regional rather than or additional to global level?

- lonosphere parameters / maps
- Ambiguity fixing parameters
- User station coordinates
- Do we have user statistics, user feedback?- Yes

Dowe need such? - Yes

EUREF Products & Services catalogue

Productsatwww.euref.eu/euref_pr.html

- 23 different products listed
- Classification, to cover almost all of the products
 - No.
 - Product (Name/Description)
 - Class (Reference Systems & Frames, Stations, Observation, Satellite)
 - Sub-class (Definition, Transformation Parameter, Coordinates, Velocities, Physical Height, Data Stream, Data File, Troposphere,
 Orbit, Clock)
 - Accuracy (mm m, ns)
 - Latency (seconds weeks)
 - Updates (text; real-time, seconds, hourly, daily, weekly, some weeks, years)

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Services at www.euref.eu/euref_serv.html

- 2 different services listed
 - Short or even no description
 - Link
- EUREF-IP -> was EPN Special Project -> operational since 2008 -> remove from here (ersatzlos)
- EUVN-DA -> was ??? -> closed? -> remove from here(find anotherplace)



Products&Services – Recommendations

Add a column "Access"

Remove "Services"

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