

## EPN CONTACTS

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**Real-time Analysis Coordinator:** Wolfgang Söhne,  
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**Reference Frame Coordinator:** Juliette Legrand  
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## EPN WEBSITE

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The EPN website is maintained by the EPN Central Bureau; it offers a gateway to all the EPN data, products and auxiliary information: <http://epncb.eu/>

## EUREF EMAIL LIST

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**Important EPN and EUREF announcements** archived at  
[http://epncb.eu/\\_newseventslinks/mails.php](http://epncb.eu/_newseventslinks/mails.php)

To subscribe, send email to [epncb@oma.be](mailto:epncb@oma.be)

## EPN GUIDELINES

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Reference documents describing guidelines for EPN operations.

**Available from** [http://epncb.eu/\\_documentation/guidelines/](http://epncb.eu/_documentation/guidelines/)

## EUREF CONTACTS

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**EUREF President:** Markku Poutanen, [markku.poutanen@nls.fi](mailto:markku.poutanen@nls.fi)

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**EUREF**

<http://www.euref.eu/>

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**International Association of Geodesy**  
**IAG**

<http://www.iag-aig.org/>

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## EPN - THE EUREF PERMANENT GNSS NETWORK

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*Permanent GNSS stations  
providing fundamental  
geodetic measurements for  
Earth science applications  
in Europe*

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# EPN – QUICK

## REFERENCE CARD

*This reference card provides information on accessing EPN data and products, email lists and guidelines. Please direct questions to the EPN Central Bureau:*

Royal Observatory of Belgium  
Av. Circulaire 3, B-1180 Brussels, Belgium  
Email: [epncb@oma.be](mailto:epncb@oma.be), Url: <http://epncb.eu/>  
Phone: +32 (0)2-373.02.92, Fax : +32 (0)2-374.98.22

### IAG SUB-COMMISSION EUREF

The **IAG Sub-commission EUREF** is responsible for the maintenance of the European Terrestrial Reference System (**ETRS89**). Check the EUREF web site: <http://www.euref.eu/>

### THE EUREF PERMANENT NETWORK - EPN

The **EUREF Permanent Network (EPN)** is a science-driven network of permanent **GNSS tracking stations** whose weekly computed positions are used by EUREF to realize the European Terrestrial Reference System (ETRS89). As an integral part of INSPIRE, this reference system forms the **backbone for all geographic and geodetic projects on the European territory** both on a national as on an international level. The EPN is also valuable for scientific applications such as geodynamics, sea level monitoring and weather prediction.

Almost 300 EPN stations, distributed all over Europe, provide in **near real-time and real-time high quality GNSS data** archived at local and regional data centres.

EPN analysis centres **routinely analyse the data** from this network and deliver to the GNSS community **precise coordinates for all stations** involved in the network.

The EPN tracking stations are integrated in the successive realizations of the **International Terrestrial Reference System**, which is the basis for the European Reference System.

Since the EPN is the European densification of the International GNSS network IGS (<http://igsceb.jpl.nasa.gov/>), a complete harmonization of **standards** between the global and European network is put forward.

### EPN GNSS TRACKING DATA

**For EPN station information, please see:**  
[http://epncb.eu/\\_networkdata/stationlist.php](http://epncb.eu/_networkdata/stationlist.php)

#### Observation, navigation and meteorological data files (hourly, daily and high-rate 15-minute)

**Format:** RINEX V2.11 and RINEX3.02 or 3.03

**Defined at:**

<ftp://igsceb.jpl.nasa.gov/igsceb/data/format/rinex211.txt>  
<ftp://igsceb.jpl.nasa.gov/igsceb/data/format/rinex302.pdf>  
<ftp://igsceb.jpl.nasa.gov/igsceb/data/format/rinex303.pdf>

**Compression:** Hatanaka

**Translators at:** <http://terras.gsi.go.jp/ja/crx2rxn.html>

**Sampling:** 30-sec for hourly and daily, 1-sec for 15-minute

**EPN regional data centres:**

<ftp://igs.bkg.bund.de/EUREF/>  
<ftp://gnss.bev.gv.at/pub/>  
<ftp://ftp.pecny.cz/LDC/nrtdata/> (only hourly data)

**EPN local data centres:**

<ftp://geodaf.mt.asi.it/GEOD/GPSD/RINEX>  
<ftp://rgpdata.ign.fr/pub/data/>  
<ftp://gnss1.tudelft.nl/rinex>  
<ftp://gnss.be/gnss/data/rinex/daily>  
<ftp://ftp.geodesia.ign.es/euref>

**EPN historical data centre:**

<ftp://ftp.epncb.eu/pub/obs>

#### Real-time observation data

**Format:** RTCM: <http://www.rtcn.org/>

**Available from:** <http://www.euref-ip.net/> (Germany),  
<http://www.euref-ip.be> (Belgium),  
<http://euref-ip.asi.it/> (Italy)

**Client software/utilities:**

<http://igs.bkg.bund.de/ntrip/download>

#### Further data access information

[http://epncb.eu/\\_networkdata/data\\_access/](http://epncb.eu/_networkdata/data_access/)

#### Joining the EPN

[http://epncb.eu/\\_documentation/guidelines/procedure\\_becoming\\_station.pdf](http://epncb.eu/_documentation/guidelines/procedure_becoming_station.pdf)

### EPN PRODUCTS

#### ITRS/ETRS89 station positions and velocities

**Available from:**

[http://epncb.eu/\\_productsservices/coordinates/](http://epncb.eu/_productsservices/coordinates/)

**IERS positions/velocities:**

<http://itrf.ensg.ign.fr/> and <http://etrs89.ensg.ign.fr/>

#### Tropospheric zenith path delays

**Format:** SINEX\_TRO

**Defined at:**

[ftp://igsceb.jpl.nasa.gov/igsceb/data/format/sinex\\_tropo.txt](ftp://igsceb.jpl.nasa.gov/igsceb/data/format/sinex_tropo.txt)

**Available from:** <ftp://igs.bkg.bund.de/EUREF/products/>

#### Real-time satellite orbit & clock corrections

**Description:** <http://epncb.eu>

[\\_productsservices/realtimerecorrections/](http://epncb.eu/_productsservices/realtimerecorrections/)

#### Based on products of the EPN analysis centres

- Agenzia Spaziale Italiana, Italy
- Bavarian Academy of Sciences and Humanities, Germany
- Bundesamt für Kartographie und Geodäsie, Germany
- Centre for Orbit Determination in Europe, Astronomical Institute of the University of Bern, Switzerland
- Geodetic Observatory Pecny, Czech Republic
- Instituto Geográfico Nacional de España, Spain
- Institut Géographique National, France
- Swisstopo, Switzerland
- Military University of Technology, Poland
- Nordic Geodetic Commission, Lantmäteriet and Onsala Space Observatory, Sweden
- Federal Office of Metrology and Surveying (BEV), Austria
- Republic Geodetic Authority and University of Belgrade, Serbia
- Royal Observatory of Belgium, Belgium
- BFKH FTFF Satellite Geodetic Observatory - Hungary
- Slovak University of Technology, Slovakia
- University of Padova, Italy
- Warsaw University of Technology, Poland

#### and the EPN combination centre

Military University of Technology and Warsaw University of Technology, Poland