

**Time & location:**

Monday, February 29, 2016: 13:00 – 18:00; Tuesday, March, 01, 2016: 08:30 – 12:00  
Instituto Português do Mar e Atmosfera (IPMA, <https://www.ipma.pt/en/index.html>)  
Rua C do Aeroporto  
1749-00 Lisboa, Portugal  
Room (on 8<sup>th</sup> floor)

**AGENDA**

*Last update: February 15, 2016*

1. Opening (Kenyeres)
2. Approval of minutes of 69<sup>th</sup> TWG meeting in Bern (all)
3. Review of Action Items from previous TWG meetings (all)
4. External Interfaces
  - a. “Network of European Regions Using Space” (NEREUS) (Caporali)
  - b. “European Network of Earth Observation Networks” (ENEON) (Bruyninx)
  - c. UN GGIM: Europe (Poutanen)
5. EUREF – EPOS MoU
  - a. Governance, Financial and Legal Aspects of EUREF/EPOS relation (Pedersen and Kohler)
  - b. Collaboration between EPOS and EUREF (Fernandes)
6. EUREF 2016 symposium (Zurutuza)
7. ITRF2014 / ETRF (Altamimi)
8. EUREF
  - a. Terms of Reference (Ihde et al.)
  - b. Long/medium term vision of TWG (Kenyeres, all)
  - c. EUREF's response to the INFRAIA-02-2017 call (all)
9. Working Groups
  - a. Multi-GNSS WG (Caporali)
  - b. Reprocessing WG (Szafraneck, Araszkiewicz)
10. EPN
  - a. ACC report (Liwosz, Szafraneck, Araszkiewicz)
11. AOB
  - a. Next TWG meeting(s) (all)
  - b. EUREF symposia 2017 and 2018 (Poutanen)
12. Action Items (Söhne)

## **PARTICIPANTS**

### **TWG members:**

Z. Altamimi (ZA)  
 E. Brockmann (EB)  
 C. Bruyninx (CB)  
 A. Caporali (AC)  
 R. Dach                      excused  
 J. Dousa                      excused  
 R. Fernandes (RF)  
 H. Habrich                      excused  
 J. Ihde (JI)  
 A. Kenyeres (AK)  
 M. Lidberg (ML)  
 R. Pacione (RP)  
 M. Poutanen (MP)  
 W. Söhne (WS)  
 G. Stangl (GS)  
 K. Szafranek (KS)              (2<sup>nd</sup> day only)  
 J. Torres (JT)

### **Guests:**

A. Araskiewicz (AA)  
 E. Kohler (EK)              (1<sup>st</sup> day only)  
 T. Liwosz (TL)  
 H. Pedersen (HP)              (1<sup>st</sup> day only)  
 M. Vasconcelos (MV)  
 J. Zurutuza (JZ)

1. Opening
2. Approval of minutes of 69<sup>th</sup> TWG meeting in Bern

The minutes of the last meeting are approved with one small question by ZA which is directed to today's meeting agenda item 4.c.

3. Review of Action Items from previous TWG meetings

WS reviews the twelve Action Items of the last meeting. No comments.

4. External Interfaces

- a. "Network of European Regions Using Space" (NEREUS)

AC introduces the "Network of European Regions Using Space" (NEREUS, [www.nereus-regions.eu](http://www.nereus-regions.eu)). Full members of NEREUS are regions

or regional entities from EU Member States. NEREUS contains six working groups. Beyond them is the GNSS WG, chaired in rotation, e.g. in 2016 by Paul Bhatia, University of Nottingham, followed in 2017 by Alessandro Caporali and 2018 by Stefano Gandolfi. Concerning the regions to become member of NEREUS, GS mentions that regions must have a certain level of independency in their legal status. CB is afraid of an undermining of the NMAs but AC does not see this possibility; NEREUS is associated to more legal aspects. Furthermore, the aspect of financial background is given within NEREUS. JT agrees with AC that it is complimentary to what for example EUREF is doing. One possible connection to EUREF could be that EUREF could give advice about building up and maintaining infrastructure. AC adds that many

European regions have established their own GNSS networks. ZA asks how the regions were selected to be partners in NEREUS. The membership is flexible, candidate full or associate members apply for membership. AC proposes to invite Paul Bhatia to the upcoming EUREF symposium.

b. “European Network of Earth Observation Networks” (ENEON)

CB presents the “European Network of Earth Observation Networks” (ENEON, <http://eneon.net>). ENEON is funded under the H2020 ConnectinGEO project. Point of contact is CREA in Barcelona. Leading persons are Joan Masó and Hans-Peter Plag. CB was invited to the first workshop, held in Paris Sept., 21-22, 2015 (<http://eneonparis.connectingeo.net>). She gave there a presentation about the EPN. A side event and a booth were established at the GEO-XII plenary, Nov, 10, 2015 in Mexico. HP expresses her fear that there might be too much co-funding in parallel within the various European projects. CB will keep the TWG informed about the progress.

c. UN GGIM: Europe

MP recalls the status of UN GGIM:Europe (<http://un-ggim-europe.org>). ZA adds the latest news about UN GGIM. ZA again does not see the necessity of a specific GGRF Working Group in Europe: EUREF is well representing reference frames. MP responds that the work of this group would be more and would cover e.g. social and political aspects. CB asks for the main output or goals of such a Working Group C. WS proposes to be the EUREF chair as WG C chair to ensure EUREF visibility. AK summarizes that the TWG is not fully convinced of such a WG. CB underlines the fear that

non-NMCA parties within EUREF could not be adequately represented in a new WG C. The TWG encourages MP to become member of UN-GGIM:Europe Executive Board.

5. EUREF – EPOS MoU

- a. Governance, Financial and Legal Aspects of EUREF/EPOS relation
- b. Collaboration between EPOS and EUREF

HP gives a detailed introduction about the “European Plate Observing System” (EPOS, [www.epos-eu.org](http://www.epos-eu.org)) in general and the motivation to create such a large project. The 4-year EPOS Implementation Phase (IP) project was started in October 2015 and targets the build up the long term anticipated operational EPOS services and the quite rigorous and detailed structure service structure. This work is granted by EU H2020 with 19 Mio. €. The structure as a pyramid has three main level: (1) various data providers, (2) Thematic Core Services (TCSs, e.g. GNSS, Seismology) and (3) Integrated Core Services. HP explains the EPOS governance model with the various entities and boards. They are necessary for becoming EPOS a legal body. EPOS willing to join “European Research Infrastructure Consortium” (ERIC): EPOS-ERIC will be the legal framework of EPOS, this procedure is under preparation. WP8 to WP17 are the “scientific” TCSs with WP10 being the GNSS TCS. CB mentions the EPOS meeting mid of March in Prague where each WP has to tell which services they are going to offer. AC explains how ORPHEUS is a legal body and wonders about the parallelism of ORPHEUS and EUREF/EPN. ZA asks why a Memorandum of Understanding (MoU) would be necessary for data

and products of EUREF, which are publicly available. CB emphasizes a MoU especially for the reason of visibility, e.g. being part of the EPOS governance model. AK makes it clear that EPOS will happen, having a GNSS TCS even without EUREF's participation.

RF explains in more detail the WP10 and GNSS TCS issues. ZA asks about the way or mechanism EPOS selected the participating centres for example data processing and wonders if there wasn't for example a Call for Participation. HP replies that some countries were more organized than others in context of EPOS, for example in case of national funding and political decisions. CB says that it might be that other institutions may join the TCS with additional services in the future. Detailed discussion about the products, processing of historical data, potential parallelism to EUREF products. EK talks about the legal and governance structure of each TCS. There will be a Consortium Agreement (CA) within each TCS with legal bodies. The question arises how EUREF could fit into this structure. One option would be that one organization within EUREF is signing the CA on behalf of EUREF but this is identified as not possible. Another option is that EUREF has one or more representatives in the GNSS TCS governance, possibly with voting rights. Discussion about Service Agreement (SA): who, if so, within EUREF must or should sign such a SA with EPOS-ERIC? Who can for example prevent a single Analysis Centre (AC) from EUREF to sign the TCS for its own? CB proposes to provide a list of all institutions contributing to the EPN. HP proposes to rotate for example the seats in the governance between the EUREF key players.

JZ gives an overview about the status of preparation of this year's symposium. TWG agrees to publish the list of participants (only names and affiliations) to the public. Some logos may be missing, e.g. sponsors. Should abstract for the National Reports (NRs) be submitted or not? AK proposes for the next EUREF mail (i.e., the reminder to the symposium) a section strongly recommending a NR from each country. Moreover, he asks for better involving plenary or potential participants into the resolution scheme: there should be a sentence in this EUREF mail about this. ZA explains the contents planned for the full day tutorial to take place on Tuesday just before the symposium. JT proposes to add INSPIRE to the planned CRS talk by WS. AK proposes to change the order of some talks. EB proposes to add the ETRS89 coordinates issue as separate talk.

## 7. ITRF2014 / ETRF

ZA informs about the final version of ITRF2014 which was recently published. There are six stations in the EPN affected by the new Post Seismic Deformation (PSD) model. He emphasizes the transformation parameters between ITRF2014 and ITRF2008 which are quite small. An update of the MEMO is necessary because some section were obsolete now. ZA is going to work on it, especially for ETRF2000 aspects.

The IGS realisation of the ITRF2014, IGS14, is not expected to be ready before June this year (Paul Rebischung and Ralf Schmid are working on it). AK mentions about some removed solution numbers in ITRF2014 w.r.t. ITRF2008 where the PSD was introduced instead. ZA replies that these numbers were no longer necessary as long as the PSD is correctly adapted for the time series. The PSD of those six stations however must be implemented.

## 6. EUREF 2016 symposium

## 8. EUREF

#### a. Terms of Reference

AK mentions that new or updated Terms of Reference (ToR) have to be approved by the plenary. JI explains the two principal directions he is seeing: to continue more or less with an update of the existing ToR which has been started some meetings ago, or to follow a completely new structure, e.g. the one CB proposed in her recent email from Feb, 17. TWG agrees not to start new ToR from scratch. JT depicts the problem of who is voting for a country. WS proposes to have a look to other IAG sub-commissions statutes. JT replies that there are some significant differences w.r.t. EUREF, e.g. Europe has EuroGeographics as a legal organisation with NMCA's as members. ML scrutinises if there is a real pressure to change the ToR now. The TWG realizes that new ToR won't be ready for the upcoming symposium. JI mentions that this does not solve the question of EUREF being a legal entity or not.

#### b. Long/medium term vision of TWG

AK presents some thoughts for changes within EUREF on the long-term, e.g. better involvement of physical geodesy. Some members recall the EUREF retreat 3,5 years ago but the recommendations of this meeting were not very much present. AK gives some examples of non-GNSS disciplines to involve, e.g. InSAR. Discussion about the role and self-perception of EUREF as (the) GNSS community in Europe. Discussion about the question of establishing a legal entity, e.g. by building a consortium. ML introduces the idea to create a consortium (with consortium agreement) only for the EPN; this way, both aspects – EUREF as IAG sub-commission and having a legal

entity – would be covered. TWG agrees to continue this discussion at the fall meeting.

#### c. EUREF's response to the INFRAIA-02-2017 call

WS explains the Call for Proposal as part of the Horizon 2020 work programme 2016/2017 and what has been discussed so far between some TWG members about the possibility to submit a proposal with main focus on real-time GNSS. Deadline for the first stage proposal is March, 30, this year. BKG is not able to take the lead for such a proposal. ML is willing to proceed with the proposal if there is a clear picture and understanding what would be the benefit for the European research infrastructures.

### 9. Working Groups

#### a. Multi-GNSS WG

Due to lack of time, AC very shortly gives an oral update of his investigations and systematic analyses concerning "Status of inter-system biases and station specific biases for European MGEX stations". He got some positive feedback from Septentrio.

EB raises the question of going forward with the long names for RINEX 3 files. He would like to force the station manager by end of the year. AK proposes a resolution for the next symposium but EB considers this as too late. A EUREF mail concerning the long filenames should be distributed soon.

#### b. Reprocessing WG

Also due to lack of time, KS reports shortly on the reprocessed combined coordinate solutions. All results have been uploaded to BKG data centre. Also the troposphere combined solutions have been uploaded by RP. AK and RP complain

that the historic database is not cleaned in such a way as it was proposed in the past.

KS adds that the ACC decided not to add type mean to individual corrections to some antennas as it was discussed in the last meeting.

#### 10. EPN

##### a. ACC report

TL is the new ACC taking over the responsibilities and the seat in the TWG from KS.

#### 11. AOB

##### a. Next TWG meeting(s)

The 71<sup>th</sup> TWG meeting will take place in San Sebastian at the ARANZADI premises, Monday, May 23. Since several members are not able to arrive early Monday morning and since some members will participate actively to the tutorial on Tuesday, the TWG meeting will be from 1300 to 1900 with option to meet in smaller groups earlier. The 72<sup>th</sup> TWG meeting will be in Vienna. Following the response to his doodle, GS will organize it for CW 42.

##### b. EUREF symposia 2017 and 2018

MP informs about the status of the preparations for the EUREF symposia in the next years. In addition to the plans to take place the 2017 symposium in Poland (Wroclaw) and the 2018 symposium in the Netherlands (Amsterdam) there recently arrived an additional proposal from Italy. Since last symposium in Poland was in 1994 whereas in Italy it was in 2009 and since the Polish proposal arrived earlier, TWG proposes to keep 2017 and 2018 as is and to ask Italy to organize one of the next symposia in Matera. Possibly, this could be done

only in 2020 because of Matera being capital city of culture 2019 with probability of overrun.

#### 12. Action Items

##### **Action Item 1 on Agenda Item 4a to AC:**

invite Paul Bhatia as chair of GNSS WG of NEREUS to the next EUREF symposium in San Sebastian (deadline: asap).

##### **Action Item 2 on Agenda Item 4c to MP:**

contact UN-GGIM:Europe to become member of the Executive Board to adequately represent the European reference frame part within this group.

##### **Action Item 3 on Agenda Item 5 for CB, WS, AK, ML, and RP:**

work on a list of the data, products and services to be provided to EPOS by EUREF and on the list of contributors (deadline: end of CW 09).

##### **Action Item 4 on Agenda Item 6 to WS:**

inform about the necessity of a National Report for each participating country and invite for contribution to the resolutions and the resolution committee (deadline: next EUREF mail with reminder to the symposium).

##### **Action Item 5 on Agenda Item 6 to MP:**

write a letter to EuroGeographics concerning potential financial support for participants of financially weak countries.

##### **Action Item 6 on Agenda Item 6 to the session chairs of 2016 symposium:**

summarize the content of their sessions and possibly come up with recommendations or even a resolution for the closing session (deadline: next symposium)

##### **Action Item 7 on Agenda Item 6 to ZA and WS:**

finalize the introduction text for the symposium's web page and the tutorial programme and send them to JZ for publishing (deadline: asap)

**Action Item 8 on Agenda Item 7 to ZA:**  
distribute results of the comparisons between the actual ETRF2000 positions and the proposed new ETRS89 realisation to TWG and update the MEMO (deadline: at least 2 or 3 weeks prior to the next TWG meeting).

**Action Item 9 on Agenda Item 8a to TWG:** formulate a resolution for the 2016 symposium that the TWG gets the order to write new ToR until the 2017 symposium.

**Action Item 10 on Agenda Item 8c to TWG:** send concrete ideas to ML to be involved in the project proposal (AC, AK, WS and all (deadline: asap)).

**Action Item 11 on Agenda Item 9a to EB, CB and GS:** write an EUREF mail to all station managers informing them about long RINEX filenames and encourage them to create and upload them (deadline: asap). This item is to be expected as a resolution to the symposium.

**Action Item 12 on Agenda Item 9b to AK and JD:** clean the historic and routine database based on the knowledge taken from processing and analysis.