

Location: *FÖMI headquarters, Budapest, Hungary (more details will follow)*

Time: *May 28, 2013: 9:00 – 17:30*

AGENDA

Last update: May 28, 2013

1. Opening (Bruyninx)
2. Approval of minutes of 61th TWG meeting in Brussels (all)
3. Review of Action Items of 61th TWG meeting in Brussels (all)
4. EUREF symposium in Budapest
 - a. Organisational aspects (Kenyeres)
 - b. Scientific program (Kenyeres, Caporali)
5. INSPIRE (Poutanen)
6. Baltic Sea Hydrographic Commission, working group for Chart Datum (Lidberg)
7. EUREF promotion and outreach (Söhne)
8. EPN LAC WS (Bruyninx)
9. [EPN ACC successor \(Bruyninx, Szafrank\)](#)
10. EPN Densification (Kenyeres)
11. EUPOS (Kenyeres)
12. Polish ETRS89 densification project (Ryczywolski)
13. Update of Guidelines for EUREF Densifications (Bruyninx)
14. WG on Deformation models (Lidberg)
15. Multi-GNSS WG (Brockmann)
16. Update of Guidelines for EPN Stations and Operational Centers (Bruyninx)
17.
 - a. New EPN stations (Bruyninx)
 - b. Real-time monitoring (Söhne)
18. Divers
 - a. EUREF paper IAG Scientific Assembly (Potsdam) (all)
 - b. 4th International Colloquium - Scientific and Fundamental Aspects of the Galileo Programme (Prague; deadline 14-June-2013) (Söhne)
 - c. CROPOS conference Oct. 24-25, 2013 – invitation EUREF oral presentation (Söhne).

19. Next meeting

20. Action Items (all)

Participants

TWG members:

Z. Altamimi

E. Brockmann

C. Bruyninx

A. Caporali

R. Dach

J. Dousa

Excused

R. Fernandes

Excused

H. Habrich

Excused

J. Ihde

Excused

A. Kenyeres

M. Lidberg

R. Pacione

M. Poutanen

W. Söhne

G. Stangl

J. Torres

Guests:

C. Völksen

M. Ryczywolski

K. Szafranek

A. Araszkievicz

Minutes

1. Opening (Bruyninx)

In her property as chairwoman of the EUREF Technical Working Group (TWG), C. BRUYNINX opens the 62th meeting of the EUREF TWG, welcomes the participants and expresses her thanks to the Director of FÖMI for the invitation and organization of this meeting. On behalf of the FÖMI, A. KENYERES welcomes the TWG and submits his best wishes for a successful meeting. A draft of the agenda has been distributed among the TWG. The participants accept the agenda after some minor corrections.

2. Approval of minutes of 61th TWG meeting in Brussels (all)

The minutes of the 61th TWG Meeting in Brussels 21-22.03.2013, were distributed among the TWG members. The final text is published in the EUREF homepage.

3. Review of Action Items of 61th TWG meeting in Brussels (all)

AI1. CB to write the text for the terms of reference concerning the EPN CB Data Centers and Analysis Centers.

AI2. JI to write the text for the terms of reference concerning the Working Groups, Product Centers. AI1 and AI2 postponed to next TWG due to absence of JI.

AI3. AC to send a EUREF mail soliciting papers with the label Proceedings from the relevant EUREF symposium to be published on EUREF web site. No special formatting is required for the papers, but they should include a sub-title indicating the symposium at which they have been presented. Done

AI4. AC/JI to solicit session chairs to prepare a list of invited speakers, and remind the EUREF community to submit papers /abstract within the deadline of April 16. Done

AI5. WS: to prepare a proposal to the next TWG on possible contents of an EUREF School or Tutorial sponsored by EGU. Done

AI6. ALL to inform WS on who is representing EUREF in other Organizations. Done

AI7. WS to prepare a questionnaire to be distributed at the EUREF Symposium on the possible contents suitable for EUREF School or Tutorial. Questionnaire to be iterated in the TWG before the Symposium. Done

AI8. EB/CB to write a LAC mail to encourage the tests of BSW52 before the next LAC Workshop. Done

AI9. JI and AK to prepare a letter to NMCA's encouraging the submission of weekly solutions. Not done

AI10. AK/CB to update the guidelines for ETRS89 densification. On agenda

AI11. CB, RP and WS to discuss the procedures to monitor the ASI and ROB regional broadcasters in addition to the BKG broadcaster. On Agenda

AI12. AC to send out a doodle to select best date for Fall TWG in Wien between 24-25 Oct and 28-29 Oct. 2013. Done

AI13. JI to contact Carl Calvert to get clarification on exact denomination of Young Scientists prize. Done

AI14. AK to add application on the Symposium web site for Young Scientists prize to abstract submission. Add poster format on the symposium WEB page. Done

AI15. EB to check all EPN stations who are submitting RINEX 3 data for compliance with formats. Ongoing

AI16. JI to write a EUREF mail with the call for a new EPN Analysis Coordinator. Done

4. EUREF symposium in Budapest

a. Organisational aspects (Kenyeres).

The logistics is complete and the program is defined.

b. Scientific program (Kenyeres, Caporali).

The program is accepted. Poster introduction is foreseen and presenters have been notified. Prize is focusing on Young

Scientist Presentation, including Posters. Resolution committee chaired by MARK GREAVES; other members are JT, MP, CHRISTOF VOELKSEN, EB, CB.

5. INSPIRE (Poutanen)

Finland and Sweden are working on the vertical datum. Not much has happened in the mean time, since JM reported. IGN is reported to have submitted a proposal for EVRF2000 rather than EVRS, as it should, and the proposal has been accepted. JT recommends that the national delegates keep a close look at the successive published versions of the data specifications to avoid that uncontrolled changes to the original prescriptions are made.

6. Baltic Sea Hydrographic Commission, working group for Chart Datum (Lidberg)

All Baltic Countries are represented. The ambition is to develop a reference for heights related to navigation on sea. Baltic should be declared as non-tidal water, in the sense that there is no distinction between high and low tides in the mean sea level definition. This is important for example in defining the clearance for bridges. EVRS should be a common reference for hydrographic work in the Baltic. This has a number of practical and economic advantages. At the meeting it was discussed which realization of EVRS should be adopted, at land as well as at sea. A geoid model is needed. EVRS should be introduced in hydrographic regulations. Implementations of these recommendations will take 5-10 years. No immediate action of EUREF is foreseen but close monitoring is recommended. JT points out that this opportunity is similar in importance to

the introduction of ETRS89 in aerial navigation.

7. EUREF promotion and outreach (Söhne). WS summarizes the appointments of TWG members in various Organizations. All TWG members are invited to check their responsibilities related to EUREF. It is stated that this document is only for internal use of the TWG.

Questionnaire on the usefulness to have a tutorial. Questionnaire should be put on the Website. ZA proposes to organize a tutorial in Paris. Participants to the organizing team include JT, AC, WS.

EUREF Products on the Web are reviewed; it is noted that another careful review is necessary with input from all TWG members.

8. EPN LAC WS (Bruyninx)

LAC workshop took place in Brussels. It was preceded by a BSW5.2 tutorial. Conclusions have been approved. HEINZ HABRICH retired as ACC and is heartily thanked. MUT has applied as new ACC and this application is recommended to the TWG. Updates of the Guidelines, date for switch to the new options, update the LAC forms, if necessary, overcapacity of LAC's, willingness of LAC's to process a global network were also part of the recommendations. All details are available from http://www.epncb.oma.be/newseventslinks/workshops/EPNLACWS_2013/

. Reprocessing will be managed by CHRISTOF VOELKSEN. A questionnaire was distributed to inquire about the contribution of the different LAC to the EPN-Repro2 project. Some LAC's would like to contribute, other prefer that a limited number of LAC's using different software contribute. The timing of ITRF2013 and REPRO2 is

discussed. Open questions from the LAC workshop include individual calibrations and GLONASS PCV of certain antennas which are absent from certain individual calibrations, and if we should switch from weekly to daily solutions, like IGS is doing. The reason for that is a better sensitivity to seasonal signals. In addition, the benefit of a global processing instead of a regional one is discussed. The TWG concludes that it will review the issue after a benchmark test conducted by the new ACC. It is also discussed what difference does it make to include or not individual calibrations in stations in common to IGS. Tests by CB speak in favour of keeping individual calibrations. The ACC will report on progress at the upcoming TWG meeting. The TWG decides that individual calibrations will continue to be used.

9. EPN ACC successor (Bruyninx, Szafranek)

A consortium formed by MUT and WUT has sent a proposal to JI and CB to act as the future ACC for a period of four years. Main tasks they foresee include monitoring LAC's solutions, coordination of analysis activities of the LAC's, maintenance of a Combination Web page. Available SW includes BSW5.x, GAMIT/GLOBK, CATREF, GIPSY. BKG scripts are going to be made available. The operational phase is expected to start in fall 2013. LAC's will keep sending solutions to BKG. The new Combination Center will then pick up the solutions to be combined. The TWG accepts the MUT/WUT proposal to act as EPN ACC starting from June 1st 2013. K. Szafranek acts as the ACC for the first two years and A. Araszkiewicz for the next two years. CB will send a EUREF mail to announce this.

K. SZAFRANEK will consequently become

a new member of the TWG as the new EPN ACC. A first status report will be given at the next TWG.

10. EPN Densification (Kenyeres)

Data from several countries are needed but the relation to individual Institutions may be complicated. Examples are Spain, Germany. It is decided to drop the letter to the NMCA's.

Benefits include homogenization with EUREF EPN standards, contribution to the dense velocity field WG and monitoring the ETRS89 coordinates of national sites. Global sites are at the moment removed from the combination, but in the future this will be reconsidered.

11. EUPOS (Kenyeres)

23rd Steering committee meeting in Tbilisi (Georgia) on May 7-8. Considerable changes are expected as G. ROSENTHAL is resigning. A. ORUBA from Poland is replacing him. EUPOS is pressed to have better cooperation with international bodies. A proposal will be made by AK, JAROSLAV SIMEK.

12. Polish ETRS89 densification project (Ryczywolski)

Historically, the first campaign took place in 1992, then they were regularly repeated realizing each time a new ITRFyy. In 2008 a new campaign was made for alignment to ETRF2000. Some 15 points of the EPN are included. Receivers include Trimble, Ashtech and Leica. Individual calibrations for some antennas are available, otherwise Type absolute calibrations from the EPN were used. Especially three individual calibrations of Czech stations not publicly available are an issue for the validation of the campaign. BSW5.0 with GPS only data was used in double difference mode, 5

deg. elevation cut off. Velocity datum was defined by ITRF2005, but a better documentation is recommended. Alternative strategies were tested, as to baseline formation and strategy for ambiguity resolution. It is recommended that a subset of the 600 points will be validated by the TWG. The recommendation applies to those points computed according to the guidelines, and fulfil the prescribed repeatability. Copies from previous campaigns (e.g. Czech, UK) will be sent as an example. The officially adopted ETRF coordinates of the 15 Polish EPN permanent stations, a sub-set of the mentioned 600 points, were already published on the EPN web. The agreement with the combined densification solution C1725 is on the level of several millimetres for all components.

13. Update of Guidelines for EUREF Densifications (Bruyninx)

The use of fallback to the IGB08 or ITRF2013 is considered, but finally rejected by the TWG. Instead, it was agreed that in case of a longer delayed EUREF densification solution (e.g. due to a new release of ITRF2013), CB will come up in time with a new proposal for the guidelines. The guidelines are accepted and will be published on the EPN CB web site and distributed by EUREF mail.

14. WG on Deformation models (Lidberg)

ML reports activity within the deformation WG. Some results concerning Greece and the rotation of the Anatolian Block are presented, with comparison with predictions from a 2D finite element model. Kriging seems an interesting option to interpolate velocities while controlling the error propagation.

It is recommended to organise a

dedicated meeting of this WG in order to take into account contributions from different WG members.

15. Multi-GNSS WG (Brockmann).

Technical details were provided already at the LAC WS. Invited paper at the Symposium (U. Hugentobler and a paper on the first results for Galileo by L. Prange). Monitoring the contents of RINEX3 files is done at Bern and Prague very successfully (two posters prepared for the symposium). Both organizations agreed on the LAC workshop already on a common meta-data format to avoid duplications of the efforts. First adaptations were already realized.

16. Update of Guidelines for EPN Stations and Operational Centers (Bruyninx)

Guidelines were updated and distributed to the TWG. Discussion concentrates on Data Archiving, Quality and Distribution. Archiving should be made considering engineering requirements.

The guidelines are accepted and will be published on the EPN CB web site and distributed by EUREF mail.

17. EPN

a. New EPN stations (Bruyninx)

Slovakia proposed KOSE. A Horizon mask results from the skyplot. Likewise for the station in Corsica CORT. Italy proposes PNGS which is GPS only and again with obstructions at low elevations. It is difficult to decide on acceptance or rejection. The TWG favours not to include these proposed stations in the EPN, based on the criterion that EPN stations should be top rated in all the technical specifications. CB will inform station managers on the TWG decision.

b. Real Time monitoring (Söhne)

All the three broadcasters (ASI, ROB in addition to BKG) are being monitored. The data received from each broadcaster are reviewed. Latency plots could be improved by including info from all three broadcasters.

18. Divers

- a. EUREF paper IAG Scientific Assembly (Potsdam) (all)

JI submitted an abstract in time for the General Assembly in Potsdam.

- b. 4th International Colloquium - Scientific and Fundamental Aspects of the Galileo Programme (Prague; deadline 14-June-2013) (Söhne)

No EUREF presentation is foreseen as no active research is at present done by EUREF.

- c. CROPOS conference Oct. 24-25, 2013 – invitation EUREF oral presentation (Söhne).

JI will go if not in conflict with the next TWG meeting.

19. Next meeting

The new date 28-29 Oct. 2013 is proposed, but GS will look for alternative dates as several members cannot participate at this date.

Spring meeting: invitation from Sweden in Gävle.

20. Action Items (all)

AI1 on ML and JT: The Chairman of the Group should be invited similarly to what was done with PAUL DUNKLEY for Eurocontrol (Item 6).

AI2 on All: provide input to WS to complete the table on international representations of the TWG members (Item 7).

AI3 on WS: to provide the feedback on the questionnaire by the first week of June (Item 7).

AI4 on CB: write a letter to the head of the Cartographic Office encouraging further refinement of the report according to the guidelines (Item 12).

AI5 on CB: better rephrase and complete the first bullet on sect. 3.2. of the Guidelines concerning use of IGB08 reference stations in alternative to EPN class A stations (Item 13).

AI6 on ML and AC: based on the information available from the literature and recent presentations, propose at the next TWG an updated roadmap on how to proceed (Item 14).

AI7 on AC: send a mail to the TWG members inquiring on this option as a date for the Wien TWG (Item 19).

AI8 on ALL: All TWG members are invited to check their responsibilities related to EUREF. It is stated that this document is only for internal use of the TWG (Item 7).

AI9 on ALL: Review EUREF Products on the Web and provide feedback (Item 7). CB, EB and WS to work on the product catalogue.

AI10 on KS: The ACC will report on progress at the upcoming TWG meeting regarding tests concerning global or regional processing (Item 9).

AI11 on CB: send a EUREF Mail announcing the new ACC (Item 9).

AI12 on KS: status report of the new ACC activities to be presented at the next TWG (Item 9).

AI13 on CB: send to M. Ryczywolski copies of Campaign reports (e.g. Czech, UK) as an example (Item 12).

AI14 on CB: distribute to the TWG members the approved Guidelines for

Densification Campaigns (Item 13).

A115 on AC: update web site with the new guidelines for Campaign Densification (Item 13).

A116 on ML: organise a dedicated meeting of the WG on Deformation Models in order to take into account contributions from different WG members (Item 14).

A117 on AC: distribute the Guidelines for EPN Stations and Operational Centers via EUREF Mail and update the web page (Item 16).

A118 on CB: inform the station managers of the proposed stations KOSE, CORT and PNGS on the decision of the TWG (Item 17a).

A119 on WS: distribute the presentation on real-time monitoring to CB and RP and come up with proposals for a common monitoring of the three regional broadcasters (Item 17b)

A120 on GS: look for alternative dates for the TWG fall meeting (Item 19).