

56th Meeting of the EUREF Technical Working Group in Chisinau, 24.05.2011

Place: Coral Hall, Codru Hotel, Chisinau, Moldova

Date: Tuesday, 24.05.2011, 09:00 - 18:00

Next events:

- EUREF TWG 2011 Fall Meeting: Frankfurt a.M., 27.-28-10-2011

Agenda

1. Opening (Bruyninx)
2. Minutes of the 55th TWG meeting in Padua (all)
3. Review of Action Items of 55th TWG meeting in Lisbon (all)
4. EUREF symposium 2011
 - a. Organization (Ovdii, Ihde, Hornik)
 - b. Symposium Program (all session chairs)
 - c. Resolution committee (all)
 - d. Best student poster committee (Torres)
5. Partnerships:
 - a. CERGN/EUREF MoU (Caporali)
 - b. Potential partnerships with EUREF (Torres)
6. EPOS (Coco, Fernandes)
7. EUREF (re) elections (Torres)
8. Current status of the adjustment UELN/EVRF (Ihde, Sacher)
9. ECGN Report (Poutanen)
10. ETRS89 Working Group (Lidberg)
11. Reports from EPN Coordination Group
 - a. Action plan for introduction of IGS08 (Bruyninx)
 - b. Reference stations of weekly EPN solution (Habrich)
 - c. Repro1 (Völksen, Habrich, Söhne)
 - d. 1st experiences of the ITRF2008+repro1 cumulative solution (Kenyeres)
 - e. TIGA CIP (Habrich)
 - f. EPN real-time analysis (Söhne)
12. Questions of the further development of Inspire data with respect to CRS (Ihde)
13. EUREF campaigns
 - a. EUREF-MAKPOS 2010 GNSS campaign (Lidberg, Tasevski, Ctojanovska)
 - b. ETRS89 densification on the Faeroe Islands (Weber, Khan)
 - c. EUREF campaigns - Web presentations and submitted data (Stangl)
14. Divers
 - a. Information about the circular letter ETRS89 and EUREF product (Ihde, Habrich)
 - b. EUPOS ISC meeting (Kenyeres)
 - c. FIG Presentation (Torres)
 - d. Next IUGG (Altamimi)
 - e. Galileo GGRI WG (Söhne)
15. Next TWG Meeting (All)
16. Action Items (all)

Participants

ZUHEIR ALTAMIMI, Paris
 ELMAR BROCKMANN, Berne
 CARINE BRUYNINX, Brussels(TWG Chair)
 BRANKICA CTOJANOVSKA, Skopje
 ALESSANDRO CAPORALI, Padua
 JAN DOUSA, Prague
 RUI FERNANDES, Covilhã
 HEINZ HABRICH, Frankfurt a.M.
 HELMUT HORNIK, Munich (Sub-comm. Secretary)
 JOHANNES IHDE, Frankfurt a.M. (Sub-comm. Chair)
 CASPER JEPSEN, Copenhagen
 AMBRUS KENYERES, Budapest

SHFAQAT ABBAS KHAN, Copenhagen
 MARTIN LIDBERG, Gävle
 MARIA OVDII, Chisinau
 MARKKU POUTANEN, Helsinki
 WOLFGANG SÖHNE, Frankfurt a.M.
 GÜNTER STANGL, Graz
 SRECKO TASEVSKI, Skopje
 JOAO AGRIA TORRES, Lisbon
 CHRISTOF VÖLKSEN, Munich
 GEORG WEBER, Frankfurt a.M.
 METTE WEBER, Copenhagen

apologized:

JAAKKO MÄKINEN, Helsinki

HERMANN SEEGER, Bad Neuenahr-Ahrweiler (hon. member)

Minutes

1. Opening

In her property as chairwoman of the EUREF Technical Working Group (TWG), C. BRUYNINX opens the 56th meeting of the EUREF TWG and welcomes the participants and expresses her thanks to M. OVDII for the invitation and organization of this meeting. On behalf of the Agency for Land Relations and Cadastre of Moldova, M. OVDII, welcomes the TWG and submits her 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. Minutes of the 55th TWG meeting in Padua

The minutes of the 55th TWG Meeting in Padua, 03.-04.03.2011, were distributed among the TWG members. Some few corrections are to be attached. The final text is to be published in the EUREF homepage.

3. Review of Action Items of the 55th TWG meeting in Padua

C. BRUYNINX presents an overview on the Action Items of last TWG meeting, some topics are commented:

- 6: ECGN Report: M. POUTANEN has sent out the requested paper just recently.
- 9: Transformation parameters between national height systems and EVRF2007: J. IHDE has sent out the questionnaire, in all 28 countries answered, 14 of them in the recent days. Thus no detailed report will be presented to the Symposium but only a short note. The detailed information will be worked out and be put into the web.

4. EUREF symposium 2011

a) Organization

M. OVDII explains the importance of this Symposium for the Republic of Moldova as a post-Soviet country which is still in development in various field of geodesy. Thus the collaboration with EUREF as a pan-European organisation is rather helpful to support the development. Then M. OVDII explains the organisational topics, especially the arrangements for the opening session in which the Prime Minister of the Republic Moldova, V. FILAT, as well as the President of Academy of Sciences of the Republic of Moldova, G. DUCA, will attend. In all, 140 participants representing 33 countries are registered. 18 National Reports are announced. Several social events are prepared as well.

b) Symposium Program

The Agenda has been set up by the Session Chairpersons, the announced reports are distributed in context with the session topics. For future symposia J. IHDE proposes to reduce the number of reports by the TWG in order to avoid the impression for non-TWG members that the TWG would be more important than other contributions.

c) Resolution committee

The following colleagues are nominated for the Resolution committee: C. BRUYNINX, M. GREAVES (chair), J. IHDE, J. A. TORRES.

d) Best student poster committee

J.A.TORRES, C. BRUYNINX and J. IHDE will form the committee evaluating the posters for the best student poster award. The winner of the price will be announced during the Symposium closing session.

5. Partnerships

a) CERGN/EUREF MoU

A. CAPORALI summarizes the discussion on this topic at the last TWG Meeting. J. IHDE informs that the final version will be worked out this week and then be signed during the symposium.

b) Potential partnerships with EUREF

J. A. TORRES continues his report to the last TWG Meeting concerning the relationship to other organisations. The main items are the intersection of interest, a benefit for all and a real commitment for cooperation. Each partnership should really be consolidated by written statutes. At present a MoU has been arranged with EuroGeographics and EUMETNET as well.

Contacts have been taken up with WEGENER, however up to now no real interest has been expressed. Concerning ICG, EUREF is an associate member in this organisation, therefore ICG cannot be considered as a real partner. TIGA is still in development and no partner for the moment.

No concrete partnerships but practical relationships e.g. by delegates exist with IAG, IERS, United Nations International Commission of Global Navigation Satellite Systems, INSPIRE, EUROCONTROL, EUPOS, IGS, EPOS and ESEAS.

6. EPOS

R. FERNANDES presents a detailed telephone conference with M. COCO on the European Plate Observation System (EPOS). EPOS represents a long term integration plan of research infrastructures for solid Earth Science in Europe, detailed information can be found in <www.epos-eu.org>. The objectives mainly concern the advances for geo-scientists considering the specific needs of Europe by a pan-European integration of existing products. EPOS now is in the preparatory phase and comprises 20 partners in 18 countries and 2 NGOs. – R. FERNANDES then presents a report by L BASTOS on a meeting in Rome concerning the current status of the geodetic component of EPOS.

The TWG discusses the presentations and states that at present the goals are not defined enough for a concrete cooperation with EUREF especially no benefit for EUREF can be seen when the data would be delivered. G. STANGL mentions that a contribution by EUREF probably would influence the other partners to make efforts to reach a comparable high quality standard as EUREF and thus contribute to the general quality of such data sets and actions. This point is especially interesting as EPOS is recognized by the EU and therefore has good chances to develop. Therefore it is proposed to appoint C. BRUYNINX as EUREF representative to EPOS, especially to WG 4. The TWG concludes to observe the development of EPOS in the near future carefully and then to discuss this topic and to decide on further actions.

7. EUREF (re) elections

On behalf of the Elections-Committee, J. A. TORRES reports that no other applications concerning the vacant positions in the EUREF Sub-commission were received. Therefore the following colleagues are proposed:

- EUREF Sub-commission Chair: J. IHDE (as before)
- EUREF Sub-commission Secretary: A. CAPORALI (as successor of H. HORNIK who has declared to retire from this position)
- EUREF TWG Chairperson: C. BRUYNINX (as before)

J. A. TORRES will present this proposal to the plenary of the Symposium in the Closing Session to approve the new manning of the EUREF Sub-commission.

8. Current status of the adjustment UELN/EVRF

J. IHDE presents a summarized overview on the status and development. In 2008 the EVRF adjustment has been finished and the results been declared as official vertical reference frame by the European Commission. In all, 27 European countries are involved in this solution. By this solution the Baltic Ring could finally be closed and thus a rather old and often discussed geodetic project be completed.

Concerning the further development, several countries have announced their intensive interest to join this project. Here especially the participation of Russia would be important as this country covers an enormous land area. J. IHDE mentions that the inclusion of new data is mostly rather time consuming especially considering the common nodal points which often are not sufficiently defined.

J. IHDE will present these results to the Symposium. The available online transformation between the official system and national references will be demonstrated. This procedure is available for all countries who give free access to their data. The colleagues of those countries who have not yet released their data will be contacted to urge their agencies to change their rules and allow the use of the data for scientific purposes.

9. ECGN Report

Referring the respective action items of the last TWG meetings, M. POUTANEN explains the “white paper” which has been distributed just recently. Several comments were submitted. The ECGN should mainly be considered as a regional realization of the continental GGOS of the IAG. Concerning the input data it is self-evident that data from all sources, in particular those from IAG-Services have to be used.

C. BRUYNINX recommends not to develop too many plans as the availability of personnel and other capacities is limited anyway. Therefore it might be the best way to start with a very limited test network e.g. in Scandinavia where excellent data are available. The results then should be discussed and decided whether and how to continue. J. IHDE adds that the ECGN is discussed since years, however, up to now no practical steps have been undertaken. Therefore he supports the

proposal of C. BRUYNINX to start now with a small project observing the methods of GGOS instead of creating own ideas.

M. POUTANEN accepts the proposed ideas and expresses his hope to be able to present first results to the next TWG meeting.

10. ETRS89 Working Group

Referring on a recent report by A. CAPORALI on the lifetime of coordinates, M. LIDBERG presents his ideas on this topic in particular considering the reliable evaluation of station velocities and their residuals. The TWG discusses whether the present activities of the WG coincide with the initial idea or the WG better should be dissolved and a new ones with actual tasks be initiated.

It is stated that the ETRF2000 represents a rather convenient reference frame for the users, however, the station velocities exist and cannot be neglected, especially in some regions with considerable tectonic influences. Therefore the users have to be informed how to use the coordinate values in context with the required accuracies. J. A. TORRES emphasizes that the maintenance of the ETRS89 is necessary, however for practical use updated data have to be processed. Z. ALTAMIMI adds that up to now we by far have not sufficient knowledge to understand the processes in the Earth, thus much more work is necessary.

The TWG finally decides to dissolve the ETRS89 Working Group and asks M. LIDBERG to form a new WG in context with the present tasks. As further members A. CAPORALI, H. HABRICH and G. STANGL are nominated.

11. Reports from EPN Coordination Group

a) Action plan for introduction of IGS08

C. BRUYNINX informs that all tasks of the action plan for infrastructure have been fulfilled by the EPN group. A concerning report as well as updated guidelines will be presented to the next TWG.

b) Reference stations of weekly EPN solution

H. HABRICH informs that Serbia applied to install a new LAC (RGA) for the EPN. A set of data has then been submitted to the Serbian colleagues. The EPN Coordination Group has discussed the yielded results and states that all tests work has been done very correctly. Therefore it is proposed to accept the application and to charge the RGA to process regularly 44 EPN stations.

It is stated that the hitherto 16 existing LACs should be sufficient for the processing of the EPN and the group might become to large when additional LACs are charged. On the other hand especially this application should be accepted positively as Serbia is up to now not so much engaged in EUREF and thus a closer cooperation would help to strengthen the relations. The TWG therefore decides to propose the RGA as a new LAC to the symposium plenary for approval.

c) EPN-Repro1

Ch. VÖLKSEN presented the actual status of the EPN reprocessing activities. The project itself got very positive response since each of the existing EPN LACs participated in the project. Therefore weekly and daily solutions covering the time span 1996 to 2006 have been analyzed and submitted to the EPN Combination Centre. Contributions were processed either with BERNESE, GAMIT or GIPSY. In addition a benchmark test had been initiated as a proof of concept, where a predefined network of 30 stations and one week of data (GPSWEEK 1381) had to be analyzed according to the best known standards. The benchmark test as well as the reprocessed data was analyzed by H. HABRICH. In both cases he had to realize that there were big discrepancies between the BERNESE solution and the GIPSY contributions. Especially the reconstruction of the GIPSY normal equations was not simple due to some missing information. It was therefore decided that a combination of the different solution (benchmark test) should be carried out with CATREF. A continuation of the reprocessing activities based on new reprocessed products (IGS08) is under discussion. At the next TWG the final results of the EPN-Repro1 campaign shall be presented.

d) 1st experiences of the ITRF2008+repro1 cumulative solution

A. KENYERES has performed test computations for a number of ITRF EPN sites (91 in ITRF2005, 131 in ITRF2008). After the datum validation some outliers were rejected in an iterative process. The reasons for the existence of outliers are not yet clear as all stations are principally well selected and observed. In some cases rather simple errors such as incorrect dome numbers might cause the problems, however these mistakes often are rather difficult to be detected. The work will be continued further on.

e) TIGA CfP

As H. HABRICH informs, in 2001, the EPN proposal to the IGS Governing Board for contributing to the "Tide Gauge Benchmark Monitoring Pilot Project (TIGA-PP)" was accepted. Since this time the EPN contributes to TIGA by providing weekly EPN operational solutions. Meanwhile, the IGS decided to make the transition from the TIGA PP to an IGS Working Group as a permanent service. On 02.03.2011, the IGS issued a new CfP for contributions to this "IGS Working Group". EUREF also replied to this CfP with the intention to cooperate also further on especially with "repeated reprocessing".

f) EPN real-time analysis

Two reports "Advocating a Precise Point Positioning Service Operated by EUREF" and "Real-time GNSS Issues" by G. WEBER and W. SÖHNE have been distributed. G. WEBER summarizes the contents. He emphasizes the chances for EUREF to get more involved in the real-time PPP area due to the excellent conditions

which already exist especially with the EPN such as the access to the ETRS89 coordinates which cover consistently a large part of the continent, the reliable work of the various ACs, the intensive relations to the NMAs, the existing network and many other tools. On the other hand an increasing number of users would become connected to EUREF and its products in all. – A detailed presentation will be given at the Symposium.

12. Questions of the further development of INSPIRE data with respect to CRS

The topic is postponed for the next TWG meeting.

13. EUREF campaigns

a) EUREF-MAKPOS 2010 GNSS campaign

A relevant paper has been distributed to the TWG members. On behalf of the Macedonian colleagues, M. LIDBERG explains the work done for the observation and analysis of the EUREF-MAKPOS 2010 GNSS campaign. As background of the recent campaign the campaign in 1996 was used, the observations were carried out in a common campaign covering Serbia as well. The received data can be considered as rather accurate and consistent, the daily repeatability amounts 1 / 1 / 3-5 mm. Some sites, however, show outliers and systematic influences which still have to be investigated.

The TWG finally concludes to recommend the solution to the Symposium Plenary as an improvement and extension of ETRS89 on Class B standard on the area of the Former Yugoslav Republic of Macedonia. The relevant data are to be submitted to G. STANGL to be put into the data base. – A detailed report will be presented to the Symposium.

b) ETRS89 densification on the Faeroe Islands

H. A. KHAN explains the recently distributed paper on this campaign. Relating the small area of the Faeroe Islands the campaign only covers 4 sites. The former existing station unfortunately had been removed before. Following investigations by A. CAPORALI, the possible influences of co-seismic effects as well as land uplift due to the reduces ice cap in Greenland will still need intensive analysis work.

The TWG concludes to accept the solution as an improvement and extension of ETRS89 on Class B standard on the area of the Faeroe Islands and to recommend the approval of a relation resolution by the Symposium Plenary. The Danish colleagues are asked to complete the report in some detail to be published in the Symposium Proceedings. The relevant data are to be submitted to G. STANGL to be put into the data base. – A detailed report will be presented to the Symposium.

c) EUREF campaigns - Web presentations and submitted data

G. STANGL reports on the progress of the data collection <<http://www.euref-iaag.net>>. Presently data from different sources of the campaigns Czech 2009, Greece

2009, Italy 2008, Greece 2009, Latvia/Lithuania 2005, Moldova 1999 and UK/EIR 2009 are stored in an accessible way. For other campaigns unfortunately no relevant data have yet been delivered. Especially the usual deliverables are not available for the older campaigns before 2009 when in new guidelines the request for data was strictly formulated.

14. Divers

a) Information about the circular letter ETRS89 and EUREF product

The concerning questionnaire circular had been sent out in March 2011 to 45 countries, in all 28 answers were received (similar to a previous action in 2005). As many answers only were received in the very recent days a detailed report could not be worked out, J. IHDE thus informs in an summarizing overview on the responses. Although the practical use of EUREF products still should be improved, meanwhile 60% of the countries which responded have declared to have accepted ETRS89 as their official reference.

b) EUPOS ISC meeting

A. KENYERES informs shortly on an ISC meeting. The EUREF Sub-commission is an Associate Member in this organization. Moreover A. KENYERES gives summarized information on a proposal for cooperation by INTERREG on cooperation for geoid and vertical systems.

c) FIG Presentation

J. A. TORRES reports on the FIG Congress in Marrakech/Maroc. Among the various sessions, the development of AFREF in a Global Perspective had been discussed. Relevant reports of EUREF had been presented by J. A. TORRES.

d) Next IUGG

Z. ALTAMIMI informs on the coming XXV IUGG General Assembly "Earth on the Edge: Science for a Sustainable Planet" from 28.06.-07.07.2011 in Melbourne, Australia. IAG Commission 1 - Reference Frames from Regional to Global Scales will have 4 sessions, 24 oral presentation are announced.

Concerning the elections of officers, Z. ALTAMIMI has to retire from his position as Commission President following the IAG statute while J. A. TORRES can fill in his position of President of SC1.3 - Regional Reference Frames for another 4-years term.

e) Galileo GGRI WG

W. SÖHNE informs shortly on the WG and the cooperation agreed on occasion of the 2010 EGU in Vienna. A final report is planned for April 2012.

15. Next TWG Meeting

The colleagues from the German BKG in Frankfurt a. M. invite the TWG to hold its 2011 Fall Meeting in their

institute. The TWG thankfully accepts the invitation. The final decision on the date will be made asap and submitted to the TWG members.

16. Action Items

H. HORNIK will compile the action items of this meeting as soon as possible and distribute the text among the TWG members.

C. BRUYNINX closes the 2011 Symposium TWG Meeting with cordial thanks to the hosts, especially to M. OVDII and her staff, for the excellent organization.