

Time & location:

Monday, May 15, 2017, 13:00 – 18:00, Faculty of Environmental Engineering and Geodesy, Grunwaldzki Square 24a, 50-363 Wroclaw, room: faculty council room

Tuesday, May 16, 2017, 08:30-12:00, Wroclaw University of Environmental and Life Sciences, C. K. Norwida Street 25, room: university senate room

MINUTES**1. Opening (Kenyeres)****2. Welcome (local organizers)****3. Approval of minutes of 73th TWG meeting in Matera (all)**

The final minutes of the last meeting have been distributed to the TWG members and can now be published on the EUREF web page.

4. Review of Action Items from previous TWG meetings (Söhne)

WS reviews the four action items from last meeting, with almost no comments.

5. EUREF symposium 2017 (Kaplon)**a. Final programme**

JK presents the final programme for the symposium and the tutorial and explains the different places where the tutorial and the symposium take place. WS suggests that for the future symposia the TWG should identify at an early stage which oral presentations are absolutely necessary and should allocate the time slots for them.

b. Resolutions

Some draft resolutions have been already prepared or even distributed by some members, e.g. for the new members of the TWG (height, reference frame coordinator), for the dense velocity field. Resolutions for the Terms of Reference and for the conclusions of the ETRS89 questionnaire are necessary.

6. EUREF Terms of Reference (Poutanen et al.)

MP presents the most recent version with the two columns of old and new ToR. Unfortunately, this version was not distributed in time by the secretary to the members. Therefore, this topic is postponed to the second day. There are still different viewpoints with respect to the IUGG membership and non-IUGG countries. A discussion follows about the possible procedure how to elect or select the two representatives of each country. MP raises the question who is appointing the members. JT proposes to write to the national committee (related to Geodesy!). What is needed, a national delegate or a national representative? The IAG secretary general Hermann Drewes has the list of national delegates and it is proposed that the EUREF chair and the EUREF secretary contact him and ask for the list. CB fears that the representatives will come mainly from scientific agencies. Is it worthwhile to formulate a resolution on this topic? The majority is not in favour.

Action Item 1 to MP and WS: Contact the IAG secretary general Hermann Drewes and ask him for the list of IAG representatives of the European countries.

7. ETRS89**a. Evaluation of questionnaire (Söhne et al.)**

WS presents the evaluation of the feedbacks to the ETRS89 questionnaire 2017. A summary file has been distributed to the members before. There are still different views on the conclusions drawn from the feedback of the countries. EB emphasizes that the numbers are clear, especially to question 2.5, whereas RF does not see it that significant. ZA underlines his opinion that the future of

references frames belongs to the global solution, closely connected to the data coming from the sky. AC is reminding to the parameter Tzdot which led ETRF2000 to be not optimal.

After a lively discussion EB is coming back to WS' question concerning the conclusions. Some feedback from the questionnaire raised the question if and when we are getting a new memo with new transformation parameters. MP recalls the example of Finland and the amount of money it costed to introduce the last change. RD says that as a scientist his position is clear, i.e. towards the best possible (what is available due to the ITRF), however, the TWG has to take care on the NMAs. ML summarizes that the TWG has to take care on the two different positions. AK is asking for an update of the memo. ZA replies that he is waiting for a decision by the TWG before starting the effort of an update. EB mentions that there shouldn't be two options in the memo. It is agreed that a resolution has to be formulated, but the wording shall be formulated very carefully (proposed ad-hoc group: ZA, EB, AK, MP).

Action Item 2 to ZA: Update the "Memo" (<http://etrs89.ensg.ign.fr/memo-V8.pdf>) and distribute it to the GB members timely before the next meeting.

b. On Possible Alternatives for the Realization of ETRS89 Based on ITRF2014 (Lidberg)

8. New Working Group on "European dense velocities" – presentation of draft charter (Brockmann)

EB presents the draft charter of his proposed new working group. After only three months a first preliminary solution is available. The Table 1 shown contains more than 2000 stations, plus a grid solution from the Nordic countries. Multiple solutions from one country give a good redundancy. AK has doubt that a third working group on velocities beside the two existing ones on "Densification" and "Deformation Models" can be communicated very well to the public. ZA asks for details on collection of the data and on potential combination. No combination yet planned. JL is reminding the difficulties and issues she was facing during the IAG group / project on dense velocity fields. CB asks for the differences seen on common stations. AC mentions the possible interesting groups outside the geodetic community in velocities. ML recalls the different solutions and projects which might contribute with solutions. AK lists some deficiencies of the proposed approach, e.g. no time series available, no uncertainties of velocities, etc. AC replies that several groups don't have these numbers available. WS is in favour of the group, however, he notes that in a logical order such a working group should have been the first one established in EUREF for this topic. AK reminds the attempt done two years ago in the Nordic group, in ML's WG, on velocity combination. CB recalls the charter of the Densification WG which has been introduced just to overcome the deficiencies of the classical approach. Finally, the TWG accepts to start the new working group.

9. Status Report on EPN Densification: prepared for publication (Kenyeres)

AK shows the presentation he is going to give at the symposium. Densification solution will be sent to the GB members in September at the latest for exploitation. AK proposes a revision for harmonization of the charters of the two existing and the proposed working group. AC mentions that the "Guidelines for EUREF Densifications" should also be taken into account. AC asks for the format of the proposed velocity field and how to compare the results if the format could not be read by every software. ZA replies that CATREF is following the IGS rules on SINEX files. He underlines that the results of this WG and the results of the proposed WG are duplicate. A discussion follows on the mandatory parts of the coordinate SINEX files, e.g. about an a priori solution. CB is raising the question of a peer-reviewed paper before publication of the results. TWG agrees on the importance of such a publication and urges AK to start.

Action Item 3 to AK: Distribute the densification solution to the GB members timely before the next meeting.

10. RFC report on the transition to the IGS14-based European Reference Frame realization (Kenyeres)

AK shortly announces the successful transition of the duties for processing the accumulated solution. At the next GB meeting a new version will be presented.

11. Offset computation for the switch from IGB08 to IGS14 (Legrand)

JL shows the strategy and results while switching from IGB08/epn_08.atx to IGS14/epn_14.atx. There are changes for ten stations between individual to individual, individual to type mean and type mean to individual calibrations. 830 position offsets are applied for EPN stations, i.e., the number of station / antenna pairs. 13 REPRO2 SINEX files were incorrect and therefore rejected. The ACC will correct them. About eight non-EPN stations were excluded. JL summarizes some lessons learned in preparation of a potential REPRO3, e.g. same antenna used at different stations or to different times. She continues with investigations on inconsistencies to ITRF2014/IGS14. WSRT shown as the example with the biggest jump of 18.6 mm in the Up component. RD is asking for those station / antenna pairs with more than 5 mm in the Up component. AC asks about the procedure for the derivation of the offsets. They are coming from the latitude-dependent model provided by IGS for approx. 185 station / antenna pairs where no estimated position offsets are available. TWG asks JL to continue her investigations about the offset model.

12. Troposphere Coordinator

a. Review of the Guidelines for EPN Analysis Center-Trop. MF (Pacione)

RP presents an overview about the current usage of tropo mapping function within the EPN Analysis Centres, pointing to the fact that the last update of the "Guidelines for EPN Analysis Centres" dates back to November 2013. She proposes that the guidelines needed an update concerning the application of the troposphere mapping function, i.e. using GMF for rapid and hourly and VMF for final. RD points to the assessment of Johannes Böhm saying that VMF can be used also for rapid and hourly products because the prediction part is stable enough.

b. Meteo Data Calibration (Pacione)

RP is mentioning that 30 % of the EPN stations have co-located meteo sensors but only half of them are available. In addition, Water Vapour Radiometer are available at five stations. She raises the question about trusting the meteo sensors, for example: are they calibrated? If yes: when were they calibrated? Are the calibration dates included in site logs, etc. She explains that the question was coming from the last COST workshop. JL quickly checks the monitoring at the EPN CB and finds that yesterday 44 stations have uploaded meteo files to BKG. Finally, RP recalls the new troposphere cumulative solution T1934, based on REPRO2.

Action Item 4 to RP: Contact and ask the EPN station managers about the meteo equipment used at the stations.

13. External Interfaces

a. Supra National Ground Motion Service (Söhne)

WS shortly informs about the first meeting of the task force of the planned Supra-National Ground Motion Service (SNGMS), held in Hanover March, 28. Approx. 40 attendees from more than 15 countries. Also RF participated. SNGMS will be proposed to the Copernicus User Forum to become an official project. Michaela Frei, one of the driving forces within SNGMS, will give an invited talk about a

German project at the symposium.

14. Action Items (Söhne, Kenyeres)

15. AOB

a. Next GB meeting(s) (all)

CB is inviting to ROB in Brussels. Date probably October, 24 as a full day meeting (see also 15.c).

b. 2018 Symposium (Poutanen)

There is an invitation for The Netherlands. Presentation will be given in the Closing Session of the Symposium. MP proposes to make an effort to concentrate, or pay special attention, on the height component.

c. Analysis Centres Workshop – in 2017? (Söhne)

WS raises the question for an AC workshop this year (last AC WS was October 2015 in Bern). CB is proposing to connect the workshop with the next GB meeting but first to look into the restrictions coming from ROB. Proposal is October 25-26 (Wednesday to Thursday) starting after the GB meeting. Two full days are proposed for the workshop.

Action Item 5 to CB: Check the dates and possibility to host GB meeting and AC workshop at ROB.

d. Handling of downloads of presentations of TWG meetings (Söhne)

In communication with the secretary before the meeting, CB pointed to the fact that the presentations of past meetings were not available from the EUREF web page. WS investigated and found that the presentations were present at the EUREF web page, more or less complete, up to TWG57 (2011). From TWG58 on, only for specific TWG meetings the presentations are available in a larger number. The question is how to improve the situation, especially for work-in-progress or internal discussion papers. CB proposes a password-protected section on the EUREF web page.

Action Item 6 to WS: Contact Manuela Vasconcelos on the possibility to install a password-protected section on the EUREF web page.

PARTICIPANTS

TWG members:

Z. Altamimi (ZA)
 E. Brockmann (EB)
 C. Bruyninx (CB)
 A. Caporali (AC)
 R. Dach (RD)
 R. Fernandes (RF)
 A. Kenyeres (AK)
 M. Lidberg (ML)
 T. Liwosz (TL)
 R. Pacione (RP) (on Tuesday)
 M. Poutanen (MP)
 W. Söhne (WS)
 G. Stangl (GS)
 J. Torres (JT) (on Tuesday)

Guests:



A. Araszkiewicz (AA)
J. Kaplon (JK)
J. Legrand (JL)

Excused:

J. Dousa
H. Habrich
J. Ihde