

Time & location:

Chalmers University, Gothenburg
 Monday, May 22, 2023, 1400-1800 CEST
 Tuesday, May 23, 2023, 0900-1200 CEST

Minutes

Last update: May, 17, 2023

- 1. Opening (Söhne, Johansson)**
- 2. Approval of minutes of 91th GB meeting (Kollo, Söhne)**
 Minutes approved
- 3. Review of Action Items from previous GB meetings (Söhne, Kollo)**
 5 action items, all completed:
 Minutes approved and published.
 Publish website EUREF2023 Symposium.
 Group of experts and discuss the future of ETRS89 -> at GB92 meeting.
 EPN regional data centres to control the data flow, organise meeting (April 17).
 Updated data centre and broadcaster guidelines.
 EUREF governance -> continuation Martin, Wolfgang, Karin.
- 4. EUREF Symposium 2023 (Johansson, Lidberg)**
 Program available on the webpage. For tutorial scientific/technical presentations, three applications to be introduced. Overview of the program by ML. Ice breaker with guided tours. Abstract booklet published in the webpage. Lunch outside conference room. 85 registered participants, participants list not available. The GB is asked for any ideas for resolutions, Mark Greaves will collect and prepare resolutions at the symposium.
- 5. EUREF Symposium 2024 (Lidberg)**
 Mail to be sent for symposia for next years.
 AA gives an overview of the last symposia places, session structure, content and number of contributions. He identifies some deficiencies, which may prevent some potential participants to contribute, and proposes some changes. The GB discusses several elements, e.g., to present an award – similar to as it was in former times –, to make a dedicated AC session, to divide the national contributions into oral presentations and posters. The poster session could be extended or merged to the icebreaker. Splinter meetings could be included into the program if number of contributions was too small. RD: Ask participants what they need, e.g., symposium over 2 years, AC workshop middle of it.
Action Item to KK, RD, ML, AA, BM: prepare a plan for new EUREF symposium structure
Action Item to KK: set up a doodle for a first digital meeting.
- 6. Status and remarks on the ETRF2020 (Altamimi)**
 ZA shows the transformation parameters from ITRF2020 backwards. ITRF2020, ITRF2014 and ITRF2008 converge quite nicely. He discusses some parameters, e.g., ORB – origin rate bias – and explains the PMM – plate motion model. ITRF origin has stabilized. Site selection is critical issue. Finally, 509 sites selected, more than in ITRF2020.
 Tdot – translation rate – to be introduced to remove north RMS from 0.40 to 0.26 mm/yr. For Europe PMM with or without Tdot translation rate is almost the same, therefore

negligible.

JL asks for the influence of neglecting the translation rate. ML says that introduction of translation rates introduces differences in vertical velocity, ZA agrees. JT agrees because next time the parameters could go in the other direction.

ZA plans to extend the ITRF2020 on a yearly basis, with additional data of the four techniques, without changing the basic parameters. GB shall provide the best scientific solution for the users, but it is up to users to decide to use the newest ITRF.

WS asks for some more advice to the countries which may use the new ETRF.

ML has some doubts to do it this way. We now have two thirds of the countries applying ETRF2000 and we should not diverge again.

Action Item to ZA: the EUREF Technical Note no. 1 should be finalised and distributed to the GB members

7. EPN

a. Data Centres news + guidelines (Söhne, Bruyninx)

Meeting between BEV, BKG and EPN CB, minutes available. Closer collaboration is agreed to keep the RDCs as consistent as possible. Guidelines for data centres updated. Station guidelines need to be discussed.

8. Coordinators

a. ACC report (Liwosz)

TL reports on preparations to switch to IGS20. The combination still not started again due to missing AC contributions. BKG, IGN, SGO, SUT are missing, RGA uses BSW5.2. Combination procedures reviewed. Update of EPN analysis guidelines in progress.

About 20 stations processed by 1 AC and 70 stations by 2 AC, 20-25% stations processed at least by 3 AC. Discussion, how to continue, to redistribute stations covered by 2 or 1 AC, different strategies for repro and operational?

Action Item to TL: write a EUREF AC mail on the schedule of proceeding with switch to IGS20 and contact missing ACs individually.

b. Troposphere report (Pacione)

RP describes the status of the troposphere combination and complains the similar lacks in individual contributions since GPS week 2238.

9. Working Groups

a. EPN repro3 wrap-up (Völksen)

CV gives overview of the activities. Two teleconferences held; it was decided that EPN-Repro3 shall be as consistent as possible with the operational EPN analysis.

EPN repro3 will cover daily solutions from 1996 to 2022. VMF1 was suggested, VMF3 could be a problem with GAMIT. Antenna calibration file generated by AA, will be frozen from now on. Metadata relevant to EUREF54_R3.STA. Database for outliers requested by TL, RP, JL – input for design needed.

A benchmark test is proposed for consistency check, data from 4 GPS weeks 2236 to 2239 are to be analysed by each AC (2 weeks before and two weeks after the switch to IGS20). This allows to study the impact of tropospheric mapping function VMF1 (to be used in the reprocessing) and VMF3 to be used in the operational analysis.

Data analysis (e.g., benchmark test) can start just after this symposium, but not

every AC can begin immediately (e.g., switch to BSW54 delayed).

VMF1/VMF3. 1st of July final decision on participation, mid-June teleconference to decide participation.

b. Deformation WG (Lidberg)

ML gives overview of activities. Poster presentation by R. Steffen on velocity model 2022 in EUREF Symposium 2023. Model is released and available for download. Paper prepared not published yet.

Q-A. ZA: Have vertical velocities compared to GIA models? ML: she has compared to observations used before, i.e., GNSS observations. WS: What is the difference with EPOS? ML: we are doing strain rate products.

10. Height Reference

a. WG (Schwabe)

Due to the detailed discussion of the other topics, the WG report was eventually omitted. An overview progress report and selected results were presented a few days later at the EUREF Symposium in ca. 20 min. Apart from this presentation, the report to the GB would have included the following items:

- General report about WG activities: 3rd online meeting 2023-10-27 to discuss first test results with early GNSS/levelling data; presentation at EUREF Symposium, preview on IUGG 2023 in Berlin in July 2023
- General report about other related activities and meetings:
 - a. FAMOS/BSCD2000: preliminary grid; NKG WGHG hybrid meeting, Chart Datum Working Group meeting no. 14 in Gothenburg, preview on IUGG 2023 in Berlin in July 2023
 - b. European Alps Geoid: Kick-off meeting 2023-09-27/28 in Vienna, presentation at EGU 2023, preview on poster at IUGG 2023 in Berlin in July 2023; late summer 2023 HELIGRAV campaign in the German Alps (Allgäu area)
- Status (turnout) of the questionnaire on the national integrated spatial reference (ETRS89 realization, height system and geoid model) and new CRS-EU database
- Status (turnout) of the EHRS_CP GNSS/levelling datasets

11. EUREF Governance

a. GB membership 2023 (Söhne)

Since EB is leaving the GB, there might be room for a new member. An election on the next year's symposium is feasible.

Multi-GNSS WG to stop, success with Galileo, Beidou postponed. Webpage for dense velocities stopped, it is not maintained, but data can be downloaded. Plan to merge WG Dense velocities and deformation models.

Action Item to KK, ML, WS: describe the potential expertise of a new GB member.

12. Divers

a. IUGG 2023 EUREF presentation (Lidberg)

ML will give an oral presentation on behalf of the EUREF GB. He will ask individual

GB members for contributions. JS also has a presentation at the IUGG on the Unified Height Reference WG.

b. WGAAL2023 (Zurutuza)

JZ plans to participate at the meeting to introduce GB activities. Lanzarote, 16-20 October 2023, the deadline for abstracts is May 31.

Action Item to JZ: distribute the abstract for the WGAAL2023 meeting to the GB members asap

13. AOB

a. Action Items (Kollo, Söhne)

b. Next GB meeting(s) (Kollo, Söhne)

Next meeting will be online.

Action Item to KK: set up a doodle to find dates for two short EUREF GB93 digital meetings.

PARTICIPANTS

A. Araszkievicz	on day 2
Z. Altamimi	
E. Brockmann	
C. Bruyninx	
A. Caporali	virtually
R. Dach	
A. Kenyeres	excused
K. Kollo	
J. Legrand	
M. Lidberg	
T. Liwosz	
B. Männel	
R. Pacione	
M. Poutanen	
M. Sacher	
J. Schwabe	
W. Söhne	
J. Torres	virtually on day 1
C. Völksen	on day 2
J. Zurutuza	on day 1
J. Johansson	partly