

**Time & location:**

Online (MS Teams)

Part I: Tuesday, October 10, 2023, 1400-1600 CEST

Part II: Thursday, November 09, 2023, 1400-1600 CST

MINUTES**1. Opening (Söhne)****2. Approval of minutes of 92th GB meeting (Kollo)**

KK to send the minutes of GB92 to the GM members for review directly after this meeting.

3. Review of Action Items from previous GB meetings (Söhne)

Some AI are in progress and on the agenda of this meeting, some are still open.

Action Item of GB92 on a possibly new structure of the symposium to be renewed.

4. EUREF Symposium 2024 (Lidberg)

Invitation from Institut Cartogràfic i Geològic de Catalunya (ICGC) to Barcelona. ML accepts the invitation and invites representatives from Barcelona for part II of this meeting.

During part II, E. Bosch gives an overview about the planned conference place. Capability to record the presentations for further publication. Two weeks in June as options (weeks 23 and 24). Chosen time 5-7 June 2024. Proposed tutorial on Ionosphere and space weather (4 June 2024).

JZ asks for a smaller room for splinter meetings.

EUREF Symposium's new structure (Araszkievicz)

Discussions held via emails in October. The proposed structure as follows: Session #0 – activities of the EUREF GB in two parts (organization first day and reports second day).

Session #1 – National and local activities (dedicated poster session, works by NMAs, two parts – technical first day and scientific second day). Session #2 – Innovation and prospective geodesy (new technologies and challenges in future reference systems).

Discussion: Posters – about 25+, the format and size requirements come from organisers. ZA: are these 3 sessions in addition to the existing sessions? AA: this is a new structure; everything should be covered.

5. Status and remarks on the EUREF TN no. 1 (Altamimi)

Draft version of the updated Technical Note no. 1 was sent out to GB members October 2, received comments from Alessandro, they will be considered. Article will be published soon. ZA will finalize during next weeks. JL: interest is very high for the values of transformation parameters. ZA: we prefer to have article accepted at first. Paper will be out as open access. In the next step the webpage will be updated. ML: technical – plate motion model with origin transformation it will be interesting to see the effect on the velocities, the impact of translation rates. ZA: it is illustrated in the paper.

Action Item to ZA: finalize and publish the updated EUREF Technical Note no. 1

6. EPN**a. Inclusion of InSAR information (Huisman, Bruyninx, v.d.Marel)**

L. Huisman and H. v.d.Marel present their proposal on InSAR information for sitelogs. AC asks for the reference point of such instruments. ZA mentions local surveys of InSAR instrumentation and possible assigning DOMES numbers. IAG SG 2019-2013: SG 1.2.1: Relevance of PSInSAR analyses at ITRF co-location sites (<https://com1.iag-aig.org/sub-commission-12-wg/SG121>). Plan to propose the sitelog addition in EUREF2024 Symposium.

b. Official National Coordinates (Legrand)



Participants are in favour to continue but should take care on outdated information. Example:

http://epncb.oma.be/_productservices/coordinates/crd4station.php?station=ALBA00ESP. JL is working on a new version of the web page, ideas for improvement are welcome. JL proposes to continue and to send a EUREF mail.

7. Coordinators

a. Report of the Analysis Centres Coordinator (Liwosz)

By the EUREF 2023 Symposium 12 of 17 solutions were available, 4 solutions delivered by the end of September, IGN and RGA solutions still not available. Regular combination will resume with 15 of 17 ACs. Issue with Turkish stations which produce RINEX files from streams, are unstable or noisy. Suspend the stations temporarily? Procedure changed to first create long-term AC specific solutions (CATREF). The release of combined solutions for period 2238-2276 planned at the week 46. New guidelines for the EPN Analysis Centres consistent with the IGS20 standards have been discussed with ACs, updated guidelines published in EPN website on July 31, 2023.

b. Report of the Troposphere Coordinator (Pacione)

RP gives an update on the troposphere estimation, in particular on the rapid combination. 15 EPN ACs are submitting final troposphere estimates. Small inconsistencies in SINEX_TRO for a few ACs. Waiting for the final coordinate combination.

c. Reference Frame Coordinator (Legrand)

Renaming of Rx3 files with short filenames to RX3 long filenames planned at Historical EPN DC. Discussion on the use of Galileo from Rx2 files and starting point of Galileo in the reprocessing. RD: RINEX 2, only use 2-freq data in GPS and GLONASS. CV: use same starting date for repro and operational, will be clarified. EPN station THU2: Long time series, but GPS-only. CB proposes to add it to the EPN as exception. GB agrees. TL looks for three ACs (WUT, GFZ).

8. Working Groups

a. Reprocessing WG (Völksen)

Originally scheduled date end of 2023 cannot be kept. Discussion on new CODE product, which may be finalized in approx. six months from now. Data from benchmark test uploaded by four ACs. Many ACs still in the process of setting up computers for REPRO3 or the processing chain for operational products. Problems: with short baseline ambiguity estimation.

b. WG on EPN Densification (Zurutuza)

EPND is based on the GNSS solutions provided by European Agencies and Analysis Centres, data provided in SINEX format (with COV block), week-wise solutions are combined to a multi-year solution. In parallel to the official EPND solution as a validation a cumulative solution is computed for each AC.

9. Height Reference (Schwabe, Sacher)

FAMOS/BSCD2000 geoid, first release in 2023, publication in November 2023. BSCD2000 landing page and data download at BSHC website with DOI. Update of existing geoid model for Germany, implementation in SAPOS in December.

December 2021 questionnaire about integrated spatial reference (ETRS89 realization, heights, geoid etc). Data inserted to draft CRS-EUv2 database, redesign of CRS-EU application for new database structure.

EHRS-CP GNSS/levelling data feedback from most of countries, but still waiting for data. Research, implementation, and validation of NKG transformations 2008 and 2020,



applications to existing and updated FAMOS/BSCD2000 GNSS/levelling data. In the next step, applications to EHRS_CP data for Scandinavia and comparisons with EUREF transformations, use of velocity model for GNSS coordinates and UELN/EVRF computation and continue to improve UELN/EVRF using hydrodynamic models. New WG members (Slobbe, Alberts).

10. EUREF collaboration / external interfaces

a. CEGRN Status (Zurutuza)

Towards CEGRN v2.0. Daily data computation (following IGS20 standards), new partners from Bulgaria and Romania, new CB members from Poland and Serbia. CB emphasizes some more EPN stations in the region.

Action Item to JZ and CB: identify possible candidates for the EPN and get in touch with station owners to motivate them in contributing to the EPN.

b. EPOS TCS "GNSS" GB meeting

Meeting took place Oct, 19+20, at the Geoazur premises in Antibes, France. A report on the status of EPOS Thematic Core Service "GNSS" could be given in the next EUREF GB meeting.

c. IGS (Söhne)

New IGS CORS guidelines recently published in 2023. Are there consequences for the EPN guidelines? WS shows differences to the old guidelines, some points for discussion, etc. Needs also discussion with the Data Centres.

11. EUREF Governance

a. EUREF webpage (Ribeiro)

Some information outdated, some are missing. WS informed Helena Ribeiro. Question how to include the 2023 symposium's presentations. Have been delivered to HR. HR is in progress of a new web page, therefore no more changes in the old one. New page (i.e., new programming language) ready by end of November or early December. Discussion on how to include a closed section for the GB exchange ongoing.

12. Outreach

a. WGAAL2023 presentation (Zurutuza)

Conference is next week. Possibly preparation of a paper for the proceedings.

b. Newsletter 2023 (Lidberg, Söhne, Araszkievicz)

WS proposes to write and distribute an EUREF newsletter also for 2023. AA already prepared a template for the contributions:

<https://1drv.ms/f/s!ApS4tJf9oLD0jKxZ6uhBAHgKriXRWQ?e=aye09G>

Action Item to all: contribute with short sections of your work (working groups, coordinators etc.) to the EUREF 2023 newsletter.

13. AOB

a. Action Items (Kollo)

b. Next GB meeting(s) (Kollo)

CB and JL like to invite the GB members to Brussels for an in-person meeting.

Action Item to KK: find an appropriate date in February 2024

PARTICIPANTS

A. Araszkievicz (AA)

Z. Altamimi (ZA) part II

C. Bruyninx (CB) part II



A. Caporali (AC)
R. Dach (RD)
A. Kenyeres (AK)
K. Kollo (KK)
J. Legrand (JL)
M. Lidberg (ML)
T. Liwosz (TL)
B. Männel (BM)
R. Pacione (RP)
M. Poutanen (MP)
M. Sacher (MS)
J. Schwabe (JS)
W. Söhne (WS)
J. Torres excused
C. Völksen (CV)
J. Zurutuza (JZ)

E. Bosch Llopart part II
J. Grau Bellet part II
L. Huisman part II
H. Ribeiro part II
H. v.d.Marel part II