

Time & location:

Two online meetings (MS Teams):
 Tuesday, May 04, 2021, 1300-1530 CET
 Friday, May 07, 2021, 1000-1230 CET

MINUTES**1. Opening (Söhne)****2. Approval of minutes of 85th GB online meetings (Kollo, Söhne)**

Latest version with corrections from AK and CV. After final round of discussion final version to be send to the EUREF Webmaster by KK.

Action Item for KK: distribute most recent version of the minutes of GB85 to the GB members

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

WS reviews the action items of last meeting, which all of them having status 'in progress' or 'done' and are partly on the agenda for today's meeting. (1) Euref campaigns in the web page – done. (2) GB membership – on agenda. (3) MoU EUREF-EPOS (ML) – in progress. (4) Hourly processing (TL) – in progress & on agenda. (5) Feedback to JL on the ETRS89 densification guidelines – done. (6) Questionnaire by MS and JS – on agenda. (7) FIG paper on the behalf of GB – accepted. (8) Participation on IAG scientific assembly – abstract from EUREF in progress.

4. EUREF symposium 2021 (Medved, Berk (gov.si), invited guests)

KM gives an overview about the current status of the preparation for the symposium. So far, 84 persons are registered. Up to 300 persons could register. There will be one large 'zoom' room for the symposium and for the splinter meetings. 29 participants for CEGRN, 35 participants for FAIR data splinter meeting. List of abstracts and draft programme were distributed prior to this meeting, altogether 36 abstracts submitted, and 19 national reports. There is one additional room for GB, e.g. for resolution committee¹. On 20.05.2021 10 CEST a short course for all session moderators is scheduled to be familiar with the technique. KM proposes that the talks will be given from the local PC of each presenter with backup of each contribution available in Ljubljana. There is an option to have polls; the local organizers need such two days in advance. One sponsor for the symposium (Alberding company), whose products and their applications will be presented during the breaks. Presentations should be ready (uploaded) by 14th of May.

Discussion:

ZA: Shorten coffee breaks, shorten presentation time from 15 to 10 minutes. JZ asks if registration for CEGRN splinter only would be possible without registration for the symposium. – Not foreseen. RD: recent EGU – short appetizer, then go to discussion rooms. WS: maybe not so much time left to make changes, MP agrees. CB: changing timeslot – 10 min presentation time ok. Reminder to upload, but deadline 14th May is tricky. ML: too late to change format. KK: are rules for National Reports necessary? WS proposes a kind of guidelines for National Report presentations, e.g. restriction on a certain number of slides. CB asks for recording, in particular for the FAIR splinter meeting. EB: it could be an option to pre-record talks and submit them in advance. This option should be communicated to the participants.

Action items to KM: distribute the most recent version of the symposium's program. Consider guidelines for National Reports presentations

5. EPN

¹ The day after this meeting, Mark Greaves (OS) agreed to lead the resolution committee for the 2021 symposium

a. Central Bureau

i. Data distribution strategy: EPN stations in global IGS data centers (Söhne)

WS recalls the discussion with ESA/GSSC (“GNSS Science Support Centre”) starting in November 2019 (see GB82). GSSC asked for a meeting which took place March 30, 2021, with Vicente Navarro (ESA/ESAC), Nacho Romero (ESA/ESOC) and CB, ML and WS from EUREF. GSSC is IGS global data center since three years. GSSC is hosting a large portal with several feature, e.g. AI, big data, and JupyterLab. CB: emphasizes one of her main arguments of that meeting to re-direct the potential downloads to the EPN DCs. This has some advantages.

Discussion:

ML: EPN DCs should not be absent. CB: there are three options to proceed with respect to the EPN data: a) EPN data is not discoverable, b) full copy of all EPN data to GSSC, c) data is discoverable at GSSC, but is pointing/re-directing to EPN DCs. She is in favor of c). ML: gives example from Sweden, where large portions of historic data is not online and such large repository could be tempting to some organization. CB: refers to the EPOS philosophy of having data discoverable at a central point but physically storing remains locally.

Action Item to WS: distribute to the GB available material and background information on the GSSC

Action item to all: consider who could be representative from EUREF GB to GSSC board

b. Analysis Centre Coordinator (Liwosz)

Near Real Time (NRT) solutions in hourly basis, several EPN AC providing rapid solutions, focus on existing coordinate solution. 4 ACs provide NRT solutions: ASI, BKG, LPT, and new: SUT. Approx. 170 stations included now. Analysis Centres guidelines need some updates, in particular on Galileo processing, usage of rapid CODE orbits.

Discussion:

CB recommends to send the updated version also to the ACs. EB: agrees with CB, that consultation with ACs should be the first step, prior to GB.

Action Item to TL: distribute proposed update of “Guidelines for the EPN Analysis Centres” to the EPN ACs and afterwards to the GB

c. Reference Frame Coordinator (Legrand)

JL discusses three topics with the GB: a) following an action item of last meeting, the ‘Guidelines for EUREF Densifications’ were finalized, update of corresponding EPN CB web pages necessary; b) station classification tool is online, next accumulated solution C2145 is in preparation; c) European stations in repro3: NYAL, MADR and MAD2 are IGS but excluded from EPN, could be revived again in EPN; 248 EPN stations are in IGS repro3, plus 196 European stations which are not in the EPN, mainly due to TIGA. Maybe that some of these stations could be valuable for “stabilization” of the EPN network.

6. Working Groups

a. WG on EPN Densification

i. Short note on EPND (Kenyeres)

AK announces some new results for EPND, new features on the time series page, e.g. some new plots; on the medium-term, he proposes to include more from JZ's work into the EPND, to distribute the workload.

ii. Update of AC-wise vs. week-wise combination (Zurutuza)

JZ presents his investigations on applying his procedure using weekly contributions of EPN LACs. The weekly contributions considered are from the following EPN LACs: BKG, LPT, and UPA plus the combined EPN weekly solutions, covering approx. three years. Without any data cleaning nor removal, there are three stations with large differences (TAR0, TOR1, and VNS1): they all have 29 weeks only. When these three stations are excluded in a second run the agreement between the AC-wise and the WK-wise solutions, in terms of mean values and rms of the 416 stations, is -0.02 ± 0.02 mm, -0.02 ± 0.02 mm, and 0.03 ± 0.03 mm for the North, East and Up positions respectively and -0.02 ± 0.02 mm/yr, -0.01 ± 0.01 mm/yr, and 0.01 ± 0.03 mm/year for the North, East and Up velocities respectively. There are other stations with short time span, but not showing such large differences in his test. Alignment of AC-wise solution with C2115 accumulated solutions shows three stations exceeding 10 mm the Up component: COMO, INVR, and KIRU.

Discussion:

JL: only translations are estimated to compare JZ solution with the EPN release C2115, but they are huge (e.g. -2.69 mm in X and sub-mm in Y and Z), would be interesting to plot the residuals; JZ says his solution is based in data spanning 3 years span so some differences should be expected w.r.t. to the EPN published values, covering 25 years. AK: most of the job, 90 %, is cleaning the input data (i.e., individual contributions). ML: can we expect more findings when using both approaches? JZ: crucial for some solutions, e.g. when different corrections models for the antennae have been used. JL: weighting of the solutions can have huge impact on the results. AK: weighting is coming from individual SINEX files.

b. WG on deformation modelling (Lidberg)

ML presents a short paper on reformulating or redirecting the WG, which he shortly distributed before the meeting. The important element of his idea is to merge two existing Working Groups, on Dense Velocities and Deformation Modelling.

Discussion:

ZA: maybe there are different outputs from WG on Dense Velocities, and from WG on Deformation Modelling. WS: don't think that it is possible to take any decision today, because for some GB members the proposal might be new. EB: knows the idea of ML and could accept it in case ML is not in favour to replace himself by, e.g. Rebekka Steffen as Chair. WS: proposes to review all WGs on next GB meeting, which would be in agreement with the ToR. CB: merging is not the decision of both WG chairs, but the whole GB.

7. External Interfaces

a. Global Geodetic Centre of Excellence (GGCE, Söhne)

WS gives a short overview on the history of and plans for the GGCE. Shall be installed at the UN Campus in Bonn (Germany). e.g. when different corrections models for the antennae have been used (2021 to 2025), after which a permanent facility could be established. Six persons will work for the GGCE with two of them coming from BKG, plus one person from and in Norway. CB and EB ask for the

distribution of some background material. WS proposes to distribute his summary to the GB. MP proposes some material from the most recent meeting of the Subcommittee of Geodesy (SCoG).

Action Item to WS and MP: distribute to the GB the requested background material for the GGCE²

8. Height

a. European height reference surface (Schwabe, invited guest)

JS recalls the topic on the European height reference surface, in particular motivation, goals, actions. Draft charter has been distributed to GB last October. There was a presentation at the EGU 2021 and, most recently, a virtual meeting this week. He lists some candidates for the potential working group. WS proposes to install a Working Group – no objections.

Action Item to JS: distribute the draft questionnaire on European height reference surface to the GB

Action Item to MS and JS: prepare a resolution for the upcoming symposium on a new Working Group

b. Relaunch of EUVN_DA (Sacher)

MS presents two topics: a) ISO standard 19111 with a new release in 2019 adding some small new items. CRS-EU should become a version 2 following the ISO 19111; b) relaunch of EUVN_DA. The well-known tilt in GB remains. She recalls the significant difference between France and GB of 37 cm, which are revealed from the tunnel measurement. Also, a tilt in France is visible, which is smaller using EVRS2019 but still existing.

Discussion:

CB emphasises that a license is usually assigned by the data provider. Does the agreement on publication automatically include the assignment of a license? The GB is not sure on that. ML: just applying will not hurt, but we do not know. But maybe CC zero, not CC:BY or CC:BY:NA(?). AC asks for the time line for the new EUVN_DA? – MS expects four years from now. JS: web site application is also necessary. Concerning height reference, it also depends on data licenses to national gravity data. EB: about which transformation parameters are we talking? Only those on the CRS-EU web page? EVRS2019 is already in EPSG, did MS ask for the inclusion? – MS: answered some questions of the developers. EB: recommends to ask the countries. AC: what is the improvement of the new geoid w.r.t. the EGG? – JS: refers to GB84 meeting. Rationale for combined geoid model is to provide height transformation surface compatible with EVRF/ETRF (correction surface to EGG08/EUVN_DA shown to give an impression of the impact). Therein, improvement of an own gravimetric solution over EGG would be to include best available input data provided by NMA with official EUREF mandate to replace data collected by H. Denker over decades through scientific cooperation (by chance; personal communication). JS agrees that the GNSS reference frame realizations of the original EUVN_DA datasets were not fully homogenized from today's perspective. He expects significant improvements.

c. European Combined Geodetic Network (ECGN, Söhne)

WS reports from a short communication between Szymon Wajda (Head Office of Geodesy and Cartography, Poland), CB, WS, ML and MP on the importance of ECGN. MP: agrees that ECGN has still some important and interesting features.

² Both done during the same afternoon.

Simply reviving ECGN is not an option but introducing a new initiative. JS's activity could serve as a basis.

9. EUREF Governance

a. EUREF GB membership (Söhne)

CV recalls the initiative of introducing a membership of specific task for coordination of GNSS software development. WS proposes to nominate Rolf Dach for this position and to confirm it at the symposium.

Discussion:

CB has a remark to the title: maybe remove the GNSS analysis from the title? WS asks for acceptance of CVs proposal after small corrections? – No objections.

Action item to CV: distribute slightly corrected version of the proposal for a new position in the GB to GB

b. Strategy and Scientific Plan (Lidberg)

ML distributed the most recent version shortly before the meeting. He reviews the draft content of the strategy with several topics and challenges.

Discussion:

WS hopes that the scientific plan includes also some answers. JS: points to gravimetric data, geopotential numbers, and geoid related work. AC: on the GNSS positioning services, e.g. SSR corrections, with details on the E6 of Galileo. EUREF should play an active part here. CB: discusses the IAG symposium and the session on regional references frames. Should include also technical work and improvement. ML: asks for indication and contribution to the IAG mid-term report, which has deadline May 10! CB confirms this.

Action Item to All: consider contribution to the IAG Scientific Assembly (deadline for abstracts extended to May 07)

Action Item to All: contribute to the IAG mid-term report (send contributions to ML until May 10 morning!)

c. Memoranda of Understanding (Lidberg, Söhne)

Following the discussion of last GB meeting on a EUREF-EPOS MoU WS prepared a new version, sent to CB and ML. CB proposed several activities. New version with merging of both is still open. WS prepared a MoU between EUREF and BEV, which was discussed with BEV colleagues Martin Sehnal, David Mayer and Franz Blauensteiner. Latest version to be discussed in BEV with head of BEV.

Action Item to ML and WS: prepare an updated version of the EUREF-EPOS MoU and distribute to the GB

10. AOB

a. Next GB meeting(s) (all)

For the fall meeting(s), KK will set up a doodle right in time.

PARTICIPANTS

Excused: Rosa Pacione

Excused for 1st part: Christof Völksen

Invited for 1st part (and 2nd part if necessary): Klemen Medved, Sandi Berk

Invited for 2nd part: Joachim Schwabe

Invited: Andrzej Araszkiwicz, Rolf Dach, Joaquin Zurutuza

