

14th Consortium Board meeting of TCS GNSS Data & Products

24 September 2025, 08:30-18:00 (UTC+1)

25 September 2025, 08:30 -13:00 (UTC+1)

Present:

Voting members:

Ambrus Kenyeres (LTK)
Anne Socquet (CNRS-UGA)
Antonio Avallone (INGV)
David Zuliani (OGS)
Martin Lidberg (LM)
Rui Fernandes (UBI-C4G) – *CB Chairman*
Tomasz Liwosz (WUT)
Wolfgang Soehne (BKG)
(Online)
Carine Bruyninx (ROB)
Karin Kollo (MaRu)
Mathilde Vergnolle (CNRS-OCA)

Non-voting members:

Gaël Janex (CNRS-UGA)
Holger Steffen (LM)
Jeffrey Freymueller (MSU-USA)
João Lima (UBI-C4G)
José Antonio Sánchez Sobrino (IGN)
Juliette Legrand (ROB)
Luís Carvalho (UBI-C4G)
Paul Crocker (UBI-C4G)
Simone Galvi (OGS)
Eric Marin-Lamellet (CNRS-OCA)

New Actions:

Action	Responsible	Task
14-1	João Lima, Rui	Distribute the new web content to the partners for commenting. Deadline: October 15.
14-2	Jean-Luc	Lead the discussions with NOA and DGW to implement new station names and rename the RINEX files for the three Bulgarian stations.
14-3	Rui, Fernando	Update the products portal to allow users to filter offsets by date, event, or station.
14-4	Karin Kollo	Report the CB meeting minutes to the Data Providers Committee and engage more with them.
14-5	Jeff Freymuller	Select the most important questions raised by the members and forward them to the User Feedback Group for input.
14-6a	Mathilde	Write a formal announcement to the CB for her with withdrawal
14-6b	Rui, CB	Write a formal acknowledgment to the Directors of OCA and EPOS France about Mathilde leaving, noting there is no replacement and the position is open. Then ask EPOS France about the consequences and replacement plans.
14-7	Rui, João	Organize webinars and short meetings on scientific and technical topics, 1–2 hours each, to be held 3–4 times per year.
14-8	Rui	Invite Nikolay Dimitrov to be the Co-Chair of the Data Provider Committee, for him to be able to participate CB meetings without signing the Consortium Agreement. Ask Nikolay to contribute with fostering contributions from the Balkan region.
14-9	Rui	Rui will represent EPOS in the discussions with EarthScope and GFZ regarding TileDB, focusing on the standardization of file usage.
14-10	Jean Luc	Organize a discussion about the EPOS-GNSS provider license during the next software meeting, taking in account the EPOS data policy on licensing.
14-11	Antonio	INGV to provide dedicated solutions based on EPOS data and metadata, rather than a global solution.
14-12	Ambrus	Decrease the delay for combined solutions in the EPOS products portal to less than one year.
14-13	Rui	Coordinate EPOS-GNSS group participation in the next EPOS Days with Lili. Once further details are available, Rui will distribute the information to all members.
14-14	Rui	Investigate if the members can declare node maintenance costs in the Costbook.

Start of meeting: 08:34

The meeting began with a welcome and introduction by the Observatory Director. In her presentation she said there are 25 OSUs in France, with 4 sites located in the French Alps,

shared between two universities. The national and local missions include research, observation, numerical analysis, training, and communication.

Regarding GNSS-EPOS, OSUG operates observation sites and manages 15 permanent stations in the Alps. They are responsible for GNSS products and for the double-difference processing within EPOS-GNSS.

Review of the Agenda: 08:50

Rui explained that this meeting will be divided into presentations during the morning, divided by topics with presentations. Rui will start with topic 1 and they are going to skip topic 2 and 3 to topic 4 by Carine.

Part A – Presentations by the different coordinators with the current status

Topic 1 – Governance & Outreach [RF]

Rui opened the session with an update on the status of action items from past CB meetings. All items from the 13th meeting have been completed, while a few from the 12th meeting (September 2024) remain in progress. He noted that discussions with IMO are ongoing to move forward with the inclusion of their data as a new node. The renewal of the User Feedback Group is still pending and requires attention, and the strategic plan for incorporating new members will be addressed later in the meeting.

The first topic concerned the updated Consortium Agreement, which has officially welcomed four new partners into the project: CNIG, OGS, LRU, and NOA. The agreement was amended in July 2025 to reflect on these changes. Rui also gave a short update on MYCA.

On outreach, João Lima was hired in March 2025 to replace Gabriela Batti, taking over responsibility for updating and producing content for the EPOS-GNSS portal and revitalizing the YouTube channel. For now, YouTube will be the main focus of social media activity, as it is seen as the most effective platform. The EPOS-GNSS landing page is scheduled to be updated by the end of October, with new content and a refreshed design. Members will have the opportunity to provide input on the website before its official launch.

New action item:

Action	Responsible	Task
14-1	João Lima, Rui	Distribute the new web content to the partners for commenting. Deadline: October 15.

Topic 4 – Station network [CB]

Carine presented the updates regarding the EPOS-GNSS station network. A significant development is the addition of more than 123 new GNSS stations whose owners have agreed to share and redistribute their data through EPOS. In addition, approximately 60 further stations are expected to join soon.

She reported on the EUREF Symposium, held in Covilhã, Portugal, preceded by an Analysis Workshop. The symposium featured a keynote presentation by the EPOS Executive Director, Lilli Freda, as well as a presentation from Rui, and led to the adoption of new EUREF resolutions.

She explained that the EPOS guidelines were updated to reflect that EPOS now accepts all EPN stations into the EPOS-GNSS network, align EPOS requirements with the EUREF and IGS requirements (adoption of RINEX 4, atx files, compressed .gz format), and introduce the correct name of the DQMS in the guidelines. Station managers were also asked to react to data quality alarm emails issued by the DQMS.

As of September 2025, according to M3G, the EPOS network includes 2,162 EPOS stations. Metadata recommendations for minting DOIs of geodetic GNSS data were published on 29 August 2025 by GGOS (Global Geodetic Observing System).

Carine also mentioned the ROB collaboration with ICS regarding DOIs. Organizations providing data or services to EPOS but unable to mint themselves DOIs can get support from EPOS ERIC through ROB. This initiative also links directly to the new EPOS data policy, emphasizing the need for FAIR-aligned web services.

A specific issue was raised regarding the naming of Bulgarian stations. The station manager proposed renaming existing EPOS-GNSS stations, and after consultation with NOA and the DGW, an agreement was reached to apply the change only to KARJ00BGR. Ambrus pointed out that new station names already exist with DOMES numbers at IERS and argued that only these updated names should be used.

This led to a broader discussion. Antonio suggested that the “00” in station names is obsolete and could be replaced with “01” without disruption. Rui countered that many of the tools rely on RINEX naming conventions, making the change problematic. Jeff noted that both solutions carry risks, while Ambrus highlighted that although either option will cause difficulties, adopting the new names may create fewer problems in the long term. Jeff added that while name changes could initially affect processing and products, they would be more sustainable moving forward. Rui acknowledged that changing names is not ideal, but in this case, it could prevent conflicts with existing stations.

Decision: The group agreed to adopt the new station names and proceed with renaming the RINEX files of the three Bulgarian stations in EPOS. No objections were raised.

Juliette stressed that any decision on how to proceed should involve further discussion with NOA and DGW. And the Node Coordinator will organize a meeting with NOA to see how to move on.

New Action:

Action	Responsible	Task
14-2	Jean-Luc	Lead and manage the discussion with NOA and DGW about the implementation of the new station names and rename RINEX files of the 3 Bulgarian stations.

Topic 5 – DQMS status [JL]

Juliette gave a brief report and began by summarizing the recent tour of the nodes, including its timeline and the issues observed with metadata and unprocessed files. She provided updates on additional or corrected files submitted since September 2024.

Regarding data quality, she explained that alarms are automatically triggered when degradations are detected, though notification emails are only sent after human verification. Since the last CB meeting, around 50 such alarms have been issued.

Juliette also highlighted the situation of historical RINEX data, noting that some nodes are still in the process of populating it. She compared the expected metadata for stations with the historical data currently available, underlining the discrepancies.

In her conclusion, Juliette reported that most of the problems affecting the nodes have been resolved. Data quality alarms are working as intended, and the main remaining challenge lies with the completion of historical data uploads.

A short discussion followed. Antonio stressed the importance of ensuring more historical data is provided. It was also mentioned that in some cases, stations may have stopped delivering data without this being properly logged. This can make the discrepancy between expected and available data appear larger than it is. Such stations are technically still considered active but in reality, provide no data, which needs to be addressed.

Topic 8 – Products Portal status [RF]

Rui presented the updates on the Products Portal, which are coordinated by Fernando. Several improvements have been introduced, particularly in the handling of time series. The time series map was updated and now includes a corresponding table. Static images were added to better illustrate the solutions, and direct links to specific products are now available. Users can also make external requests to obtain URLs for a specific station. Similar improvements were applied to velocities, with direct access links implemented.

New product descriptions have been added, including references to the official EPOS analysis and combination centers. Access to the API has also been enhanced: the Swagger interface now provides more detailed information at the endpoints, including release versions, notes, and usage examples. In the repository, users are now able to select multiple files for download. The user profile layout has been redesigned, and a notification system alerts users if the portal is under maintenance.

On the back-office side, emails are now sent to the Analysis Centers with information regarding the processing of uploaded files (time series and velocities).

During the discussion, Anne suggested that it would be useful to allow selection of offsets by date, event, or station. She also asked if it would be possible to introduce new color schemes for the static images.

New Action Item:

Action	Responsible	Task
14-3	Rui, Fernando	Update the products portal to allow users to filter offsets by date, event, or station.

Topic 7 – Product status [AS]

Anne introduced the updates on secular velocities and offsets, providing an overview of the current status of EPOS products, including EPOS, EUREF and EPOS-EUREF solutions and STRAIN.

Gaël reported on the last full reprocessing, completed in June 2024 after several months of work. Some RINEX solutions were still missing. Following this reprocessing, about four months of RINEX files were published, with a six-month delay. He also mentioned occasional issues with the availability of UGA-CRNS products, including delays in d+25 processing, remaining problems in d+2 processing, and sites where RINEX files were published too late to be included.

Juliette presented the status of the ROB–EUREF multi-year reference frame solution. The current solution is a hybrid cumulative one, but she is now working on the repro3 cumulative solution (C2370), based on daily combined solutions. She reported 46 stations with velocity changes in C2370, and 18 stations with velocity changes in C2235 and asked to re-open a discussion about the possibility to provide several velocities associated with a period of validity for a station.

Anne then returned to the EPOS solutions update. Ambrus complemented this with information on the EPND/D2237 solution in IGS14, published in mid-2023, and the availability of the UGA Pan-European solution up to week 2375, still in IGS14. He noted that the continuation of EPND in Repro3 is progressing positively, although there are still difficulties in some countries, such as France (capacity issues at IGN), Italy, and parts of the Balkans.

Gaël described the GipsyX processing status, noting the transition to the latest version and adoption of IGS20. Tests were completed, a processing configuration has been defined, and the workflow has improved by using only the latest published RINEX files per site and day. They are also transitioning RINEX2 files to RINEX3 conventions for full processing. Gaël highlighted internal improvements, including maintaining a new site solution file with

metadata to ensure reproducibility. Historical data are expected to be fully reprocessed by November 2025.

Anne then discussed the planned Gamit solution at INGV. Antonio added details, explaining that a switch to GAMIT/GLOBK processing is possible but requires time to adapt to EPOS needs. INGV's Mediterranean GNSS Archive (MGA) recently completed a GPS analysis with automatic subnetworks and GLOBK combination in the Igb20 reference frame. Time series modeling was based on standard linear trajectories, and a comparison with GipsyX processing of the same dataset showed that seasonal signals and extended parameters did not significantly affect secular velocity estimations. INGV is preparing a full reanalysis of EPOS stations with GAMIT/GLOBK, using IGS Repro3 guidelines from 1994 to 2025, with metadata sourced from EPOS M3G.

Anne pointed out that the main issue with strain products is methodological and emphasized the need for a dedicated methodology effort. She posed the question of whether the current solution is appropriate for EPOS, leaving this for further discussion in the afternoon.

From the user perspective, Jeff suggested that, since multiple velocity solutions are available, it could be useful to provide a combined strain-rate product. This would simplify usage, as most users prefer a single, consolidated velocity field rather than having to choose between several solutions.

Topic 2 and 3– Data Gateway and GLASS Nodes [MV]

Mathilde presented the status of the Data Gateway, which now contains 1,596 stations with at least 3.5 years of data. The number of available stations and files continues to grow, with an increase of 6% in stations and 20% in files over the past 12 months. Currently, 12 local nodes contribute data, with the two Pan-European nodes hosting 42% of the total stations. Four nodes now manage more than one million files, and another is close to reaching this mark.

She reported that the Data Gateway web service had an increasing traffic, averaging about 4,000 visits per month over the past year, mostly from users in the USA, Europe, and Asia which remains stable. A new web client was deployed in April 2025, after intensive testing by OCA and further testing by UBI and the SONEL node. This new client offers easier

configuration and personalization, simplified addition of pages and functionalities, and improved deployment.

Regarding node status, both new and older nodes are operating nominally, including SONEL and CEGNxEPOS. The Romanian node has undergone a full reset, with population in progress and about 50% of stations integrated. Mathilde recommended that DGW and DQMS continues to closely follow-up this node. The Icelandic node (IMO) has progressed slowly, despite meetings and email exchanges; while the node is installed and metadata are expected to be clean, the population of data will depend on IMO's availability to dedicate time. For Bulgaria, thanks to fruitful discussions between the different parties (Bulgaria, NOA, DGW), the question of a dedicated node is solved. The current decision is that the stations and data will be distributed through the NOA node.

Mathilde also explained the transition from FTP to HTTPS for data distribution, with the aim of discontinuing FTP entirely by September 2025.

She presented new tools for node and Data Gateway management, such as the EPOS-GNSS Docker Tool, which allows developers and testers to easily install EPOS-GNSS software in a Docker container, improving automation and monitoring for high-rate data files.

On high-rate data, she reported that three nodes are currently distributing 1Hz files (IRN, the French node, and NOA, plus DGW). Synchronization, automation, and monitoring at DGW have been validated. Two new ICS services were also tested and validated, including Command Line Client functionality.

She provided updates on data integration: at IRN, 10 stations (an increase of 5) with 94–99% completeness, totaling around 137,700 files; at NOA node, 19 stations (+16) with very good completeness statistics but (short and) variable data range, and at the French node, 80 stations (an increase of 79), covering all RENAG stations with high-rate data and reaching 96% completeness.

The presentation concluded with a discussion on which high-rate data should be made available, notably in term of periods. The system is ready to host HR data but issues will come from storing the HR data on disk accessible through https. It thus raised questions of populating the old data or not, letting access to old data as the seismology communities does (specific request to be handle manually), ... Consequently, future discussion about HR data

will have to consider resource and management issues associated with handling this type of data.

Topic 9 – EPOS Ethics Working Group [WS]

Wolfgang provided an update on the recent meetings and the ongoing work of the Ethics Working Group. He has already sent the updated EPOS ERIC Code of Ethics to the Consortium Board Mailing list.

Topic 10 – DPC status [KK]

Karin made a quick commentary saying that the Data Providers Committee is working fine. Aside from this she doesn't have a lot of information, as she was not yet on the mailing list.

New Action Item

Action	Responsible	Task
14-4	Karin Kollo	Report the CB meeting minutes to the Data Providers Committee and engage more with them.

Topic 11 – UFG status [JF]

Jeff opened the discussion by stressing the importance of refreshing the User Feedback Group with new commitments, noting that six people have already agreed to participate. He emphasized the need to energize the group with specific, targeted questions that could drive meaningful engagement. Products appeared as a natural focus, and Jeff suggested both backward-looking questions about existing products and forward-looking ones about new developments, such as PPP solutions and the latency requirements for network and combined solutions. He also raised the possibility of involving the UFG in broader issues, such as site name conflicts.

This initiated a wider discussion among members about what they most want to learn from users. Questions raised included product quality, recommendations for improvements, and whether automatic or unchecked solutions should be uploaded. The debate also touched on the multiplicity of velocity solutions and how to handle transients or periodic signals, the adequacy of current data formats, and the usability of the Product Portal (including whether features like plotting offsets should be added). Members also explored the needs of different

types of users, from those seeking raw data to those preferring processed products, as well as whether EPOS products are preferable to other alternatives like NGL.

Further questions concerned the handling of 1Hz and real-time data, user expectations regarding tools for pre- and post-processing, the clarity of license conditions, and the integration or linking of external tools, such as those for RINEX editing. There was also discussion about usage of GLASS and PyGLASS, how to improve communication of products to a broader audience, and what future developments or functionalities should be considered.

In conclusion, Jeff will take responsibility for selecting the most important questions raised by members and putting them forward to the User Feedback Group, with the goal of revitalizing the group and ensuring it provides valuable insights for EPOS.

New Action Item

Action	Responsible	Task
14-5	Jeff Freymuller	Select the most important questions raised by the members and forward them to the User Feedback Group for input.

Topic 6 – M3G status [CB]

already presented in “Topic 4 – Station network”

Topic 12 and 13 – GLASS software and ICS-TCS Iterations [JL, LC, JM, PC]

Juliette presented the current status of the GLASS system and its ongoing developments. She highlighted that the new database for files and QC are done, with file insertion into the new database already in place. QC is now being validated within this database, and the part of the database dedicated to station metadata is still in progress.

Luis made a presentation regarding the Jupyter notebook, Gaël provided a Jupyter notebook, but we are looking for more examples of Jupyter Notebook using the GNSS TCS services. He invited user to contact the team directly to provide Jupyter notebook.

On training, no significant progress has been made yet.

Regarding the backoffice, testing continues in the staging environment. In terms of services, a new GNSS station metadata service has been moved into facilities operations, with ongoing improvements to the information it provides.

A new service from INGV for GNSS position time series offsets is prepared to be deployed.

The team is also reviewing how best to make use of linking services.

The linking services option itself will only become fully available by the end of 2026, though a testing link is already provided. Juliette emphasized that the TCS should define clearly how it wishes to connect the different services.

On vocabulary, the list has been revised by Juliette and Luis has implemented it in the turtle file, unfortunately, they have not been deployed yet at the ICS. Both Juliette and Luis are following the issue. The implementation needs to be evaluated further.

Juliette concluded by explaining that it is now possible to have links outside of the ICS. It is a huge change compared to the previous status, where it wasn't possible to provide any url outside of the ICS eco system. The challenge is now how to use this new possibility in the best way. This is under investigation within the software group.

Part B – Open Discussions towards Decisions

Topic 1 – Governance & Outreach

B.1.1 Election of the new Chair of the Executive Board [RF]

Carine had previously announced that she will step down as Chair of the EB by the end of the year. As no other members expressed interest in taking the position, Rui invited Holger Steffen to assume the role, and Holger accepted. To enable this change, Martin Lidberg is replaced by Holger Steffen as the representative of LM in the Consortium Board. After that, Holger could then officially be nominated for the position of chair of the EB. The CB agreed unanimously with the appointment of Holger as chair of the EB on Jan. 1st, 2026.

B.1.2 TCS Representation in SCC [RF]

Carine, who has been serving as the TCS representative in the SCC, proposed that this responsibility be transferred to the Chair of the Executive Board. The proposal was agreed without objections.

B.1.3 – The status of the management at OCA with respect to EPOS-GNSS [MV]

Mathilde confirmed that she will leave EPOS-GNSS at the end of September, as previously announced. While the technical team at OCA remains active and fully operational, the search for a local successor at GéoAzur and within the French GNSS community has not been successful. Over the past year, announcements were made across national infrastructures and institutions, and efforts have focused on preparing candidates for national competitions.

One of the main opportunities is the “Junior Professor Chair” position, focused on AI for Earth Sciences, with interviews scheduled in November. Ten candidates applied, at least four of them with a GNSS component. If successful, the position should officially start by the end of December 2025.

During the discussion, Rui asked whether a concrete successor would be in place by the end of November, whether the role would be tied to EPOS responsibilities, and what OCA’s contingency plan might be, considering EPOS-GNSS depends on some OCA services. Anne suggested that the Consortium Board should formally acknowledge Mathilde’s departure and the current lack of replacement, while requesting clarification from OCA and EPOS France on the consequences and the plan moving forward. It was reminded the Board that the consortium agreement is between organizations and not individuals, and that OCA must explain how it will address the issue. Rui proposed avoiding a direct ultimatum but agreed on a formal announcement, followed by a reaction from the group. Jeff referred to this as a “friendly ultimatum”.

It was agreed that Mathilde sends a letter of formal resignation as representant of CNRS-OCA to the Consortium Board and Rui, for the CB, will prepare a letter to the directors of OCA and EPOS France, formally acknowledging Mathilde’s departure, noting the absence of a replacement, and asking EPOS France to clarify the implications and next steps.

New Action Item

Action	Responsible	Task
14-6a	Mathilde	Write a formal announcement to the CB for her with withdrawal
14-6b	Rui, CB	Write a formal acknowledgment to the Directors of OCA and EPOS France about Mathilde leaving, noting there is no replacement and the position is open. Then ask EPOS France about the consequences and replacement plans.

B.1.4 – TCS Budget for 2026, particularly the costs related with the organization of the annual CB meeting [RF]

Rui asked Carine whether any major differences should be expected in the budget for 2026. Carine explained that overall resources will be slightly reduced due to the withdrawal of the UK from EPOS, although this will be partly compensated for our TCS by the fact that we now have more members in our consortium. She will have more details to report after the SCC meeting that will be held Oct.1-2.

Rui reported that the cost of organizing this year’s CB meeting was around €10,900, which underlines the need for careful discussion on next year’s budget allocation. Carine also noted the imbalance in participation, with four representatives from UBI compared to only one from other organizations, describing this situation as difficult to justify.

Anne suggested that the travel budget could be divided directly among the members, but Rui clarified that this approach was not feasible. He stressed that the funds currently allocated for organizing the CB meetings are insufficient, and that adjustments will need to be considered for the next financial year.

B.1.5 – Collaboration with EUREF: renewal of the MoU and discussion of the 2026–2027 work plan [CB]

Carine reminded the members that the Memorandum of Understanding (MoU) between EPOS and EUREF has a duration of three years only, at insistence of the Executive Director, and is now up for renewal. She has prepared a proposal for the renewed MoU as well as more detailed associated Work Plan. The Work Plan addresses specific tasks and deliverables for the period 2026-2028, while the MoU covers the broader framework of collaboration and applies not only to EPOS-GNSS but to the whole of EPOS.

Carine already circulated the draft of the renewed MoU and Work Plan to the CB before the CB meeting and invites the CB members to provide feedback and comments before she sends the draft documents to the EUREF Governing Board for iteration.

B.1.6 – Organization of a training session about using the data portal, product portal, and the analysis software [MV]

Mathilde proposed the organization of a new training session on the use of the data portal, recalling the summer school organized by Anne and Thanassis last year, which had been very well received. She suggested holding a similar event before September 2026 and asked who would be willing to take part of such training that could include trainings on the 2 to 4 portals for discovery of data, products and their metadata, plus analysis session and scientific talks related to a pan-European project (strain talk proposed by Anne by e-mail for example). It could be a 2-day online meeting.

Anne supported the idea, emphasizing that an online training session covering research, the portals, and the products would be very useful. There was discussion on whether the organization should take place at the EPOS level or under Geo-Inquire.

Rui then proposed complementing this with a series of webinars and short technical meetings on more scientific aspects of the project. These would be short, lasting one to two hours and could take place three or four times a year.

Both proposals were well received, with no opposition from the members. However, it was concluded that organizing a 2-day event requires resources that we do not have. Thus, a series of webinars that could include either scientific presentation or short technical meetings was the preferred option for 2026.

New Action Item

Action	Responsible	Task
14-7	Rui, João	Organize webinars and short meetings on scientific and technical topics, 1–2 hours each, to be held 3–4 times per year.

Topic 2 – Data Gateway

B.2.1 – New Node for Bulgaria GNSS Network [RF]

It was agreed that there will be no new Bulgarian Node, with data instead being disseminated by NOA. However, the Bulgarian colleagues may become new partners in the Consortium Agreement. This discussion linked back to earlier debates on the criteria for including new partners. Rui emphasized that bringing in partners from different countries is important for the project's scope. He discussed this with Lili, who agreed, although she also highlighted the tension between expanding membership and the reduced budget.

There was also a past request from Polish colleagues to join, but that initiative did not move forward due to the lack of new services. The general criteria for new members continue to include the number of partners and their contributions.

Dimitri's presentation was sent to Rui, showing that the Department of Geodesy maintains the Bulgarian national permanent GNSS network and is prepared to contribute all data from their permanent stations for processing. Ambrus noted that Bulgaria is part of the Balkans, a region rich in GNSS data, and encouraged inviting other countries from the region as well. Antonio expressed support for Bulgaria's inclusion, while recognizing the contradiction with the budgetary constraints. Rui stressed that financial limitations should not prevent the consideration of new partners.

As an interim solution regarding consortium membership, Carine proposed inviting Nikolay Dimitrov to take on the role of Co-Chair of the Data Provider Committee, thereby allowing him to participate in Consortium Board meetings without delay.

Decision: Invite Nikolay Dimitrov to be Co-Chair of the Data Provider Committee, enabling his participation in CB meetings without requiring Bulgaria's formal accession at this stage.

New Action Item

Action	Responsible	Task
14-8	Rui	Invite Nikolay Dimitrov to be the Co-Chair of the Data Provider Committee, for him to be able to participate CB meetings without signing the Consortium Agreement.

End of First Day – 17:40

Start of Second Day (Thursday Morning): 08:35

B.2.2 – Role of EPOS-GNSS in the standardization of TileDB for storage and distribution of GNSS data [RF]

Rui introduced TileDB as an alternative approach to storing GNSS observations. Traditionally, GNSS data is stored in RINEX files, but there has been ongoing interest in exploring more efficient formats for storage and dissemination. TileDB, designed for large sparse arrays, has emerged as a promising option. Both EarthScope and GFZ are already adopting TileDB for their data and are in the process of migrating all historical data into this format.

A current challenge is that the database definitions are not standardized. Although EarthScope and GFZ are storing the same type of GNSS data, their implementations differ. This lack of alignment risks fragmentation. During the IEG meetings, EarthScope expressed interest in collaborating with EPOS on the standardization of TileDB definitions. Rui stressed that, at this stage, the key objective is to work toward standardization, while the longer-term ambition is that TileDB could eventually replace RINEX as the default storage format.

Jeff underlined the advantages of TileDB, and Antonio agreed it represents the way forward, not least for strengthening ties between EPOS and the U.S. Rui emphasized that, for now, the focus must remain on the standardization process rather than immediate implementation.

Carine asked for clarification on EPOS's formal position in this matter, and Rui proposed that he represents EPOS-GNSS in the ongoing discussions with EarthScope and GFZ. The group agreed.

New Action Item:

Action	Responsible	Task
14-9	Rui	Rui will represent EPOS-GNSS in the discussions with EarthScope and GFZ regarding TileDB, focusing on the standardization of file usage.

Topic 3 – GLASS Nodes [JM]

B.3.1 – Choosing and applying a license for the EPOS-GNSS Software [MV]

Mathilde presented the current situation regarding the GitLab repository for the Software: the software is not licensed, which complicates its legal distribution, especially to non-EPOS-

GNSS members. To address this, she proposed adopting an open-source license, suggesting either GPLv3 or AGPLv3 as suitable options.

Carine pointed out that EPOS already recommends licenses for software in the draft EPOS data policy that she distributed to the CB on 24/09. She advised to check this data policy before proceeding. Geo-Inquire also works on licensing software and tools. Mathilde agreed. It was suggested to report back to Carine before October 1st when the new EPOS data policy will be submitted to the SCC for approval.

It was decided that the discussion should be taken to the Software Group, with Jean-Luc leading the process.

New Action Item

Action	Responsible	Task
14-10	Jean Luc	Organize a discussion about the EPOS-GNSS GLASS software license during the software meeting, taking in account the EPOS data policy on licensing.

[Topic 7 – Product status \[AS\]](#)

[B.7.1 – Acceptance of solutions \(time-series, velocities, strain-rates\) from other providers not in the CA \[RF\]](#)

The discussion centered on the possibility of including INGV solutions within EPOS-GNSS. INGV suggested extracting their larger-scale solution, which Antonio explained could be adapted for EPOS purposes. While the main issue has been the lack of historical data, he noted that this gap is narrowing as more data becomes available, and he sees no problem in providing a solution based on EPOS data and metadata.

Rui highlighted that since INGV is not currently producing a dedicated EPOS solution, two paths exist: either INGV creates one specifically for EPOS or continues to use their existing solution and makes it available for redistribution through EPOS. Jeff added that as long as INGV uses data from EPOS stations, there should be no objection to distributing their solution.

Juliette suggested that INGV should publish its solution as it is, given the large volume of data, and make it accessible through the EPOS portal, even if not strictly dedicated to EPOS. Antonio clarified that he was not proposing a global solution, but rather one focused on EPOS stations only.

In conclusion, it was agreed that Antonio will provide solutions based solely on EPOS data and metadata, ensuring compatibility and consistency with EPOS requirements.

New Action Item

Action	Responsible	Task
14-11	Antonio	INGV to provide dedicated solutions based on EPOS data and metadata, rather than a global solution.

B.7.2 – Periodicity of the upgrade of the solutions [RF]

There was a discussion about the periodicity of solutions available in the EPOS Products Portal, with some solutions currently having a delay of up to three years, which was considered problematic. The members agreed that the situation should be improved, with the objective of ensuring that solutions are updated more regularly and remain useful for the community.

It was agreed that solutions should have less than a one-year delay. Because of the ongoing repro3 in the national networks the new EPND combination is pending since 2023, but after completion of repro3 Ambrus will also be able to reduce the delay in future updates.

New Action Item

Action	Responsible	Task
14-12	Ambrus	Decrease the delay for combined solutions in the EPOS products portal to less than one year.

Topic 11 – UFG status [JF]

B.11.1 – Endorsement of the new members of the UFG committee [RF]

There were no objections to the new names:

- Jeff Freymueller (USA)
- Halfdan Pascal Kierulf (NOR)
- Philippe Vernant (FRA)
- Mattia Crespi (ITA)
- Semih Ergintav (TUR)
- Jose Antonio Tarrío Mosquera (CHL)
- Andrea Walpersdorf (FRA)

Part C – Other Points

C.1 – Next Meetings [RF]

The next *EPOS Days* will take place in March 16-20, 2026 in Cagliari. Rui will coordinate EPOS-GNSS group participation with Lili. He emphasized the importance of involving younger scientists and students. Once further details are available, Rui will distribute the information to all members.

The next Consortium Board meeting will be hosted by LM in 2026. Martin suggested holding it in connection with other meetings (GGOS and IAG) in October (8-9 October), or alternatively before those meetings on 24-25 September.

Carine noted that Guy Wöppelmann always teaches courses in September and October and suggested that the group consult with him to determine the most suitable timing.

New Action Item

Action	Responsible	Task
14-13	Rui	Coordinate EPOS-GNSS group participation in the next EPOS Days with Lili. Once further details are available, Rui will distribute the information to all members.

C.2 – Other Businesses [ALL]

Juliette suggested clarifying the description of the products (position time series as well as velocities) in the EPOS ICS portal, particularly to make the difference between the different solutions more explicit, explaining the advantages of each solutions to help the user decide which solution is the best choice for them. Anne proposed adding a link to the full description.

Antonio confirmed he has sent the DOI to Luis by email.

Rui informed that the TCS (Thematic Core Services) costbook for 2024–2028 needs to be checked, as it is important to present it at the EPOS General Assembly. He presented the declared costs of EPOS-related work by organization, totaling **1,367,070 €**. Compared to other TCS, this is considered a good value.

It was noted that new members will also have the chance to share their costs.

A question was raised about whether node maintenance costs can be declared in the costbook, since MYCA cannot be used for node-related costs. Rui will investigate on this matter.

New Action Item

Action	Responsible	Task
14-14	Rui	Investigate if the members can declare node maintenance costs in the Costbook.

End of meeting at 11:58.