

45th Directing Board Ersatz Meeting I – Minutes

Location: 2-hour Zoom meeting
Date: 30 September 2021
Note taker: Dirk Behrend
Version history: 4 November 2021

Attending Board members: Rüdiger Haas (Chair), James Anderson, Dirk Behrend, Johannes Böhm, Patrick Charlot, Alet de Witt, John Gipson, David Hall, Hayo Hase, Nancy Kotary, Chet Ruszczuk, Nadia Shuygina, Yu Takagi, Oleg Titov, Pablo de Vicente, Stuart Weston.

Excused: Gino Tuccari.

1. Welcome and approval of agenda

Rüdiger Haas welcomed the attending Board members. The Board approved the agenda for the ersatz meeting. The Board observed a minute of silence for the passing of Tom Clark.

2. Report/news from the recent IVS Analysis Workshop

The recent Analysis Workshop (AW) had a high attendance. It was requested to have a higher cadence for the AWs; going forward a workshop may be organized twice a year. The combination center was about to submit the final solution of the IVS contribution to ITRF2020 to Zuheir Altamimi. Claudia Flohrer proposed an augmented EOP format; the goal is to have the changeover shortly after January 1, 2022. It is foreseen to drop the hashtags for the header lines. For the EOP parameterization/representation changes to *Solve* were suggested. Back-channel discussions were ongoing between Axel Nothnagel and Leonid Petrov, who opposes the changes.

Chris Dieck presented a draft of an updated vgosDB naming scheme. The current scheme has difficulties handling several sessions per day or several processing runs of the same session. Considering that a change has major implications, the new scheme should be introduced with sufficient lead time and at the change of the year; a reasonable target date is December 31, 2022.

In a debriefing with the analysis community after the AW, the analysis centers stated about the ITRF2020 determination that they were not comfortable with the non-tidal loading situation and that they would like better communication with and more involvement of the ACs in the process.

3. IVS Web presence, press activities, ITRF2020 certificates

NASA is in the process of overhauling the web presence of the entire agency. The IVS website is planned to piggyback on the process as well as some of the resources. Since the last DB meeting, the components' pages of the analysis centers and data centers were updated. A new design for

the IVS Newsletter was presented; the plan was to use the new design starting with the December issue.

There was some internal discussion in the task group on the ITRF2020 certification. Once agreement is reached, the group will prepare certificates for the individual components.

4. Membership of VTC, CTE, and OPC

The CTE provided a preliminary list of members for the committee based on the list of the past. It was recommended to expand the list to fill gaps in underrepresented areas. In the OPC, Saho Matsumoto will substitute for Yu Takagi for the next half year while Takagi-san is in Antarctica.

5. VGOS scheduling recommendations

The VTC subgroup on source structure presented their written report with recommendations on VGOS scheduling (more even distribution of observations, three or more stations per scan). An expanded version of the report is planned to be published in a peer-reviewed journal.

6. Network and data DOIs

Takagi-san and Glenda Coetzer (HartRAO) prepared an inventory list of IVS-specific data and product types; they sent the list to Axel Nothnagel and Dirk to give feedback. Stuart (together with Alet, Axel, and Dirk) commenced work on a paper in Data Science journal.

7. Spectrum Management

The use of the electro-magnetic spectrum is regulated internationally by the ITU-R (International Telecommunications Union, Radiocommunication Section) and implemented on the country level by national spectrum authorities. While the ITU-R provides guidelines to the national authorities, it does not protect a global network of frequency users. The national spectrum authorities may provide frequency protection by coordinating competing uses of the spectrum in their respective countries.

The passive use of cosmic radiation is categorized as “radio astronomy service” (RAS); VLBI is recognized as an RAS method. Of the spectral range used in geodetic VLBI, a few spectral bands are allocated to RAS usage. From the point-of-view of spectrum administration, geodetic VLBI can use frequencies in the range from 2 GHz to 14 GHz as long as no interference is caused to primary and secondary allocated services.

In order to protect geodetic observatories against RFI, several strategic goals were staked out: (1) Cooperate with CRAF (European Committee on Radio Astronomy Frequencies); (2) Raise awareness of the frequency protection need for the geodetic VLBI sites; (3) Create a reference

document on “Geodetic VLBI” at ITU-R; and (4) Seek support from umbrella organizations. The eventual aim is to obtain local protection of the global geodetic VLBI network sites by the Radio Regulations, which entails a corresponding agenda item in the WRC2031 (World Radio Conference 2031).

For the ITU-R reference document, a Question on Geodetic VLBI was submitted to and accepted by ITU-R Study Group 7 (Science Services) on September 7, 2021. A resulting study is to be completed by 2027. A Report on Geodetic VLBI as an answer to the Question on Geodetic VLBI was drafted by Working Party 7D’s Correspondence Group, which is chaired by Hayo; the next delivery date is April 1, 2022. Hayo requested feedback on the document.

The IAU XXXI General Assembly adopted Resolution B1-2021 “in support of the protection of geodetic radio astronomy against radio frequency interference” on September 12, 2021. A draft resolution for the IUGG General Assembly 2023 is underway.

8. IVS VLBI Training School 2022

The CTE will meet in late October to discuss the organization of the Fourth VLBI Training School, which will be held prior to the General Meeting in Helsinki from March 24–26, 2022.

9. IVS GM 2022 planning

The Program Committee (PC) of GM2022 has been established via email and the committee started its activities. The PC decided to have five sessions, mostly following the plan of the cancelled GM2020 with a few tweaks. To increase the likelihood of having at least one convener present in person in Helsinki, each session has three conveners with one coming from Europe. The organizational type of the meeting (in-person, virtual, or hybrid), however, was still open; a final decision will be taken by the Third Announcement (December 15, 2021). The Second Announcement will be distributed on October 15, 2021. A suggested theme for the meeting is “Bigger, Better, VGOS.”

10. Applications of new IVS memberships

The Board unanimously approved the proposal from Wettzell to become an IVS correlator. A proposal from ESA/ESOC to become an analysis center triggered some questions; a clarification on these questions is sought prior to final approval.

11. IVS white paper (VGOS development plan) discussion

Rüdiger presented a draft VGOS Development Plan (White Paper). The Board suggested a number of minor corrections (e.g., typos, wording). The data centers were not covered and

needed to be added. The structure with executive summary needed some rearranging. Rüdiger will implement the changes for the next iteration.

12. Mixed-mode sessions and 3 vs. 4 band VGOS

There is not sufficient information yet on the performance of the global mixed-mode sessions. It is too early to make a decision. A 4+4 (S/X+VGOS) station network might be easier to handle.

The AuScope sites currently only can support three bands in VGOS. Haystack Memo #46 investigates the effect of losing one of the four VGOS bands; the loss entails some level of degradation. Another option could be to use four bands but in single polarization; this still needs investigation. In legacy S/X sessions, the AuScope VGOS sites could join in a pseudo-mixed-mode setup à la Ny-Ålesund South (Ns) to improve the global networks in the south.

13. Miscellaneous

John recommended to have an invited speaker from the other space-geodetic techniques at the GM2022.

14. Planning of further meetings

The next Board meeting will be held via Zoom on 13 January 2022 @ 12–14 UT.