A Consortium for COnvection-scale modelling Research and Development

6th Assembly of ACCORD Partners

26 June 2023 13:00-17:30 CEST
video-conference

Minutes

1. Opening and welcome

Martin (Chair) opened the 6th ACCORD Assembly meeting and welcomed the 26 delegations (see Appendix I), the Bureau Members, the ECMWF observer, Andy Brown and the HIRLAM and LACE PMs. Martin introduced Anne-Lise Dhomps from Météo-France, who will replace Patricia as ACCORD CSS from the 1st of September. Martin thanked Anne-Lise for her interest in the position and Patricia for her work for the Consortium.

2. Adoption of the draft agenda

Martin explained that the Bureau had worked with the PM to prepare this Assembly meeting. Martin thanked the PM, the STAC, the PAC and the MG who make sure on a weekly basis that the developments in ACCORD take place.
The agenda was adopted.

3. Management positions

Claude briefly recalled [1] that, after the electronic voting by the Assembly representatives, the nominations were officially announced on 20 March 2023:

- Benedikt Strajnar from ARSO as Area Leader for DA,
- Metodija Shapkaljevski from SMHI as Area Leader for Physics.

The former WG on Physics (PM, CSC Leaders, SPRT ALs) has organized the progressive handover of the Physics leadership with Meto.

The position of the Consortium Scientific Secretary was opened within MF's recruitment procedures. One candidate was interviewed by a specific panel on 28 April. The panel was composed of the ACCORD/PM, the French LTM, the Head of the MF NWP Section and the chair of the ACCORD Assembly (invited). The successful applicant is Mrs Anne-Lise Dhomps. She will officially start her activity as CSS on 1 September 2023. Some overlap between Patricia and Anne-Lise could nevertheless be organized in June.

Martin congratulated the selected colleagues and wished them the best in their new positions.

[1] PM presentation (whole Assembly meeting): http://www.accord-nwp.org/IMG/pdf/pm_assembly6_26june2023.pdf

4. Approval of cumulated manpower figures

Claude proposed the Assembly to approve the 2022 realised manpower figures (see Annex II): these figures are based on the quarterly declarations by the LTMs in the Common Manpower Register (CMR); the PM, the CSS and the MG have reviewed these data and proposed changes when necessary; the manpower registered in the CMR for 2022 Q3&Q4, as funded by DEODE, is not taken into account in the provided manpower figures, according to the decision by the Assembly on 7 December 2022.

The Assembly unanimously approved the 2022 realized manpower figures (Annex II).
The new repartitioning of manpower for voting (respectively [2021-2022] & [2018-2022] in Annex II) will be used for voting by this Assembly, in accordance with the relevant MoU-1 items.

5. Outcomes from STAC-5

a. White paper follow-on

Claude presented the "white paper on R2O/O2R aspects" follow-up regarding each of the three pillars of the white paper:

- Testing and validation:
  - based on the already made progress on modernizing the working practices, we will explore new possibilities how to increase common validation;
  - for the time being, the "DAVAÏ-contributors" team remains a cornerstone of what we try to build;
- Operation to Research (O2R):
  - a procedure has been outlined i/o to organize user feedback at consortium-level, with the help of an O2R-WG;
  - a new role: the "user representatives";
  - this proposal implies additional tasks for the MG and for R&D teams;
  - the MG will review this process;
- Documentation:
  - a dedicated person, the Documentation Officer (DO), will be needed in order to seriously implement documentation at consortium-level.

Claude insisted on the cultural change implied by these three pillars, and the proposed organization, within ACCORD's teams.

STAC was presented with more details about these three pillars, was very supportive and made different recommendations[2] :

- about the working practices, including testing:
  - STAC welcomes the steady progress on modernizing the working practices
  - STAC reminds the importance of forming the "DAVAÏ-developer" team as agreed in the end of 2022, and recommends the Members to staff this team.
- about the organization of user feedback:
  - STAC supports the proposal on how to organize user feedback at ACCORD-level. STAC recommends to approve the ToRs of the "user representatives" and to task the PM to take the appropriate steps to form this group.

[2] The minutes of the STAC-5 meeting contain the full text of the recommendations

    - STAC recommends the Assembly Members to appropriately staff the activity on O2R and the associated R2O tasks.
- about documentation:
    - STAC recommends the Assembly Members to facilitate the change of culture within each Institute.
    - STAC supports the proposal that an additional position in the Support Team could be defined for this purpose (of improving documentation).
    - STAC recommends to approve the ToRs of the "Documentation Officer".

Martin stressed the importance of the above topics and invited Members to comment.
Assembly Members were supportive to the above proposals even if not all are easy to achieve. The Assembly appreciated the idea of bringing science and users closer together and having a strong relationship between forecasters and NWP scientists, the further efforts about improving the working practices and the proposals for documentation.
Following Radmila's comment about the possible political sensibility of some use cases, Claude confirmed the use cases brought to ACCORD should be politically and legally ready for use (it will be explicitly added in the ToR of the users representatives).
Radmila pointed out a possible overlap with the use cases discussed in the context of DEODE.
Florinella added that, as Head of forecasting for Romania, she was confident that forecasters will be able to find interesting use cases.
Jeanette stressed that use cases should not only be considered as high-impact cases, but also as cases where models are systematically wrong.

The Assembly supported the proposal in the white paper and encouraged the PM to proceed with their implementation.
The Assembly approved the ToR of the user representatives, as well as the ToR and the conditions for opening the position of the Documentation Officer (DO).

The Assembly tasked the PM to organize the next steps: to proceed with the modernization of working practices including how to improve the testing of new code versions at ACCORD level; to organize the user feedback activity; to organize the Call for the DO.

b. Machine Learning (ML) for NWP and ACCORD

Claude recalled that Machine Learning for NWP was discussed in a dedicated ACCORD Working Group (WG-ML) during the past two years. The WG-ML produced a portfolio with suggested topics for studying ML tools within components of our "traditional", physical-based NWP models.
The WG-ML had some wider discussions on the relevance and definition of appropriate training datasets and the consequences of recently published material on data-driven forecast models ("emulators").
In relation to these recent results, ECMWF redefined its own priorities and staffing, and ways to initiate collaborations (in the context of Destination Earth -DE_371-, in the context of a pilot project approach etc.).

Claude summarized the high-level questions formulated by STAC:
- How can we (ACCORD) use our knowledge or our codes to engage in studies ?
- How to prioritize between studying AI/ML tools for components of the forecast system and/or for emulating a full data-driven forecast model ?
- How can we increase our knowledge on AI/ML tools, and/or engage more (...) with academia or with private sector big-tech companies ?

- Should ACCORD engage more into collaboration with ECMWF ?
- AI/ML tools require very large volumes of training datasets. How should ACCORD be organized to produce and handle these huge volumes ?
- How to find additional resources to engage into such studies ?

STAC recommended that ACCORD Members should be proactive in this rapidly evolving field and considered that the high-level questions are relevant for ACCORD. As a start, ACCORD should confirm or define what are the strengths that it must maintain in order to provide reference numerical tools for meeting strategic user requirements by its Members. ACCORD needs as a high priority to have a (training) data set and STAC recommended exploring ways and means of doing this collectively. STAC also recommended collaboration with ECMWF and to continue to use the WG-ML for information exchange.

Claude gave a graphical overview of what ML for NWP could mean for ACCORD given our current knowledge of what happens in the field *(fig.1)*. He emphasized the three main steps of ML, data driven methods: the creation and handling of training data (raising important questions on data infrastructure), the study of appropriate algorithms and their effective training (a costly step), and the actual production of forecasts by a trained ML tool (this last step being extremely cost-effective). The general take-home message from the WG-ML could be expressed by: define what you want to do, be able to describe your problem, discuss with an AI expert, and start with "simple" problems.
Claude further explained that the impact of data driven applications within an NWP workflow could be significant, perhaps requiring a level of hybridization in the workflow (to make physical-based and data driven NWP models work in some close environment). Another level of hybridization could be inside the traditional, physical-based NWP system where ML tools could become components of the forecast model or of the data assimilation steps (either to enhance scientific capabilities or to increase cost efficiency). Finally, data driven algorithms might modify the organization of pre-processing and post-processing within the workflow, at least for specific applications.

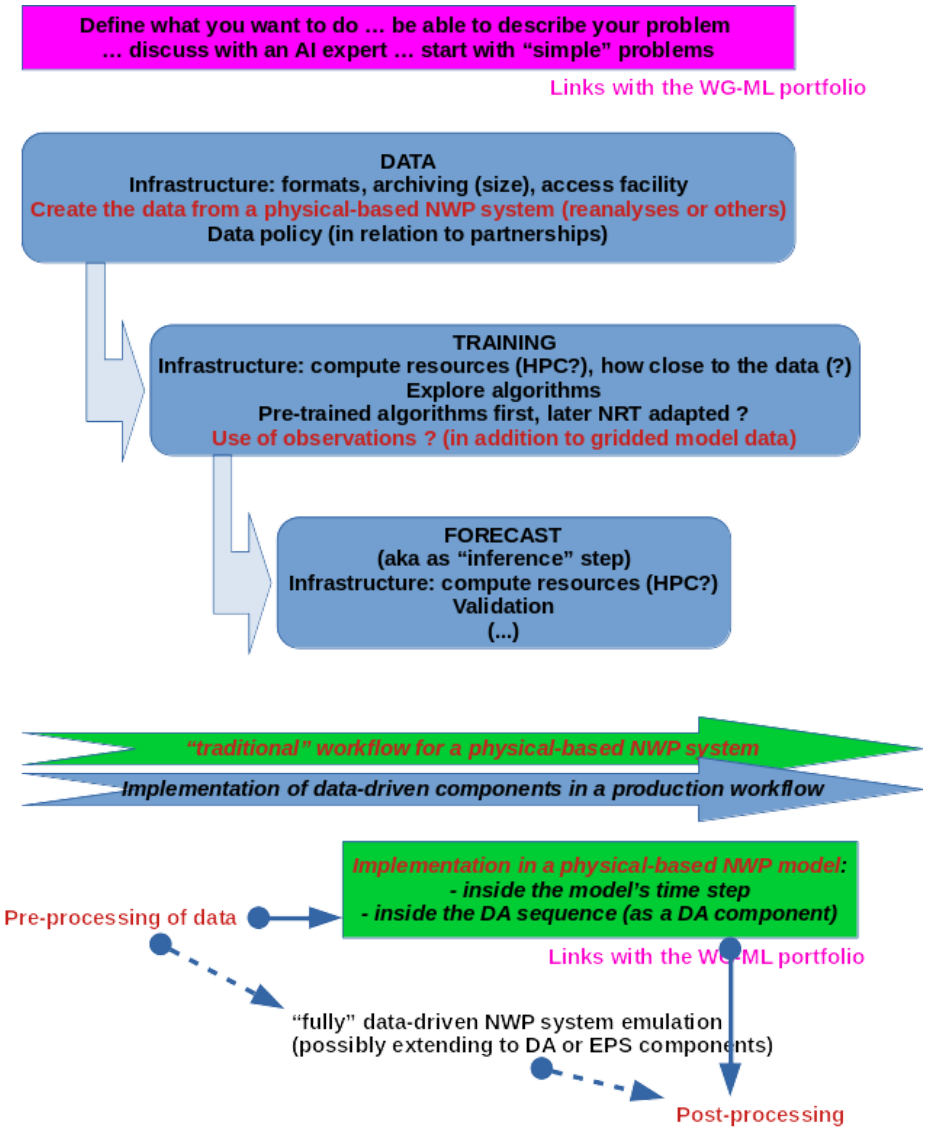

fig. 1: graphical overview of ML for NWP

Martin stressed the need to strike the right balance between the fast-moving ML field and NWP's traditional activities. Martin invited members active in this field to take the floor.

Roar first presented the ECMWF call for tenders in the context of Destination Earth (DE_371)[3]: Machine Learning for Earth system Digital Twins. A consortium led by Met Norway and including MF and SMHI is preparing a bid for this tender, proposing to use generative machine learning methods to create very large ensembles and to downscale very high resolution and/or very short range forecasts.

The last ECMWF Council approved a four-year programme to accelerate ML activities in NWP, including data-driven model development, and the intensification of collaboration with Member and Co-operating States in the context of this ML programme. NMHSs, in collaboration with ECMWF, EUMETSAT and EUMETNET, plan to establish a framework on collaborations on AI which will also provide the basis for the collaboration between ECMWF and Member and Co-operation States on ML modelling. MET Norway has taken the lead in coordinating a working

[3] https://www.ecmwf.int/en/about/suppliers/destine-procurement/update-destine-itts

group that is preparing a framework document on AI collaboration. The aim is to have a discussion between the NMHS Directors in September.

The framework document will not address scientific challenges, the focus will be on policy issues such as code licensing, as well as on collaboration with academia or the private sector.
Roar further explained that, in his view, to study fully data driven models should best be done by joining forces across Europe, including ECMWF and all Member States. At ACCORD level, pursuing studies on hybrid-NWP could be done in collaboration with ECMWF.

Andy explained that the ECMWF strategy last autumn was very different from what it is today. The strategy now is to continue research on hybrid models, but only in certain directions, and to devote more efforts and redirect manpower towards data-driven forecasting. Andy concluded that ECMWF and the Member State NMSs can benefit from each other by collaborating on these aspects wherever intersections exist. Conversely, ECMWF has no intention to enter the work where NMSs have their own interests.

Daniel pointed out that the move to data-driven forecasts will affect core NMS activities. Daniel reminded the goal of the NMSs to deliver the best possible forecast products to the users, in quality and in efficiency. Collaboration at European and International level is important to reach this goal in the context of such a rapidly emerging topic (with ECMWF, in Eumetnet, in ACCORD). Daniel also proposed to add AI tasks in all ACCORD Work Packages to make visible and share our ML efforts in the Rolling Work Plans.

Marianne added that DMI is very interested in collaboration in this scientific field and stressed the importance of ACCORD developments in ML benefiting all ACCORD members.
Maarten was also very much in favour of collaboration in this field, to avoid reinventing the wheel.
Sarah supported ACCORD to be proactive in this field, with an agile approach, and a focus on short-range forecasts and the link with the users.

Claude pointed out that being proactive in ML at the ACCORD level poses many challenges, not only scientific or technical, but also organizational, such as sharing infrastructure efforts (including considering such share in a wider scope than only ACCORD), the need for additional resources that could come from Members initiatives or other partnerships, policy issues when collaborating with academia or the private sector. Given the rapid evolution in all aspects of this topic, Claude suggested that all levels of the ACCORD governance and management should stay active following the evolution and making proposals.

Roar added that, regarding the planned ECMWF/Member States collaboration on ML, it was expected that the results would be accessible to all NMSs. Specific policy issues rather would be expected regarding the collaboration with academia and with the private sector.

The Assembly encouraged Members to be proactive, to join forces and to look for opportunities and collaborations.

The Assembly tasked the PM to organize the preparation of a strategic approach on ML for NWP in ACCORD, taking into account both the urgency and the rapid evolution of this topic:

- by keeping a close contact with the Bureau in order to address any relevant priority issue (such as on collaborations, resources, policy matters); for these Bureau discussions on ML, other ACCORD representatives may be invited as relevant (Roar accepted to join);

- by accelerating the joint STAC+MG work on addressing the high-level questions and further elaborate on the formulated recommendations,
- by making the liaison between the Bureau and the STAC+MG discussions;
- by formulating with MG first proposals of tasks in the ACCORD work plans.

c. Preparation of next phase strategy

Martin reminded the Assembly that ACCORD is approaching the half-way stage of MoU-1 and must therefore prepare for the next phase, starting with the strategy for the next phase of ACCORD.

Claude explained that STAC-5 had discussed the preparation of the next phase strategy for ACCORD (assuming the next MoU phase is 2026-2030) and had made recommendations on a set of high level questions, the general procedure for drafting the strategy and the timeline as presented below:

- STAC+MG to address the high-level questions, propose choices or answers, provide guidelines => for STAC-6 on 25-26 October 2023.
- Assembly-7 on 4 December: assess the outcome on the high-level questions and details on the next steps.
- Task Teams (TT) are formed and work during the winter, using the outcome of STAC+MG as strong guidance. The material from the TT is an input for the strategy workshop => TT output ready for April 2024.
- The strategy workshop meets in spring 2024, participation is on invitation only. The outcome of the workshop is an input for the strategy drafting team.
- The spring 2024 Assembly is presented with a progress report and the organization of the (final) drafting steps.
- The strategy drafting team works during the summer 2024 => draft strategy document ready for October 2024, to serve as a preparatory document for STAC in the autumn 2024.
- The end of 2024 Assembly could then approve the final version of the strategy.

Claude mentioned that there will be a review of the MG roadmap, that seems more pertinent than reviewing the Strategy 2020-2025, which is not proposed in the above general procedure.

STAC agreed that a reviewing of progress based on the MG-roadmap should be made under the responsibility of PM+MG.
STAC also agreed that the start of the preparation for the next phase strategy of ACCORD could take place in 2023.
STAC recommended to adopt a two stage process for the strategy preparation:

- to first address the high-level questions, as formulated during the STAC-5 meeting, in a joint PM/MG+STAC effort,
- to then task the PM to organize a bottom-up approach (task teams, strategy workshop), with the support of the MG.

STAC recommended adopting the general procedure and timeline for the strategy preparation as agreed in the STAC-5 meeting. STAC suggested that it will review the progress and assess the next steps at its autumn meeting.

Martin opened the discussion. The members fully supported the “guided” bottom-up approach and the proposed procedure. Marianne pointed out that in the past two and a half years, ACCORD had made more progress than she had hoped in preparing the first phase: teams, scientists, bodies, MG and PM had worked very well and were in a good position to prepare for the next phase.

The Assembly asked for an update on the strategy preparation to be presented at their next meeting in December.

The Assembly unanimously approved the procedure and timetable for preparing the strategy for the next phase of ACCORD.

6. Communication on DEODE (DE_330)

When the 5th ACCORD Assembly addressed communication needs by Members involved in DEODE, pointing to the complexity of the required steps with ECMWF and MF, Florence proposed that ECMWF works on guidelines to explain to Members' how they should communicate. A document "Communicating Destination Earth activities - guidance for ECMWF contractors" was published by ECMWF in January 2023.
The procedure for DestinE-internal cross-checking of official and public elements of communication has been clarified between ECMWF and MF:

- the ECMWF communication guidelines are available to all DEODE and ACCORD Members ;
- DEODE (DE_330) partners need to contact MF for any official or institutional communication. MF is, in this respect, the sole interlocutor for any DEODE partner. MF will evaluate if a further exchange with ECMWF is needed or not.
- Other ACCORD Members may contact the PM, who will liaise with the DEODE Project Team as required.

The Assembly took note and thanked Claude for this information that will make the communication easier.

Claude also informed the Assembly Members that the discussions about IPR issues will be prepared this summer (first informally) in order to send ECMWF an official request (update to the inventory of background IPRs, assignment of subsisting IPRs, use of specific DEODE deliverables for another purpose than DE).
Andy commented that, as stated in the paper, some of the requests may not be entirely in ECMWF gift, but ECMWF will make representations to the Commission where required.

The Assembly took note without comment.

7. Membership: Latvia, Indonesia, NZ

Regarding Latvia/LEGMC, Claude informed the Assembly that the drafting of a cooperation agreement is work in progress by the ACCORD/PM with two representatives of LEGMC. Claude stressed the importance of allocated resources (it is expected that LEGMC will use the cooperation agreement as a tool for requesting funding and securing resources by its Ministry) and of building knowledge and expertise on NWP. Claude suggested letting the Bureau analyze the content of the agreement, once ready, and decide on the next steps. Claude also proposed to discuss with MG or with individual members for fine-tuning the content of specific actions.

Claude explained that Indonesia/BMKG has a long-lasting, well-established collaboration with Meteo-France International (MFI) on the modernization of infrastructure (forecasting capabilities, observations etc.). BMKG has expressed its ambition to become a leading player in its Regional Area (including NWP). BMKG has expressed its strong interest to become autonomous in running an ACCORD model in its premises. During a get-in-touch meeting (in March 2023 in the MFI premises: BMKG delegation of four, MFI representative, ACCORD/PM and CNA), various aspects of a potential collaboration were addressed: technical requirements, human resources for an NWP starting team, the link with the European Meteorological Infrastructure, membership options (such as ASSOCIATE Member). The get-in-touch discussions have been very open and in good spirit. In April, the Head of BMKG sent an official letter to the chair of the ACCORD Assembly, confirming the interest of BMKG in becoming an Associate Member. Marc pointed out that MF would not be directly involved with the BKMG collaboration (MFI will be).

Claude recalled the main aspects of Associate membership:

- the goal is for an NHMS to build its local competence in using the ACCORD common codes for an in-premise routinely run NWP system: only in downscaling mode (no DA, no EPS);
- the needed codes will be installed locally (filtering the DA and EPS codes);
- making the codes available to the Associate Member will require an authorization by ECMWF;
- one or several ACCORD Members enter a funded partnership with the ASSOCIATE candidate NMS in order to provide the technical support (provide the codes, train the local team, support them on all aspects of the workflow, maintain an agreed level of routine support for the local application etc.);
- the Associate membership is unlimited in time however it can be seen as a kick-off phase before becoming an acceding member.

Claude could not report on anything new about New Zealand.

Martin invited comments from the floor.
Referring to the WMO's "Early Warnings for All" initiative[4], Marianne reflected on how ACCORD deals with membership applications, particularly from countries in the South.
Maarten stressed the need to develop an ACCORD strategy for international collaboration. Roar added that ACCORD must give fair treatment to countries applying to collaborate with ACCORD, by defining objective criteria, regardless of who they are or by whom they are introduced (MFI, KNMI-Global[5], etc...).

Claude proposed to organize the brainstorming on international collaborations around the common code separately from the procedure agreed for the scientific and technical strategy 2026-2030 (see point 5c).
Andy pointed out that, should ACCORD decide to pursue the specific case of Indonesia, a Member State would have to present the case to the ECMWF Council.
Maarten wondered whether a rather general, blanket-paper agreement by ECMWF could not be considered at some stage.

[4] https://public.wmo.int/en/earlywarningsforall
[5] https://www.knmi.nl/research/observations-data-technology/updates/knmi-global-boosts-collaboration-with-developing-countries

The Assembly instructed the PAC and PM to prepare a 2-3 page document analyzing how an expanded collaboration could fit into the ACCORD overall strategy and ambition, the advantages versus disadvantages, including a risk analysis and the drafting of a series of questions or requirements for potential candidates, paying attention to the possibilities for ACCORD to provide support.

Regarding Latvia, the Assembly agreed to task the PM to continue to discuss with LEGMC on the draft cooperation agreement, and mandated the Bureau to analyze the draft agreement and decide on the next steps.

The Assembly tasked the PM to prepare a positive signal to BMKG, to be sent by the chair on behalf of the Assembly. The Assembly further tasked the PM to inform BMKG and MFI that ACCORD will have a wider discussion on international collaborations around the ACCORD codes, and that the concrete negotiation phase of the partnership can only start when the ACCORD strategy for international collaborations is well defined.
Claude is also tasked with exploring ECMWF's potential position on sharing the code with BMKG.

8. Information of Arpege-IFS software agreement

The Assembly was informed that a new version of the IFS-Arpege software agreement had been signed by ECMWF and by MF in December 2022. The new version takes into account the finalization of the process of convergence between ALADIN-LACE and HIRLAM, and the name of the new merged consortium "ACCORD".
The new version of the agreement was distributed in the preparatory document 8.

The Assembly took note.

9. Dates of 2023 Consortium events, including next Assembly

The Assembly convened a PAC prior to the next Assembly, to help draft the ACCORD strategy for international collaborations.

The Assembly decided to hold the next Assembly meeting as a full-day hybrid meeting on the 4th December 2023 in Reading.

10. A.O.B

Andy expressed ECMWF's thanks to Patricia for all her hard work over the years. Martin explained how difficult it was to say thanks enough to Patricia.

Patricia replied that it had been a real pleasure for her to work with the Assembly Members since the beginning of ACCORD, during the years of the ALADIN-HIRLAM-LACE convergence and, for some Members, since the early days of ALADIN in the last century. She stressed that there was no need to worry about the scientific secretariat, which she leaves in very good hands.

11. Closing

Martin thanked the Members for an active Assembly, the Bureau, Claude and Patricia for the good preparation and the quality of the preparatory documents. Martin closed the meeting at 17:00.

Appendix I: Participants (in-situ, remote)

Member	Delegation
ALGERIA	Mohamed MOKHTARI
AUSTRIA	Christoph WITTMANN
BELGIUM	Daniel GELLENS (Vice-chair), Rafiq HAMDI
BULGARIA	
CROATIA	Branka IVANČAN-PICEK, Ivan GUTTLER
CZECH REP	Radmila BROZKOVA
DENMARK	Marianne THYRRING, Rune Carbuhn ANDERSEN
ESTONIA	Taimar ALA, Kai ROSIN
FINLAND	Jussi KAUROLA (PAC vice-chair), Sami NIEMELA
FRANCE	Marc PONTAUD
HUNGARY	Gabriella SZÉPSZÓ
ICELAND	
IRELAND	Saji VARGHESE (STAC chair), Sarah O'REILLY
LITHUANIA	Donatas VALIUKAS
MOROCCO	Abdelfetah SAHIBI, Siham SBII
NETHERLANDS	Maarten van AALST
NORWAY	Roar SKÅLIN, Jordis TRADOWSKY
POLAND	
PORTUGAL	
ROMANIA	Florinela GEORGESCU (PAC chair), Alexandra CRACIUN
SLOVAKIA	Martin BENKO (Chair), Maria Derkova
SLOVENIA	
SPAIN	
SWEDEN	Bodil AARHUS ANDRÆ, Hakan WIRTEN
TUNISIA	Hatem BACCOUR
TURKEY	Murat ALTINYOLLAR, Nur SÖĞÜTÇÜKLÜ, Yelis CENGIZ
ACCORD PM	Claude FISCHER
ECMWF Observer	Andy BROWN
HIRLAM PM (obs.)	Jeanette ONVLEE
LACE PM (obs.)	Martina TUDOR
ACCORD CSS	Patricia POTTIER, Anne-Lise DHOMPS (obs.)

Appendix II: Manpower figures

2022 accumulated manpower figures: approved by Assembly

Partner	Accumulated manpower: 01/01/2022-31/12/2022		
	person.months	F.T.E.	Breakdown
ALGERIA	24.67	2.24	1.38%
AUSTRIA	57.17	5.20	3.20%
BELGIUM	28.67	2.61	1.60%
BULGARIA	37.67	3.42	2.11%
CROATIA	37.17	3.38	2.08%
CZECH REPUBLIC	71.17	6.47	3.98%
DENMARK	43.03	3.91	2.41%
ESTONIA	12.43	1.13	0.70%
FINLAND	45.03	4.09	2.52%
FRANCE	745.92	67.81	41.72%
HUNGARY	47.17	4.29	2.64%
ICELAND	11.93	1.08	0.67%
IRELAND	48.03	4.37	2.69%
LITHUANIA	12.68	1.15	0.71%
MOROCCO	42.17	3.83	2.36%
NETHERLANDS	62.53	5.68	3.50%
NORWAY	133.78	12.16	7.48%
POLAND	31.92	2.90	1.79%
PORTUGAL	12.67	1.15	0.71%
ROMANIA	24.42	2.22	1.37%
SLOVAKIA	40.92	3.72	2.29%
SLOVENIA	43.17	3.92	2.41%
SPAIN	76.03	6.91	4.25%
SWEDEN	45.03	4.09	2.52%
TUNISIA	28.42	2.58	1.59%
TURKEY	24.17	2.20	1.35%
TOTAL	**1788.00**	**162.55**	**100.00%**

Accumulated manpower figures used for voting

Partner	Breakdown of the accumulated manpower	
	Since 2021	**Since 2018**
ALGERIA	1.39%	1.48%
AUSTRIA	3.26%	3.51%
BELGIUM	1.96%	2.49%
BULGARIA	1.94%	1.55%
CROATIA	2.07%	2.29%
CZECH REPUBLIC	4.19%	4.77%
DENMARK	2.33%	2.47%
ESTONIA	0.61%	0.35%
FINLAND	2.90%	2.91%
FRANCE	41.42%	40.60%
HUNGARY	2.34%	2.58%
ICELAND	0.51%	0.47%
IRELAND	2.62%	2.54%
LITHUANIA	0.63%	0.32%
MOROCCO	2.22%	1.81%
NETHERLANDS	3.56%	3.43%
NORWAY	7.30%	5.85%
POLAND	1.66%	1.37%
PORTUGAL	1.09%	1.16%
ROMANIA	1.37%	1.51%
SLOVAKIA	2.92%	3.79%
SLOVENIA	2.16%	2.39%
SPAIN	3.81%	4.11%
SWEDEN	2.79%	3.40%
TUNISIA	1.46%	1.39%
TURKEY	1.46%	1.46%
TOTAL	**100.00%**	**100.00%**

Appendix III: Events since the 5th Assembly and 2023 (main) events[6]

➢ **5thh Assembly meeting, the 7th and 8th of December 2023 in Darmstadt (hybrid)**

➢ **Committees (PAC, STAC), Assembly and Bureau**
- Selection committee meetings for DA and Physics ALs, 27 February
- ACCORD Bureau (DA and Physics ALs), 28 February
- STAC spring meeting: 25 May morning (video)
- Bureau meeting: 7 June (video)
- 6th Assembly video meeting, 26 June afternoon
- STAC+MG on-line meeting, 3 October
- autumn STAC (with MG), 25-26 October in Brussels (RMI) and hybrid
- PAC on-line meeting: ACCORD strategy for international collaborations
- **Regular Bureau meetings** in the autumn, in addition to the ACCORD Bureau to prepare the Assembly: 13 September, 11 October, 8 November, 13 December

➢ **Assembly meeting, 4 December (whole day), Reading (hybrid)**

➢ **Management Group**
- The Management Group resumed their every other Friday morning meetings at the beginning of January and on 25 August after the summer break.
- **MG visit to INM** and in-person meeting: 4-5 May 2023, Tunis (hybrid)
- possible in-person meeting and visit to Icelandic team: 28 or 29 September 2023, Reykjavík, after EWGLAM/SRNWP meetings.
- Additional meetings are dedicated to the preparation of the DAP2023, the preparation of the RWP2024, the reporting of RWP2023, …

➢ **LTM meetings**
- 6th LTM meeting, Tallinn, Estonia, 27 March 2023 (besides the All Staff Workshop)
- 7th LTM meeting, Reykjavik, Iceland, 26 September (besides EWGLAM)

➢ **Scientific and technical meetings**

➢ **Thematic regular video-meetings**
- Transversal activities on future software infrastructure, more information on ACCORD wiki SPTR dedicated page
- WG on Very High Resolution Modeling (VHR-MOD): meetings information
- WG on Machine Learning (ML): meetings information
- DA Research Teams and Support Teams meetings, more information on the ACCORD wiki dedicated pages
- Surface monthly meetings, more details on the ACCORD wiki pages
- O2R WG: WG on Operation to Research, on-line meetings from October 2022 through March 2023

[6] *more events on ACCORD calendar: http://www.accord-nwp.org/?ACCORD-MG-CSS-calendar*

- harp community on-line meetings (1st meeting on 17 April 2023, more details on the ACCORD wiki pages)

➢ **Working Days and Working Weeks**

- ACCORD DA WW on Algorithms (including OOPS) and New obs. Obsconvert, SMHI, Norrköping, Sweden, 6-10 Nov 2023 see Wiki dedicated page
- Snow, SBL, fog and MUSC WW, Sodankylä, Finland,18-22 Sep 2023 see Wiki dedicated page
- LACE WD and Nowcasting/Mode-S, CHMI, Czech Republic, 11-15 Sep 2023 see Wiki dedicated page
- Surface in-person WW, SMHI, Norrköping, Sweden, 22-26 May 2023 see Wiki dedicated page
- ACCORD DA WW DA diagnostics/tuning and satellite observations, Madeira, Portugal, 22-26 May 2023 see Wiki dedicated page
- EPS WW, Met Norway, Oslo, 24-28 April 2023 see Wiki dedicated page
- ACCORD DA WW on Algorithm (incl. OOPS), ML, GNSS, radar, KNMI, De Bilt, Netherlands, 6-10 Mar 2023 see Wiki dedicated page
- WW on harpSpatial, DMI, Copenhagen, Denmark, 20-24 Feb 2023 see Wiki dedicated page
- Very-High Resolution Modelling Workshop, SMHI, Norrköping, Sweden, 14-16 Feb 2023 see Wiki dedicated page
- WW about the diurnal cycle of T2m and Q2m WW, France, 9-13 October.
- Davaï developers WW, place and date, t.b.c.
- Horizontal length scales across CSCs / 3D-turbulence related topic, MF, Toulouse, France, date t.b.c.
- TEB WW, MF, Toulouse, France, 9-13 October 2023
- ALARO/SURFEX WW, place and date, t.b.c.
- PH6/CAR WW, place and date, t.b.c.