

Advisory Board Meeting #1 Summary Online (5th August 2026)

Board members present: Leila Hieta (Finnish Meteorological Institute), Yuki Honda (WMO), Nishadh Kalladath (ICPAC), Bo Lu (CMA), Soukayna Mouatadid (University of Toronto), Laure Raynaud (Météo-France)

ECMWF staff present: Olga Loegel (Partnerships and Training Specialist), Joshua Talib (Scientist on Extended-Range Forecasts)

Board meeting #1 Agenda:

1. **Round table**
2. **Introduction to the Advisory Board**
3. **Looking back: The AI Weather Quest so far**
 - The AI Weather Quest in a nutshell
 - How does it work?
 - Results from first forecasting year
4. **Looking ahead: the extended framework**
 - Overview
 - Zoom on the new variables
 - Dedicated outreach and engagement efforts

Discussion points

Board Members commented on different aspects of the presented items and suggested amendments.

Item #3: Looking back: the AI Weather Quest so far

Board members provided the following comments in meeting:

- ECMWF clarified that forecast evaluation is conducted internally using ERA5T data. However, all scripts used to evaluate the submitted forecasts are made publicly available.
- A Board member requested clarification on the extent to which the observed performance improvements resulted from new participants joining the Quest, as opposed to existing participants continuing to develop and refine their models.
- A Board member suggested analysing participants' responses to the methodology questionnaire regarding the main challenges they encountered. The MicroEnsemble team's difficulties in submitting forecasts over the weekend were highlighted as an example that could help identify possible improvements to the submission process.

Item #4: Looking ahead: the extended framework

Board members provided the following comments in meeting:

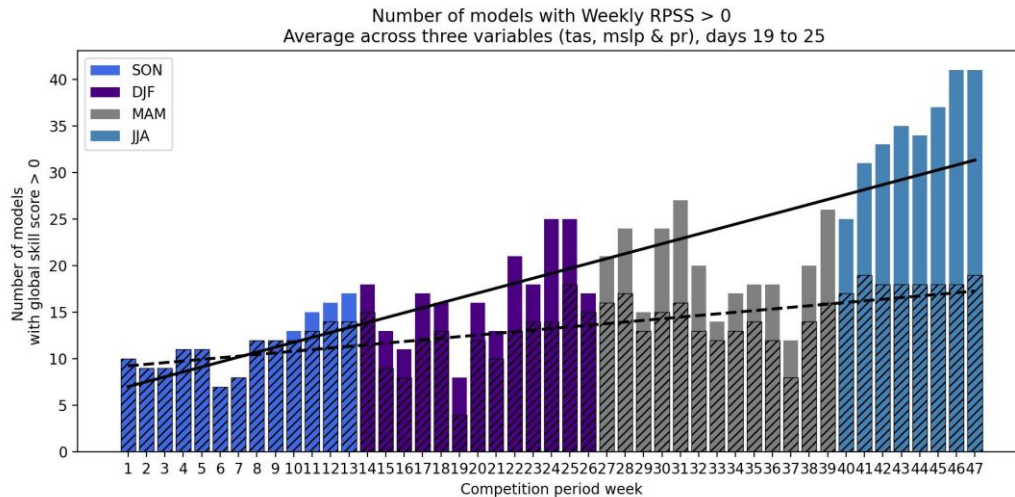
- A Board member proposed developing a data-driven multi-model average for inclusion as a benchmark on the leaderboards, allowing its performance to be compared with the current results.
- A Board member recommended expanding the documentation with practical tutorials on the forecast submission process and clearer explanations of how forecasts should be generated for the new tropical storm and MJO variables. ECMWF staff confirmed that they would consider adding further guidance, particularly if participants provide specific feedback on areas where more information is needed.
- Comment on increasing engagement with ECMWF Members States National Meteorological and Hydrological Services (NMHSs) and African institutions, Board members noted that:
 - Not all meteorological centres produce sub-seasonal forecasts. Relevant participants in ECMWF's ML pilot project who work on sub-seasonal forecasting could therefore be approached directly.
 - Some smaller NMHSs focus on local rather than global forecasting. Highlighting the forthcoming regional evaluation domains on the leaderboards could make participation more relevant and attractive to them.
 - Limited computational capacity may also be a barrier to participation. Clearly highlighting any available computing resources or support could help address this constraint.
- Board members will be provided with communication materials to advertise the Quest in their relevant networks.

Next steps

- Assess the extent to which performance improvements resulted from new participants joining the Quest, as opposed to existing participants developing and refining their models.

JT – Analysis of performance improvements completed:

- *The figure below shows the number of models achieving a positive average RPSS across the three competition variables (tas, mslp and pr) for each evaluated week of the AI Weather Quest. The shaded portion of each bar represents models that have participated in at least 80% of competition weeks.*
- *The figure indicates that much of the increase in the number of skilful models is associated with the introduction of new models over time. In contrast, the number of 'established' models achieving positive RPSS remains comparatively stable, suggesting that growth in the total count of skilful models is driven more by expanding participation than by a widespread skill increase among established competitors. The figure also highlights periods of particularly strong forecast skill during the current ENSO event and recent extra-tropical heatwaves.*



- Review participants' responses to the methodology questionnaire concerning the challenges encountered during model development.

OL – Analysis of challenges reported by participants completed:

- *The methodology questionnaire asked: "Did you face any challenges during model development, and how did you address them?" As this question focused on model development, participants may not have reported challenges relating to the wider Quest framework or submission process.*
- *The main difficulties concerned model architecture and training; probabilistic calibration and alignment with quintile and RPSS evaluation; limited computational resources; data processing and regridding; and access to timely data, including difficulties reproducing the official evaluation data. Participants also highlighted the inherent difficulty of achieving skilful sub-seasonal forecasts, particularly for precipitation.*
- *Operational challenges included automating forecast generation and submission, generating compatible initialisation data, and managing software and package requirements. MicroEnsemble was the only team to explicitly report having to produce forecasts at weekends, due to delayed access to ECMWF forecasts; no other team mentioned weekend working.*
- *Interested members can find the consolidated responses table attached.*
- Develop a data-driven multi-model average for inclusion as a benchmark on the leaderboards.

JT – Planned for inclusion from DJF 2027, alongside implementation of the extended framework.

- Share materials that Board members can use to promote the Quest through their relevant networks.

OL – An introductory slide, including general and Africa-focused versions, and suggested email wording are attached.