



**ESMO**

Earth System Modelling  
and Observations



**Research Activities in Earth System Modelling  
Publication also known as**

# **WGNE Bluebook 2025**

Updates from IPO  
WGNE 40



**WGNE**  
Working Group on  
Numerical Experimentation

# Research Activities in Earth System Modelling

**WGNE Blue Book**

**Report No. 55**

**WCRP Report No. 08/2025**

**November 2025**



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**WCRP**  
World Climate  
Research Programme



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World Climate  
Research Programme

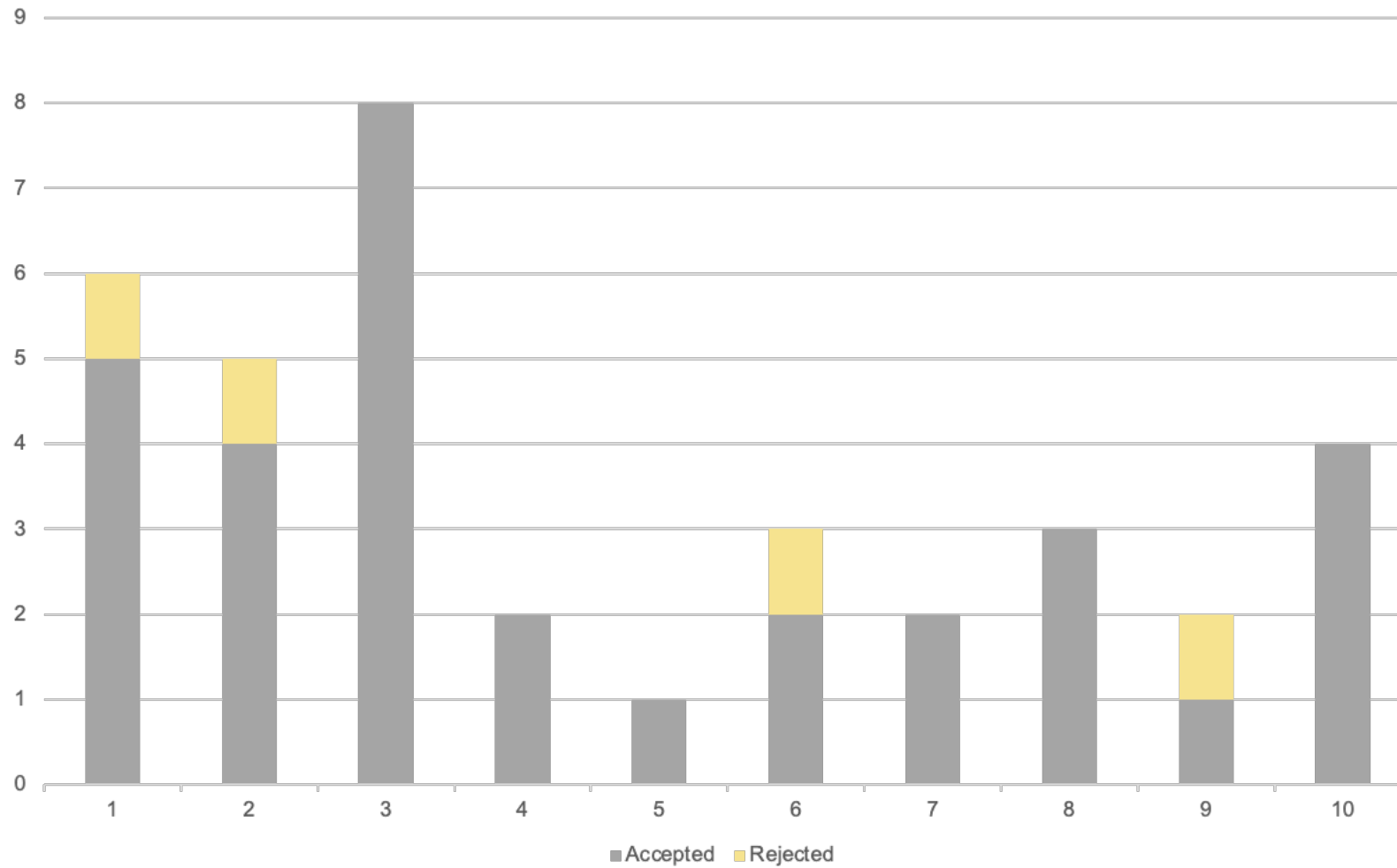
# Brief overview about this edition

- Report no 55
- Submissions opened in July
- Initial deadline mid-Sept, later extended to end of Sept
- 36 submissions
  - 4 rejected / 32 published contributions
- Compared to previous edition (2024): 43 submissions
  - 8 rejected / 35 published
  - Submission period was also open from July to Sept, later extended to November

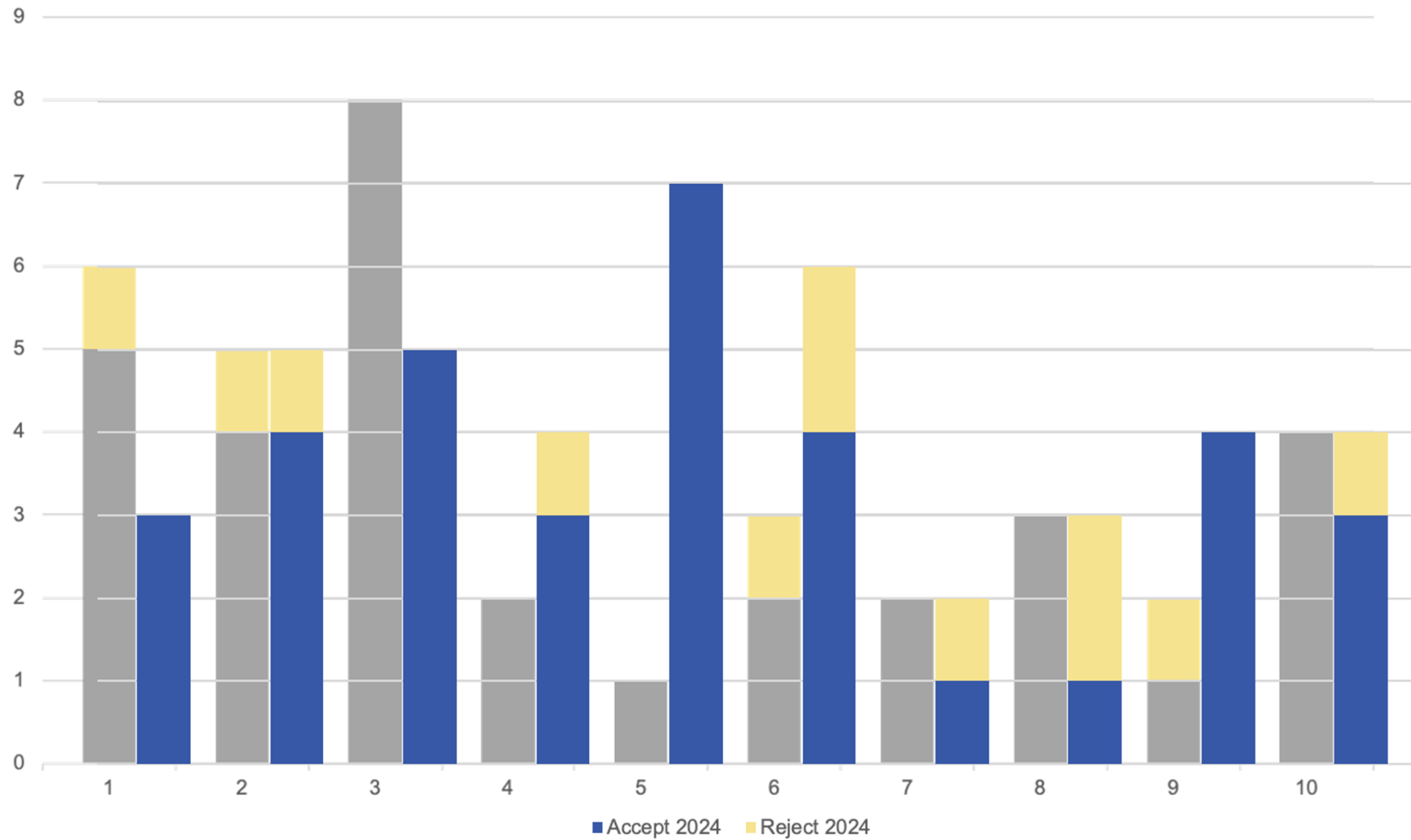
# Topics / Sections

1. Development and studies of coupled models and Earth System Models
2. Global and regional climate models: response to forcing, impact studies, sub-seasonal and seasonal forecasting
3. Advances in forecast / NWP models: case studies, predictability, ensembles
4. Parameterization of physical processes in Earth System Models or their components
5. Forecast verification; novel methodologies to diagnose and measure systematic errors
6. Uncoupled and coupled data assimilation for integrated earth system analysis and prediction; methodology and data impact sensitivity studies
7. Developments in ocean, sea-ice, and wave modelling
8. Reanalysis datasets and statistical post-processing
9. Numerical/computational techniques and model resolution, physics-dynamics and physics-physics cross-component coupling
10. Machine learning and AI in weather prediction and climate modelling

# Distribution of submissions - 2025



# Distribution of submissions – 2025 vs 2024



# Review challenges

- The Bluebook is not expected to be a peer reviewed publication. The idea is to have a simple, low-barrier-of-entry avenue to share research concept and developments in Numerical Experimentation.
- Nevertheless, we need to filter submissions to ensure quality and clear language. This is getting very crucial and challenging with the increased usage of LLMs. Certain submissions could be directly copy-pasted from AI chat bots.
- The question of ‘How much AI/LLM usage is ok?’ is too complicated, and the IPO also does not always have the resources/time to identify/address this.
- Your support in checking through the submissions is absolutely vital!

# Review support

- Your support in checking through the submissions is absolutely vital!
- Thank you for those who have done so already 😊
- And thank you to those who are now excited to help review next year (so that it's not always the same people doing this work)



# Zenodo

- Will be uploaded to Zenodo! Can be cited with the given doi.
- Waiting for WCRP confirmation – should be out end of this week.
- Previous Bluebook: <https://doi.org/10.5281/zenodo.14753295>

# Final Notes

- Next year, we plan to open for submissions earlier (Spring), and allow for a longer period.
- Good success with use of submission template (Word document or Latex template is offered on the ESMO site). Submissions were overall consistent in format.
- Planning to continue with the current sections/topics for now and review after next year. We will ask the panel about this in due time.
- For other questions/suggestions, please let us/Bimo know
- Esp mention – thanks to Sara for taking care of layout/formatting!



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# Thank you!

ESMO-IPO

[wcrp-esmo.org](http://wcrp-esmo.org)