natESM Newsletter

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HAPPY NEW YEAR!

Join us for the annual Community Workshop!

📅 24-25 February 2026 | 📍 Marriott Hotel, Leipzig

Our annual natESM Community Workshop in February is getting closer – starting, as always, with presentations from last year's sprint teams, followed by breakout groups and joint discussions.

This year, we offer two breakout groups, as usual on the afternoon of the first day.

BOG 1: Impact modelling

This breakout group brings together Earth system model developers and impact modelers working on topics such as water resources, vegetation, wildfire, and crops.

The aim is to discuss key challenges at the interface between climate and impact modelling and to explore how natESM configurations and simulations can best support impact-oriented research.

Topics include, among others:

- bias correction and downscaling strategies
- deciding which processes should be represented within ESMs and which are better handled by offline impact models
- identifying ESM configurations and simulation setups best suited for impact studies
- the use of nudged simulations or storyline approaches

If you are interested in contributing, please contact the BOG lead Jakob Zscheischler (UFZ).

BOG 2: Palaeoclimate modelling

This breakout group invites researchers from the palaeoclimate and palaeoenvironmental community to discuss scientific and technical requirements for natESM configurations tailored to palaeoclimate simulations – from deep time to the recent past – including perspectives related to CMIP7 and PMIP7.

The session will start with short introductory talks by the BOG leads Kira Rehfeld (Uni Tübingen) and Georg Feulner (PIK), highlighting previous successes in Earth system modelling of past climates.

Further short impulse presentations from the community (max. 5 minutes) are very welcome. If you would like to contribute, please contact the BOG leads Kira and Georg in advance.

Keynote & "One hour to shape tomorrow"

A highlight of Day 2 will be the keynote by Peer Nowack (KIT), "*The future of AI in Earth system modelling – fully data-driven or full of constraints?*"

Within this year's "One hour to shape tomorrow" session, which follows directly after the keynote, we will focus on discussing Peer's talk and reflect together on what his ideas – and the insights from the breakout groups – mean for natESM's future directions, priorities, and ways of working.

Early registration really helps us with planning –so if you already know you'll join, we'd love you to sign up soon.

ℹ️ Agenda | 👉 Register here by 31 January

Expanding our RSE team

We are expanding the natESM RSE team to a total of six RSEs: four in the core-sprint support, and two with special responsibilities – one focusing on configurations, and one on machine learning.

We are currently very active in the recruitment process and hope that our team – which is still four people strong at the moment – will be complete by early summer.

Wilton takes on configuration-lead responsibilities

We are especially happy to share that Wilton, our most experienced and long-standing RSE, will take on the role of senior RSE for configurations. Starting in February, he will lead and coordinate our work on natESM configurations – an important step in strengthening the technical backbone of the system.

Invitation to all with ideas

natESM thrives on its sprints. They are where collaboration becomes concrete, where ideas turn into code, and where the community really comes alive. So please don't hesitate to submit sprint-check requests – whether you already have a clear project in mind or are still exploring possibilities. We are very much looking forward to new sprint proposals.

👉 How to request a sprint check — and all details of the process — can be found on our website.

Sprint status

Sprint title		Inst.	Service description
ICON-ART	🟢	KIT	Analysis of ART code for GPU porting → Sprint report
ICON-mHM-YAC	🟢	UFZ	Online coupling mHM into ICON using YAC → Sprint report
FESOM	🟢	AWI	Port FESOM 2.1 to JUWELS booster and Levante-GPU → Sprint report
ParFlow	🟢	FZJ	Port ParFlow to AMD GPUs, Performance Analysis → Sprint report
MESSy	🟢	FZJ	Optimize data transfers between host and device → Sprint report
ESMValTool	🟢	DLR-PA	Updating remaining non-lazy preprocessor functions → Sprint report
HAMOCC	🟢	MPI-M	Concurrent HAMOCC on GPU → Sprint report
MESSy-ComIn	🟢	DLR-PA	Couple MESSy to ICON via ICON Community Interface → Sprint report
LAGOOn	🟢	FZJ	Develop concept of Lagr.-transport-modeling framework → Sprint report
IQ	🟢	MPI-BGC	Stepwise port of IQ code to GPUs → Sprint report
modLSMcoup	🟢	FZJ	Develop proof-of-concept for modular coupling → Sprint report
CLEO	🟢	MPI-M	Coupling CLEO to ICON with YAC → Sprint report
PALM	🟢	Uni Hannover	Porting PALM modules related to urban processes to GPUs → Sprint report
MESSy-ComIn2	🟢	DLR-PA	ComIn integration time loop → Sprint report
PDAF2GPU	🟢	AWI	Porting PDAF to GPUs → Sprint report
PISM-AsyncIO	🔵	MPI-GEA	Resolve the issue with the I/O library for asynchronous output
CLEO2	🔵	MPI-M	Uniting CLEO's domain decomposition with its two-way coupling to ICON
ICON-XPP	🔵	DWD	Optimization of ICON-XPP for DWD NEC Aurora vector computer
WAM	🟡	Hereon	Full NetCDF I/O and performance optimization
MESSy IMPORT	🟡	FZJ	Revise data-import function of MESSy for ICON/MESSy
COFARE	🟡	AWI	Coupling FABM and REcoM3
FESOM-C	🟡	AWI	Performance sprint (profiling, analysis, optimization roadmap)

🔴 On hold 🟡 Running 🔵 Reporting 🟢 Finished

Additional information from the sprints, beyond what is covered in the sprint reports, is available in our GitLab wiki.