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## DWD ICON training ongoing

The ICON training is in full swing – brains are buzzing, notebooks are filling, and the coffee's working overtime!

👉 [Agenda for the last two days](#)

If you're curious, feel free to [drop in](#) on the [remaining online sessions](#).

Missed it this year? No worries – another ICON training is already planned for 2026!



## Focus workshop on Ocean Biogeochemistry

📅 When: September 24, 2025

📍 Where: DKRZ, Hamburg

The workshop brings together key contributors from the ocean-biogeochemistry community and other natESM components to explore integration pathways and future collaborations.

The agenda includes model presentations (e.g. REcoM, HAMOCC, ECOSMO, OPEM), an overview of technical interfaces within natESM, and a moderated discussion on shared challenges and next steps.

👉 [Registration is open](#) until September 1.

📄 [More information and full agenda](#)

## Introducing natESM in higher education: Pilot course at University of Cologne



We're excited to announce that, starting in the winter term 2025/26, the first natESM master-level course will be offered at the University of Cologne. The course provides an introduction to the natESM system not only from a scientific perspective, but with a particular focus on the technical aspects that often receive too little attention in standard university programs.

How are the components of a full Earth system model coupled together? What are current challenges in modeling land, ocean, and atmospheric chemistry? And what kind of infrastructure is needed to make the system work?

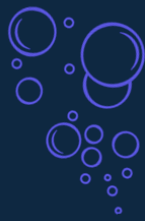
These and other questions will be explored by bringing together experts from across the natESM community in a series of hybrid lectures. These lectures will be combined with practical sessions where students will run and analyze their own simulations. The course is fully integrated into the *Physics of the Earth and Atmosphere and Computational Sciences* master programs, and students enrolled in Cologne will receive 6 ECTS credits.

While the course is initially hosted from Cologne, its modular and hybrid format is designed to enable future adoption at other universities. We hope it will serve as a prototype for further university-level teaching based on natESM components, and we would be glad to share materials and lessons learned with anyone interested.

If you are considering offering a similar course at your university, please [contact natESM process coordinator Iris Ehlert](#) for further information.

## deep dive RSE perspectives

How do sprint checks work – and what makes a sprint successful? In this issue's deep dive on the next two pages, we meet RSE Wilton Jaciel Loch, who reflects on collaboration, creativity, and what it takes to “dance with complexity.”



deep dive

personal stories from natESM trailblazers

# Every sprint is a new rhythm

## When Forró meets future-proof modeling

It's time to meet one of the people working at the very core of natESM's technical engine: Research Software Engineer (RSE) Wilton Jaciel Loch. Originally from Brazil, Wilton joined natESM in October 2022 after moving to Europe in search of meaningful, collaborative work in high-performance computing. In this deep dive, he shares his journey, his approach to sprint collaboration, and how his passion for dance influences the way he navigates code and complexity. For Wilton, sprint proposals aren't just applications – they're invitations to move forward together.

Interview by Iris Ehlert

**Wilton, can you tell us a bit about your journey? How did you end up working with Earth system models in Germany?**

I started out studying computer science in Brazil, first at a technical high school and then at university. I was always curious about how things work – machines, networks, software. Eventually, I got into research, but honestly: being a researcher in Brazil isn't easy. It's underpaid and underappreciated.

I wanted to keep working on interesting problems, but I also needed stability. That made me look for opportunities in Europe, where research positions offered more support and long-term prospects.

One of the first steps on that journey was a PhD position in Vienna, but it turned out to be a mismatch – the work was closer to physics than computer science, and I wasn't happy.



Improvised? Yes. Useless? Never. **Gambiarra** at its best.

Picture source: <https://www.dolemes.com>

Eventually, I realized: I don't want to write papers, I want to solve problems.

When I found the RSE position at DKRZ, it felt like exactly what I had been looking for.

**What do you enjoy most about your role as an RSE in natESM?**

Being able to contribute to something meaningful. There's the bigger picture – helping climate science move forward – but also the day-to-day satisfaction of improving software, fixing issues, and enabling models to do more with less.

That combination is what keeps me going.

**How would you describe your working style?**

I have an aversion to complexity [laughs]. Over time, I've learned that keeping things simple is the best way to make progress. I like to work in very small, verifiable steps – “baby steps.” If something feels overwhelming or hard to trace, I try to break it down into the smallest useful unit and focus on that. It's more sustainable and less stressful – and in most cases, it also leads to better results.

**How does that play out during sprints?**

In projects where I already know the code – like CLEO – I can often outline 15–20 small, concrete tasks that lead toward the sprint goal. We had that in one of the CLEO sprints, and it worked really well.

In less familiar codebases, I start even smaller – just verifying whether something initializes correctly, whether communication between components works, and so on. You can't solve big problems without understanding the basics.

## Do you think your Brazilian background influences the way you work?

I think so, yes. There's this concept in Brazil called *gambiarra*. It's hard to translate, but basically it's about solving problems with whatever you have on hand. It's a cultural attitude – making things work, even if it's not perfect or elegant. That mindset helps me a lot when I work with messy code or unclear requirements. So, *gambiarra* taught me to keep moving, even when the tools aren't perfect. Sometimes you just need to get creative and move things forward, step by step.

## What helps you recharge or feel inspired outside of work?

Dancing! That's definitely my main thing right now. I got into it last year and now have been doing it quite often. I never expected it to become such a big part of my life, but now I really love it. It helps me disconnect and brings a whole different kind of joy. I mainly dance Forró, a Brazilian partner dance.

**» If you're too rigid, the rhythm breaks.  
But if you're present and adaptable, you  
can create something great together. «**

It also inspires how I think about work. In a way, each sprint is like a new rhythm. You tune into your partner – the scientist – listen to where they want to go, and then you start moving together. We dance together in the sprint – and sometimes I follow, sometimes I lead. But the important thing is to find a shared flow.

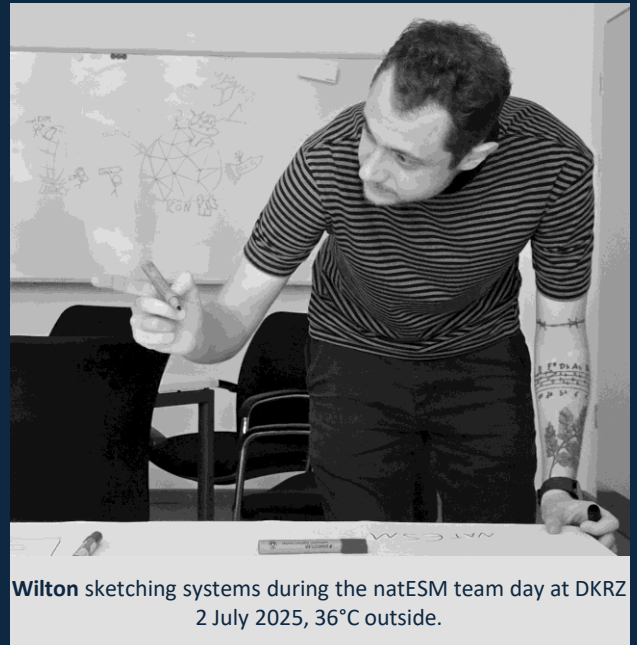
## That's a beautiful metaphor. Would you say sprint work is like dancing with complexity?

Yes! With complexity and with people. Collaboration is always a bit unpredictable. You need timing, patience, and openness. If you're too rigid, the rhythm breaks. But if you're present and adaptable, you can create something great together.

## You've supported several sprints now. What makes a sprint successful in your eyes?

For me, it's about productive collaboration. When there's trust, good communication, and a shared understanding of what we're trying to do, the technical work becomes easier. I've had great experiences when scientists were open to suggestions, and we could shape the sprint together. One of the best examples was the CLEO sprint where we made consistent progress through small steps. It wasn't just about reaching the goal – it was about the way we got there.

**» The sprint check is like a first dance:  
we figure out if the rhythm fits. «**



## You've also helped develop how sprint proposals are written. What's your take on the sprint-check process?

The sprint check is meant as a service for scientists – not as a gatekeeping moment. Our job as RSEs is to sit down with them and give an honest, technical first impression: Does the code look maintainable? What would be a good starting point? Are the goals realistic? We also give feedback on whether the software is at a point where a sprint makes sense.

And then, we also help shape the application – the scope, the timeline, the plan. We're not there to decide whether the project gets funded, but we do help frame the process. The sprint check is like a first dance: we figure out if the rhythm fits, and how we might move forward together.

## We recently discussed the idea of shorter “profiling” sprints – can you explain that?


Sometimes people come with vague ideas, but they don't yet know what the technical bottlenecks are. In those cases, a short profiling sprint can be helpful. It gives us a chance to study the code, run tests, and figure out where the effort should go.

It's like mapping the terrain before you build a house. And it helps avoid writing an overambitious proposal based on guesses.

## What would you like others in the community to better understand about your role as an RSE?

What I wish more people understood is that we're not here to solve everything in advance. We're an integral part of the process – technical collaborators who help shape the sprints. And we're happy to help – especially when people come with curiosity and a willingness to work together. Sprint proposals are not just applications; they're invitations to collaborate for the long haul. And that's something I really enjoy.

# Sprint status

SPRINT TITLE		INST.	SERVICE DESCRIPTION
ICON-ART	●	KIT	Analysis of ART code for GPU porting → <a href="#">Sprint report</a>
ICON-mHM-YAC	●	UFZ	Online coupling mHM into ICON using YAC → <a href="#">Sprint report</a>
FESOM	●	AWI	Port FESOM 2.1 to JUWELS booster and Levante-GPU → <a href="#">Sprint report</a>
ParFlow	●	FZJ	Port ParFlow to AMD GPUs, Performance Analysis → <a href="#">Sprint report</a>
MESSy	●	FZJ	Optimize data transfers between host and device → <a href="#">Sprint report</a>
ESMValTool	●	DLR-PA	Updating remaining non-lazy preprocessor functions → <a href="#">Sprint report</a>
HAMOCC	●	MPI-M	Concurrent HAMOCC on GPU → <a href="#">Sprint report</a>
MESSy-ComIn	●	DLR-PA	Couple MESSy to ICON via ICON Community Interface → <a href="#">Sprint report</a>
LAGOOn	●	FZJ	Develop concept of Lagr.-transport-modeling framework → <a href="#">Sprint report</a>
IQ	●	MPI-BGC	Stepwise port of IQ code to GPUs → <a href="#">Sprint report</a>
modLSMcoup	●	FZJ	Develop proof-of-concept for modular coupling → <a href="#">Sprint report</a>
CLEO	●	MPI-M	Coupling CLEO to ICON with YAC → <a href="#">Sprint report</a>
PALM	●	Uni Hannover	Porting PALM modules related to urban processes to GPUs → <a href="#">Sprint report</a> <b>just finished!</b>
MESSy-ComIn2	●	DLR-PA	ComIn integration time loop
PDAF2GPU	●	AWI	Porting PDAF to GPUs → <a href="#">Sprint report</a> <b>just finished!</b>
MESSy Output server	●	FZJ	Implementation of an additional output back-end for CHANNEL This sprint is being conducted by our associated team member in the  <b>esiwace</b> project.
PISM-AsyncIO	●	MPI-GEA	Resolve the issue with the I/O library for asynchronous output
WAM	●	Hereon	Full NetCDF I/O and performance optimization
ICON-XPP	●	DWD	Optimization of ICON-XPP for DWD NEC Aurora vector computer
CLEO2	●	MPI-M	Uniting CLEO's domain decomposition with its two-way coupling to ICON

Additional information from the sprints, beyond what is covered in the sprint reports, is available in our [GitLab wiki](#).

## Small update to sprint process

In rare cases, a sprint may need to be adjusted or discontinued before its planned end – for example, if the project turns out to be technically unfeasible or misaligned with natESM’s strategic aims. We’ve now added a clear framework to the natESM strategy to handle such exceptional situations transparently and collaboratively. Final decisions rest with the steering committee.

👉 As always, the [updated strategy](#) is available on our website. Details on the sprint process begin at the bottom of page 8.