

ESiWACE3 Newsletter

Issue #6 / November 2024

News

ESiWACE3 part-funded paper wins conference award

From 26 to 30 August 2024, Madrid (Spain) held the [30th International European Conference on Parallel and Distributed Computing](#). EuroPar is the prime European conference covering all aspects of parallel and distributed processing.

Members of the [EuroHPC Joint Undertaking](#)-funded [Center for Excellence ESIWACE3](#) from the [Netherlands eScience Center](#) (NLeSC) received the “Best Paper Award” at the EuroPar conference for their work on [auto-tuning HIP code on Nvidia and AMD GPUs](#). In the paper, they introduce support for tuning HIP code into Kernel Tuner, a Python tool for automating performance tuning of GPU applications, and show the impact that tuning has on achieving the best performance on AMD and Nvidia hardware. Further, Kernel Tuner also supports tuning GPU code for energy efficiency, and future work will focus on studying the effects of this on weather and climate models.



Caption: Stijn Heldens (NLeSC) presenting the work on Auto-tuning during the EuroPar conference.

HPCW from ESIWACE3 at the 6th MareNostrum Hackathon

From 7 to 9 October, the [Barcelona Supercomputing Center-Centro Nacional de Supercomputación \(BSC-CNS\)](#) celebrated its 6th MareNostrum Hackathon and ESIWACE3 was part of it.



Caption: team from ESIWACE3 at the Hackathon.

Our team from [HPCW - The High Performance Climate & Weather Benchmark](#) took part in the hackathon and used the opportunity to work on HPCW, a domain-specific benchmark that provides a set of relevant and realistic near-operational weather and climate workloads.

Sergi Palomas, Research Engineer at BSC, was part of the team that participated in the hackathon and highlights the importance of being able to meet and work with the developers of HPCW in person: "A task that would have taken me weeks of work, they were able to do in a few hours. We were able to move almost all of HPCW to MN5, both the CPU (GP) and accelerator (APP) partitions. This has allowed us to obtain performance and energy metrics thanks to the tools we have here at BSC, and we have already started working on changes and improvements to HPCW that will allow these metrics to be collected automatically."

This year's MareNostrum Hackathon broke a record for participation, with 20 teams representing projects and other Centres of Excellence such as Plasma-PEPSC, POP, SPACE and others.

ESIWACE3 Present at the International HPC Users Forum

On 21 and 22 October, the Barcelona Supercomputing Center-Centro Nacional de Supercomputación (BSC-CNS) hosted the [International HPC Users Forum Fall 2024](#).

The [HPC User Forum](#) was established in 1999 to promote the health of the global HPC industry and address issues of common concern to users. The organization has grown to 150 members and it is

directed by a volunteer Steering Committee of users from government, industry and academia, and operated for the users.

On the second day of the conference, Mario Acosta, Principal Investigator of ESIWACE3, gave a presentation entitled "Optimising Climate Models with Accelerators and Emerging Technologies", where he introduced the ESIWACE3 to the audience.

Mario highlighted how the Centre of Excellence is focused on supporting the weather and climate modelling community to achieve excellence in exascale supercomputing to the HPC User Forum attendees. Finally, he explained the service portfolio, catalogue and training we offer to HPC users.



Caption: HPC User Forum conference, Barcelona

ESIWACE3 participated in the EuroHPC User Day

From 22 to 23 October, Amsterdam hosted the [EuroHPC User Day](#), organised by the [European High Performance Computing Joint Undertaking](#) (EuroHPC-JU) and [EuroCC Netherlands](#) Netherlands.

The EuroHPC User Day aims to bring together the EuroHPC user community, where participants were able to showcase EuroHPC projects that have used European HPC supercomputing resources, share best practices in the development of these projects, gather feedback from EuroHPC users, and engage with potential new users.

ESIWACE3 was present during the session entitled "Walk-in networking sessions focusing on specific EuroHPC user needs: provide your feedback and get some advice!", where Gijs van den Oord and Alessio Sclocco from the [Netherlands eScience Centre](#) and members at ESIWACE interacted with the community and shared experiences with the ESIWACE project, spreading the goals of our project among the HPC community.



Caption: Gijs van den Oord and Alessio Sclocco at the session.

In the words of Alessio Sclocco, it was a great session to network and create synergies: “Participating in the EuroHPC Users Day was a great opportunity to interact with EuroHPC users and help them understand what ESIWACE can do for them. We were also able to explain exactly what we do, both scientifically and organizationally.”

ESiWACE3 at SC24 in Atlanta

ESiWACE3 will be participating in the [SC24 conference](#) taking place in Atlanta, Georgia from 17 to 22 November 2024.

SC24, formally known as The International Conference for High Performance Computing, Networking, Storage, and Analysis, is a premier annual event that brings together a diverse community of researchers, scientists, application developers, data centre personnel, and industry professionals. The conference provides a platform to explore the latest advances and innovations in High Performance Computing (HPC).

ESiWACE3 will present our latest videos at the [EuroHPC Joint Undertaking \(JU\)](#) booth. This will be an excellent opportunity to showcase our work, engage with the HPC community and explore potential collaborations.



Capture: video animation thumbnail

Events

External events

External events in which ESIWACE3 has participated since the last issue of the ESIWACE Newsletter:

- [European Meteorological Society Annual Meeting 2024](#), “ESiWACE3: Excellence in Simulation of Weather and Climate in Europe” organised by the European Meteorological Society, Barcelona (Spain), 2-6 September 2024. [Poster](#)
- Workshop on Advancements of Global Challenges Applications (PPAM2024) Ostrava (Czech Republic), 8-11 September 2024.
- ["Storms, Eerie and Science" hour - EERIE, WarmWorld and nextGEMS](#), Online, 16 September 2024. [Presentation](#)
- [HPC User Forum Fall 2024](#), Barcelona (Spain), 22 September 2024. [Presentation](#)
- [EuroHPC JU User Day](#), Amsterdam (Netherlands), 22 October 2024. |

Updates

Deliverables:

- **Deliverable 1.5: Report on the containerization of ECEarth4 D1.5**

This deliverable focuses on the containerisation of EC-Earth 4, an Earth system model, using Apptainer software. The aim is to design, develop and test a containerised version to facilitate easier deployment and reproducible installation environments, particularly in HPC systems. The final container has been tested in a coupled atmosphere-ocean-sea-ice configuration, with performance evaluated for EuroHPC pre-exascale systems and a detailed deployment example provided.

Read D1.5 [here](#).

● **Deliverable 4.2: Interim report on first year of Services**

The ESIWACE3 project creates two services. Service 1: “Collaborations to prepare Europe’s Weather and Climate Models for pre-exascale systems” focuses on porting and refactoring weather and climate models to new computing architectures, such as GPUs. Service 2: “State-of-the-art development tools for Weather and Climate” focuses on helping weather and climate model developers to adopt the tools developed by ESIWACE3 Work Package 1-3. This document reports on the 15 months of service projects by presenting and evaluating their achievements, progress and performance, both scientifically and technically.

Read D4.2 [here](#).

Milestones:

● **Milestone 5.3: The first summer school organised**

This milestone focuses on the first summer school organised by ESIWACE. The ESIWACE3-WarmWorld Summer School on HPC for Climate and Weather Applications was held at the Hotelli Korpilampi in Espoo, Finland between 27th August and 2nd September 2024.

Read M5.3 [here](#).

News from the neighbours

Upcoming conferences and events

- [Supercomputing 2024](#), 17-19 November 2024, Atlanta (USA).
- [HiPEAC 2025](#), 20-22 January 2025, Barcelona (Spain)
- [EuroHPC Summit 2025](#), 18-20 March 2025, Kraków (Poland)
- [EGU General Assembly 2025](#), 27 April to 2 May 2025, Vienna (Austria) & Online
- [ISC High Performance 2025](#), 10-13 June 2025, Hamburg (Germany)

Training events

Find collected information on upcoming and past training events from all consortium partners and projects we are involved with [here](#).

