8th ENES HPC Workshop
on "HPC for high-resolution climate and weather modelling"
organized by ESiWACE

Lecce, CMCC Foundation, Via M. Biagi, 5
22-24 May 2024

Wednesday, 22 May		
14:00-14:30 h	*Registration & Welcome coffee*	
14:30-14:40 h	**Welcome session**	
14:30-14:35 h	Welcome	Italo Epicoco - CMCC, IT
14:35-14:40 h	Workshop introduction and opening remarks	J. Biercamp - DKRZ, DE
14:40-18:20 h	**Session 1 – European and International Landscape**	**Chairs: J. Biercamp / E. Raffin**
14:40-15:05 h	Feasibility study for the next flagship supercomputer development and high-resolution climate modelling efforts in Japan	Hisashi Yashiro - RIKEN and AICS, Japan
15:05-15:30 h	TBC	A. Kaginalkar - C-DAC, India
15:30-15:55 h	Latest developments in the DestinE framework	Nils Wedi - ECMWF, EU
15:55-16:15 h	*Coffee break*	
16:15-16:40 h	JUPITER - Exascale computing for European climate research	Lars Hoffmann - JSC, EU
16:40-17:05 h	The Jules Verne consortium HPC infrastructure (TBC)	S. Requena - GENCI, France
17:05-17:30 h	EPI / EUPEX (TBC)	Etienne Walter - Eviden, EU
17:30-17:55 h	High-Resolution Climate Modeling and Prediction in China	Yongquiang Yu - IAP/CAS, Ocean University of China
18:00-18:30 h	**General discussion & end of day 1**	

Note: Time for speakers includes 5 minutes for questions

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Thursday, 23 May		
08:30-09:10 h	*Welcome coffee*	
09:00-13:20 h	**Session 2 – Performance and accelerators; In memory of Rupert Ford**	**Chairs: M. Acosta / S. Valcke**
09:00-09:15 h	In memory of Rupert Ford (including one minute of silence)	
09:15-09:40 h	PSyclone: a source-to-source compiler to achieve Fortran performance portability	Sergi Siso - STFC
09:40-10:05 h	Managing I/O performance in LFRic with XIOS	Harry Shepherd - MetOffice, UK
10:05-10:30 h	LOKI at ECMWF (TBC)	Michael Lange - ECMWF
10:30-10:55 h	Performance optimisation of ultra-high resolution earth system models on GPUs	John Dennis - NCAR, USA
10:55-11:15 h	*Coffee break*	
11:15-11:40 h	News from E3SM - Energy Exascale Earth System Model	Rob Jacob - Argonne National Lab, USA
11:40-12:05 h	Comparison of eddy-permitting, eddy rich and sub-mesoscale permitting global configurations based on NEMO 4.2 OGCM	Clément Bricaud, Mercator
12:05-12:30 h	Ongoing development of the new Eulerian sea-ice model neXtSIM-DG: a focus on the scalability and parallelisation strategies	Laurent Brodeau, CNRS, France
12:30-12:55 h	DestinE; DT weather extremes (TBC)	Piet Termonia - Météo-France, FMI

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12:55-13:20 h	DestinE; DT climate (IFS-NEMO, IFS-FESOM, ICON)	Mario Acosta - BSC
13:20-14:30 h	*Lunch break*	
14:30-18:10 h	**Session 3 – Data workflow**	**Chair: U. Fladrich / S. Fiore**
14:30-14:55 h	Innovations in data handling associated with the CANARI large ensemble programme and the UK exascale software programme Excalibur	Bryan Lawrence - NCAS
14:55-15:20 h	ESGF and preparations for CMIP7	Dave Poulter - UKRI
15:20-15:45 h	EOSC-related initiatives	Tiziana Ferrari - EGI
15:45-16:10 h	Destination Earth Data Lake - Services & Interaction with HPC sites	Michael Schick - EUMETSAT
16:10-16:30 h	*Coffee break* Poster presentation: "Evaluating computational performance metrics in Climate modelling: Insights from CMIP6"; Sergi Palomas, Mario Acosta and Gladys Utera	
16:30-16:55 h	Certification of Archives	Andrea Lammert - DKRZ
16:55-17:20 h	Metadata Advances in Support of Earth System Modelling	David Hassell - NCAS
17:20-17:45 h	Climate indices for model evaluation and user applications	Lars Bärring - SMHI
17:45-18:10 h	High-performance data analytics	Donatello Elia - CMCC
18:10-18:30 h	**General discussion & end of day 2**	
20:30 h	**Social dinner (TBC)**	

Note: Time for speakers includes 5 minutes for question

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Friday, 24 May		
09:00-09:30 h	*Welcome coffee*	
09:30-16:00 h	**Session 4 – Machine Learning**	**Chairs: G. Aloisio / P. Dueben**
09:30-09:55 h	Data-driven weather forecasting at ECMWF	Simon Lang - ECMWF
09:55-10:20 h	U-smile	Veronika Eyring - DLR
10:20-10:45 h	Machine Learning Downscaling	Laure Raynaud - MeteoFrance
10:45-11:05 h	*Coffee break*	
11:05-11:30 h	End-to-end learning for ocean modelling, monitoring and forecasting	Ronan Fablet - IMT Atlantique
11:30-11:55 h	Atmorep	Ilaria Luise - CERN
11:55-12:20 h	Using ChatGPT to Translate and Modernize an Earth System Model from Fortran to Python/JAX	Anthony Zhou - Columbia University
12:20-12:45 h	PanguWeather	Lingxi Xie - Huawei Research
12:45-13:10 h	DiffDA: a diffusion model for weather-scale data assimilation	Langwen Huang - ETH
13:10-14:30 h	*Lunch break*	
14:30-14:55 h	Why all emergent constraints are wrong but some are useful - a machine learning perspective	Peer Nowack - NIC
14:55-15:20 h	Improving parameterisation of convective momentum transport through machine learning	Paul O'Gorman
15:30-16:00 h	**Closing remarks and end of the workshop**	

Note: <u>Time for speakers includes 5 minutes for questions</u>