

17th Workshop on High Performance Computing in Meteorology

24-28 October 2016



Programme

Monday 24 October

08:30-09:45	Registration and coffee	
09:45-10:00	Welcome and opening	Isabella Weger (ECMWF)
Session Chair: Isabella Weger		
10:00-10:30	Two years into ECMWF's Scalability Programme: What have we achieved?	Peter Bauer (ECMWF)
10:30-11:00	The evolving state-of-the-art in global numerical weather prediction	Nils Wedi (ECMWF)
11:00-11:30	<i>Coffee break</i>	
Session Chair: George Mozdzynski		
11:30-12:00	Met Office HPC update	Paul Selwood (Met Office)
12:00-12:30	Fifty years of NWP at DWD - and what to expect in the future?	Ulrich Schättler (DWD)
12:30-13:00	Computing at NCAR	Dave Hart (NCAR)
13:00-14:00	<i>Lunch break</i>	
Session Chair: Sami Saarinen		
14:00-14:30	RAPS14 benchmark on 2nd generation Intel Xeon Phi processor	Mikko Byckling (Intel)
14:30-15:00	Experiences Optimizing NWP for Intel's Xeon Phi, Knights Landing	John Michalakes (UCAR)
15:00-15:30	HBM code modernization	Jacob Weismann-Poulsen and Per Berg (DMI)
15:30-16:00	<i>Coffee break</i>	
Session Chair: Nils Wedi		
16:00-16:30	ECMWF's Next Generation IO for the IFS Model and Product Generation	Tiago Quintino (ECMWF)
16:30-17:00	IO Performance Evaluation on Massive Data Processing at NCI High Performance Computing Platform	Rui Yang (NCI)
17:00-17:30	Emerging Cyber Infrastructure for NASA's Large-Scale Climate Data Analytics	Daniel Duffy (NASA)
17:30	<i>Drinks Reception</i>	

Tuesday 25 October

Session Chair: Isabella Weger

09:30-10:30	Keynote: With Extreme Scale Computing the rules have changed	Jack Dongarra (University of Tennessee)
10:30-11:00	A codesign effort to get ECMWF's IFS model to an extreme O(100) OpenMP threads per MPI task for the [Peta,Exa]Scale	George Mozdzynski (ECMWF)
11:00-11:30	Coffee break	

Session Chair: Deborah Salmond

11:30-12:00	Determining Optimal MPI Process Placement for Large-Scale Meteorology Simulations with SGI mpiplace	James Southern (SGI)
12:00-12:30	Recent developments in ARPEGE/AROME/ALADIN	Philippe Marguinaud (MeteoFrance)
12:30-13:00	Platform specific optimizations within the ESCAPE project	Peter Messmer (NVIDIA)
13:00-14:00	Lunch break	

Session Chair: Iain Miller

14:00-14:30	The system design of the next generation supercomputer: Post K computer	Sumimoto Shinji (Fujitsu)
14:30-15:00	Preparing atmospheric modeling codes for the latest generation MIC architecture (KNL)	James Rosinski (NOAA)
15:00-15:30	Experiences with Environmental Science Applications on Intel's Knights Landing Architecture	Ben Evans (NCI)
15:30-16:15	Coffee break and tour of ECMWF Computer Hall	

Session Chair: Tiago Quintino

16:15-16:45	HPC Performance Advances for Existing Navy NWP Systems	Tim Whitcomb (NRL)
16:45-17:30	New supercomputing infrastructure of the Canadian Meteorological Center and high resolution results of the GEM model	Vivian Lee, Alain St-Denis and Laurent Chardon (Environment Canada)

Wednesday 26 October

Session Chair: Sami Saarinen

09:30-10:30	Keynote: Exascale computing: endgame or new beginning for climate modelling?	Thomas Schulthess (CSCS)
10:30-11:00	Parallelization of the FV3 Dycore for GPU and MIC processors	Mark Govett (NOAA)
11:00-11:30	Coffee break	

Session Chair: Paul Burton

11:30-12:00	Supercomputing trends in Earth System Modelling	Philip Brown (Cray)
12:00-12:30	Development and Testing of a Next Generation Spectral Element Model for the US Navy	Alex Reinecke (NRL)
12:30-13:00	Asynchronicity the future paradigm of parallelization	Luis Kornbluh (MPI)
13:00-14:00	<i>Lunch break</i>	

Session Chair: Olivier Marsden

14:00-14:30	Solutions to growing intensity of climate and meteorological data	Eng Lim Goh (SGI)
14:30-15:00	ecProf meets High Resolution IFS forecast at ECMWF	Deborah Salmond and Sami Saarinen (ECMWF)
15:00-15:30	Investigating and Vectorizing IFS on a Cray Supercomputer	Ilias Katsardis (Cray)
15:30-16:00	<i>Coffee break</i>	

Session Chair: Marcin Chrust

16:00-16:30	Towards Exascale Computing with the Atmospheric Model NUMA	Andreas Mueller (ECMWF)
16:30-17:00	A seven-year programme to enhance the computational and numerical prediction capabilities of the Bureau's forecast and warning service	Tim Pugh (BoM)
17:00-17:30	Testing performance and scaling for NOAA's next generation global modeling system	John Michalakes (UCAR)
17:30	<i>Reception, followed by workshop dinner</i>	

Thursday 27 October

Session Chair: Peter Dueben

09:30-10:00	More Accuracy with Less Precision: An Information Theoretic Paradigm for Weather and Climate Simulation	Tim Palmer (University of Oxford)
10:00-10:30	NVIDIA HPC directions for Earth System Modelling	Stan Posey (NVIDIA) and Dave Norton (PGI)
10:30-11:00	Operational numerical weather prediction on a GPU-accelerated cluster supercomputer	Carlos Osuna (MeteoSwiss)
11:00-11:30	<i>Coffee break</i>	

Session Chair: Andreas Mueller

11:30-12:00	The future of Data Centric Computing: OpenPOWER roadmap	Cristiano Malossi (IBM Research - Zurich)
12:00-12:30	Improving the Computational Efficiency of the Aerosol processing in UKCA	Mark Richardson (UKCA)
12:30-13:00	An Introduction to the LFRic Project	Mike Hobson (Met Office)
13:00-14:00	<i>Lunch break</i>	

Session Chair: Mike Sleigh		
14:00-14:30	How Atos contribute to climate and weather projects?	Xavier Vigouroux (ATOS)
14:30-15:00	Scalability of MOM 5, NEMO, and MOM 6 on NCI's Raijin supercomputer	Marshall Ward (NCI)
15:00-15:30	The evolution and revolutions required for exascale	John Goodacre (University of Manchester)
15:30-16:00	<i>Coffee break</i>	
Session Chair: Isabella Weger		
16:00-17:30	The Panel: What does the future look like for NWP application development?	John Michalakes (UCAR)
17:30	<i>Drinks</i>	

Friday 28 October		
Session Chair: Sami Saarinen		
09:30-10:00	Forecasts Applications driven by High-Performance Computing at The Weather Company	Todd Hutchinson (Weather Company)
10:00-10:30	Scaling the Software and Advancing the Science of Global Modeling and Assimilation Systems at NASA	William Putman (NASA)
10:30-11:00	Optimising observation processing in IFS: a case study in scalability improvements	Peter Lean (ECMWF)
11:00-11:30	<i>Coffee break</i>	
Session Chair: Peter Bauer		
11:30-12:00	Advances in Time-Parallel Four-Dimensional Data-Assimilation In a Modular Software Framework	Brian Etherton (NOAA)
12:00-12:30	Large scale heterogeneous applications made easy with Allinea	Florent Lebeau (Allinea)
12:30-13:00	The Performance Optimisation and Productivity Centre of Excellence	Nick Dingle (NAG)
13:00	<i>End of workshop</i>	