

Workshop on numerical and computational methods for simulation of all-scale geophysical flows



3–6 October 2016

Programme (28 September)

Monday, 3 October		
09:00-09:45	<i>Registration, in the Weather Room</i>	
09:45-10:00	<i>Welcome</i>	Erland Källén
Chair:	Michail Diamantakis	
10:00-10:30	Results and challenges with Dynamo, the Met Office's next generation dynamical core	Tommaso Benacchio (Met Office)
10:30-11:00	<i>Coffee break</i>	
11:00-11:30	A finite-volume module for cloud-resolving simulations of global atmospheric flows	Piotr Smolarkiewicz (ECMWF)
11:30-12:00	Dimension splitting errors and a long time-step multi-dimensional scheme for atmospheric transport	Hilary Weller (University of Reading)
12:00-12:30	Towards Exascale Computing with the Atmospheric Model NUMA	Andreas Müller (ECMWF)
12:30-13:00	Split-explicit methods and local linear splitting	Oswald Knoth (Leibniz Institute for Tropospheric Research)
13:00-14:15	<i>Lunch break</i>	
Chair:	Joanna Szmelter	
14:15-14:45	Computation at a coordinate singularity	Joseph Prusa (Teraflux Corporation)
14:45-15:15	Challenges in weather and climate modelling on the route to exascale	Gianmarco Mengaldo (ECMWF)
15:15-15:45	<i>Coffee break</i>	
15:45-16:15	Improving accuracy over steep slopes	James Shaw (University of Reading)
16:15-16:45	A finite-volume module for the IFS	Christian Kühnlein (ECMWF)
17:00	<i>Icebreaker, in the ECMWF Atrium</i>	

Tuesday, 4 October

Chair: **Hillary Weller**

09:30-10:00	Moving meshes over orography without conservative re-mappings	Philip Browne (University of Reading)
10:00-10:30	An unstructured mesh NFT approach to all-scale atmospheric flows	Mike Gillard (Loughborough University)
10:30-11:00	Coffee break	
11:00-11:30	Spectral deferred corrections with fast-wave slow-wave splitting	Daniel Ruprecht (University of Leeds)
11:30-12:00	Applying the Laplace transform integration scheme in OpenIFS	Eoghan Harney (University College Dublin)
12:00-12:30	Third-order accurate MPDATA for arbitrary flows	Maciej Waruszewski (University of Warsaw)
12:30-13:00	Sensitivity of the ECMWF model to semi-Lagrangian departure point iterations	Michail Diamantakis (ECMWF)
13:00-14:15	Lunch break	

Chair: **Zbigniew Piotrowski**

14:15-14:45	The use of inexact hardware to improve weather and climate predictions	Peter Düben (University of Oxford)
14:45-15:15	Application of anelastic and compressible EULAG solvers for limited-area numerical weather prediction in the COSMO consortium	Damian Wójcik (IMGW-PIB)
15:15-15:45	Coffee break	
15:45-16:15	Modeling of daytime convective development over land with COSMO-EULAG	Bogdan Rosa (IMGW-PIB)
16:15-16:45	Can we model unresolved effective mass transport in a NWP model?	Sylvie Malardel (ECMWF)

Wednesday, 5 October

Chair: **Sylvie Malardel**

09:30-10:00	Simulating the characteristics of tropical cyclones over the South West Indian Ocean using a stretched-grid global climate model	Babatunde Abiodun (University of Cape Town)
10:00-10:30	Simulating the characteristics of tropical cyclones over the South West Indian Ocean using an adaptive stretched-grid global climate model	Molulaqhoora Maoyi (University of Cape Town)
10:30-11:00	Coffee break	
11:00-11:30	Separating dynamical and microphysical impacts of aerosols on deep convection applying piggybacking methodology	Wojciech Grabowski (NCAR)
11:30-12:00	A numerical study on small-scale flow patterns in the thermally driven rotating annulus of fluid	Thomas von Larcher (Freie Universität Berlin)
12:00-12:30	Idealized model simulations of gravity wave propagation – modifications in the tropopause region	Vera Bense (Johannes Gutenberg University)

Wednesday, 5 October

12:30-13:00	Turbulent transport of the energy in the entrainment interface layer	Marta Kopeć (University of Warsaw)
13:00-14:15	Lunch break	
Chair: Andreas Dörnbrack		
14:15-14:45	Global instabilities and mode transitions in magnetohydrodynamical ILES simulations of solar convection	Paul Charbonneau (Université de Montréal)
14:45-15:15	Modulated heat transport in global MHD simulations of solar convection	Jean-Francois Cossette (Laboratory for Atmospheric and Space Physics)
15:15-15:45	Coffee break	
15:45-16:15	Behind the scenes: benchmarking sub-grid scales models in global simulations of stellar convective dynamos	Antoine Strugarek (Université de Montréal)
16:15-16:45	EULAG 2016 – status and challenges	Zbigniew Piotrowski (Poznan Supercomputing and Networking Center)
19:00	Workshop Dinner at Carluccio's	

Thursday, 6 October

Chair: Bogdan Rosa		
10:00-10:30	The impact of neutral boundary layer turbulence on wind turbine wake: A numerical modelling study	Andreas Dörnbrack (DLR)
10:30-11:00	Large-eddy simulations of a wind turbine wake above a forest	Zbigniew Piotrowski (Poznan Supercomputing and Networking Center) and Andreas Dörnbrack (DLR)
11:00-11:30	Coffee break	
11:30-12:00	Numerical simulation of stably stratified atmospheric flow around isolated complex-shaped tall building	Michał Korycki (National Centre for Nuclear Research)
12:00-12:30	Entrainment and anisotropic turbulence in large-eddy simulation of the stratocumulus-topped boundary layer	Jesper Pedersen (University of Warsaw)
12:30-13:00	Closure	
13:00-14:15	Lunch	

Posters

Future changes in extreme rainfall events and African easterly waves over West Africa	<u>Egbebiyi</u> , Abiodun
Large-eddy simulation of stratocumulus-topped boundary during POST	<u>Ma</u> , Malinowski, Pedersen