TRAINING COURSE

Advanced numerical methods for Earth-System modelling
13-17 March 2017

	Monday 13 March	Tuesday 14 March	Wednesday 15 March	Thursday 16 March	Friday 17 March
09:15-10:15	Introductions	Algorithms for semi-implicit integrations of nonhydrostatic PDEs of atmospheric dynamics (1) **Piotr Smolarkiewicz**	The semi-Lagrangian, semi-implicit technique of the ECMWF model **Michail Diamantakis**	Discontinuous higher order discretization methods **Willem Deconinck**	Massively parallel computing for NWP and climate **Andreas Müller**
10:15-10:45	*Coffee break*				
10:45-11:45	Numerics and discretisation in Numerical Weather Prediction today **Nils Wedi**	Algorithms for semi-implicit integrations of nonhydrostatic PDEs of atmospheric dynamics (2) **Piotr Smolarkiewicz**	Practical Session **Willem Deconinck, Christian Kühnlein**	Discontinuous higher order discretization methods **Willem Deconinck**	Reduced precision computing for Earth System Modelling **Peter Düben**
11:45-11:55	*Comfort break*				
11:55-12:55	Introduction to semi-implicit integrations of nonhydrostatic PDEs of atmospheric dynamics **Piotr Smolarkiewicz**	Practical session (elliptic solvers) **Andreas Müller, Willem Deconinck, Christian Kühnlein**	Practical Session **Willem Deconinck, Christian Kühnlein**	Operational and research activities at ECMWF now and in the future **Sarah Keeley and Erland Källén**	Course wrap up and Certificates
13:00-14:00	*Lunch break*				
14:00-15:00	The spectral transform method **Nils Wedi**	Eulerian time-stepping schemes for NWP and climate **Michail Diamantakis**	Hydrostatic/Non-hydrostatic dynamics, resolved/permitted convection and interfacing to physical parameterizations **Sylvie Malardel**	Introduction to element based computing, finite volume and finite element methods **Joanna Szmelter**	
15:00-15:30	*Coffee break*				
15:30-16:30	Vertical discretisation **Christian Kühnlein** *16:30: Weather Room visit* *17:00: Ice breaker*	Mesh adaptivity using continuous mappings **Christian Kühnlein** *16:30: Computer Hall tour*	Hydrostatic/Non-hydrostatic dynamics, resolved/permitted convection and interfacing to physical parameterizations **Sylvie Malardel**	Mesh generation **Joanna Szmelter**	