Workshop on Diagnostics for Global Weather Prediction

Programme

Monday
Agenda

Agenda time displays according to the selected time zone.

The selected timezone is Europe/London

12:00 to 14:00	**Registration and lunch** Registration in the Weather Room	
	Workshop opening	
14:00 to 14:10	**Welcome and introduction** Video recording	Matthieu Chevallier (ECMWF)
14:10 to 14:15	**Logistical arrangements**	Mark Rodwell (ECMWF)
	Predictability Chair: Sarah-Jane Lock, Rapporteur: Inna Polichtchouk	
14:15 to 14:45	**Diagnostics for investigating the representation of synoptic-scale processes in models and their benefit for medium- to extended-range prediction** Presentation slides Video recording	Christian M. Grams (Federal Office of Meteorology and Climatology, MeteoSwiss)
14:45 to 15:05	**Diabatic heating as a diagnostic for predictability on weather to intra-seasonal time scales** Presentation slides Video recording	David Straus (George Mason University)
15:05 to 15:25	**‘Forecast busts’ over Europe in ERA5 reforecasts: Characteristics and predictions using neural networks** Presentation slides Video recording	Seraphine Hauser (University of Oklahoma)
15:25 to 15:55	**Coffee break**	
15:55 to 16:15	**The transition from practical to intrinsic predictability and how to diagnose it** Presentation slides Video recording	Tobias Selz (LMU München)

16:15 to 16:45	**Discussion 1** What is ultimate predictability, and what is holding NWP back? Video recording	
16:45 to 17:45	**Icebreaker reception** Weather Room	

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	Processes 1 Chair: Richard Forbes, Rapporteur: Luise Schulte	
09:30 to 10:00	**Diagnosing Mesoscale Convective Systems in DYAMOND Models: A Feature Tracking Intercomparison** Presentation slides Video recording	Zhe Feng (Pacific Northwest National Laboratory)
10:00 to 10:20	**Evaluation and Error Analysis of the July 2021 Extremely Severe Rainstorm in Henan Province Simulated by CMA-MESO Model** Presentation slides Video recording	Ziwei Wan (CMA Earth System Modeling and Prediction Centre)
10:20 to 10:40	**The Challenge of Representing Extreme Rainfall Events in Global Models** Presentation slides Video recording	David B. Parsons (University of Oklahoma)
10:40 to 11:00	**The role of eddy momentum flux on the organisation of shallow convection** Presentation slides Video recording	Alessandro Savazzi (TuDelft)
11:00 to 11:30	**Coffee break**	
11:30 to 11:50	**Model Uncertainty – MIP** Presentation slides Video recording	Hannah Christensen (University of Oxford)
11:50 to 12:10	**ICECAP - A tool to analyse multi-centre sea-ice forecasts from days to seasons** Presentation slides Video recording	Steffen Tietsche (ECMWF)

12:10 to 12:30	**Process-based diagnostics using atmosphere budget analysis and nudging technique to identify sources of model systematic errors in global MetUM** Presentation slides Video recording	Chihiro Matsukawa (Japan Meteorological Agency, Met Office)
12:30 to 12:50	**Process-based diagnostics of the impact of new observing systems: a case study of the Aeolus wind satellite** Presentation slides Video recording	Robin Pilch Kedzierski (Meteorologisches Institut, Universität Hamburg)
12:50 to 13:50	**Lunch break**	
13:50 to 14:20	**Research on Error Traceability Technology Based on Scale Analysis** Presentation slides Video recording	Bin Zhao (CMA Earth System Modeling and Prediction Centre, China Meteorological Administration)
14:20 to 14:50	**Discussion 2** What are the key model process errors and uncertainties? Video recording	
	Posters	
14:50 to 15:30	**Poster introductions** Chair: David Lavers Video recording	
15:30 to 17:00	**Poster session**	

Wednesday
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	Machine learning Chair: Michael Maier-Gerber, Rapporteur: Linus Magnusson	
09:30 to 09:50	**Do AI models produce better weather forecasts than physics-based models? A quantitative evaluation case study of Storm Ciarán** Presentation slides Video recording	Simon Driscoll (University of Reading)
09:50 to 10:10	**Global deep-learning weather prediction model evaluation and error diagnostics** Presentation slides Video recording	Uroš Perkan (University of Ljubljana, Faculty of Mathematics and Physics)
10:10 to 10:30	**Can ML help end users increase forecast successes and highlight potential busts** Presentation slides Video recording	Isla Finney (Lake Street Consulting Ltd)
10:30 to 11:00	**Discussion 3 - Why are AI models so competitive, and are they physically consistent?** Rapporteur: Linus Magnusson Video recording	
11:00 to 11:30	**Coffee break and group photo**	
	Host talk	
11:30 to 11:50	**Scale-dependent evaluation and fair comparison of ensemble systems** Presentation slides Video recording	Mark Rodwell (ECMWF)
	Processes 2 Chair: Frederic Vitart, Rapporteur: Rebecca Emerton	

11:50 to 12:20	**Diagnosing tropical waves** Presentation slides Video recording	Peter Knippertz (Karlsruhe Institute of Technology)
12:20 to 12:40	**Tropical Wave Diagnostics and Their Applications to Numerical Weather Models** Presentation slides Video recording	Quinton Lawton (University of Miami)
12:40 to 13:00	**The Maritime Continent barrier effect on MJO predictability** Presentation slides Video recording	Hyemi Kim (Ewha Womans University)
13:00 to 14:00	**Lunch break**	
14:00 to 14:30	**Diagnostics for Tropical cyclone prediction : from the S2S scale to the mesoscale** Presentation slides Video recording	Philippe Peyrillé (Météo-France)
14:30 to 15:00	**Discussion 4** The tropical elephant in the forecasting room? Video recording	
15:00 to 15:30	**Coffee break**	
	Community data and tools Chair: Linus Magnusson, Rapporteur: Alison Cobb	
15:30 to 15:50	**Diagnostics Package for MJO-Teleconnections** Presentation slides Video recording	Chaim Garfinkel (Hebrew University)
15:50 to 16:10	**The Ensemble Museums – a diagnostic tool of weather forecasting-** Presentation slides Video recording	Mio Matsueda (Univesity of the Ryukyus/University of Tsukuba)
16:10 to 16:30	**The development and implementation of diagnostics for ERA5 and ERA6** Presentation slides Video recording	Alison Cobb (ECMWF)

16:30 to 17:00	**Discussion 5** The importance of community datasets and intercomparison Video recording	
18:30 to 21:00	**Dinner in Reading town centre**	

Thursday
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	Resolution and scale interactions Chair: Inna Polichtchouk, Rapporteur: Richard Forbes	
09:30 to 10:00	**Diagnostic approaches for the GLObal-to-Regional ICON (GLORI) Digital Twin** Presentation slides Video recording	Chiara Marsigli (DWD)
10:00 to 10:20	**Flow dependence of error growth: Potential-vorticity diagnostics and feature tracking** Presentation slides Video recording	Michael Riemer
10:20 to 10:40	**Case study of error-growth from mesoscale convection near the intrinsic limit: combining potential vorticity error growth tendencies with ensemble sensitivity analysis** Presentation slides Video recording	Edward Groot (AOPP, University of Oxford)
10:40 to 11:00	**Inspecting high-resolution coupled models in a scale-aware way** Presentation slides Video recording	Matthias Aengenheyster (ECMWF)
11:00 to 11:30	**Coffee break**	
11:30 to 12:00	**Challenges in the evaluation of the K-Scale hierarchy** Presentation slides Video recording	Claudio Sanchez (Met Office)
12:00 to 12:30	**Discussion 6** Does resolution matter in global NWP? Video recording	
	Close of workshop Chair: Mark Rodwell, Rapporteur: Sarah-Jane Lock	

12:30 to 13:00	**Plenary discussion** What have we learnt? Diagnostic success stories? Diagnostic priorities? The ingredients of the perfect diagnostic? Video recording	