



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 (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

Tuesday

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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

Agenda

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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 Agenda

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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](#)
