



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

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

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

# Wednesday

## Agenda

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

11:50 to 12:20	<b>Diagnosing tropical waves</b> <a href="#">Presentation slides</a> <a href="#">Video recording</a>	Peter Knippertz (Karlsruhe Institute of Technology)
12:20 to 12:40	<b>Tropical Wave Diagnostics and Their Applications to Numerical Weather Models</b> <a href="#">Presentation slides</a> <a href="#">Video recording</a>	Quinton Lawton (University of Miami)
12:40 to 13:00	<b>The Maritime Continent barrier effect on MJO predictability</b> <a href="#">Presentation slides</a> <a href="#">Video recording</a>	Hyemi Kim (Ewha Womans University)
13:00 to 14:00	<b>Lunch break</b>	
14:00 to 14:30	<b>Diagnostics for Tropical cyclone prediction : from the S2S scale to the mesoscale</b> <a href="#">Presentation slides</a> <a href="#">Video recording</a>	Philippe Peyrillé (Météo-France)
14:30 to 15:00	<b>Discussion 4</b> The tropical elephant in the forecasting room?  <a href="#">Video recording</a>	
15:00 to 15:30	<b>Coffee break</b>	
	<b>Community data and tools</b> Chair: Linus Magnusson, Rapporteur: Alison Cobb	
15:30 to 15:50	<b>Diagnostics Package for MJO-Teleconnections</b> <a href="#">Presentation slides</a> <a href="#">Video recording</a>	Chaim Garfinkel (Hebrew University)
15:50 to 16:10	<b>The Ensemble Museums - a diagnostic tool of weather forecasting-</b> <a href="#">Presentation slides</a> <a href="#">Video recording</a>	Mio Matsueda (Univesity of the Ryukyus/University of Tsukuba)
16:10 to 16:30	<b>The development and implementation of diagnostics for ERA5 and ERA6</b> <a href="#">Presentation slides</a> <a href="#">Video recording</a>	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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	<b>Resolution and scale interactions</b> Chair: Inna Polichtchouk, Rapporteur: Richard Forbes	
09:30 to 10:00	<b>Diagnostic approaches for the GLObal-to-Regional ICON (GLORI) Digital Twin</b> <a href="#">Presentation slides</a> <a href="#">Video recording</a>	Chiara Marsigli (DWD)
10:00 to 10:20	<b>Flow dependence of error growth: Potential-vorticity diagnostics and feature tracking</b> <a href="#">Presentation slides</a> <a href="#">Video recording</a>	Michael Riemer
10:20 to 10:40	<b>Case study of error-growth from mesoscale convection near the intrinsic limit: combining potential vorticity error growth tendencies with ensemble sensitivity analysis</b> <a href="#">Presentation slides</a> <a href="#">Video recording</a>	Edward Groot (AOPP, University of Oxford)
10:40 to 11:00	<b>Inspecting high-resolution coupled models in a scale-aware way</b> <a href="#">Presentation slides</a> <a href="#">Video recording</a>	Matthias Aengenheyster (ECMWF)
11:00 to 11:30	<b>Coffee break</b>	
11:30 to 12:00	<b>Challenges in the evaluation of the K-Scale hierarchy</b> <a href="#">Presentation slides</a> <a href="#">Video recording</a>	Claudio Sanchez (Met Office)
12:00 to 12:30	<b>Discussion 6</b> Does resolution matter in global NWP?  <a href="#">Video recording</a>	
	<b>Close of workshop</b> 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](#)

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