Al for Weather and Climate - Better together

Dr Kenji Takeda Microsoft Research Dr Wessel Bruinsma Alan Turing Institute



The Alan Turing Institute

Article

A foundation model for the Earth system

https://doi.org/10.1038/s41586-025-09005-y

Received: 28 May 2024

Accepted: 9 April 2025

Cristian Bodnar^{1,2,11}, Wessel P. Bruinsma^{1,11}, Ana Lucic^{1,3,11}, Megan Stanley^{1,11}, Anna Allen^{4,11}, Johannes Brandstetter^{1,5}, Patrick Garvan¹, Maik Riechert¹, Jonathan A. Weyn⁶, Haiyu Dong⁶, Jayesh K. Gupta^{2,7}, Kit Thambiratnam⁶, Alexander T. Archibald⁴, Chun-Chieh Wu⁸, Elizabeth Heider¹, Max Welling^{1,3}, Richard E. Turner^{1,4,9} & Paris Perdikaris^{1,10}

Article

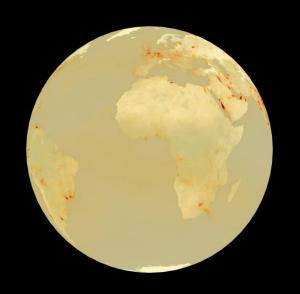
End-to-end data-driven weather prediction

https://doi.org/10.1038/s41586-025-08897-0

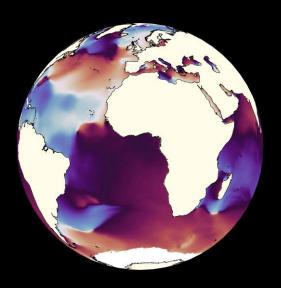
Received: 10 July 2024

Anna Allen^{1,11⊠}, Stratis Markou^{2,11⊠}, Will Tebbutt^{2,9}, James Requeima³, Wessel P. Bruinsma⁴, Tom R. Andersson^{5,10}, Michael Herzog⁶, Nicholas D. Lane¹, Matthew Chantry⁷, J. Scott Hosking^{5,8} & Richard E. Turner^{2,8™}

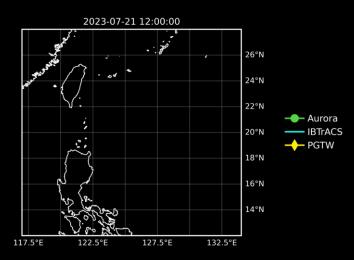
Aurora: A Foundation Model for the Earth System



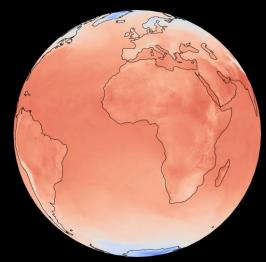
Atmospheric comp. and air pollution



Ocean waves



Tropical cyclone tracks



High-resolution weather



Trust

Transparency

Accountability



Better together





National Meteorological and Hydrological Services



Academia



Industry





Empower every person and every organization on the planet to achieve more



Microsoft's Aurora model is an exciting and promising tool, enabling Met Office scientists to bring their data and expertise to help solve climate problems and provide new kinds of climate information. Met Office and Microsoft scientists and engineers are working together every day to translate lessons from AI weather prediction into the climate information space, sharing expertise in data science and climate science. Aurora is a great platform for learning how to translate these tools for use in climate projection to make the AI climate models of the future.

Doug McNeall, Science lead for Data-Driven Climate Modelling, Met Office Hadley Centre





Empower every person and every organization on the planet to achieve more

Thank you

Dr Kenji Takeda Microsoft Research Dr Wessel Bruinsma Alan Turing Institute

