AVENIR COMMUN DURABLE

ÉNERGIE / ENVIRONNEMENT / SOCIÉTÉ

COLLÈGE DE FRANCE

1530

AI AND MATH FOR METEOROLOY AND CLIMATOLOGY

CONFERENCES

5 MAY | 9H00 > 17H30

Collège de France
11 place Marcelin Berthelot - 75005 Paris

free to enter, depending on availability

Recent advances in artificial intelligence (AI) have produced unexpected and impressive results for weather forecasting, despite the complexity of these multi-scale phenomena. AI is also playing an increasingly important role in climatology. These results raise profound questions about modelling. On the one hand, we know the physics equations that have so far been used in large-scale numerical models. On the other hand, many physical parameters are unknown, for example at interfaces, which motivates a learning approach based on past data. We can also learn the evolution equations indirectly, eliminating the need for physical modelling. The approaches developed in AI in recent years oscillate between these two strategies.

9H > 9H10 : Stéphane Mallat, Collège de France
Introduction

9H10 > 10H10: Michael Brenner, Harvard University
The neural GCM, and other remarks

10H10 > 11H10: Thomas Dubos, École Polytechnique
Hamiltonian insights and the challenge of unresolved processes in geophysical models

11H30 > 12H30: Laure Zanna, New York University
Reshaping climate modelling with AI

14H00 > 15H00: Remi Lam, Massachusetts Institute of Technology
Learning global weather forecasting from data

15H00 > 16H00: Claire Monteleoni, INRIA Paris
Confronting climate change with generative and self-supervised machine learning

16H20 > 17h20: Marc Bocquet, CEREA
Artificial intelligence for geophysical data assimilation

With the support of the Fondation du Collège de France and its sponsors