

Dear Colleagues and Friends,

We are happy to announce the Hasselmann Legacy – Stochastic Thinking in Climate Science Symposium, scheduled on 8th November, 2024 in room B22/023 Max Planck Institute for Meteorology (MPIM) Bunderstrasse 53 Straße, Hamburg.

We cordially invite you to our symposium, which will revisit the scientific innovations and progress inspired by Hasselmann's significant contributions to climate science, particularly his work on defining the nature of stochasticity and distinguishing between signal and noise.

We are delighted to present our speaker Prof. Jochem Marotzke for the welcome words, alongside our guests Dr. Francis Zwiers (Emeritus director of the Pacific Climate Impacts Consortium, PCIC), Prof. Myles Allan (University of Oxford), Dr. Armineh Barkhordarian (Universität Hamburg, UHH), Prof. Niels Lid Hjort (University of OSLO), Prof. Hans von Storch (Helmholtz-Zentrum, hereon), Prof. Eduardo Zorita (Helmholtz-Zentrum, hereon), and the colleagues from MPIM Prof. Jinsong von Storch, Dr. Lin Lin. For further information, for instance, the speaker's topics, please see the agenda in the attachment.

The abstract and motivation of the symposium are as follows: In recent years, high-resolution Earth system simulations have gained popularity in Hamburg. Following the 2021 Nobel Prize, interest in stochasticity has been reignited. Lin Lin's work, influenced by Klaus Hasselmann, is conducted as a postdoc under the Klaus Hasselmann Fellowship. This symposium aims to spark scientific innovation and future work inspired by Hasselmann's ideas and significant contributions to climate science, particularly in defining the nature of stochasticity and distinguishing between signal and noise. The primary focus is to demonstrate the existence of noise and its effect, specifically how white noise (short-scale forcing) makes slow components integrate into a red spectrum. Additionally, the Stochastic Climate Model emphasizes that the presence of noise necessitates the separation of signal and noise in numerical simulations and discussions of global warming.

We look forward to warmly welcoming you to the symposium. Sharing this invitation with anyone who might be interested would be appreciated.

With kind regards and our deepest thanks,
Lin Lin

Symposium

Hasselmann Legacy – Stochastic Thinking in Climate Science

8 November 2024

Max-Planck Institute of Meteorology, Hamburg

10:00 Welcome: **Jochem Marotzke**

Managing director of MPIM

10:15 **Francis Zwiers**, PCIC

Detection, attribution and constrained projection – an evolving fusion of statistical and physical thinking

11:00 **Myles Allan**, U Oxford

Understanding possible worlds: the contribution of stochastic climate modelling to detection and attribution

11:45 **Armineh Barkhordarian**, UHH

Attributing Change: Regional detection and attribution and multiple drivers

12:15 Lunch break

13:30 **Lin Lin**, MPI

The stochastic climate model and noise in marginal seas

13:50 **Hans von Storch**, hereon

Significance of Internal Variability for Numerical Experimentation and Analysis

14:10 **Eduardo Zorita**, hereon

The statistical challenge of proxy reconstruction of past climates?

14:40 Coffee break

15:10 **Jin-song von Storch**, MPI

Stochastic climate model and integral forcing – an evolving fusion of statical mechanics and climate research

15:55 **Niels Lid Hjort**, U Oslo

The stochastic view used in climate sciences, seen with the eyes of a mathematical statistician

16:40 overall discussion

17:00 end of symposium