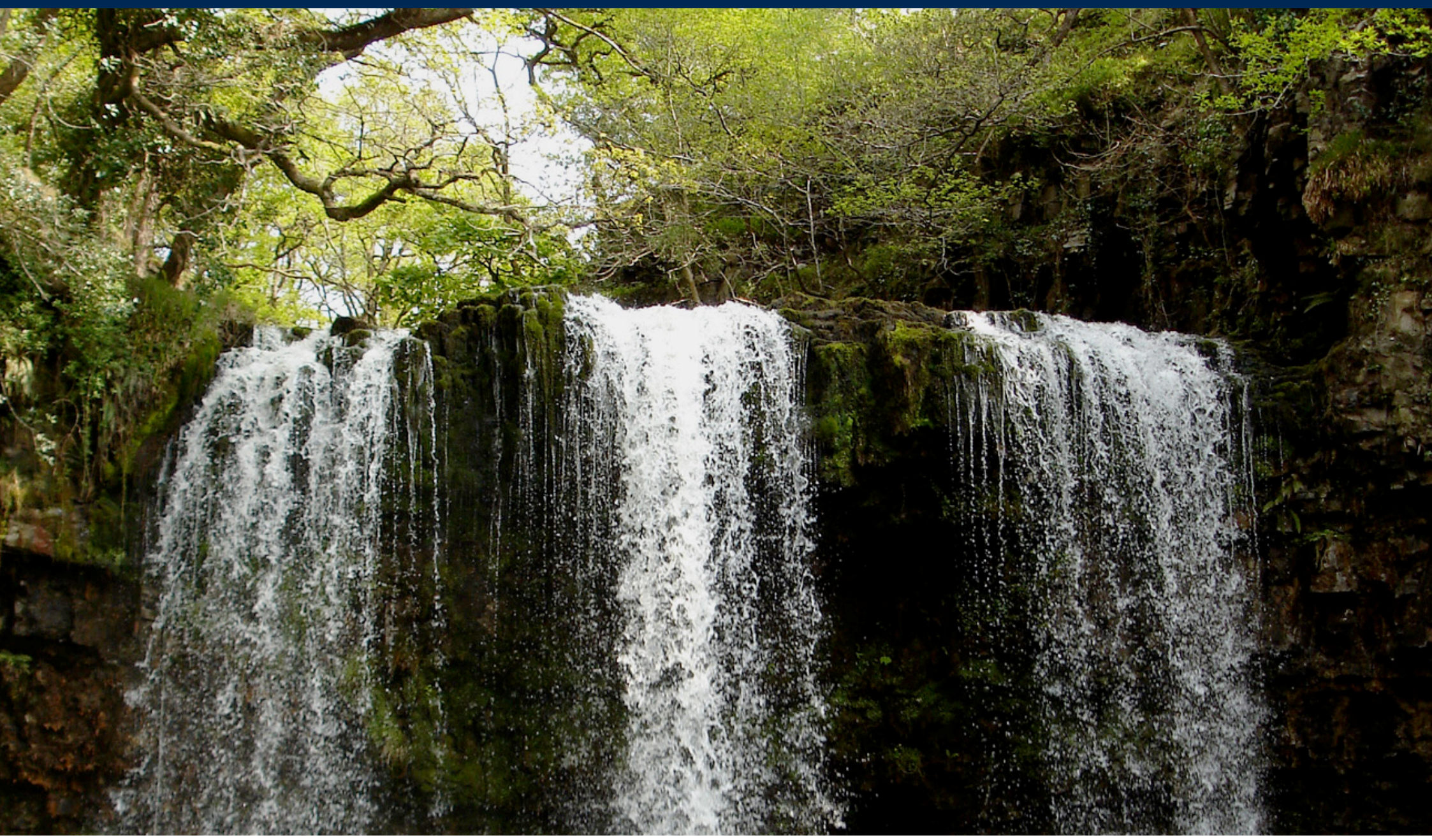
Bolin Centre
for Climate Research

Stockholm University



With Researchers from around the World

RA3 Zoom Series

Detecting and attributing global change in terrestrial water systems

One of the key concerns with anthropogenic climate change are its effects on the terrestrial water cycle. Model projections indicate that anthropogenic climate change can affect regional water availability and may trigger more floods and droughts. While there is mounting evidence showing human impacts in the atmospheric part of the water cycle, the limited availability of relevant observations has so far prevented an unambiguous detection and attribution of anthropogenic climate change in terrestrial water resources and hydrological extremes. Recent advances in mobilizing large quantities of river flow time series around the globe and breakthroughs in data-driven reconstructions of essential freshwater variables using machine learning allow now for an unprecedented assessment of global hydrological change. Causal drivers of observed change are investigated using climate change detection and attribution methods, that ingest both observational information and model based evidence. The analysis allows to conclude that it is very likely that anthropogenic climate change is already impacting water resources and hydrological extremes at the global scale.

Speaker: Lukas Gudmundsson, Institute of Atmospheric and Climate Science, ETH Zurich, Switzerland

Date: Tuesday, May 18th at 14h00

▶ Zoom: https://stockholmuniversity.zoom.us/j/8295564699

Lukas Gudmundsson is a climate scientist with a special interest in global freshwater dynamics. After finalizing his PhD on large-scale hydrology and the University of Oslo (Norway), he moved to the Institute of Atmospheric and Climate Science, ETH Zurich (Switzerland), where he explores the detection and attribution of climate change impacts and uses machine learning to reconstruct the dynamics of global water availability. In his most recent work, Lukas Gudmundsson did show that globally observed trends in mean and extreme river flow is attributable to climate change.

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