Dr. Benjamin M. Sanderson

sanderson@cerfacs.fr

Research Scientist, CERFACS,
42 Avenue Gaspard Coriolis, Toulouse, FRANCE

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A practical approach for estimating climate feedbacks on multiple timescales

Abstract

The Gregory regression technique remains the dominant approach for assessing the equilibrium response of a couples atmosphere-ocean climate model to a change ni greenhouse gas. However, a body of recent literature finds that the assumption of a single feedback parameter is an oversimpification which can lead to large errors in predicting and constraining the long term evolution of the climate system. In this presentation, we propose a simple approach for categorizing evoloving climate feedbacks and discuss the implacations for emissions targets and emergent constraints on future climate response.

Short Bio

Benjamin Sanderson is a laureate of the Make Our Planet Great Again program, instigated by the French Government in 2017 to bring exceptional climate researchers to France. Benjamin is a highly published climate scientist based at CERFACS in Toulouse, France, with expertise in emissions scenarios, machine learning, climate feedbacks and uncertainty quantification. He spent over 10 years working with the National Center for Atmospheric Research in Boulder CO - leading projects on ensemble design and analysis, and providing parameter calibration support for the Community Earth System Model project. His role at CERFACS, since September 2017, has been to develop capacity to investigate future projection uncertainty in the CNRM model. Benjamin is a Contributing Author to the IPCC AR6, a lead author of the US National Climate Assessment and a lead author of the CMIP6 ScenarioMIP project.

Research Interests

Feedbacks and climate sensitivity, climate impacts, machine learning, uncertainty quantification, geoengineering, extreme precipitation/