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Critical transitions in the Earth's climate system

Several climate subsystems have been suggested to be at risk of abruptly changing their state in response to ongoing anthropogenic global warming. These include the Greenland ice sheet, the Atlantic Meridional Overturning Circulation, and the Amazon Rainforest. In this talk I will present modelling and empirical evidence that these systems indeed exhibit the potential to bifurcation induced transitions. I will then use observational data of these systems to estimate how their stability has changed in the course of the last century and use model simulations to assess possible impacts that their tipping would have.