

Research Papers on 'Climate Change'

[Google Scholar](#)

[Semantic Scholar](#)

[IEEE Xplore](#)

[PubMed](#)

Paper 1:

From Opinion Polarization to Climate Action: A Social-Climate Model of the Opinion Spectrum

Date: 2025-03-06

Time: 18:32:22

Authors:

Athira Satheesh Kumar, Krešimir Josi■, Chris T Bauch, Madhur Anand

Summary:

- We developed a coupled social-climate network model to understand the interaction between climate change opinion spread and the climate system and determine the role of this interaction in shaping collective actions and global temperature changes. In contrast to previous social-climate models that discretized opinions, we assumed opinions on climate change form a continuum, and were thereby able to capture more nuanced interactions. The model shows that resistance to behaviour change, elevated mitigation costs, and slow response to climate events can result in a global temperature anomaly in excess of 2°C . However, this outcome could be avoided by lowering mitigation costs and increasing the rate of interactions between individuals with differing opinions (social learning). Our model is the first to demonstrate the emergence of opinion polarization in a human-environment system. We predict that polarization of opinions in a population can be extinguished, and the population will adopt mitigation practices, when the response to temperature change is sensitive, even at higher mitigation costs. It also indicates that even with polarized opinion, an average pro-mitigative opinion in the population can reduce emissions. Finally, our model underscores how frequent and unexpected social or environmental changes, such as policy changes or extreme weather events, can slow climate change mitigation. This analysis helps identify the factors that support achieving international climate goals, such as leveraging peer influence and decreasing stubbornness in individuals, reducing mitigation costs, and encouraging climate-friendly lifestyles. Our

model offers a valuable new framework for exploring the integration of social and natural sciences, particularly in the domain of human behavioural change.

[Click here for more](#)