

***Making Models Make Sense: bridging epistemic and technical differences in IPCC Working Groups***

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Climate models help us understand how the Earth’s systems will respond to future anthropogenic changes in greenhouse gas emissions. There are multiple climate models that authors use in Intergovernmental Panel on Climate Change (IPCC) assessments to make projections about how our decisions will impact future environmental change. Over the past 40 years, physics-based Earth System Models (ESMs) have become more elaborate and sophisticated, due to technical advances, improvements in understanding how physical processes work, and expert and public scrutiny. In the IPCC, ESMs form a significant part of the knowledge base of Working Group I (WGI), which assesses the physical science of climate change.

However, the physical inputs and responses are only part of contemporary climate research. The negotiators of the Paris Agreement intend to solve global climate change primarily through economic policy. More recent Integrated Assessment Models (IAMs) combine economic, social, and policy decision making alongside simplified physical climate models to understand how policy decisions impact future outcomes. IAMs have come to form foundational knowledge in the IPCC’s Working Group III (WGIII) on solutions and have gained increasing political visibility—and critique—from users of IPCC reports.

IPCC authors spend considerable effort making IAMs and ESM--different tools and knowledge types--make sense to each other. These efforts during the last assessment report cycle (called AR6, 2018-2023) were serious but incomplete: there is nothing easy about making the information produced by these models commensurate with the other. IPCC authors and leaders worked to bridge the knowledge contained in these models throughout AR6: sometimes the bridges between types of scientific knowledge are technical or methodological, but sometimes they are sociocultural—its work done by people, in relationships. This talk uses ethnographic observations and interviews to investigate the epistemic cultures produced by different kinds of modelers, trace the building critiques towards IAMs in recent IPCC reports, and analyzes the strategies used to align ESM and IAM knowledge: emission scenario building, emulators, and epistemic ambassadors.