Schmidt Sciences

Accelerating scientific knowledge and breakthroughs to support a thriving world

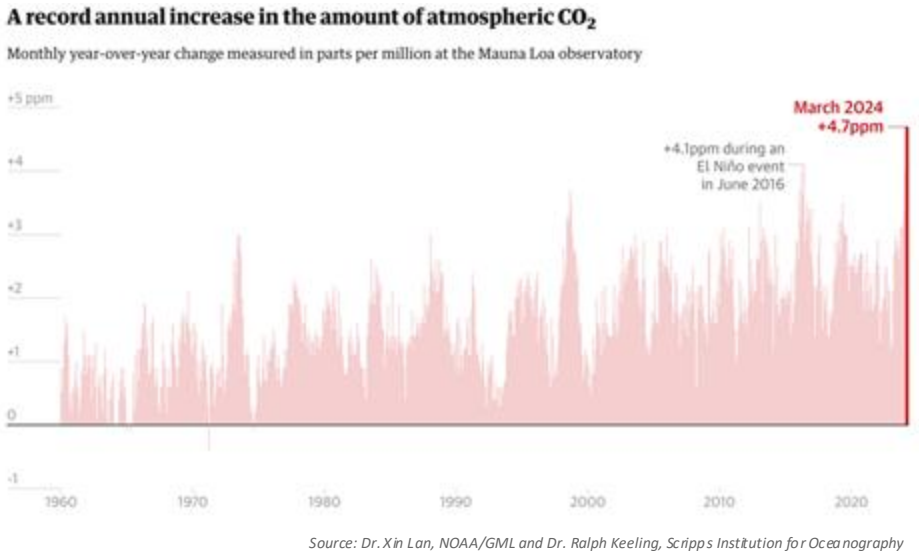
Dr. Poushali Maji, Schmidt Sciences
March 28 2025, MIT Global Change Forum

Schmidt Sciences, founded by Eric and Wendy Schmidt, prioritizes research in five focus areas:

AI and Advanced Computing
Astrophysics and Space
Biosciences
Science Systems
Climate

Climate Institute at Schmidt Sciences

We seek to support and advance fundamental science to understand the implications of climate change mitigation strategies and to ensure that such planning takes into account feedbacks and constraints across the land, atmosphere, and oceans.



Our Goals

CREATE:	Knowledge, datasets, models
CONNECT:	Models to inform decision-making
CHAMPION:	A transdisciplinary climate science community

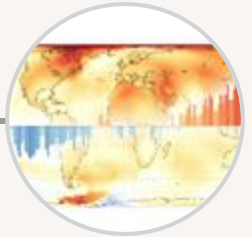
Our Approach

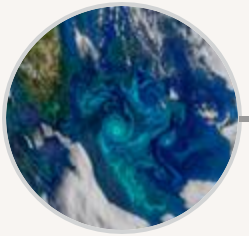
5 programs that connect critical areas of climate science and our planet.

We seek to **maximize opportunities for collaboration** through:

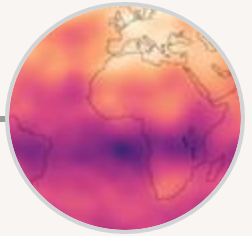
- **Virtual Institutes**:
  - Global effort
  - High-risk, high-impact projects
- **Academic Exchanges**
  - Country-scale
  - Place-based needs
- **Workshops and Convenings**

Virtual Earth Systems Research Institute (VESRI)





Ocean Biogeochemistry Virtual Institute (OBVI)



Virtual Institute for the Carbon Cycle (VICC)

Virtual Institute for Earth's Water (VIEW)

Decarbonization and Energy Virtual Institute (DEVI) + Academic Exchanges

Virtual Earth Systems Research Institute (VESRI)

VESRI aims to improve the **realism and credibility of climate models** in order to make projections more useful for decision-making and planning

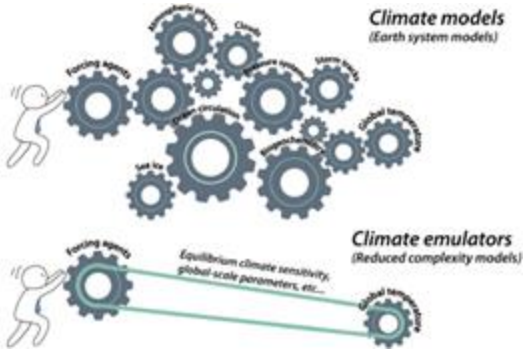
- Better math, algorithms, and theory
- Parameterizations of complex sub-grid processes (sea-ice, gravity waves)
- Innovative Earth systems models and emulators

Portfolio Overview	
9 independent projects	17 nations represented
>240 publications and preprints	64 institutions

Looking ahead

CREATE

Emulators for fast exploration of scenarios



Source: CONSTRAIN

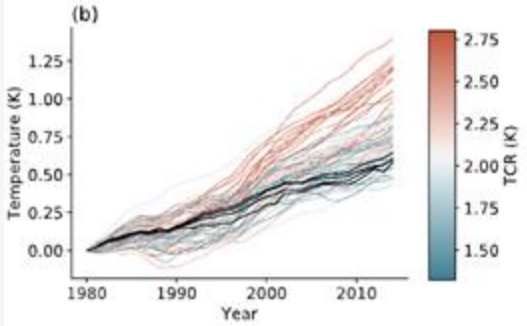
CONNECT

Engagement with global climate modeling centers to make VESRI outcomes adoptable

VESRI projects: Improved process representation ⟷ Climate modeling centers: Global climate models

CHAMPION

Building credibility in climate models by supporting advanced calibration approaches



Source: Nijsse et al. 2020

Decarbonization and Energy Virtual Institute (DEVI)

Rigorous cross-disciplinary and multiscale computational models for assessing decarbonization pathways.

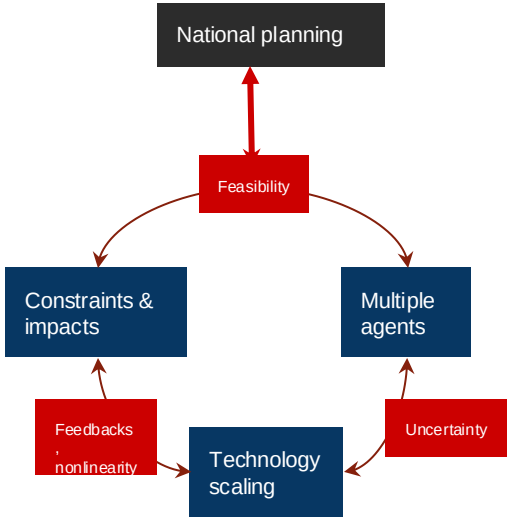
- DEVI: **Transform decarbonization modeling** to tackle fundamental gaps in capturing complex interdependencies in energy systems
- DEVI Academic Exchanges (AXs): **Build international teams** to inform country-specific models and strengthen research networks in the host country, starting with India

DEVI: Call for proposals closed on Feb 14, 2025
DEVI-AXs: Will launch by Summer 2025

Looking ahead

CREATE

Modeling interdependencies between behavior, resources and technologies



CONNECT

India Conference Series: Direct feedback from stakeholders on place-based needs

CHAMPION

DEVI-AXs: Deepen expertise and build capabilities and collaborations in specific regions

We envision an optimistic future where the world collectively bends the carbon curve, and human and environmental needs are satisfied while maintaining carbon and resource neutrality.

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Thank you!