

Climate Smart Computing

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Climate change: A looming crisis

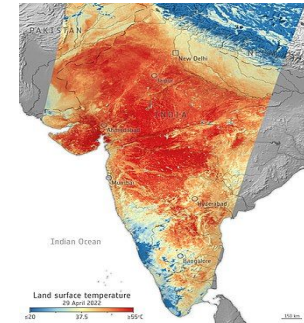
Headlines

Wednesday
20 July 2022



Climate crisis Alarm as fastest growing US cities risk becoming unlivable

- **Extreme weather** Heatwave led to London firefighters' busiest day since second world war
- **Biden** Pressure mounts to declare climate emergency after Manchin torpedoes bill
- **US** Over 100m Americans under heat warnings as wildfires rage in 12 states



Climate change : (Long-term) Mitigation Plans

- [Climate Change 2022: Mitigation of Climate Change](#), IPCC 6th Assessment Report, 2022.
 - [Short video overview](#)
- [The Long-term Strategy of the United States: Pathways to Net-Zero Greenhouse Gas Emissions by 2050](#), US Executive Office of the President, Washington DC. Nov. 2021.

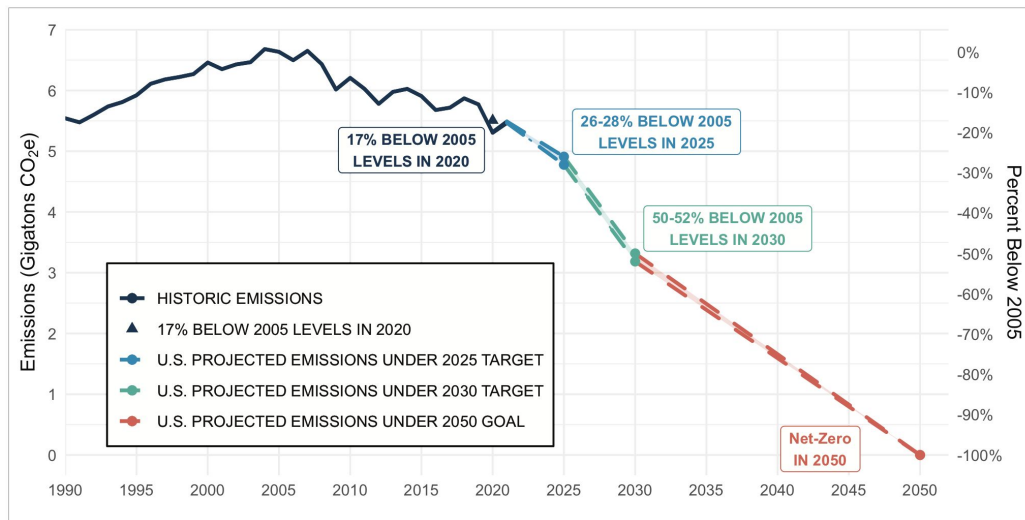


Figure 1: United States historic emissions and projected emissions under the 2050 goal for net-zero. This figure shows historical U.S. GHG emissions from 1990 to 2019, the projected pathway to the 2030 NDC of 50-52% below 2005 levels, and the 2050 net-zero goal. The United States has also set a goal for 100% clean electricity in 2035. That goal is not an economy-wide emissions goal so does not appear in this figure, but it will be critical to support decarbonization in the electricity sector, which will in turn help the U.S. reach its 2030 and 2050 goals.

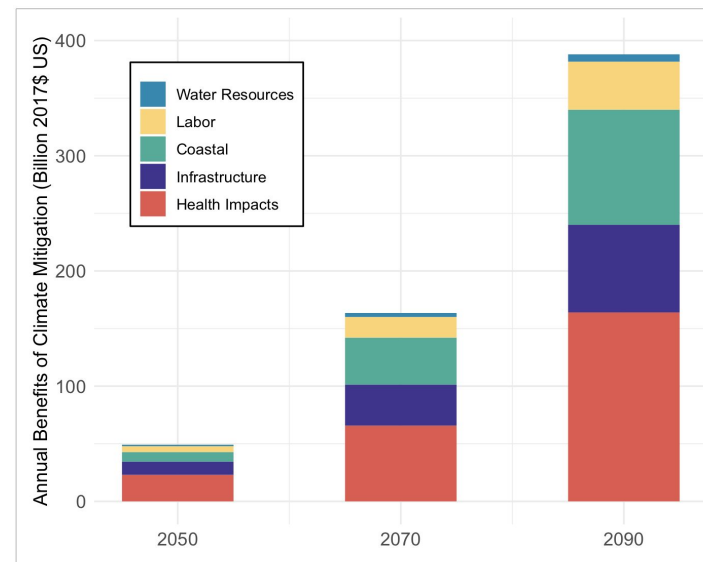


Figure 19: Projected Annual Benefits of Climate Mitigation for Select Years. Benefits from keeping to a 1.5°C trajectory grow significantly over time. U.S. annual economic impacts for a subset of sectors for the Reference minus 1.5°C scenario⁸. Impacts presented in billions of \$2017.

This Panel

- What role can the computing research community play when it comes to combating climate change?
- An opportunity to showcase some of the computing research opportunities in this space.

This Panel

- What are computing research success stories in the space of “climate-smart” computing?
- What are the major computing opportunities in this space?
- How can new computing researchers get involved?
- What are key research infrastructures (e.g. data sets, cyberinfrastructure, funding, ...)?
- Is there a need for computing research community action? What?

Our Panelists

- Andrew Chien
 - University of Chicago (Dept. of Computer Sc.) + USDOE ANL
 - Member, NSF/CISE Advisory Board
 - Co-author, [CRA/CCC Whitepaper on Computing Research for the Climate Crisis](#)
- Vandana Janeja
 - University of Maryland, Baltimore County (Information Systems Dept)
 - PI, [iHARP: NSF HDR Institute for Harnessing Data and Model Revolution in the Polar Regions](#)
- Vipin Kumar,
 - University of Minnesota (Director, Data Science Initiative, College of Sc. and Eng.),
 - PI, [NSF/CISE/Expeditions: Understanding Climate Change: A Data-Driven Approach](#)
- Ran Libeskind-Hadas,
 - Kravis Department of Integrated Sciences, Claremont McKenna College
 - Member, NSF/CISE Advisory Board
 - Chair, CRA Committee on Responsible Computing