Mitigating Global Climate Change

NATIONAL ENERGY RESEARCH SCIENTIFIC COMPUTING CENTER

Objective: **Determine if global warming can still be diminished if society cuts emissions of greenhouse gases.**

Implications: **Provide policymakers with appropriate research so they can make informed decisions to avoid the worst impacts of climate change.**

Accomplishments: **CCSM used at NERSC, ORNL, ANL, & NCAR to study a century of climate conditions, two CO_2 scenarios.**

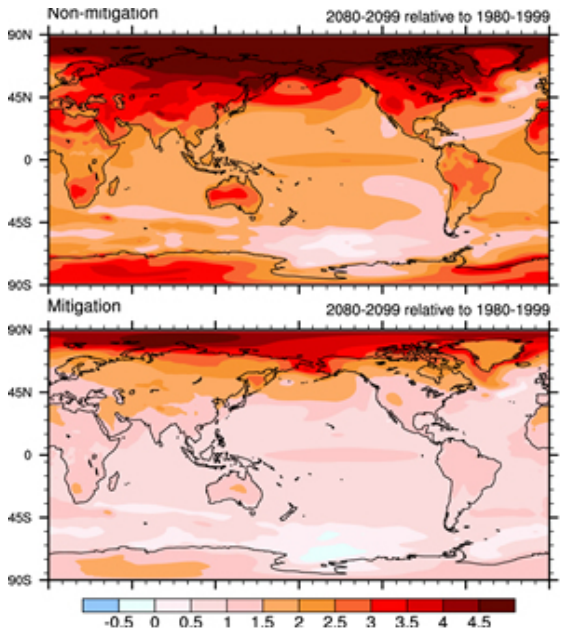
- **70% cut in emissions would save arctic ice, reduce sea level rise.**

NERSC : **~2000 cores on Franklin; Part of a ~15M hour AY09 NERSC allocation;**

- **Newer studies at NERSC include ~20,000-yr CCSM3 T42 studies of catastrophic change in Atlantic Meridional overturning circulation.**

W. Washington (NCAR)

Simulations show how average surface air temperatures could rise if greenhouse gas emissions continue to climb at current rates (top), or if emissions are cut by 70% (bottom).



Temperatures rise by <2°C across nearly all populated areas if emissions are cut but unchecked emissions could lead to warming of >3°C in those areas.

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