Global Warming Solutions for America

Dr. Eban Goodstein, Lewis & Clark College, Portland, Oregon
A NASA study concluded that 2005 was the warmest year on record. Two other studies differed slightly but indicated the Earth's temperature is rapidly warming.

SOURCE: Goddard Institute for Space Studies
GRAPHIC: The Washington Post - December 16, 2005
The Next Century

- Warming of 2.5-10.5 degrees F
- Low end impacts: serious but manageable
- High end impacts: catastrophic
Temperature and CO₂ concentration in the atmosphere over the past 400,000 years (from the Vostok ice core)

Portland, Oregon

Mt. Hood Oregon, August 1984. © Gary Braasch

Mt. Hood Oregon, late summer 2002. © Gary Braasch
Local Impacts

Farmers fight for water rights

The Eugene Register-Guard, April 28, 2001

FAMILIES OR FISH

Families are at stake in a court battle over the future of the Klamath River. The Klamath River is a vital source of water for agricultural and environmental needs. The federal government is trying to balance the needs of farmers and environmentalists.

WE NEED WATER

"Where am I going to get food for my family? No more water, no more food."

The Klamath River is an important water source for the local community. The river flows through the Klamath Basin, which is home to a large number of fish species.

The river is also a vital source of water for nearby communities. The water from the Klamath River is used for irrigation and domestic purposes.

The fight over water rights has been ongoing for years. The Klamath River is one of the most important water sources in the United States.

The water rights are at the center of a legal battle between farmers and environmentalists. The farmers want more water for their crops, while the environmentalists want to protect the river and its ecosystem.

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Darfur: Climate Change as a Factor

British Home Secretary John Reid:

"[Environmental] changes make the emergence of violent conflict more rather than less likely. The blunt truth is that the lack of water and agricultural land is a significant contributory factor to the tragic conflict we see unfolding in Darfur. We should see this as a warning sign."
Global Impacts

- The BAD: (worse as it warms more)
  Water shortages from snowpack loss… Increased floods and droughts… Extinction of many species & ecosystems… Spread of pests & diseases… More heat related illnesses and deaths… More intense hurricanes and typhoons
Global Impacts

- The GOOD (<4° F)
  Longer growing seasons…
  fewer cold-related deaths…
  more good golf days?

- The SCARY
Catastrophic Impacts

- Ocean acidification: potential collapse of marine foodchains
- Fire-driven deforestation of Amazon: accelerated warming
- Methane release from tundra: accelerated warming
- Continental Ice Sheet Collapse: sea level rise of 35-40 feet

(Sea-level rise of 3 feet would displace tens of millions)
1979-2002
Increase in Greenland Melt Zone
The Arctic Climate Impact Assessment 2004

Antarctica 2005

www.net.org/warming/stills.html
“How far can it go? The last time the world was three degrees warmer than today – which is what we expect later this century – sea levels were 25m higher. So that is what we can look forward to if we don't act soon…I think sea-level rise is going to be the big issue soon, more even than warming itself…

How long have we got? We have to stabilize emissions of carbon dioxide within a decade, or temperatures will warm by more than one degree. That will be warmer than it has been for half a million years, and many things could become unstoppable….We don't have much time left.”

Dr. James Hansen, Director, NASA Goddard Institute for Space Studies.

– The Independent 2/ 17/2006
Emission Reduction Profile to achieve 450 PPM

FIGURE 23.1 Stabilizing CO₂ Concentrations at 450 ppm

Source: Bernow et al. (1999). Used with permission.
The model for a clean energy revolution

Source: Goodstein 2004
Global Warming Solutions for America

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Participating Institutions (partial list)

Lewis & Clark College
Catlin-Gable School
Cornell University
Middlebury College
Oberlin College
Linn Benton Community College
San Francisco State University
University of Central Florida
University of Colorado, Denver
University of Portland
University of the South
University of Texas
Wellesley University

Focus the Nation’s global warming travel emissions are offset by Cool Tags from Clif Bar