

“THE DAY AFTER TOMORROW”

SEPARATING THE SCIENCE FROM THE SCIENCE FICTION

The movie “The Day after Tomorrow” is based on real science about the threat of climate change. Much of the movie’s premise is accurate, but the most terrifying special effects exaggerate and compress impacts into a few months that, even by worst case scenarios, would take at least a decade.

Because there is simply no other issue facing humanity that is as urgent and potentially devastating as climate change, it is important to understand the line between fact and fiction. It is even more important to TAKE ACTION to prevent catastrophic impacts.

WHAT HAPPENS IN “THE DAY AFTER TOMORROW”

- P Huge iceberg drops off Antarctic ice shelf. *Realistic Science, say experts.*¹
- P Dr. Jack Hall (Dennis Quaid) explains that greenhouse gas concentrations are building up in the atmosphere and changing the climate. *Accurate description of scientific consensus.*²
- P Dr. Hall explains that the ocean conveyor belt current can be thrown off or stalled as the level of salinity changes. *Accurate description of a plausible scientific theory.*³
- P The U.S. Vice President denounces the Kyoto Protocol, emphasizes that the economy is more important, and ridicules Dr. Hall. *Absolutely accurate.... Vice President Cheney played the decisive role in the U.S. withdrawal from Kyoto in order to appease large industry lobby groups.*⁴
- P Climate change can occur over a long period of time, on the order of a century, or might instead occur quite suddenly. *Accurate description of scientific consensus.*⁵
- P New York City could be submerged. *As sea level rises, various scenarios could see New York underwater, but the scale of the tidal wave in the movie is unrealistic.*⁶
- P Climate change could warm the world, or could trigger an Ice Age. *Plausible, but no one thinks an Ice Age could arrive in a matter of months or days.*
- P Changes in greenhouse gas levels (particularly carbon dioxide) are traced to previous Ice Ages. *Accurate.*⁷
- P Tornadoes could demolish Los Angeles. *Great special effects, but not at all likely.*
- P Environmental refugees fleeing increasingly severe “natural” disasters could create political turmoil. *Absolutely.*⁸

¹ Large icebergs are already falling off more frequently. Some scientists believe that at a doubling of atmospheric carbon, the Western Antarctica ice sheet could become unstable and fall into the ocean resulting in sea level rise of 3 metres over 1,000 years (IPCC Third Assessment Report, *Synthesis* p. 84). There are also concerns about the impact of Greenland’s ice sheet melting. Currently, human generated greenhouse gases primarily from burning fossil fuels have increased the atmospheric concentration of carbon dioxide from a pre-Industrial Revolution level of 275 parts per million (ppm) to over 370 ppm – more than a 30% increase.

² See the United Nations Intergovernmental Panel on Climate Change website (www.ipcc.ch), or check “Ten Top Myths about Climate Change Science,” www.sierraclub.ca/national.

³ These currents, called thermohaline circulation, are closely linked to atmospheric temperature and ocean salinity changes. Dr. Wallace Broecker of the Lamont-Doherty Earth Observatory, Palisades, New York, first proposed the theory that greenhouse gas build up could shut down the Gulf Stream nearly twenty years ago. Recently, a U.S. Department of Defense study considered a climate change-induced shut-down of the Gulf Stream by 2010, a “plausible scenario for abrupt climate change.”

⁴ The account of the Bush Administration reversal on Kyoto comes from a first hand account from Bush’s first Secretary of the Treasury Paul O’Neil (Susskind, *The Price of Loyalty*, Simon & Schuster, 2004)

⁵ IPCC, *Climate Change 2001: Synthesis Report*. “Greenhouse gas forcing in the 21st century could set in motion large-scale, high-impact, non-linear, and potentially abrupt changes in physical and biological systems..” p. 14. “Abrupt” in this context is decades, not days.

⁶ As the ocean warms, it expands, so virtually every scenario for the coming decades includes a high level of certainty of sea level rise. The ocean is already rising. The IPCC consensus sets sea level rise at a roughly one metre increase by 2100, but if the Western Antarctic ice sheet or Greenland’s ice cap melt or break away, sea level rise could be higher.

⁷ Although the current levels of carbon dioxide in the atmosphere exceed those that are linked to Ice Ages over the last 160,000 years.

⁸ The Department of Defense Study described in note 3 includes projections of social and political unrest due to fleeing populations. The Pentagon concluded that climate change is a bigger threat to U.S. society than terrorism. (See *Fortune* magazine, January 26, 2004, for more on this study.)

TAKE ACTION!!!

What you can do to fight climate change!

- P It's an Election!! Get out to all candidate meetings and demand to know what each federal candidate will do to end subsidies to fossil fuels, improve the fuel efficiency of cars and the energy efficiency of our homes and workplaces.
 - P Walk more, cycle more and drive less!
 - P Take public transit!
- P Do not idle your car engine. You are creating smog and greenhouse gases. Turn off your engine if you are stopped for more than thirty seconds. (prairie.sierraclub.ca/idling)
- P Check out the Government of Canada One Tonne Challenge web site...we all have to lose one tonne!! (www.climatechange.gc.ca / one tonne)
- P Find out if your town or city is part of the "partners in climate protection" programme. (Federation of Canadian Municipalities at www.fcm.ca)
- P Join Sierra Club of Canada (www.sierraclub.ca) or another great group working for climate protection.

South Cascade Glacier Comparison



Glacier in 1928



Glacier in 2000

For more information please contact:

Sierra Club of Canada
412-1 Nicholas St.
Ottawa, ON K1N 7B7
Tel: 613-241-4611
Fax: 613-241-2292
E-mail: info@sierraclub.ca
Website: www.sierraclub.ca