

July 14, 2004

## GLOBAL CLIMATE CHANGE RESEARCH REFERENCES

**This information was generously provided to Squaw Valley Institute for the benefit of its Members and Friends by Robert W. Christopherson, author, teacher, geographer and explorer.**

### Coordinating Global Climate Change Research\*

A cooperative global network of all United Nation members participate in the United Nations Environment Programme (UNEP, <http://www.unep.org>) and the World Meteorological Organization (WMO, <http://www.wmo.ch>). The World Climate Research Programme (WCRP, <http://www.wmo.ch/web/wcrp/wcrp-home.html>) and its network under the supervision of the Global Climate Observing System (GCOS, <http://www.wmo.ch/web/gcos/gcoshome.html>) coordinate data gathering and research. The Intergovernmental Panel on Climate Change (IPCC, <http://www.ipcc.ch>), conducts the ongoing climate assessment process within the UNEP with completed reports issued by three Working Groups in 1990, a 1992 supplementary report, 1995, and the latest *Third Assessment Report* in 2001.

In the United States coordination is found at the U.S. Global Change Research Program (<http://www.usgcrp.gov>). An overall source for information is <http://globalchange.gov>, which publishes an on-line monthly summary of all related developments. Also important are programs and services at NASA agencies such as Goddard Institute for Space Studies (GISS, <http://www.giss.nasa.gov>), Global Hydrology and Climate Center (GHCC, <http://www.ghcc.msfc.nasa.gov>), and at NOAA agencies at the National Climate Data Center (NCDC, <http://www.ncdc.noaa.gov>) and the National Environmental Satellite, Data, and Information Service (NESDIS, <http://www.nesdis.noaa.gov>), among others. The Pew Center on Global Climate Change offers credible analysis and overview and has issued several policy reports at <http://www.pewclimate.org/>.

The multi-agency National Ice Center is at <http://www.natice.noaa.gov>. Important research is done at the National Center for Atmospheric Research (<http://www.ncar.ucar.edu>). For Canada, information and research is coordinated by Environment Canada (<http://www.ec.gc.ca/climate>). The effect of global warming on permafrost, which involves half of Canadian land area, is found at <http://www.socc.uwaterloo.ca/>

### The IPCC Process\*

The Intergovernmental Panel on Climate Change (IPCC), established jointly in 1988 under the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO), is the principal global scientific body researching climate change. The IPCC mission is to: (1) assess available scientific and socioeconomic information on climate change and its impacts, mitigation options, and possible adaptation to change; (2) to provide information to the Conference of the Parties (COP) and the U.N. Framework Convention on Climate Change (FCCC); and, (3) formulate response strategies.

The IPCC process produced a series of three assessment reports (1990, 1995, 2001), a supplementary report (1992), and various technical papers. For the 2001 *Third Assessment Report*, 17 lead authors, 515 contributing authors, and 420 reviewers worked over three years. In addition reviews from governments and experts expanded the peer review process to include about 2500 scientists. The process is unprecedented and considers all points of view in formulating findings and forecasts.

A sample of statements from IPCC *Climate Change 2001, The Scientific Basis*:

- An increasing body of observations gives a collective picture of a warming world and other changes in the climate system.

- Emissions of greenhouse gases and aerosols due to human activities continue to alter the atmosphere in ways that are expected to affect the climate system.
- There is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities.
- Human influence will continue to change atmospheric composition throughout the twenty-first century.
- Global average temperatures and sea level are projected to rise under all IPCC future climate scenarios.
- A nearly worldwide decrease in mountain glacier extent and ice mass is consistent with worldwide surface temperature increases, as are decreases in snow cover, and shortening seasons of lake and river ice in the Northern Hemisphere.
- A systematic decrease in spring and summer sea-ice extent and thickness in the Arctic Ocean consistent with an increase in temperature over adjacent land and ocean surfaces—an estimated 43% decline of the Arctic Ocean sea-ice thickness happened between 1976–1996.
- Ocean heat content increased as it absorbed excess atmospheric heat, thus delaying the full extent of present global warming. Thermal expansion of the oceanic mass represents about 25% of sea level rise.
- Anthropogenic climate change will persist for many centuries.

---

From: Robert W. Christopherson, *Geosystems, An Introduction to Physical Geography*, fifth edition, New Jersey: Pearson Prentice Hall, Inc., copyright 2003, p. 311, 313. All rights reserved.

Text website: <http://www.prenhall.com/christopherson>