U.S. Department of Energy's
Office of Science

Office of Biological and Environmental Research Global Change Education (GCEP) Program

Melrose Hotel

Washington, D.C.

Rickey Petty

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DOE Program Mandates

- **Atomic Energy Act of 1954 (PL 83-703)**
- **Energy Reorganization Act of 1974 (PL 93-438)**
- **Federal Non-nuclear Energy Research and Development Act of 1974 (PL 93-557)**
- **Department of Energy Organization Act of 1977 (PL 95-91)**

Current Mission

National Security

Energy Resources

Science and Technology

Environmental Quality

Office of Science Mission

The mission of the Department of Energy's Office of Science is to deliver the remarkable discoveries and scientific tools that transform our understanding of energy and master and advance the national, economic, and energy security of the United States.

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Department of Energy Science

Top Five Government Research Organizations for*:

Physical Sciences	Environmental Sciences	Mathematics & Computing	Engineering	R&D Facilities**
1. Energy (2,012)	1. NASA (1,051)	1. DOD (657)	1. NASA (1,948)	1. Energy (939)
2. NASA (1,019)	2. NSF (481)	2. Energy (623)	2. DOD (1,837)	2. NASA (403)
3. NSF (515)	3. DOD (383)	3. NSF (399)	3. Energy (851)	3. DOD (386)
4. DOD (412)	4. INTERIOR (364)	4. HHS (127)	4. NSF (484)	4. NSF (271)
5. HHS (205)	5. Energy (335)	5. COMMERCE (89)	5. TRANS (323)	5. HHS (227)

** Numbers are FY 1999 Dollars in Millions - Source: NSF*

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Office of Science Programs

- Advance Scientific Computing Research
- Basic Energy Sciences
- Biological and Environmental Research
- Fusion Energy Sciences
- High Energy Physics
- Nuclear Physics
- National Labs and User Facilities

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Office of Biological and Environmental Research (BER)

- Life Sciences Division
- Medical Applications Division
- Climate Change Research Division
- Environmental Remediation Research Division

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Climate Change Research Division (CCRD)

The Climate Change Research includes process research and modeling efforts to:

(1) improve understanding of factors affecting the Earth's radiant-energy balance;

(2) predict accurately any global and regional climate change induced by increasing atmospheric concentrations of aerosols and greenhouse gases;

(3) quantify sources and sinks of energy-related greenhouse gases, especially carbon dioxide; and

(4) improve the scientific basis for assessing both the potential consequences of climatic changes, including the potential ecological, social, and economic implications of human-induced climatic changes caused by increases in greenhouse gases in the atmosphere and the benefits and costs of alternative response options.

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U.S. Climate Change Science Program

- ***CCSP Goal 1***

  Improve knowledge of the Earth's past and present climate and environment, including its natural variability, and improve understanding of the causes of observed variability and change

- ***CCSP Goal 2***

  Improve quantification of the forces bringing about changes in the Earth's climate and related systems

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- ***CCSP Goal 3***

  Reduce uncertainty in projections of how the Earth's climate and environmental systems may change in the future

- ***CCSP Goal 4***

  Understand the sensitivity and adaptability of different natural and managed ecosystems and human systems to climate and related global changes

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- ***CCSP Goal 5***

  Explore the uses and identify the limits of evolving knowledge to manage risks and opportunities related to climate variability and change

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Member Departments/Agencies

- **DOE -- Department of Energy**
- **DOT -- Department of Transportation**
- **EPA -- Environmental Protection Agency**
- **NASA -- National Aeronautics and Space Administration**
- **NSF -- National Science Foundation**
- **NOAA -- National Oceanic and Atmospheric Administration**
- **USAID -- U.S. Agency for International Development**
- **USDA -- U.S. Department of Agriculture**
- **USGS -- U.S. Geological Survey (Department of Interior)**

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Climate Change Research Division (CCRD)

- Atmospheric Radiation Measurement (ARM)
- ARM Unmanned Aerial Vehicles (UAV)
- Atmospheric Science Program
- Climate Change Prediction Program (CCPP)
- Ecosystem Research
- Global Change Education Program (GCEP)
- Integrated Assessment
- NIGEC
- Oceans Carbon
- Terrestrial Carbon

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Global Change Education Program (GCEP)

- The U.S. Department of Energy's Office of Biological and Environmental Research has established the Global Change Education Program (GCEP) to promote undergraduate and graduate training in support of the Department's global change research activities. Global change research encompasses a wide variety of study areas, including atmospheric sciences, ecology, global carbon cycles, climatology, and terrestrial processes. There are three components to the GCEP:
  - **Summer Undergraduate Research Experience (SURE).** SURE involves students at the end of their sophomore or junior years and includes an orientation course and mentored research experience at national laboratories.
  - **Graduate Research Environmental Fellowships (GREF).** GREF supports graduate students in global change research through collaborations between universities and national laboratories.
  - **Significant Opportunities in Atmospheric Research and Science (SOARS).** SOARS is an undergraduate and graduate program in partnership with the National Center for Atmospheric Research and the National Science Foundation. The Department of Energy is one of several sponsors.
- **http://www.atmos.anl.gov/GCEP/**

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SURE by Technical Area FY04-05

TECHNICAL AREAS	NUMBERS	%
Atmospheric Science	34	47.9
Carbon Cycle	6	8.5
Terrestrial Processes	6	8.5
Ecology	16	22.5
Climatology	9	12.7
TOTAL	**71**	**100**

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GREF by Technical Area FY04-05

TECHNICAL AREAS	NUMBERS	%
Atmospheric Science	16	34.4
Carbon Cycles	4	9.1
Climatology	7	15.9
Ecology	14	31.8
Terrestrial Processes	3	6.8
TOTAL	44	100.0

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