

National Report to SCAR for year: 2006-2007

MEMBER COUNTRY: USA

Activity	Contact Name	Address	Telephone	Fax	Email	web site
----------	--------------	---------	-----------	-----	-------	----------

National SCAR Committee

The National Academies Polar Research Board	Chris Elfring	Polar Research Board The National Academies 500 Fifth Street NW (W603) Washington DC 20001	202 334 3512	202 334 1477	celfring@nas.edu	
--	---------------	---	--------------	--------------	--	--

SCAR Delegates

1) Delegate	Mahlon C. Kennicutt II	Geochemical and Environmental Research Group Texas A&M University 833 Graham Road College Station, TX 77845	(409) 862-2323, ext. 111	(409) 862-2361	m-kennicutt@tamu.edu	
2) Alternate Delegate	Terry Wilson	Ohio State University Department of Geological Sciences 155 South Oval Mall Columbus, OH 43210	(614) 292-0723	: (614) 292-7688	twilson@mps.ohio-state.edu	

The Delegates Committee on Scientific Affairs

1) Vice President	Mahlon C. Kennicutt II	Geochemical and Environmental Research Group Texas A&M University 833 Graham Road College Station, TX 77845	(409) 862-2323, ext. 111	(409) 862-2361	m-kennicutt@tamu.edu	
--------------------------	------------------------	---	-----------------------------	----------------	--	--

Standing Scientific Groups

Life Sciences

1)	Michael Goebel	National Oceanic and Atmospheric Administration Antarctic Ecosystem Research Group NOAA/NMFS/SWFSC P.O. Box 271La Jolla, CA	858/546-5677	858/546-7003	Mike.Goebel@noaa.gov	
2)	Alison Murray	Division of Earth and Ecosystem Sciences Desert Research Institute 2215 Raggio Parkway Reno, NV 89512	775/673-7300		Alison.Murray@dri.edu	

Activity	Contact Name	Address	Telephone	Fax	Email	web site
3)	H. Lester Reed	MultiCare Health System P.O. Box 5299 Tacoma, WA 98415-0299	(253) 403-2877	(253) 403- 1180	LesterHarrell.Reed@multicare.org	
4)	Deneb Karentz	University of San Francisco Department of Biology and Department of Environmental Science San Francisco, CA 94117-1080	(415) 422-2831	(415) 422-6363	karentzd@usfca.edu	

Geosciences

1)	Robin E. Bell	Lamont-Doherty Earth Observatory Columbia University Route 9 West Palisades, NY 10964	914/365-8827	914/365-8179	robinb@ldgo.columbia.edu	
2)	Beata Csatho	Byrd Polar Research Center Ohio State University 275A Scott Hall, 1090 Carmack Road Columbus, OH 43210	614-292-6641	614-292-4697	csatho.1@osu.edu	
3)	W. Berry Lyons	Byrd Polar Research Laboratory The Ohio State University 1090 Carmack Road Columbus, OH 43210- 1002	(614) 688-3241	(614) 292-4697	lyons.142@osu.edu	
4) Deputy Chief Officer	Ross D. Powell	Department of Geology Northern Illinois University DeKalb, IL 60115	815/753-7952	815/753-1945	ross@geol.niu.edu	
5) Additional Member (GWG Representative to IGBP)	Peter N Webb	The Ohio State University Department of Geological Sciences Orton Hall 130 155 South Oval Mall Columbus, OH 43210-1398			webb.3@osu.edu	

Activity	Contact Name	Address	Telephone	Fax	Email	web site
6) Additional Member (International Federation of Surveyors)	Larry Hothem	International Federation of Surveyors US Geological Survey, National Mapping Division 521 National Center 12201 Sunrise Valley Drive Reston, VA 20192			lhothem@usgs.gov	
Physical Sciences						
1)	Christina L. Hulbe	Portland State University Department of Geology 1721 SW Broadway Portland, OR 97201	(503)725-3388		chulbe@pdx.edu	
2)	Allan T. Weatherwax	Siena College Department of Physics, Siena College 515 Loudon Road Loudonville, NY 12211-1462	(518) 786-5089	(518) 783-4294	aweatherwax@siena.edu	
3)	Paul Mayewski	Climate Change Institute University of Maine Bryand Global Sciences Center Orono, ME 04469-5790	207/581-3019	207/581-1203	paul.mayewski@maine.edu	
4)	John Ruhl	Case Western Reserve University Department of Physics 10900 Euclid Avenue Cleveland, OH 44106	216/368-4049		ruhl@cwru.edu	
5) Deputy Chief Officer	David H Bromwich	Polar Meteorology Group Byrd Polar Research Center The Ohio State University 1090 Carmack Road Columbus, Ohio 43210-1002, USA	614 292 6692	614 292 4697	bromwich.1@osu.edu	
6) Additional Member (IAGA)	Dr Vladimir O Papitashvili	The University of Michigan Space Physics Research Laboratory 2455 Hayward Street Ann Arbor MI 48109-2143 United States			papita@umich.edu	

Scientific Research Program

ACE

1) Planning Group Co-chair	Robert B. Dunbar	Department of Geological and Environmental Sciences Stanford University, 325 Braun Hall Stanford, CA 94305-2115	(650) 725-6830	(650) 725-0979	dunbar@stanford.edu	
-----------------------------------	------------------	---	----------------	----------------	--	--

Activity	Contact Name	Address	Telephone	Fax	Email	web site
2) Planning Group/Oligocene/Miocene Sub-Program	Robert M. DeConto	Department of Geosciences University of Massachusetts 233 Morrill Science Center Amherst, MA 01003-9297	413-545-3426		deconto@geo.umass.edu	
3) Planning Group	Sandra Passchier	Department of Earth and Environmental Studies Montclair State University Montclair, New Jersey, 07043	973 655-3185		passchiers@mail.montclair.edu	
4) Planning Group	Ross D. Powell	Department of Geology Northern Illinois University DeKalb, IL 60115	815/753-7952	815/753-1945	ross@geol.niu.edu	
AGCS						
1) Steering Committee	Paul Mayewski	Climate Change Institute University of Maine Bryand Global Sciences Center Orono, ME 04469-5790 Polar Meteorology Group Byrd Polar Research Laboratory The Ohio State University 1090 Carmack Road Columbus, OH 43210- 1002	207/581-3019	207/581-1203	paul.mayewski@maine.edu	
2) Steering Committee	David Bromwich	Laboratory The Ohio State University 1090 Carmack Road Columbus, OH 43210- 1002	614-292-6531	614-292-4697	bromwich.1@osu.edu	
EBA						
1) Work Package 2	Daniel P. Costa	Center for Ocean Health University of California 100 Shaffer Rd Santa Cruz, CA 95060 Dept. of Ecology, Evolution & Environmental Science	831.459.2786	831.459.3383	costa@biology.ucsc.edu	
2) Work Package 5	Thomas A. (Tad) Day	School of Life Sciences LSE- 218, PO Box 874501 Arizona State University Tempe, AZ 85287-4501	(480)965-8165		TadDay@asu.edu	
ICESTAR						
1) Steering Committee Co-chair/ Thematic Action Group D	Allan T. Weatherwax	Siena College Department of Physics, Siena College 515 Loudon Road Loudonville, NY 12211-1462	(518) 786-5089	(518) 783-4294	aweatherwax@siena.edu	

Activity	Contact Name	Address	Telephone	Fax	Email	web site
2) Steering Committee/Thematic Action Group B	Eftyhia Zesta	University of California, Los Angeles Department of Atmospheric and Oceanic Sciences 405 Hilgard Ave Box 951565 7127 Math Sciences Bldg. Los Angeles, CA 90095-1565	310-206-2709		ezesta@atmos.ucla.edu	
3) Steering Committee/Thematic Action Group C	Scott Palo	Aerospace Engineering Sciences University of Colorado at Boulder Boulder, CO 80309-0429	303-492-4289	303-492-7881	palo@colorado.edu	
4) Steering Committee/Thematic Action Group D	Aaron Ridley	Department of Atmospheric, Oceanic and Space Sciences Space Research Building University of Michigan 2455 Hayward St. Ann Arbor, MI 48109-2143	734-764-7221	734-647-3083	ridley@umich.edu	

SALE

1) Convener	John Priscu	Department of Land Resources and Environmental Sciences Montana State University 334 Leon Johnson Hall Bozeman	406-994-3250	406-994-5863	jpriscu@montana.edu	
2) Secretary	Mahlon C. Kennicutt II	Geochemical and Environmental Research Group Texas A&M University 833 Graham Road College Station, TX 77845	(409) 862-2323, ext. 111	(409) 862-2361	m-kennicutt@tamu.edu	
3)	Robin E. Bell	Lamont-Doherty Earth Observatory Columbia University Route 9 West Palisades, NY 10964	914/365-8827	914/365-8179	robinb@ldgo.columbia.edu	
4)	Ross D. Powell	Department of Geology Northern Illinois University DeKalb, IL 60115	815/753-7952	815/753-1945	ross@geol.niu.edu	

ACTION GROUPS

Activity	Contact Name	Address	Telephone	Fax	Email	web site
1) Biological Monitoring	Mahlon C. Kennicutt II	Geochemical and Environmental Research Group Texas A&M University 833 Graham Road College Station, TX 77845	(409) 862-2323, ext. 111	(409) 862-2361	m-kennicutt@tamu.edu	
2) Circum-Antarctic Census of Marine Life	Alison Murray	Division of Earth and Ecosystem Sciences Desert Research Institute 2215 Raggio Parkway Reno, NV 89512	775/673-7300		Alison.Murray@dri.edu	
	Russell Hopcroft	Institute of Marine Science University of Alaska Fairbanks Fairbanks, AK 99775-7220	(907) 474-7842	(907) 474-7204	hopcroft@ims.uaf.edu	
3) SCAR-MarBIN - the Antarctic Marine Biodiversity Information Network	Alison Murray	Division of Earth and Ecosystem Sciences Desert Research Institute 2215 Raggio Parkway Reno, NV 89512	775/673-7300		Alison.Murray@dri.edu	
4) Standing Committee on the Antarctic Treaty System	Mahlon C. Kennicutt II	Geochemical and Environmental Research Group Texas A&M University 833 Graham Road College Station, TX 77845	(409) 862-2323, ext. 111	(409) 862-2361	m-kennicutt@tamu.edu	
5) Pan-Antarctic Observations System (PAntOS)	David H Bromwich	Polar Meteorology Group Byrd Polar Research Center The Ohio State University 1090 Carmack Road Columbus, Ohio 43210-1002, USA	614 292 6692	614 292 4697	bromwich.1@osu.edu	
	W. Berry Lyons	Byrd Polar Research Laboratory The Ohio State University 1090 Carmack Road Columbus, OH 43210-1002	(614) 688-3241	(614) 292-4697	lyons.142@osu.edu	
	Allan T. Weatherwax	Siena College Department of Physics, Siena College 515 Loudon Road Loudonville, NY 12211-1462	(518) 786-5089	(518) 783-4294	aweatherwax@siena.edu	
	Paul Mayewski	Climate Change Institute University of Maine Bryand Global Sciences Center Orono, ME 04469-5790	207/581-3019	207/581-1203	paul.mayewski@maine.edu	

Activity	Contact Name	Address	Telephone	Fax	Email	web site
6) ECA- Environmental Contamination in Antarctica	Scott Palo	Aerospace Engineering Sciences University of Colorado at Boulder Boulder, CO 80309-0429	303-492-4289	303-492-7881	palo@colorado.edu	
	W. Berry Lyons	Byrd Polar Research Laboratory The Ohio State University 1090 Carmack Road Columbus, OH 43210- 1002	(614) 688-3241	(614) 292-4697	lyons.142@osu.edu	
EXPERT GROUPS						
1) Human Biology and Medicine	Lawrence A. Palinkas	Vice Chief, Division of Family Medicine Department of Family and Preventive Medicine University of California, San Diego 9500 Gilman Drive La Jolla, CA 92093-0807	619 543-5493	619 543-5996	Email: lpalinkas@ucsd.edu	
2) Human Biology and Medicine - Associate Member	Christian Otto				christian.otto@mcmurdo.gov	
3) Physiology Subgroup	Lawrence A. Palinkas	Vice Chief, Division of Family Medicine Department of Family and Preventive Medicine University of California, San Diego 9500 Gilman Drive La Jolla, CA 92093-0807	619 543-5493	619 543-5996	lpalinkas@ucsd.edu	
	Christian Otto				christian.otto@mcmurdo.gov	
4) Psychology Subgroup - Leader	Lawrence A. Palinkas	Vice Chief, Division of Family Medicine Department of Family and Preventive Medicine University of California, San Diego 9500 Gilman Drive La Jolla, CA 92093-0807	619 543-5493	619 543-5996	lpalinkas@ucsd.edu	
5) Seals	Dan Costa	Long Marine Laboratory, University of California, 100 Shaffer Road, Santa Cruz, CA 95060, USA	+1 (831) 459- 2786	+1 (831) 459- 3383	costa@biology.ucsc.edu	

Activity	Contact Name	Address	Telephone	Fax	Email	web site
6) Seals-Co-Opted members	Peter L. Boveng	National Marine Mammal Laboratory, Alaska Fisheries Science Center, 7600 Sand Point Way NE, Bldg 4, Seattle, WA 98115-6349 USA	+1-206-526-4244:	-7346	peter.boveng@noaa.gov	
7) Seals - Co-Opted members	Gwenael Beauplet	Marine Mammal Research Program, Texas A&M University, 4700 ave. U, Bldg. 303, Galveston, TX 77551,	(409)740-4718	(409)740-4717	ufuf@tamug.edu	
8) Seals - Co-Opted members	John L. Bengtson	National Marine Mammal Laboratory, 7600 Sand Point Way N.E., Seattle, WA 98115 USA	+1(206)526-4016	+1(206)526-6615	john.bengtson@noaa.gov	
9) Seals - Co-Opted members	Michael Cameron	National Marine Mammal Laboratory / NOAA, Polar Ecosystems Program, 7600 Sand Point Way N.E. Bldg. 4, Seattle, WA 98115, USA	+ 1 (206) 526-6396	+1 (206) 526-6615	Michael.Cameron@noaa.gov	
10) Seals - Co-Opted members	Randall Davis	Dept. Marine Biology, Texas A&M University, 5007 Avenue U, Galveston, TX 77551	409-740-4712	409-740-5002	davisr@tamug.tamu.edu	
11) Seals - Co-Opted members	Robert A. Garrott	Ecology Department, Montana State University, 310 Lewis Hall, Bozeman, MT 59717	406-994-2270	406-994-3190	rgarrott@montana.edu	
12) Seals - Co-Opted members	Regina Eisert	Department of Conservation Biology, National Zoological Park, Smithsonian Institution, 3001 Connecticut Ave NW, Washington, DC 20008 U.S.A.	+1 (202) 633 4189	+1 (202) 673 0040	eisertr@si.edu	
13) Seals - Co-Opted members	Michael E. Goebel	NOAA/NMFS Antarctic Ecosystem Research Division, 8604 La Jolla Shores Drive, La Jolla, CA 92037-1508, USA	-7080	-7011	mike.goebel@noaa.gov	
14) Seals - Co-Opted members	Gillian L. Hadley	Department of Ecology, 310 Lewis Hall, Montana State University, Bozeman, MT 59717, USA	+1(406) 994-5677	+1(406) 994-3190	hadley@montana.edu	
15) Seals - Co-Opted members	Darren Ireland	Ecology Department, Montana State University, 310 Lewis Hall, Bozeman, MT 59717, USA	406-994-4573	406-994-3190	direland@montana.edu	

Activity	Contact Name	Address	Telephone	Fax	Email	web site
16) Seals - Co-Opted members	Jeffrey L. Laake	National Marine Mammal Laboratory, 7600 Sand Point Way N.E., Seattle, WA 98115 USA	+1(206)526-4017	+1(206)526-6615	jeff.laake@noaa.gov	
17) Seals - Co-Opted members	Tamara Mau	Exercise Physiology Lab Integrative Biology, University of California Berkeley, Berkeley, CA	(510)-559-8796		tmau@berkeley.edu	
18) Seals - Co-Opted members	Olav T. Oftedal	Department of Conservation Biology, National Zoological Park, Smithsonian Institution, 3001 Connecticut Ave NW, Washington, DC 20008 U.S.A.	+1 (202) 633 4205	+1 (202) 673 0040	oftedalo@si.edu	
19) Seals - Co-Opted members	Kelly M. Proffitt	Ecology Department, Montana State University, Bozeman, MT 59715	(406) 994-4573	406-994-3190	kproffitt@montana.edu	
20) Seals - Co-Opted members	Jay Rotella	Ecology Department, Montana State University, Bozeman, Montana 59717, U.S.A.	406-994-5676	406-994-3190	rotella@montana.edu	
21) Seals - Co-Opted members	Don Siniff	Department of Ecology, Evolution and Behavior, Twin Cities Campus, University of Minnesota, Minneapolis, USA	+1(612) 624 6770	+1(612) 624 6770	siniff@ecology.umn.edu	
22) Seals - Co-Opted members	Brent S. Stewart	Hubbs-Sea World Research Institute, 2595 Ingraham Street, San Diego, CA 92109, USA	+1 (619)226-3875	+1(619)226-3944	bstewart@hswri.org	
23) Seals - Co-Opted members	Pamela K. Yochem	Hubbs-SeaWorld Research Institute, 2595 Ingraham Street, San Diego, CA 92109, USA	-4718	-4788	pyochem@hswri.org	
25) Geospatial Information	Jerry Mullins	United States Geological Survey 917 National Center Reston, VA 20192	(703) 648-4123		jmullins@usgs.gov	
26) Antarctic Permafrost and Periglacial Environments/ANTP AS	James Bockheim	Department of Soil Science 263 Soils Bldg 1525 Observatory Drive Madison, WI 53706	(608) 262.2633		bockheim@facstaff.wisc.edu	

Activity	Contact Name	Address	Telephone	Fax	Email	web site
27) Antarctic Permafrost and Soils (ANTPAS)	John Kimble	United States Department of Agriculture, Natural Resources Conservation Service Univ. of Nebraska, 344A Keim Hall, East Campus Lincoln, NE 68583	402-437-5376		john.kimble@usda.gov	
28) Operational Meteorology	Kathie Hill	Raytheon Polar Services 7400 South Tuscon Way Centennial CO 80112-3938	720-568-2344	03-792-9066	Kathi.Hill@usap.gov	
	Matt Lazarra	Antarctic Meteorological Research Center Space Science and Engineering Center University of Wisconsin - Madison 1225 West Dayton Street Madison, Wisconsin 53706	(608) 262-0436	(608) 263-6738	mattl@ssec.wisc.edu	
	Pablo Clemente-Colon	NOAA/NESDIS/E/RA World Weather Building, Suite 701 5200 Auth Road Camp Springs, Maryland 20746	(301) 763-8127		pablo.clemente-colon@natic.noaa.gov	
29) Oceanography - Co-Chair	Eileen Hofmann	Center for Coastal Physical Oceanography, Crittenton Hall, Old Dominion University, Norfolk, VA 23529	(757) 683-5334	(757) 683-5550	hofmann@ccpo.odu.edu	
30) ITASE	Paul Mayewski	Climate Change Institute University of Maine Bryand Global Sciences Center Orono, ME 04469-5790	207/581-3019	207/581-1203	paul.mayewski@maine.edu	
31) ISMASS	Gordon Hamilton	Climate Change Institute University of Maine Bryand Global Sciences Center Orono, ME 04469-5790	207-581-3446	207-581-1203	gordon.hamilton@maine.edu	
JCADM						
1)	Robert Bauer	National Snow and Ice Data Centre (NSIDC) Campus Box 449 University of Colorado Boulder CO 80309-0449	303.492.6199	303 492 2468	bauer@kryos.colorado.edu	
2)	Gregory Scharfen	National Snow and Ice Data Centre (NSIDC) Campus Box 449 University of Colorado Boulder CO 80309-0449	303.492.6199	303 492 2468	scharfen@kryos.colorado.edu	

Activity	Contact Name	Address	Telephone	Fax	Email	web site
NATIONAL ANTARCTIC DATA CENTRE						

The National Snow and Ice Data Center (NSIDC)	Gregory Scharfen	National Snow and Ice Data Centre (NSIDC) Campus Box 449 University of Colorado Boulder CO 80309-0449	303.492.6199	303 492 2468	scharfen@kryos.colorado.edu	http://nsidc.org/
---	------------------	---	--------------	--------------	-----------------------------	---

SCAR Database

The US is responsible for the Antarctic Master Directory which is part of the Global Change Master Director run by NASA. The AMD can be found at http://gcmd.gsfc.nasa.gov/KeywordSearch/Home.do?Portal=amd&MetadataType=0freetext/ft_search.html

SDLS - Hosted by the U.S. Geological Survey Western Coastal & Marine Geology (WCMG) Team and U.S. National Science Foundation Office of Polar Programs

A BRIEF SUMMARY OF SCIENTIFIC HIGHLIGHTS:

Research during the polar night. For the first time scientists (and an artist) will deploy to the McMurdo Dry Valleys to examine the cascade of physiological and phylogenetic events that occur during the transition between the period of 24 hour sunlight to the polar night. Scientists will have full helicopter and other logistical support through mid-April 2008, when they will be redeployed via aircraft using the Pegasus runway. This research will complement the ongoing McMurdo LTER and Microbial Observatories program.

Ten-meter telescope. Construction continues of the 10-meter South Pole Telescope (SPT). The SPT Control Room was substantially completed in the 2006 austral winter. The telescope will be constructed in the 2006-2007 austral summer and begin observations during the 2007 austral winter. During the 2007-2008 austral summer the telescope shield will be erected. The SPT is designed to investigate the properties of dark energy that pervades the Universe and accelerates its expansion, to constrain the mass of the neutrino, to search for the signature of primordial gravitational waves, and to test models of the origin of the Universe.

IceCube. Work continues on the world's largest neutrino detector, which after 6 years of work will occupy a cubic kilometer of ice beneath the South Pole Station and use 4,200 photomultiplier tubes lowered into holes that made by a specially designed hot water drill. Neutrinos are hard to detect astronomical messengers that carry information from violent cosmological events at the edge of the universe or from the hearts of black holes. Since the 1950s scientists have built a compelling scientific case for doing astronomy and particle physics using high-energy neutrinos. The challenge has been to build the kilometer-sized observatory needed to do the science. An instrument of this size is required to study neutrinos from distant astrophysical sources. Antarctic polar ice has turned out to be an ideal medium for detecting neutrinos, because it is exceptionally pure, transparent and free of radioactivity. A mile below the surface, blue light travels a 100 meters or more through the otherwise dark ice. Frozen in the ice, IceCube will be the largest and most durable particle detector.

Long-term ecological research (LTER). Two sites in Antarctica — in the McMurdo Dry Valleys and along the west coast of the Antarctic Peninsula centered on Palmer Station — are among the world's 26 NSF-sponsored LTER sites being investigated to increase understanding of ecological phenomena over long temporal and large spatial scales (all but one of the other sites are in the United States).

Weddell seal population dynamics. Weddell seals in McMurdo Sound have been studied since 1968—one of the longest intensive field investigations of long-lived mammals anywhere. More than 15,000 animals have been tagged, and 145,000 resightings have been recorded. The project is a resource for understanding the population dynamics of not only Weddell seals, but also other species of terrestrial and marine mammals. New work this season includes assessing the role of food resources in limiting the populations.

Adelie penguin populations and climate change. The Adélie penguin is tied to sea ice, a key environmental variable affected by rapid climate change. Researchers will investigate the populations of Adélie penguins on Ross and Beaufort Islands, where colonies have recently expanded, relative to colonies at Cape Crozier that declined during the 1960s and 1970s. The information will be related to sea ice, as quantified by satellite images. Understanding the mechanisms behind this sensitivity will contribute greatly to predicting the effects of climate change on Antarctic marine organisms

Ocean acidification and marine ecosystems. As global carbon dioxide levels rise, the acidity of the southern ocean will increase. Excessive acidity in the marine environment can negatively affect the metabolism of planktonic marine organisms, including the ability to form shells. Researchers will evaluate the impact of elevated carbon dioxide on calcification, metabolic physiology, and organismal performance in Antarctic pteropods, an abundant, butterfly-like snail that lives in the southern ocean waters. They will begin to evaluate how impacts on the pteropod population affect the function of the larger marine ecosystem.

Protein function in cold-adapted fish. Antarctic fish live in an unusually cold environment where basic processes such as protein synthesis are thermodynamically challenging. Researchers are examining whether Antarctic fish have unique adaptations for making proteins and are uncovering the genetic basis for these functions. Comparative studies with temperate fish will help to illuminate the evolutionary pathways of cold-adaptation and life in extreme environments.

Activity	Contact Name	Address	Telephone	Fax	Email	web site
-----------------	---------------------	----------------	------------------	------------	--------------	-----------------

Influence of light, iron and carbon dioxide on Ross Sea productivity and biogeochemical cycling. The Ross Sea is a region of intense biological productivity, where phytoplankton biomass is dominated by two main taxonomic groups: diatoms and Phaeocystis. It is well known that these two phytoplankton groups have different impacts on biogeochemical cycles in the Ross Sea, but the factors that control their relative abundance are not well understood. Researchers will investigate the effects of iron, carbon dioxide, and light levels in the Ross Sea on phytoplankton community structure. These studies will contribute to a broader understanding of carbon and sulfur cycling in the Southern Ocean.

Demonstration ocean-bottom drilling in the James Ross Basin. Scientists will deploy a drill rig on the research icebreaker Nathaniel B. Palmer to test the feasibility of ship-based diamond coring along the antarctic continental margin. If successful, this Shaldril mobile system will be able to explore the "no man's land" between the nearshore (where the fast-ice-based Cape Roberts Project was successful) and the upper slope (where ODP's JOIDES Resolution becomes most efficient)

Seismograph. The world's quietest earthquake detector is 8 kilometers from the South Pole, 300 meters beneath the ice sheet surface. Completed in 2002, the station is detecting vibrations four times smaller than those recorded previously. Other seismographs have been there since 1957, and long-term, high-latitude data have helped to prove that the Earth's solid inner core spins faster than the rest of the planet. Also, Antarctica is the continent with the fewest earthquakes, so the new station will record small regional earthquakes, leading to new insights into the Antarctic Plate.

Behavior of the world's largest icebergs. This research team will investigate the basic principles governing the calving, drifting, melting, break-up, and environmental impact of large icebergs. Because the northward drift of large tabular icebergs represents a natural "climate change" experiment on an accelerated time-scale, the melting of the icebergs being studied over the next decade will foretell events that may occur in parts of Antarctica as climate conditions change over the coming century. Understanding the natural drift patterns and regions where icebergs accumulate near inhabited parts of the globe may someday prove useful for supplying fresh water to populations in need, as far-fetched as that may be with current technology

ANDRILL, a scientific drilling program to investigate Antarctica's role in global climate change over the last 60 million years, integrates geophysical surveys, new drilling technology, multidisciplinary core analysis, and ice-sheet modeling to address four scientific themes: the history of Antarctica's climate and ice sheets; the evolution of polar biota and ecosystems; the timing and nature of major tectonic and volcanic episodes; and the role of Antarctica in the Earth's ocean-climate system. This long-term program focuses on two previously inaccessible sediment records beneath the McMurdo Ice Shelf and in south McMurdo Sound. These stratigraphic records cover critical periods in the development of Antarctica's major ice sheets. The McMurdo Ice Shelf site focuses on the Ross Ice Shelf, the size of which is a sensitive indicator of global climate change.

The core obtained from this site will offer insight into changes in size of the shelf since the last glacial maximum; sub-ice shelf sedimentary, biologic, and oceanographic processes; the history of Ross Island volcanism; and the lithosphere's response to volcanic loading, which is important for geophysical and tectonic studies of the region. As a generator of cold bottom water, the shelf may also play a key role in ocean circulation. The south McMurdo Sound site, adjacent to the Dry Valleys, offers a view into the major ice sheet overlying East Antarctica and the debate regarding the stability of this ice sheet. Evidence from the Dry Valleys supports contradictory conclusions — a stable ice sheet for at least the last 15 million years or an active ice sheet that cycled through expansions and contractions as recently as a few millions of years ago. Constraining this history is critical to global climate change models. The sediment cores will be used to construct an overall glacial and interglacial history for the region; including documentation of sea-ice coverage, sea level, terrestrial vegetation, and melt-water discharge events. The core will also provide a general chronostratigraphic framework for regional seismic studies and help uni

WAIS Divide. This 5-year science program, involving a dozen research teams, will develop a detailed record of greenhouse gases for the last 100,000 years; determine if changes in the Northern and Southern Hemispheres initiated climate changes over the last 100,000 years; investigate past and future changes in the West Antarctic Ice Sheet; and study the biology of deep ice. During the 2005-2006 austral summer, the camp infrastructure to support the drilling program was assembled at a site on the West Antarctic ice sheet divide. Construction crews established a skiway and a camp capable of supporting approximately 45 personnel. This camp is opened for the austral summer seasons only and is supported by LC-130 Hercules aircraft for all heavy cargo loads and fuel deliveries. The entire camp is taken down for winter storage

because of the high snow accumulation rates that occur over the austral winter period. A 184-foot steel arch building that will house the drilling and core processing facilities for the deep drilling project was constructed last season with interior construction continuing during the 2006-07 austral summer. The facility will eventually support the science and drilling teams who will collect a 3,400-meter ice core to bedrock. Drilling is expected to begin during the 2007-08 field (austral summer) season. As ice cores are produced in the field, the cores will be flown back to McMurdo Station for shipment to the National Ice Core Laboratory in Denver, Colorado (NICL). NICL will then distribute core samples to individual researchers.

International Transantarctic Scientific Expedition (ITASE) Researchers will continue studies of the last 200 years of environmental history of East Antarctica by means of ice coring and data collection along a traverse route from Taylor Dome to South Pole. These proxy climate histories will help determine anthropogenic influence on air temperature, atmospheric circulation, and atmospheric chemistry. This research enables regional comparisons of interannual variability of climate and the records can be extended from the last two decades of satellite and field observations to the last 200 years, through the interpretation of ice core-derived climate and environmental proxies.

Grounding line forensics: Kamb Ice Stream. This project will address key questions concerning the mechanisms governing changes in ice streams by studying the dynamics of ice stream interaction and shutdown, in particular ice stream outlet dynamics (i.e. grounding line migration). Researchers intend to investigate several key features in the Kamb/Whillans ice stream area that will provide additional details to the evolving description of ice flow history in the region. The research effort is targeted at sites that can be used to test scenarios implied by satellite image analysis, modeling studies, and prior field work. The information obtained will contribute to a fundamental understanding of ice sheet dynamics and the effects of global warming and sea level rise on ice sheets.

Old buried ice. Ice has covered Antarctica for millions years, but the ice is not that old; most of it arrives as snow and leaves as icebergs within a few hundred thousand years. Buried ice in the McMurdo Dry Valleys thus is a rare archive of atmosphere and climate potentially extending back millions of years. This project will study the surface processes that preserve ice, test ways of dating tills above buried ice, assess ways to date buried ice, and use these data to help resolve a debate.

Infrared measurement of the atmosphere. Winter measurements of atmospheric chemistry are providing data for predicting ozone depletion and climate change. Since most satellites do not sample polar regions in winter, these ground-based measurements are expected to make important contributions.

Activity	Contact Name	Address	Telephone	Fax	Email	web site
-----------------	---------------------	----------------	------------------	------------	--------------	-----------------

Surface carbon dioxide in the Drake Passage. The Southern Ocean is an important part of the global carbon budget, and the Drake Passage is the narrowest place through which the Antarctic Circumpolar Current goes. This chokepoint is an efficient site to measure the latitudinal gradients of gas exchange, and the ice-strengthened research ship Laurence M. Gould will support a project to measure dissolved and total CO₂, providing data that, with satellite images, will enable estimates of the net production and export of carbon by oceanic biota

Antarctic Artists and Writers Program. Five artists will deploy to Antarctica this season. Four of them will deploy to the McMurdo area between August and January. Among them are Anne Aghion a documentary filmmaker, Lita Albuquerque an installation earth artist, Xavier Cortada a painter and installation artist, and Werner Herzog a filmmaker. One artist will deploy to Palmer Station, glass sculptor, David Ruth. A sixth award was given to installation artist, Dove Bradshaw to receive Antarctic salt from the desalination plant (no travel to Antarctica).