

**OFFICE OF POLAR PROGRAMS (OPP)****\$477,410,000**  
**+\$26,250,000 / 5.8%****OPP Funding**

(Dollars in Millions)

	FY 2010 Omnibus Actual	FY 2010 ARRA Actual	FY 2010 Enacted/ Annualized FY 2011 CR	FY 2012 Request	Change Over FY 2010 Enacted	
					Amount	Percent
Arctic Sciences	\$105.11	\$0.18	\$106.31	\$112.94	\$6.63	6.2%
Antarctic Sciences	74.57	2.05	71.08	76.65	5.57	7.8%
Antarctic Infrastructure & Logistics	265.26	-	266.76	280.55	13.79	5.2%
<i>U.S. Antarctic Logistical Support</i>	[67.52]	-	[67.52]	[67.52]	-	-
Polar Environment, Health & Safety	6.84	-	7.01	7.27	0.26	3.7%
U.S. Coast Guard Polar Icebreaking <sup>1</sup>	[54.00]	-	-	-	-	N/A
<b>Total, OPP</b>	<b>\$451.77</b>	<b>\$2.23</b>	<b>\$451.16</b>	<b>\$477.41</b>	<b>\$26.25</b>	<b>5.8%</b>

Totals may not add due to rounding.

<sup>1</sup> Funding for U.S. Coast Guard Polar Icebreaking for FY 2010 excludes a one-time appropriation transfer of \$54.0 million to U.S. Coast Guard per P.L. 111-117.**About OPP**

Polar research provides insights into ice sheets, the atmosphere, oceans, and solid earth, without which the behavior of and changes in the global system cannot be understood. For example, the study of polar ice sheets reveals how the Earth's climate has changed in the past and provides information essential to predicting future global sea level change. Polar regions also offer important opportunities for environmental research. The extreme sensitivity of polar ecosystems to changes in climate enables study of the linkages between the physical and living components of the coupled earth systems. A key goal of these studies is to improve our understanding of the factors that govern regional climate as well as the potential impacts of change. In addition, the Arctic and Antarctic are premier natural laboratories whose extreme environments and geographically unique settings enable research on phenomena and processes not feasible elsewhere. For example, the cold, dry environment and high altitude at the South Pole make it the world's best location for key astrophysics measurements, and research in polar regions reveals how organisms have adapted to the extreme polar environment at a genetic level.

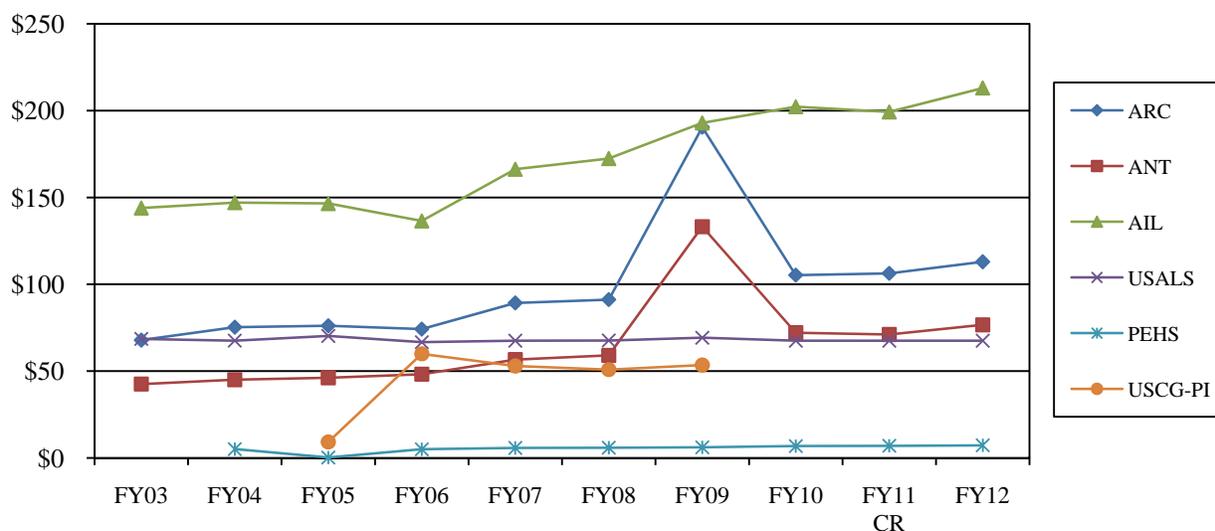
The Office of Polar Programs (OPP) is the primary U.S. supporter of fundamental research in polar regions. In addition, NSF provides interagency leadership for U.S. activities in polar regions. In the Arctic, NSF helps coordinate research planning as directed by the Arctic Research Policy Act of 1984. The NSF Director chairs the Interagency Arctic Research Policy Committee created for this purpose, which is now directly overseen by the President's National Science and Technology Council. In the Antarctic, per Presidential Memorandum 6646, NSF manages all U.S. activities as a single, integrated program, making research possible in Antarctica by scientists supported by NSF and by other U.S. agencies. The latter include the National Aeronautics and Space Administration, the National Oceanic and Atmospheric Administration, the U.S. Geological Survey, the Smithsonian Institution, and the Department of Energy. The U.S. Antarctic Program supports the U.S. governance role through the Antarctic Treaty.

Environmental change in parts of the Arctic and Antarctic is occurring faster than anywhere else in the world, and has a wide variety of regional and global impacts. These impacts include coastal erosion, economically significant changes in terrestrial and marine ecosystems, sea ice changes with effects on planetary albedo, ecosystems and shipping activities, thawing permafrost that compromises civil infrastructure and has the potential to increase releases of methane, a potent greenhouse gas, and contributions to global sea level rise by melting land ice. The human response to these changes also have local to global implications.

The thrust of research supported by OPP is determined via community-driven indications of high priority areas, followed by external merit review of proposals. To address the evolving frontier, in FY 2012, OPP will continue and further develop its emphasis on climate change research and education, a topic of clear interest and importance to researchers and policy-makers.

### OPP Subactivity Funding

(Dollars in Millions)



### FY 2012 Summary by Division

- The Division of Arctic Sciences investments include: the new Discovery and Understanding in Polar Oceans, focusing on ocean circulation and including as a key component studies related to ocean acidification; the NSF-wide Science, Engineering and Education for Sustainability (SEES), creating new networks to link research teams who are exploring the human-environment nexus in a region that is experiencing rapid environmental change and on networks studying the role of clean energy in sustainability; and the NSF-wide Cyber-Infrastructure Framework for the 21<sup>st</sup> Century (CIF21), creating data management approaches that support access and archive requirements and interoperability among different databases. Also included are investments to enhance the efficiency, safety, and environmental footprint of activities at Summit Station in Greenland.
- The Division of Antarctic Sciences investments include: the new Discovery and Understanding in Polar Oceans, focusing on developing predictive models of sea level rise and understanding ocean acidification processes in order to better understand the effects of increasing global carbon dioxide on the Southern Ocean ecosystem; the NSF-wide SEES, focusing on system science research and modeling, as well as on networks studying the role of clean energy in sustainability; and the NSF-wide CIF21, advancing interoperability between disparate observational data sets so that new

knowledge can be gained from integrated data and model analysis as well as to enhance the capability to acquire observations from remote and far-flung observational networks.

- The Division of Antarctic Infrastructure & Logistics investments include providing logistical support in Antarctica and on the Southern Ocean for new research foci in SEES, CIF21, and Discovery and Understanding in Polar Oceans. Improvements will be made to Palmer Pier to stabilize it for another 30 years; the pier is critical to continued resupply of Palmer Station, the research enabled by the Station, and NSF’s ability to meet its responsibilities for implementing the national objectives of Presidential Memorandum 6646 which requires the U.S. to operate a year-round station in the Antarctic Peninsula. The division will also introduce new data systems that will integrate with contractor-provided systems and increase the transparency, supportability, and security of existing information systems. Funding also supports several strategic investments to enhance the efficiency, safety, and environmental footprint of U.S. Antarctic Program.
- The Office of Polar Environment, Health & Safety continues its emphasis on environmental stewardship of the Arctic and the Antarctic, and on protecting the health and safety of grantees and others conducting and supporting research in the polar regions. A priority for the office is the establishment of an electronic medical records system, using information technology to lower health care costs and improve delivery of health care services.

## Major Investments

### OPP Major Investments

(Dollars in Millions)

Area of Investment	FY 2010	FY 2010	FY 2010	FY 2012	Change Over	
	Omnibus	ARRA	Enacted/		FY 2010	Enacted
	Actual	Actual	Annualized	Request	Amount	Percent
Research Infrastructure	\$316.17	-	\$321.43	\$338.02	\$16.59	5.2%
SEES Portfolio	65.26	-	65.26	83.65	18.39	28.2%
Discovery and Understanding in Polar Oceans	11.00	-	11.00	16.00	5.00	45.5%
Center for Remote Sensing of Ice Sheets	4.45	-	4.45	4.45	-	-
CIF21	-	-	-	4.00	4.00	N/A

Major investments may have funding overlap, and thus should not be summed.

- Research and logistics support is maintained for ongoing research projects and new initiatives in SEES, CIF21, and Discovery and Understanding in Polar Oceans. Support to other new deep field activities in the Antarctic is reduced and progress on investments to enhance the efficiency, safety, and environmental footprint of activities at Summit Station in Greenland and U.S. Antarctic Program operations is slowed. Funds will be applied to improving the pier at Palmer Station – critical to continued resupply of the station, research enabled by the station, and NSF’s ability to meet its responsibilities for implementing the national objectives of Presidential Memorandum 6646, which requires the U.S. to operate a year-round station in the Antarctic Peninsula – and new data systems that will increase the transparency, supportability, and security of existing systems.

- Increased funding for SEES will be used to build on previously supported research in this area, focusing on regional climate modeling and creating new networks linking research teams exploring regions that are experiencing rapid environmental change. These networks are expected to strengthen system science elements including modeling, observations and synthesis, as well as, research to examine social understanding and responses in the Arctic, and the physical and ecosystem components of the Antarctic. OPP participation in the SEES clean energy activity will emphasize networks studying the role of clean energy in sustainability, by linking engineers, social scientists, community leaders, and community members in studies of energy usage and changing energy usage toward cleaner, more sustainable patterns.
- Funding for Discovery and Understanding in Polar Oceans increases, addressing areas that comprise about 10 percent of the global ocean surface and that are key components of the global climate system. Studies on ocean circulation and ice-ocean-atmosphere interactions, including interaction with global circulation, and ocean acidification will inform U.S. Government stewardship, particularly of the Arctic Ocean. In the Southern Ocean, these factors are key to developing predictive models of sea level rise and predicting the effects of increasing global carbon dioxide on the Southern Ocean ecosystem.
- Support for the Science and Technology Center for Remote Sensing of Ice Sheets continues.
- Funding requested for CIF21 will be used to emphasize creation of robust data management approaches that support accessibility and archiving requirements, and interoperability among different databases, an activity previously supported under the Cyber-enabled Discovery and Innovation program.
- The emphases to support the Discovery and Understanding in Polar Oceans, SEES, and CIF21 priority areas represents a redistribution of approximately 10 percent of the funds that are typically available for new research award starts each year. This focusing of support will be accompanied by efforts to maintain a balance between established and early career investigators.

### **Summary and Funding Profile**

OPP invests in core research and education as well as research infrastructure such as centers and facilities.

In FY 2012 the number of research grant proposals is expected to increase by approximately 174 compared to the FY 2010 Enacted funding level. OPP expects to award approximately 352 research grants in FY 2012. Average annualized award size and duration increases slightly above the FY 2010 Enacted level.

The FY 2012 funding for the Center for Remote Sensing of Ice Sheets accounts for one percent of OPP's Request.

Funding for facilities accounts for 69 percent of OPP's FY 2012 Request.

**OPP Funding Profile**

	FY 2010 Actual Estimate	FY 2010 Enacted/ Annualized FY 2011 CR Estimate	FY 2012 Estimate
<b>Statistics for Competitive Awards:</b>			
Number of Proposals	798	1,071	1,242
Number of New Awards	284	310	376
Regular Appropriation	275	310	376
ARRA	9	-	-
Funding Rate	36%	29%	30%
<b>Statistics for Research Grants:</b>			
Number of Research Grant Proposals	757	1,033	1,207
Number of Research Grants	251	279	352
Regular Appropriation	247	279	352
ARRA	4	-	-
Funding Rate	33%	27%	29%
Median Annualized Award Size	\$150,422	\$154,342	\$161,885
Average Annualized Award Size	\$187,047	\$189,400	\$199,780
Average Award Duration, in years	2.6	2.8	2.9

**OPP Funding for Centers Programs and Facilities**

**OPP Funding for Centers Programs**

(Dollars in Millions)

	FY 2010 Actual	FY 2010 Enacted/ Annualized FY 2011 CR	FY 2012 Request	Change Over FY 2010 Enacted	
				Amount	Percent
<b>Centers Programs</b>	\$4.45	\$4.45	\$4.45	-	-
<i>Center for Remote Sensing of Ice Sheets</i>	4.45	4.45	4.45	-	-

No FY 2010 obligations for centers were made with funds provided by the ARRA.

Detailed information on individual centers can be found in the NSF-Wide Investments chapter.

**Centers Programs**

- The Center for Remote Sensing of Ice Sheets' (CRISIS) research and education program is aimed at determining ice sheet thickness and the nature of the lithosphere/ice sheet interface that are critical to developing the models of ice sheet behavior that will result in improved understanding of the contribution of ice sheets to sea level rise. CRISIS has been credited internationally for development of ice penetrating radar analysis methods that improve existing data sets by removing clutter and other confounding effects. Funding for CRISIS remains unchanged in FY 2012.

**OPP Funding for Facilities**

(Dollars in Millions)

	FY 2010	FY 2010	FY 2012 Request	Change Over	
	Omnibus Actual	Enacted/ Annualized FY 2011 CR		FY 2010 Enacted Amount	Percent
<b>Facilities</b>	\$309.33	\$314.42	\$330.75	\$16.33	5.2%
<i>Arctic Research Support &amp; Logistics</i>	44.50	45.51	46.75	1.24	2.7%
<i>IceCube Neutrino Observatory</i>	2.15	2.15	3.45	1.30	60.5%
<i>U.S. Antarctic Facilities &amp; Logistics</i>	195.16	199.24	213.03	13.79	6.9%
<i>U.S. Antarctic Logistical Support</i>	67.52	67.52	67.52	-	-
<i>U.S. Coast Guard Polar Icebreaking<sup>1</sup></i>	[54.00]	-	-	-	N/A

No FY 2010 obligations for facilities were made with funds provided by the ARRA.

<sup>1</sup>Funding for USCG Polar Icebreaking for FY 2010 excludes a one-time appropriation transfer of \$54.0 million to USCG per P.L. 111-117.

For detailed information on individual facilities, please see the Facilities chapter.

**Facilities**

- Arctic Research Support & Logistics and U.S. Antarctic Facilities & Logistics maintain research and logistics support for ongoing research projects and new initiatives in SEES, CIF21, and Discovery and Understanding in Polar Oceans. Progress on investments to enhance the efficiency, safety, and environmental footprint of activities at Summit Station in Greenland (Arctic Research Support and Logistics) and U.S. Antarctic Program operations (U.S. Antarctic Facilities & Logistics) will continue.
- Funding increases for operation and maintenance of the IceCube Neutrino Observatory now that it will be in full operation.
- U.S. Antarctic Facilities & Logistics will invest in improvements to the pier at Palmer Station and new data systems that will increase the transparency, supportability, and security of existing systems.
- Funds requested for U.S. Antarctic Logistics Support are used to reimburse the Department of Defense for support to the U.S. Antarctic Program.

**Program Evaluation and Performance Improvement**

The Performance Information chapter provides details regarding the periodic reviews of programs and portfolios of programs by external Committees of Visitors (COVs) and directorate Advisory Committees. Please see this chapter for additional information.

OPP held three COVs in FY 2009 – one each for the Arctic and Antarctic Sciences divisions, and one addressing support provided by the Division of Antarctic Infrastructure & Logistics and the Office of Polar Environment, Health & Safety. The OPP Advisory Committee met twice in FY 2010 – November and May.

For FY 2012 OPP will conduct COVs for the Arctic and Antarctic Sciences divisions, and one addressing support provided by the Division of Antarctic Infrastructure & Logistics and the Office of Polar Environment, Health & Safety.

Aspects of the Office of Polar Environment, Health & Safety requiring medical input are reviewed annually by a medical panel. Specialized reviews, such as that of the scientific diving program, are conducted periodically.

Indicators such as funding rates, award size and duration, and numbers of people supported on research and education grants also factor in to OPP's program evaluation and performance improvement processes.

In FY 2010, NSF—which manages the U.S. Antarctic Program on behalf of the U.S. Government—began an independent review of the program that will continue through FY 2012. The review will be conducted in two phases: the first involves a National Research Council committee that will examine and identify scientific drivers over the next two decades; the second, a Blue Ribbon Panel established by NSF, will analyze and report on the associated logistics and infrastructure needed to implement the science of the future. The first phase of this review will be completed in summer 2011.

**Number of People Involved in OPP Activities**

	FY 2010 Actual Estimate	FY 2010 ARRA Estimate	FY 2010 Enacted/ Annualized FY 2011 CR Estimate	FY 2012 Estimate
Senior Researchers	1,292	78	1,048	1,160
Other Professionals	615	34	742	830
Postdoctorates	114	8	114	140
Graduate Students	398	18	378	440
Undergraduate Students	276	12	272	320
<b>Total Number of People</b>	<b>2,695</b>	<b>150</b>	<b>2,554</b>	<b>2,890</b>



**DIVISION OF ARCTIC SCIENCES (ARC)**

**\$112,940,000**  
**+\$6,630,000 / 6.2%**

**ARC Funding**  
(Dollars in Millions)

	FY 2010	FY 2010	FY 2010	FY 2012	Change Over	
	Omnibus	ARRA	Enacted/ Annualized		FY 2010	Enacted
	Actual	Actual	FY 2011 CR	Request	Amount	Percent
<b>ARC</b>	<b>\$105.11</b>	<b>\$0.18</b>	<b>\$106.31</b>	<b>\$112.94</b>	<b>\$6.63</b>	<b>6.2%</b>
<b>Research</b>	59.26	0.14	58.80	64.94	6.14	10.4%
<b>Education</b>	1.35	0.04	2.00	1.25	-0.75	-37.5%
<b>Infrastructure</b>	44.50	-	45.51	46.75	1.24	2.7%
<i>Arctic Research Support &amp; Logistics</i>	44.50	-	45.51	46.75	1.24	2.7%

Arctic Sciences is organized into several programs that support research in social science, earth system science, and a broad range of natural science. Educational projects are also supported. The Research Support & Logistics program assists researchers with access to the Arctic, improves safety and environmental stewardship, and increases the ability of researchers to share plans and results with local Arctic communities. The Arctic is at the forefront of global climate change. Observations have revealed an estimated 14 percent per decade reduction in sea ice extent in the Arctic over the past 30 years, and significant summer melting of the Greenland Ice Sheet. These and many other phenomena are forcing change and uncertainty in traditional Arctic populations, present challenges and opportunities for industry and commerce, and have the potential to affect the global population through changes in sea level and changed weather patterns. Arctic Sciences funds a broad range of activities to provide an integrated understanding of environmental change in the Arctic, including study of significant, system-scale environmental change and its human dimension.

The Research Support & Logistics program is driven by and responds to research and education funded by the division. Funding is provided directly to grantees or to key organizations that provide or manage Arctic support and logistics. Emphasis will be placed on improving access to and the energy security of the remote facilities used by Arctic researchers and educators.

In general, 50 percent of the division’s portfolio is available for new research grants. The remaining 50 percent funds continuing grants made in previous years, and research support and logistics.

**FY 2012 Summary**

**Research**

- Increased investments for Discovery and Understanding in Polar Oceans will focus on ocean circulation, including interaction with global circulation, the potential role of enhanced upper-ocean mixing resulting from reduced sea-ice cover, and ecological response of the shelf seas. This focus builds on Bering Sea ecosystem studies currently underway, but is broadened to include the Chukchi and Beaufort Seas. Studies related to ocean acidification will be a key component of this work. This suite of activities is expected to inform U.S. Government stewardship of the Arctic Ocean with an increase of \$1.7 million for a total of \$6.70 million.
- Additional funding for SEES will be used to support the creation of new networks linking research teams who are exploring the human-environment nexus in a region that is experiencing rapid

environmental change. The networks are expected to strengthen system science foci including modeling, observations and synthesis, including research to examine social understanding and responses to a total of \$3.0 million. Under the SEES clean energy networks activity, social scientists, community leaders, and community members could be linked in studies of energy usage and changing energy usage toward cleaner, more sustainable patterns with an increase of \$1.56 million to a total of \$43.01 million.

- Underpinning a robust system science approach linking observations with modeling and synthesis is under the CIF21 umbrella for creation of data management approaches that support accessibility and archiving requirements, and interoperability among different databases to a total of \$2.5 million.

### **Education**

- Arctic Sciences participates in the multidisciplinary, multi-faceted Climate Change Education Program, engaging the full spectrum of its research and education communities for a total of \$750,000. The investment in the Polar Postdoctoral Program, designed to broaden the community of polar researchers, continues at a total of \$500,000.

### **Infrastructure**

- Arctic Sciences will continue to make strategic investments to enhance the efficiency, safety, and environmental footprint of activities at Summit, Greenland for a total of \$2.0 million. Funds are requested to continue implementation of renewable power generation at the station to reduce fuel usage and emissions, thereby improving atmospheric observations at the station. The use of elevated and modular, more energy efficient buildings will reduce the need for snow management and reduce energy consumption. Energy savings of up to 30 percent are anticipated once the multi-year investment is completed.
- Funds are provided for logistics support to new research programs, including Discovery and Understanding in Polar Oceans and SEES to a total of \$1.60 million.
- ARC has refocused support within the infrastructure portfolio to the above referenced priorities by adjusting logistics support.

**DIVISION OF ANTARCTIC SCIENCES (ANT)**

**\$76,650,000**  
**+\$5,570,000 / 7.8%**

**ANT Funding**  
(Dollars in Millions)

	FY 2010		FY 2010	FY 2012 Request	Change Over	
	FY 2010 Omnibus Actual	FY 2010 ARRA Actual	Enacted/ Annualized FY 2011 CR		FY 2010 Enacted Amount	Percent
<b>ANT</b>	<b>\$74.57</b>	<b>\$2.05</b>	<b>\$71.08</b>	<b>\$76.65</b>	<b>\$5.57</b>	<b>7.8%</b>
<b>Research</b>	71.19	2.05	66.58	71.95	5.37	8.1%
<i>Centers Funding (total)</i>	4.45	-	4.45	4.45	-	-
<i>Center for Remote Sensing of Ice Sheets</i>	4.45	-	4.45	4.45	-	-
<b>Education</b>	1.23	-	2.00	1.25	-0.75	-37.5%
<b>Infrastructure</b>	2.15	-	2.50	3.45	0.95	38.0%
<i>IceCube Neutrino Observatory</i>	2.15	-	2.50	3.45	0.95	38.0%

Antarctic Sciences funds research in all areas of science that can only be done, or is best done, in Antarctica. Antarctic Sciences enables research on Earth’s physical, biological, geological, glaciological, oceanographic, and atmospheric processes in Antarctica, as well as on interactions between the ice sheets, the underlying continent, the surrounding ocean, and the overlying atmosphere, toward a comprehensive understanding of Antarctica’s role in the evolution of Earth and life on Earth, and the Antarctic environment’s role in the whole Earth system. In particular, a new programmatic emphasis fosters linkages across the disciplines in order to better advance understanding of the Antarctic climate as a system. Antarctic Sciences also enables research in astronomy and astrophysics to advance understanding about high-energy phenomena such as supernovae and events associated with black holes, the nature of dark energy and dark matter (which is now known to be a major component of the universe), as well as advancing general understanding about the origin and evolution of the universe.

In general, 40 percent of the Antarctic Sciences portfolio is available for new research grants. The remaining 60 percent is used primarily to fund continuing grants made in previous years.

**FY 2012 Summary**

**Research**

- Increased emphasis is placed on investments for Discovery and Understanding in Polar Oceans. Because of strong coupling with the world’s oceans through major currents, the Southern Ocean is a key element of heat and mass transfer for the global ocean system. Understanding the heat it carries to the margins of the Antarctic ice sheet is a key factor that must be known in order to develop predictive models of sea level rise, and understanding processes of ocean acidification must be known in order to better understand the effects of increasing global carbon dioxide on the Southern Ocean ecosystem. Consequently, improved understanding of the Southern Ocean is important for advancing models of global climate change and informing U.S. Government stewardship, which will be assisted by an increase of \$1.70 million for a total of \$7.70 million.
- Additional funding for SEES will be used to support research in existing programs in this area and to enhance system science research on modeling, particularly with a regional focus. New knowledge about ocean processes, for instance, is critical to advance modeling that encompasses interactions among the physical and ecosystem components of the Antarctic system to a total of \$3.0 million. Under the SEES clean energy networks activity, social scientists, community leaders, and community

members could be linked in studies of energy usage and changing energy usage toward cleaner, more sustainable patterns with increased support of \$1.83 million for a total of \$35.64 million.

- Funding for CIF21 will be used to emphasize creation of robust data management approaches that support accessibility and archiving requirements, and interoperability among different databases. For instance, incorporation of ocean and atmospheric observations into Geographic Information Systems that also integrate physical changes to the ice sheets are crucial if results of global earth system models are to be rigorously validated. Investments will be made to advance interoperability between disparate observational data sets so that new knowledge can be gained from integrated data and model analysis; and to enhance capability to acquire observations from remote and far-flung observational networks for a total of \$1.50 million.

#### **Center for Remote Sensing of Ice Sheets (CReSIS)**

- Funding continues to support research and education programs at CReSIS, a Science and Technology Center devoted to developing innovative radars for determining ice sheet thickness and the nature of the lithosphere/ice sheet interface that are critical to developing models of ice sheet behavior, and to link expertise developed there to that of other key projects.

#### **Education**

- Antarctic Sciences participates in the multidisciplinary, multi-faceted Climate Change Education Program, engaging the full spectrum of its research and education communities (\$750,000). The investment for the Polar Postdoctoral Program, designed to broaden the community of polar researchers, continues (\$500,000).

#### **Infrastructure**

- Funds support operation and maintenance of IceCube, the world's only neutrino observatory designed to discover astrophysical sources of neutrinos. IceCube is expected to make discoveries about fundamental physical processes that occur in high-energy astrophysical phenomena such as supernovae or gamma-ray bursters. The increase in funding to a total of \$3.45 million is necessary as IceCube ramps up to full operations.

**DIVISION OF ANTARCTIC INFRASTRUCTURE  
& LOGISTICS (AIL)**

**\$280,550,000  
+\$13,790,000 / 5.2%**

**AIL Funding**

(Dollars in Millions)

	FY 2010	FY 2010	FY 2010	FY 2012 Request	Change Over	
	Omnibus Actual	ARRA Actual	Enacted/ Annualized FY 2011 CR		FY 2010 Enacted Amount	Percent
<b>AIL</b>	<b>\$265.26</b>	-	<b>\$266.76</b>	<b>\$280.55</b>	<b>\$13.79</b>	<b>5.2%</b>
<b>Infrastructure</b>	265.26	-	266.76	280.55	13.79	5.2%
<i>U.S. Antarctic Facilities &amp; Logistics</i>	195.16	-	199.24	213.03	13.79	6.9%
<i>U.S. Antarctic Logistical Support</i>	67.52	-	67.52	67.52	-	-

Antarctic Infrastructure & Logistics supports research through a network of stations, labs, equipment, and logistics that enables research activities in Antarctica. This includes operation of a year-round inland research station at the South Pole; two year-round coastal research stations (McMurdo and Palmer) with extensive laboratory, transportation, housing, communication, and computing capabilities; summer camps as required for research; icebreaking research ships—the *Laurence M. Gould* and the *Nathaniel B. Palmer*; small fixed-wing aircraft and helicopters; and icebreakers for channel breaking and ship escort at McMurdo Station. The division uses a mix of government and civilian contract service providers for research support activities in Antarctica.

The U.S. Antarctic Logistical Support budget line funds support provided by the U.S. Department of Defense (DoD). DoD operates as a logistical support provider on a cost-reimbursable basis. Major funding elements of DoD support include: military personnel, LC-130 flight operations and maintenance support through the 109<sup>th</sup> Airlift Wing (AW) of the New York Air National Guard in Scotia, New York, and Antarctica; transportation and training of military personnel supporting the U.S. Antarctic Program; support for air traffic control, weather forecasting, and electronic equipment maintenance; the charter of Air Mobility Command airlift and Military Sealift Command ships for the resupply of McMurdo Station; bulk fuel purchased from the Defense Logistics Agency; and reimbursement for use of DoD satellites for communications.

**FY 2012 Summary**

**Infrastructure**

- New focused research initiatives in SEES, CIF21, and Discovery and Understanding in Polar Oceans will require associated logistical support in Antarctica and on the Southern Ocean (\$3.0 million).
- AIL will continue to enhance the efficiency, safety, and environmental footprint of U.S. Antarctic Program operations by deploying additional renewable energy technology, reducing dependence on fossil fuels, and curtailing greenhouse gas emissions, albeit at a slower pace for a total of \$5.75 million. Once fully implemented, these enhancements will have a cascading effect through the entire Antarctic resupply chain by driving down the amount of fossil fuel transported to Antarctica. At McMurdo, AIL invests in research into alternative and renewable energy production and smart grid technologies with an anticipated savings of 10 percent of current consumption. At South Pole Station, AIL continues testing and development of alternative power solutions such as wind and solar panels.
- Funds are requested to begin to stabilize Palmer Pier for another 30 years for a total of \$3.0 million. The pier is critical to continued resupply of Palmer Station, the research enabled by the station, and

NSF's ability to meet its responsibilities for implementing the national objectives of Presidential Memorandum 6646, which requires the U.S. to operate a year-round station in the Antarctic Peninsula.

- Funds are requested to make progress on the investments required to introduce new data systems that will integrate with contractor-provided systems and increase the transparency, supportability, and security of existing systems for a total of \$3.35 million.
- Adjustments are made to accommodate the above priorities, including reducing airlift support for new deep field research activities by approximately 15 percent, in order to maintain progress on consolidating aviation operations at a single location at the Pegasus runway site (\$3.0 million).

**OFFICE OF POLAR ENVIRONMENT, HEALTH  
& SAFETY (PEHS)**

**\$7,270,000**  
**+\$260,000 / 3.7%**

**PEHS Funding**

(Dollars in Millions)

	FY 2010 Omnibus Actual	FY 2010 ARRA Actual	FY 2010 Enacted/ Annualized FY 2011 CR	FY 2012 Request	Change Over FY 2011 Enacted Amount	Percent
<b>PEHS</b>	<b>\$6.84</b>	<b>-</b>	<b>\$7.01</b>	<b>\$7.27</b>	<b>\$0.26</b>	<b>3.7%</b>
<b>Infrastructure</b>	6.84	-	7.01	7.27	0.26	3.7%
<i>Polar Environment, Health &amp; Safety</i>	6.84	-	7.01	7.27	0.26	3.7%

The Office of Polar Environment, Health & Safety within OPP manages and oversees the environmental, health and safety aspects of research and operations conducted in polar regions. It ensures compliance with environmental, safety, and health related regulatory, statutory, and international treaty requirements. The office has overall responsibility for guiding the implementation of both environmental protection and environmental stewardship to minimize the environmental impact of OPP-supported activities in polar regions. The office also develops and oversees programs to ensure the safety and health of all participants.

**FY 2012 Summary**

**Infrastructure**

- During FY 2012, there will be continued emphasis on environmental stewardship of the Arctic and the Antarctic, and for measures to protect the health and safety of grantees and others conducting and supporting research in the polar regions.
- A priority for the office is establishment of an electronic medical records system, using information technology to lower health care costs and improve delivery of health care services for a total of \$260,000.

