DIVISION OF POLAR PROGRAMS (PLR) $464,900,000
+$29,030,000 / 6.7%

PLR Funding
(Dollars in Millions)

	FY 2012 Actual	FY 2012 Enacted/ Annualized FY 2013 CR	FY 2014 Request	Change Over FY 2012 Enacted Amount	Change Over FY 2012 Enacted Percent
Total, PLR	**$436.20**	**$435.87**	**$464.90**	**$29.03**	**6.7%**
Research	**129.36**	**127.71**	**139.34**	**11.63**	**9.1%**
CAREER	1.34	-	-	-	N/A
Centers Funding (total)	4.45	3.77	3.11	-0.66	-17.5%
STC: Center for Remote Sensing of Ice Sheets	4.45	3.77	3.11	-0.66	-17.5%
Education	**2.45**	**2.55**	**0.80**	**-1.75**	**-68.6%**
Infrastructure	**304.39**	**305.61**	**324.76**	**19.15**	**6.3%**
Arctic Research Support & Logistics	42.08	43.54	44.00	0.46	1.1%
IceCube Neutrino Observatory (IceCube)	3.45	3.45	3.45	-	-
U.S. Antarctic Facilities & Logistics	185.02	184.73	202.69	17.96	9.7%
U.S. Antarctic Logistical Support	67.52	67.52	67.52	-	-
Polar Environment, Safety, and Health	6.31	6.37	7.10	0.73	11.5%

Totals may not add due to rounding.

The Division of Polar Programs (PLR) is the primary U.S. supporter of, and serves NSF interagency leadership responsibilities for, fundamental research in the polar regions. The Arctic Sciences section supports research in social, earth systems, and a broad range of natural sciences; its Research Support & Logistics program is driven by and responds to research by assisting researchers with access to the Arctic and for engagement in planning and sharing of results with local Arctic communities. Antarctic Sciences funds research for which access to Antarctica is essential to advancing the scientific frontiers, including research in a broad array of geo- and bio-sciences, such as earth system science, as well as space and astrophysical sciences that can only be achieved or are best achieved with work performed in Antarctica and the Southern Ocean. Antarctic Infrastructure and Logistics enables research in Antarctica on behalf of the U.S. Government through a network of stations, labs, equipment, and logistical resources. The Environment, Safety, and Health section provides oversight for the environmental, safety, and health aspects of research and operations conducted in polar regions.

PLR's FY 2014 Request reflects three key priorities: (1) maintaining strong disciplinary programs that provide a base for investments in cross-disciplinary science programs; (2) focusing basic research on cross-foundation (e.g., Science, Engineering, and Education for Sustainability (SEES), Cyberinfrastructure Framework for 21st Century Science, Engineering, and Education (CIF21), GEOTRACES), and interagency priorities; and (3) supporting and improving the efficiency of critical facilities that enable research in both polar regions. For Antarctica, the primary objective is to initiate a concerted multi-year commitment toward more effective and lower-cost science support as recommended by the U.S. Antarctic Program (USAP) Blue Ribbon Panel (BRP) report, *More and Better Science in Antarctica through Increased Logistical Effectiveness*.[9] NSF issued a formal response to this report in

[9] www.nsf.gov/od/opp/usap_special_review/usap_brp/rpt/index.jsp

March 2013.[10] This entails coordinated commitments by the Antarctic Sciences and Antarctic Infrastructure and Logistics sections, as well as the Environment, Safety, and Health section. Emphases include safety and health improvements, investments with positive net present value, and facilities renewal at McMurdo and Palmer stations. Additionally, the Antarctic science community will be asked to plan and execute more effective observational approaches as outlined in the 2011 National Research Council (NRC) report, *Future Science Opportunities in Antarctica and the Southern Ocean*,[11] and reaffirmed by the BRP. For the Arctic, shared cross-directorate basic research objectives, the recently released Interagency Arctic Research Policy Committee's (IARPC) *Arctic Research Plan FY 2013-2017* (Five-Year Plan)[12] and the *National Ocean Policy (NOP) Implementation Strategy*[13] inform science investment priorities.

In general, 40 percent of the PLR research portfolio is available for new grants and 60 percent for continuing grants. Approximately 70 percent of the overall budget supports facilities and logistics.

FY 2014 Summary

All funding decreases/increases represent change over the FY 2012 Enacted level.

Research

- Funding increases to develop mechanisms to coordinate with Alaska Native organizations to build partnerships and broaden participation in scientific research, and to strengthen PLR's long-standing commitment to engaging Alaska Native students and communities. (+$200,000, to a total of $300,000)
- PLR will collaborate with OCE to support the U.S. components of several marine expeditions under the GEOTRACES program to measure trace elements and isotopes across the Arctic Ocean and the connecting passages between the Arctic, Atlantic, and Pacific Oceans. (+$2.0 million, to a total of $2.0 million)
- Core Arctic research will be prioritized to support reinvestment in sustained synthesis of modeling and observational data at the system level and for research on the Chukchi and Beaufort Seas, also taking an integrative system-level approach. These will complement the more focused research supported by mission agencies, such as the Bureau of Ocean Energy Management (BOEM) and the National Oceanic and Atmospheric Administration (NOAA), and contribute to the coordinated activity under IARPC. ($6.0 million)
- Core Antarctic research investments will include prioritizing investments in remotely deployed observation instruments and improved climate modeling techniques and capabilities, as recommended in the NRC and BRP reports. ($4.0 million)
- Funding for the Center for the Remote Sensing of Ice Sheets (CReSIS) (-$660,000, to a total $3.11 million) reflects the planned sunsetting of the center in FY 2015.

Education

- Funding for the Research Experiences for Undergraduates (REU) Sites and Supplements program increases $300,000 over the FY 2012 Enacted level. The increased funding will support enhanced research experiences for students in their first two years of college, as recommended by the President's Council of Advisors on Science and Technology (PCAST) in their report, *Engage to Excel: Producing One Million Additional College Graduates with Degrees in Science, Technology, Engineering, and Mathematics*.

[10] www.nsf.gov/news/news_summ.jsp?cntn_id=127345&org=NSF&from=news
[11] www.nap.edu/catalog.php?record_id=13169
[12] www.nsf.gov/od/opp/arctic/iarpc/arc_res_plan_index.jsp
[13] www.whitehouse.gov/administration/eop/oceans/implementationplan

Infrastructure

- Arctic Research Support and Logistics: The Arctic Research Support and Logistics program provides support for Arctic researchers, including airplanes, helicopters, access to icebreakers and field camps for researchers participating in approximately 150 projects in remote sites in Alaska, Canada, Arctic Scandinavia, Russia, and the Arctic Ocean. Summit Station on the Greenland icecap operates as a year-round international site for a variety of atmospheric and geophysical measurements. Increased funding will support anticipated ship-time on the new UNOLS vessel *SIKULIAQ*. (+$460,000, to a total of $460,000)
- IceCube Neutrino Observatory: PLR continues to match the Directorate for Mathematical and Physical Science's contribution of $3.45 million for operations and maintenance of the IceCube Observatory.
- U.S. Antarctic Facilities and Logistics:
  - Funding provides all necessary infrastructure, instrumentation, and logistics for scientists from all disciplines performing research in Antarctica. This support includes forward staging facilities in New Zealand and South America; operation of three year-round stations in Antarctica; DoD fixed-wing aircraft, contracted rotary- and fixed-wing aircraft; two leased research vessels, and a leased icebreaker.
  - The NSF FY 2014 Budget Request for Antarctic Facilities and Logistics also focuses on implementing recommendations from the USAP BRP. NSF issued a formal response to the BRP in March 2013,[14] and this Budget Request incorporates investments outlined in that document, totaling $18.0 million. These include:
    - Address resupply issues at Palmer Station by improving the condition of the pier and mitigating the underwater rock ledge that currently prevents larger vessels from docking at the station ($8.0 million). The small boating range will also be increased through the purchase of rigid hull inflatable boats ($1.0 million), which will allow for better access to areas of scientific interest and provide a more robust platform for the recovery of remote sensing systems, such as gliders and robotic underwater vehicles;
    - Improve fire suppression engineering through a study of fire suppression requirements and existing capabilities in order to target any areas needing improvement ($1.0 million);
    - Roboticize the overland traverse to increase productivity by increasing the number of trips each swing of the traverse can make in a single season to the South Pole or other interior scientific locations ($2.0 million). New tractors will be purchased for the heavy traverse ($4.0 million) to provide a standardized tractor fleet on which to build the robotics system; and
    - Consolidate warehousing activities to enable reductions in physical and personnel footprint. The first phase of the new McMurdo long-range plan involves construction of a single logistics and warehousing facility, as well as a consolidated trade shop and warehousing complex. Design work will begin on these facilities so that materials and equipment can be purchased for delivery to Antarctica on the 2015 resupply vessel. ($2.00 million)
- Polar Environment, Safety, and Health: The Environment, Safety, and Health section provides oversight for these aspects of conducting and supporting research in the polar regions. Funds are invested in development of an electronic medical records system that will serve both polar regions. (+$180,000 to a total of $180,000)

[14] www.nsf.gov/news/news_summ.jsp?cntn_id=127345&org=NSF&from=news