

OFFICE OF POLAR PROGRAMS (OPP)**\$409,180,000**
-\$39,690,000 / -8.8%**OPP Funding**
(Dollars in Millions)

	FY 2016 Actual	FY 2017 (TBD)	FY 2018 Request	Change Over FY 2016 Actual	
				Amount	Percent
Research	\$123.31	-	\$110.58	-\$12.73	-10.3%
CAREER	1.58	-	1.26	-0.32	-20.3%
Long Term Ecological Research (LTER)	2.09	-	2.25	0.16	7.7%
Education	2.47	-	1.35	-1.12	-45.3%
Infrastructure	323.09	-	297.25	-25.84	-8.0%
Arctic Research Support and Logistics	44.11	-	36.11	-8.00	-18.1%
IceCube Nutrino Observatory (IceCube)	5.23	-	3.50	-1.73	-33.1%
U.S. Antarctic Facilities and Logistics	196.53	-	177.85	-18.68	-9.5%
U.S. Antarctic Logistical Support	67.52	-	71.00	3.48	5.2%
Geodesy Advancing Geosciences and EarthScope	1.32	-	1.32	-	-
Seismological Facilities for Advancement of Geoscience & EarthScope	1.29	-	1.29	-	-
Polar Environment, Safety, and Health (PESH)	7.09	-	6.18	-0.91	-12.8%
Facilities Pre-Construction Planning	14.50	-	1.80	-12.70	-87.6%
Total	\$448.87	-	\$409.18	-\$39.69	-8.8%

About OPP

The Office of Polar Programs (OPP) is the primary U.S. supporter of fundamental research in the 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. In the Antarctic, per Presidential Memorandum 6646, NSF manages all U.S. activities as a single, integrated program, making Antarctic research possible for scientists supported by NSF and by other U.S. agencies. The latter include the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA), the U.S. Geological Survey (USGS), the Smithsonian Institution, and the Department of Energy. The U.S. Antarctic Program research activity supported by NSF also supports leadership by the U.S. Department of State in the governance of the continent and Southern Ocean under the aegis of the Antarctic Treaty System.

OPP supports investments in core research and education and provides research support and infrastructure, such as permanent stations and temporary field camps in the Antarctic and the Arctic. OPP's FY 2018 Budget Request is influenced by three key priorities: (1) maintaining strong disciplinary programs that provide a base for our investments in cross-disciplinary system science programs; (2) maintaining U.S. research community activities in polar system science and; (3) supporting critical facilities that enable frontier research in the Earth's polar regions. These priorities reflect opportunities for fundamental scientific discovery uniquely possible in polar regions, as well as studies to investigate the causes and future trajectory of changes now being observed at the poles that could impact global systems. This work will implement the Foundation's lead-agency role in facilitating the Nation's investment in polar science,

whereby research supported by OPP will elucidate the causes and likely impacts of the interaction of polar regions with the larger planet, thus providing a basis for future policy decisions.

In addition to shared cross-directorate basic research objectives, OPP investments will be guided by recent sponsored studies to identify priority areas and ensure effective polar research programs:

- For the Arctic, the Interagency Arctic Research Policy Committee's (IARPC) *Arctic Research Plan: FY 2013-2017*,¹ the *National Ocean Policy Implementation Strategy*² and the World Meteorological Organization's *Year of Polar Prediction Implementation Plan*³ inform science investment priorities. Efforts to build an integrated research capacity to address the potential opportunities and challenges of Arctic change for the nation's security and economics and well-being of Arctic residents will continue.
- For the Antarctic, the 2015 NRC report *A Strategic Vision for NSF Investments in Antarctic and Southern Ocean Research*⁴ inform science investment priorities. Specifically, in 2018, OPP will initiate support of a five-year deep field program to study the Thwaites Glacier Region that was the highest priority in that study. The Thwaites program will be jointly funded, including shared logistics, with the National Research Council of the UK.

All funding decreases/increases represent changes over the FY 2016 Actual.

- In FY 2018, OPP will reduce research funding by \$12.73 million, to a total of \$110.58 million. This will be accomplished by making fewer awards in polar science programs and by reducing OPP's support for science coordination and workshop activities.
- Support for early-career researchers remains an OPP priority. OPP will support CAREER grants at \$1.26 million.
- Funding for Long Term Ecological Research (LTER) increases by \$160,000, to \$2.25 million, reflecting the two projects in the Antarctic and one new project in the Arctic.
- Education activities across OPP will be supported at a level of \$1.35 million, which includes funds for postdoctoral fellows through NRT and continuing commitment to the Research Experiences for Undergraduates (REU) program.
- A continued investment of \$500,000 will contribute polar research efforts to the cross-directorate Risk and Resilience emphasis area through the PREEVENTS program.
- OPP will phase out SEES funding as that program reaches its planned termination.

¹ www.iarpccollaborations.org/plan/index.html

² https://obamawhitehouse.archives.gov/sites/default/files/docs/nop_highlights__annual_report_final_-_150310.pdf

³ www.polarprediction.net/documents/implementation-science-plans/

⁴ www.nap.edu/catalog/21741/a-strategic-vision-for-nsf-investments-in-antarctic-and-southern-ocean-research

Polar Funding for Facilities

OPP Funding for Facilities

(Dollars in Millions)

	FY 2016 Actual	FY 2017 (TBD)	FY 2018 Request	Change Over FY 2016 Actual	
				Amount	Percent
Facilities (Total)	\$316.00	-	\$291.07	-\$24.93	-7.9%
Arctic Research Support and Logistics	44.11	-	36.11	-8.00	-18.1%
Geodesy Advancing Geosciences and Earthscope (GAGE)	1.32	-	1.32	-	-
IceCube Neutrino Observatory ¹	5.23	-	3.50	-1.73	-33.1%
Seismological Facilities for Advancement of Geosciences and Earthscope (SAGE)	1.29	-	1.29	-	-
U.S. Antarctic Facilities and Logistics	196.53	-	177.85	-18.68	-9.5%
<i>AIMS Pre-construction planning</i>	<i>14.50</i>	-	<i>1.80</i>	<i>-12.70</i>	<i>-87.6%</i>
U.S. Antarctic Logistical Support	67.52	-	71.00	3.48	5.2%

- Arctic Research Support & Logistics (ARSL) funding provides support for Arctic researchers, including access to airplanes, helicopters, research vessels including icebreakers, and field camps for approximately 140 projects in remote sites in Alaska, Greenland, Canada, Arctic Scandinavia, Russia, and the Arctic Ocean. Summit Station on the Greenland ice cap operates as a year-round international site for a variety of atmospheric and geophysical measurements. ARSL support will be reduced by \$8.0 million, to \$36.11 million, in concert with a reduction in Arctic science awards.
- OPPs funding for the Geodesy Advancing Geosciences and EarthScope (GAGE) and the Seismological Facilities for Advancement of Geoscience and EarthScope (SAGE) facilities will continue at the same level as FY 2016.
- IceCube Neutrino Observatory support funding will decrease \$1.73 million, to \$3.50 million. The funding level in FY 2016 reflected an extension of the prior cooperative agreement while a new agreement was competitively awarded. This facility is jointly funded by MPS.
- U.S. Antarctic Facilities and Logistics funding will be reduced \$18.68 million, to \$177.85 million, in concert with a reduction of Antarctic science awards.
- For Antarctica, a primary objective is to continue progress on a multi-year commitment toward more efficient and cost-effective 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*.⁵ NSF issued a formal response to this report in March 2013.⁶ Emphases include safety and health improvements as well as planning for renewal of outdated facilities.
- In particular, investments of \$1.80 million will be made to bring the Antarctic Infrastructure Modernization for Science (AIMS) project to the final design review stage and to prepare for the construction phase. The AIMS program will consolidate the footprint and core facilities at McMurdo station toward significantly enhanced efficiency and cost-effectiveness of science support.
- U.S. Antarctic Logistical Support funding increases by \$3.48, million to \$71.0 million, to enhance support of critical Antarctic airlift and the marine based annual resupply mission.

⁵ www.nsf.gov/od/opp/usap_special_review/usap_brp/rpt/index.jsp

⁶ www.nsf.gov/news/news_summ.jsp?cntn_id=127345&org=NSF&from=news

Funding Profile

OPP’s research portfolio entails a broad array of scientific fields including aeronomy and astrophysics, terrestrial and marine biology, geology and geophysics, atmospheric and oceanic science, glaciology and Arctic social science. In addition, OPP-managed logistics and infrastructure facilitates complementary polar research conducted by other federal agencies.

In FY 2018, the number of research grant proposals submitted is expected to remain steady and OPP expects to award about 200 research grants. The average annual award amount is anticipated to increase slightly in FY 2018 relative to the FY 2016 Actual.

OPP Funding Profile			
	FY 2016		
	Actual	FY 2017	FY 2018
	Estimate	(TBD)	Estimate
Statistics for Competitive Awards:			
Number of Proposals	959	-	950
Number of New Awards	282	-	200
Funding Rate	29%	-	22%
Statistics for Research Grants:			
Number of Research Grant Proposals	929	-	900
Number of Research Grants	257	-	200
Funding Rate	28%	-	22%
Median Annualized Award Size	\$156,305	-	\$160,100
Average Annualized Award Size	\$198,243	-	\$200,900
Average Award Duration, in years	2.6	-	2.6

Program Monitoring and Evaluation

Workshops and Reports:

OPP sponsored several studies over the past six years to gather direction from the polar science community and to help plan for effective research programs into the future. The findings and recommendations from these reports continue to influence and drive OPP funding and investment policy decisions as described above. In addition, the execution of the merit review process by OPP has been recently reviewed via the GEO Advisory Committee.

Committees of Visitors (COV):

- In FY 2016, separate COVs were conducted to review the Antarctic Sciences Section (ANT) and the Arctic Sciences Section (ARC). The COV report for each section was presented to the GEO Advisory Committee, which convened in October of 2016. The COVs found that the programs under review were well managed by each section and provided several useful recommendations.
- The next COVs for ANT and ARC will be conducted in FY 2020.

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

Number of People Involved in OPP Activities

	FY 2016 Actual Estimate	FY 2017 (TBD)	FY 2018 Estimate
Senior Researchers	1,083	-	1,000
Other Professionals	569	-	400
Postdoctoral Associates	113	-	90
Graduate Students	382	-	400
Undergraduate Students	344	-	200
K-12 Teachers	-	-	-
K-12 Students	-	-	-
Total Number of People	2,491	-	2,090

