

**OFFICE OF POLAR PROGRAMS (OPP)****\$403,390,000**  
**-\$98,330,000 / -19.6%****OPP Funding**  
(Dollars in Millions)

	FY 2018 Actual	FY 2019 (TBD)	FY 2020 Request	Change over	
				FY 2018 Actual Amount	Percent
<b>Research</b>	<b>\$119.16</b>	-	<b>\$80.16</b>	<b>-\$39.00</b>	<b>-32.7%</b>
CAREER	0.48	-	1.10	0.62	128.5%
Long Term Ecological Research (LTER)	3.38	-	3.38	-0.00	-0.1%
<b>Education</b>	<b>2.02</b>	-	<b>0.75</b>	<b>-1.27</b>	<b>-62.9%</b>
<b>Infrastructure</b>	<b>364.40</b>	-	<b>322.48</b>	<b>-41.92</b>	<b>-11.5%</b>
Arctic Research Support and Logistics	45.72	-	43.00	-2.72	-5.9%
IceCube Neutrino Observatory (IceCube)	3.50	-	3.50	-0.00	-0.0%
U.S. Antarctic Facilities and Operations <sup>1</sup>	228.16	-	192.14	-36.02	-15.8%
U.S. Antarctic Logistical Support	71.13	-	71.00	-0.13	-0.2%
Geodetic Facility for the Advancement of GEoscience (GAGE)	1.17	-	0.78	-0.39	-33.1%
Seismological Facility for the Advancement of GEoscience (SAGE)	1.84	-	1.22	-0.62	-33.5%
Research and Resources	6.29	-	4.23	-2.06	-32.7%
Polar Environment, Safety, and Health (PESH)	6.61	-	6.61	0.00	0.1%
<b>Facilities Development and Design Total</b>	<b>16.14</b>	-	-	<b>-16.14</b>	<b>-100.0%</b>
Antarctic Infrastructure Modernization for Science (Development and Design)	16.14	-	-	-16.14	-100.0%
<b>Total</b>	<b>\$501.72</b>	-	<b>\$403.39</b>	<b>-\$98.33</b>	<b>-19.6%</b>

<sup>1</sup> FY 2018 Actual includes \$42.58 million in additional FY 2018 one-time funding above the requested amount.**About OPP**

The Office of Polar Programs is the primary U.S. supporter of fundamental research in the polar regions. In the Arctic, NSF helps coordinate research planning as directed by the Arctic Research Policy Act of 1984, and the NSF Director chairs the Interagency Arctic Research Policy Committee (IARPC) 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 (USAP) 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 research and education and provides support for research infrastructure, such as permanent stations and temporary field camps in the Antarctic and the Arctic, including support for NSF Big Ideas—NNA, WoU, and URoL. OPP's FY 2020 Budget Request is influenced by three key priorities: (1) supporting critical facilities that enable frontier research in the Earth's polar regions; (2) maintaining strong disciplinary programs that provide a base for our investments in cross-disciplinary system science programs; and (3) maintaining U.S. research community activities in polar system science. 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 environmental and ecosystem 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.

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, IARPC's Arctic Research Plan: FY 2017-2021<sup>1</sup>, and the World Meteorological Organization's Year of Polar Prediction Implementation Plan<sup>2</sup> 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 National Research Council report *A Strategic Vision for NSF Investments in Antarctic and Southern Ocean Research*<sup>3</sup> informs science investment priorities. Specifically, in 2018, OPP initiated 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 is jointly supported, including shared logistics, with the National Environment Research Council of the U.K.

### Major Investments

- OPP will support science in both polar regions and the major ramp up in the construction tempo of the Antarctic Infrastructure Modernization for Science (AIMS) project. AIMS commenced in 2019 as a MREFC project to address major recommendations by the USAP Blue Ribbon Panel (BRP) report, *More and Better Science in Antarctica through Increased Logistical Effectiveness*.<sup>4</sup> The project is expected to be completed within 10 years from its award.
- In FY 2020, OPP will support research at \$80.16 million. OPP will continue to support existing priority commitments, including the Thwaites Glacier program, and Arctic observing that received strong endorsement at the Arctic Science Ministerial, as well as new awards.
- Education activities across OPP will be through Improving Undergraduate STEM Education (IUSE) and Research Experiences for Undergraduates (REU) Sites.
- OPP's investment in Antarctic Facilities and Operations will be \$192.14 million. Most of the reduction compared to FY 2018 is due to a one-time investment in 2018 dedicated to replacement of the aging pier at Palmer Station in the Antarctic peninsula with funding above the Request provided from Congress.
- OPP will continue to support the three LTER sites and IceCube at their 2018 levels of funding.
- The AIMS project design will be fully funded by the end of FY 2019; no further design funding is anticipated after that.

OPP provides 46 percent of the federal funding for basic research at academic institutions in the polar sciences.

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<sup>1</sup>[www.iarpcollaborations.org/uploads/cms/documents/iarpc\\_arctic\\_research\\_plan\\_2017-2021.pdf](http://www.iarpcollaborations.org/uploads/cms/documents/iarpc_arctic_research_plan_2017-2021.pdf)

<sup>2</sup>[www.polarprediction.net/fileadmin/user\\_upload/www.polarprediction.net/Home/YOPP/YOPP\\_Documents/FINAL\\_WWRP\\_PP\\_P\\_YOPP\\_Plan\\_28\\_July\\_2016\\_web-1.pdf](http://www.polarprediction.net/fileadmin/user_upload/www.polarprediction.net/Home/YOPP/YOPP_Documents/FINAL_WWRP_PP_P_YOPP_Plan_28_July_2016_web-1.pdf)

<sup>3</sup>[www.nap.edu/catalog/21741/a-strategic-vision-for-nsf-investments-in-antarctic-and-southern-ocean-research](http://www.nap.edu/catalog/21741/a-strategic-vision-for-nsf-investments-in-antarctic-and-southern-ocean-research)

<sup>4</sup>[www.nsf.gov/od/opp/usap\\_special\\_review/usap\\_brp/rpt/index.jsp](http://www.nsf.gov/od/opp/usap_special_review/usap_brp/rpt/index.jsp)

## OPP Funding for Facilities

### OPP Funding for Major Multi-User Facilities

(Dollars in Millions)

	FY 2018 Actual	FY 2019 (TBD)	FY 2020 Request	Change over	
				FY 2018 Actual Amount	Actual Percent
<b>Total</b>	<b>\$234.66</b>	-	<b>\$197.64</b>	<b>-\$37.02</b>	<b>-15.8%</b>
IceCube Neutrino Observatory (IceCube)	3.50	-	3.50	-	-
U.S. Antarctic Facilities and Operations <sup>1</sup>	228.16	-	192.14	-36.02	-15.8%
Geodetic Facility for the Advancement of GEoscience (GAGE)	1.17	-	0.78	-0.39	-33.1%
Seismological Facility for the Advancement of GEoscience (SAGE)	1.84	-	1.22	-0.62	-33.5%

<sup>1</sup> FY 2018 Actual includes \$42.58 million in additional FY 2018 one-time funding above the requested amount.

For detailed information on individual facilities, please see the Facilities and the Major Research Equipment and Facilities Construction chapters.

## Funding Profile

### OPP Funding Profile

	FY 2018	FY 2019 (TBD)	FY 2020 Estimate
	Actual Estimate		
<b>Statistics for Competitive Awards:</b>			
Number of Proposals	562	-	700
Number of New Awards	216	-	160
Funding Rate	38%	N/A	23%
<b>Statistics for Research Grants:</b>			
Number of Research Grant Proposals	552	-	670
Number of Research Grants	208	-	135
Funding Rate	38%	N/A	20%
Median Annualized Award Size	\$182,943	-	\$123,900
Average Annualized Award Size	\$225,113	-	\$167,000
Average Award Duration, in years	2.8	-	2.5

In general, about 18 percent of the OPP portfolio is available for new research grants. In FY 2020, the number of research grant proposals is expected to increase compared to the FY 2018 Actual and OPP expects to award about 135 research grants.

## Program Monitoring and Evaluation

### Science and Technology Policy Institute (STPI) Reports:

- In 2018 OPP funded the Science and Technology Institute (STPI) to perform an assessment of polar airlift, *Polar Heavy Airlift: An Analysis of Alternatives*.
- STPI also performed its annual *Survey Analysis of the United States Antarctic Program Logistical Support Services for the 2017–18 Field Season* report.

Committees of Visitors (COV):

- In 2020, COVs will review both Arctic and Antarctic science programs.

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.

**People Involved in OPP Activities**

<b>Number of People Involved in OPP Activities</b>			
	FY 2018		
	Actual	FY 2019	FY 2020
	Estimate	(TBD)	Estimate
Senior Researchers	853	-	700
Other Professionals	476	-	400
Postdoctoral Associates	118	-	100
Graduate Students	298	-	200
Undergraduate Students	223	-	200
<b>Total Number of People</b>	<b>1,968</b>	<b>-</b>	<b>1,600</b>