

**ANTARCTIC FACILITIES AND OPERATIONS (AFO)**

**\$243,670,000**  
**+\$27,400,000 / 12.7%**

**Antarctic Facilities and Operations Funding**

(Dollars in Millions)

FY 2021 Actual	FY 2022 (TBD)	FY 2023 Request	Change over	
			FY 2021 Actual Amount	Percent
\$216.27	-	\$243.67	\$27.40	12.7%

**Brief Description**

Antarctic Facilities and Operations supports the infrastructure, logistics, and science operations underlying the United States Antarctic Program (USAP). In direct support of the Nation’s goals under the Antarctic Treaty System, the program strives to maintain an active and influential presence in the region through fostering the conduct of world-class science and mutually beneficial international cooperation when and where appropriate. At the same time, the program strives to optimize funding efficiency while ensuring safe, environmentally sound, and effective operations.

**Scientific Purpose**

By Presidential directive, NSF is the single-point manager of all U.S. activities in Antarctica and is required to, among other things, occupy the geographic South Pole and operate two coastal stations, McMurdo Station on Ross Island and Palmer Station on Anvers Island near the Antarctic peninsula. Presently the Antarctic Infrastructure and Logistics Section (AIL) within OPP, through its contractor Leidos, supports about 150 NSF-funded science projects each season as well as long-term observing facilities. Examples of these facilities include the Long-Term Ecological Research sites in the Dry Valleys and in the Antarctic Peninsula marine environment; the IceCube neutrino detector; the South Pole Telescope for sub-millimeter and microwave signal detection of the universe; and the Center for OLDest Ice Exploration (COLDEX), a Science and Technology Center funded in FY 2021. NSF also supports several projects funded by other agencies including the National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration (NOAA). For example, the NASA Long Duration Balloon program launches major observing payloads into the upper atmosphere from a dedicated facility on the Ross Ice Shelf.



Helicopters provide support to field science on Ross Island's Mt. Erebus and to other remote camps in Antarctica. *Credit: Air Center Helicopters Incorporated.*

## Status of the Facility

The U.S. presence in Antarctica is maintained in accordance with U.S. policy and supports Antarctic Treaty administration under Department of State leadership. AFO comprises the infrastructure and logistics needed to conduct U.S. research in Antarctica, including research funded by other U.S. agencies. Research activities occur on two research ships, at a variety of remote field camps, and year-round at the U.S. stations. All support for these activities is provided, including transportation, facilities, communications, utilities (water and power), health and safety infrastructure, and environmental stewardship.

### Summary of COVID-19 Impacts

The COVID-19 pandemic had a major impact on AFO. The inherently close quarters of remote facilities and the limited medical capacities of Antarctic stations made it essential for all national Antarctic Programs to avoid the introduction of COVID-19 to Antarctica. NSF greatly reduced the presence of personnel on the continent during the 2020-21 austral summer season and again in the ongoing 2021-22 season. NSF did not support new science investigations in order to manage COVID-19 risks and to work within the constraint of international travel restrictions that persist into FY 2022. The minimal number of logistical support staff required to undertake critical maintenance and support functions was deployed. Construction work on-ice was halted mid-season in FY 2020, throughout FY 2021, and will remain deferred through FY 2022. In FY 2022, environmental conditions enabled fabrication of an ice pier at McMurdo Station. Resupply of McMurdo Station will be conducted by cargo vessel, tanker, and aircraft; South Pole Station will be resupplied by tractor traverse and aircraft; and Palmer Station via vessel.

## Meeting Intellectual Community Needs

The research community participates actively in decisions regarding scientific platform and logistics requirements through the annual science planning process managed jointly by AIL and the Antarctic Sciences Section (ANT) of OPP.

The Antarctic Infrastructure Recapitalization (AIR) program is initiated in FY 2022 in response to a 2012 Blue Ribbon Panel (BRP) report, which recommended that NSF create a capital plan to renew the USAP's aging physical plant. Unfunded parts of the Antarctic Infrastructure Modernization for Science (AIMS) project, currently in the construction phase,<sup>1</sup> will be considered as part of the ongoing refresh of the McMurdo Station master plan and may be accomplished as part of the broader AIR program. The AIMS project will provide a reduction in the annual cost to maintain and operate McMurdo Station. The longer-term recapitalization of McMurdo Station and other Antarctic infrastructure under the AIR program is expected to produce further efficiencies.

## Governance Structure and Partnerships

### NSF Governance Structure

In addition to the OPP Advisory committee's biannual meetings, its sponsored Committee of Visitors (COV) reviews whether AIL's provision of infrastructure, logistics and science support is appropriately

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<sup>1</sup>AIMS is currently undergoing a re-baselining in light of a pause in on-ice construction due to COVID-19, and significant disruptions to workforce and supply chains.

## Major Facilities

integrated with science needs every four years. The last COV review was in the fall of 2020.

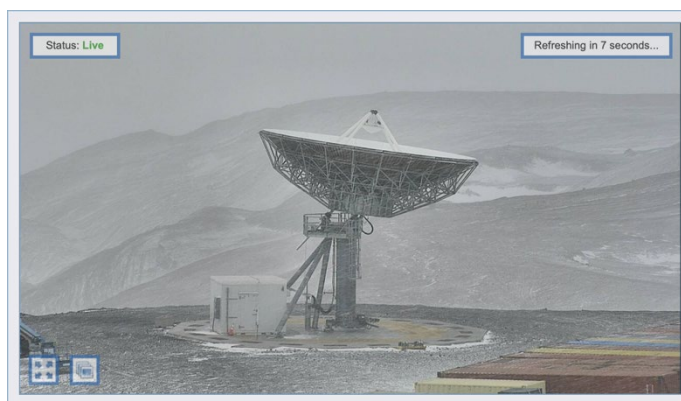
OPP also receives contract oversight and management support from NSF's Division of Acquisition and Cooperative Support (DACs) as well as assisted acquisition services from the Department of Interior's Interior Business Center.

### External Governance Structure

The USAP undergoes higher level review at approximately 10 to 15-year intervals. The most recent review culminated in the 2012 BRP Report which is discussed further below. The USAP is also subject to the Antarctic Conservation Act as well as provisions within the Antarctic Treaty, under Department of State leadership. USAP stations in Antarctica are subject to inspection by Treaty member nations on short term notification.

### Partnerships and Other Funding Sources

NSF has arrangements for cooperative sharing of logistics and science capabilities with international treaty partners operating in the general vicinity of USAP stations and remote field sites. These arrangements depend on in-kind contributions and generally do not involve transfers of cash. NSF supports field work sponsored by other agencies from which it recovers certain incremental costs.



Ross Island Earth Station under construction. *Credit:* McMurdo Station webcam.

NSF entered into an agreement with NOAA to co-fund the design and construction of an expanded weather and communications satellite downlink/transmission station on Ross Island (Ross Island Earth Station) to replace aging facilities currently located across McMurdo Sound on Black Island. The facility is under construction and is expected to be completed in 2022.

## Funding

### Total Obligations for AFO

(Dollars in Millions)

	FY 2021	FY 2022	FY 2023	ESTIMATES <sup>1</sup>				
	Actual	(TBD)	Request	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Operations & Maintenance	\$216.27	-	\$243.67	\$243.67	\$243.67	\$243.67	\$243.67	\$243.67

<sup>1</sup> Outyear estimates are for planning purposes only. The current contract ends in March 2025.

In FY 2023, AFO funding is increased by \$27.40 million to \$243.67 million from the FY 2021 level. This increase will cover higher deployment costs and accommodate continued operation of the stations, as well as support for priority science activities including the International Thwaites Glacier Collaboration. COVID-19, and the resulting need for pre-deployment quarantine in New Zealand, has led to significantly higher per-person costs for grantees and contract personnel deploying to Antarctica. Higher deployment costs could persist into the FY 2023 season, increasing the overall

operating cost even though the deployment tempo will still be lower than prior to the COVID-19 pandemic. Once pre-deployment quarantine periods are no longer required, the lower per-person cost will be offset by a higher deployment tempo, which will be needed to clear the backlog of field science projects that were deferred during the pandemic.

## **Reviews**

OPP evaluates the performance of the Antarctic support contractor annually via an Award Fee Plan, which involves multiple tiers of review, including a Performance Evaluation Board comprising knowledgeable NSF staff in OPP and BFA. In addition, OPP programs are reviewed externally by Committees of Visitors and the OPP Advisory Committee. The USAP BRP released a report on its review of the program in July 2012. The initial NSF response to the USAP BRP report was released in March 2013 and progress to address recommendations is ongoing.<sup>2</sup> The AIR program is a significant step towards addressing the report recommendations and is covered in detail in the MREFC chapter.

## **Renewal/Recompetition/Termination**

- Lockheed Martin Corporation was awarded a 13.5-year Antarctic support contract in December 2011. The award consists of a five-year base period and four option periods exercised based on performance and totaling an additional 8.5 years. In FY 2017, Lockheed Martin Corporation novated the Antarctic support contract (ASC) to Leidos Corporation. Transition from Lockheed Martin management to Leidos management of the ASC was successfully completed in August 2017. The third two-year option with Leidos was exercised in September 2020.
- In anticipation of the need to recompete the ASC prime contract, NSF conducted a Virtual Industry Day for Operations and Science Support to the United States Antarctic Program on February 16, 2021.
- A contract for helicopter support was awarded to Air Center Helicopters in April 2019. It is a one-year contract that, in FY 2023, will be in the third of four option years.
- A fixed-wing small aircraft support contract was awarded in August 2018 to the incumbent, Kenn Borek Air. It is a one-year contract that, in FY 2022, will be in the final option year. OPP anticipates a follow-on support contract in 2023.
- NSF divested its four LC-130H aircraft to the U.S. Air Force in FY 2021 to improve the efficiency of their operational support. The aircraft will continue to be operated by the New York Air National Guard under the existing Memorandum of Agreement with the DOD without any loss of continuity.
- Currently there are no plans for divestment of this facility.

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<sup>2</sup> [www.nsf.gov/geo/opp/usap\\_special\\_review/usap\\_brp/rpt/nsf\\_brp\\_response.pdf](https://www.nsf.gov/geo/opp/usap_special_review/usap_brp/rpt/nsf_brp_response.pdf)