

National Polar-orbiting Operational Environmental Satellite System (NPOESS) NPOESS Benefits McMurdo Station, Antarctica Science Community



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NPOESS Completes First Phase of Communications Upgrade for McMurdo Station, Antarctica

On February 27th, 2008, NPOESS announced that it had achieved a significant program milestone by successfully completing the first phase of a major communications upgrade for Antarctica. **The upgrade of the off-continent satellite communications link at McMurdo Station more than triples the bandwidth available for scientific research, weather prediction, and health and safety of those stationed at McMurdo.**

Antarctica is the coldest continent with the world's record low temperature of -128.6 degrees Fahrenheit recorded there. McMurdo Station was established in 1955 and is on the coast where monthly temperatures range from -58 degrees Fahrenheit in August to +46 degrees Fahrenheit in January. During the austral summer, which lasts from October to February, the station is filled with more than 1,000 scientists and support staff who are there to study the Antarctic and its interactions with the rest of the planet. **McMurdo Station is located at -78 degrees South latitude and was selected as a ground station site because the NPOESS satellites will pass over head on every orbit, which contributes significantly to low mission data latency.**

The McMurdo project consisted of upgrading one of the two satellite earth station antennas located at Black Island as well as changing satellite service and terrestrial network vendors providing the 10 Mbps (megabit per second) service for McMurdo. **The antenna was fitted with a new Ku-band feed and electronics by Raytheon Information and Intelligence Systems (IIS) in late November and the new system was placed into operation on Dec. 23, 2007.** Black Island is the primary off-continent telecommunications facility some 25 miles south of McMurdo across the McMurdo ice shelf and also serves as a radio lifeline for deep Antarctic field camps.

The National Science Foundation manages and funds the U.S. Antarctic Program (USAP), which coordinates all U.S. research on the southernmost continent. McMurdo is one of three year-round stations NSF maintains in Antarctica; the others are Amundsen-Scott South Pole Station, at the geographic South Pole, and Palmer Station, on the Antarctic Peninsula. **The National Science Foundation and the NPOESS Integrated Program Office are collaborating on the development of McMurdo as one of the NPOESS weather downlink stations.**



McMurdo Station, Antarctica



Black Island, Antarctica

Off-continent communications antennas upgraded by NPOESS -- increased National Science Foundation (NSF) Polar Station data rate by >3 times. Phase 1 upgrade of the 7.2 meter antenna completed in January 2008.