

**McMURDO STATION**  
**WEATHER NETWORK**  
 Updated 11/1/99 4:11 PM
 

**Severe Weather Conditions**

Condition One is set for T site, Arrival Heights, Ice Runway, Snow Road, Ice Road to Ice Runway, Ice Road from Ice Runway to Willy Field, Willy Field, Scott Base Road.

Condition Two is set for all for all locations.

**Attention Intranet users: This slide contains potentially dated information with updates every 10 minutes. For latest information please see television channel 3.**

**Mac Weather: x2523 or x2524**

## MacWeather: Weather Operations at McMurdo Station, Antarctica

*This is an excerpt from a journal entry by Bruce Smith, PCAMS member and participant in the Teachers Experience Antarctica (TEA) program. Bruce was stationed at McMurdo Station during the Southern Hemisphere summer of 1999. The journal entry is from November 2, 1999. The complete journal is available at the website below:*

[http://tea.armadaproject.org/tea\\_smithfrontpage.html#calendar](http://tea.armadaproject.org/tea_smithfrontpage.html#calendar)

The weather continues to be the story here. It was pretty nice this morning but this afternoon the snow started and the wind began to blow. A strong pressure gradient across the Ross Iceshelf was causing gusty surface winds. Skies remained mostly cloudy across the area. Flights from Christchurch and to South Pole were cancelled. McMurdo is a bit crowded right now. Many people headed to the South Pole for the summer are stuck here because of the weather. Many of the groups going to field camps are like-wise stuck in Mactown. The lines at supper are quite long and the dining room is crowded. With weather being such a critical issue in Antarctica, you can well imagine that the Weather Forecasting Office in McMurdo, or MacWeather, is a pretty busy place. I went to visit MacWeather the other day to see how the business of forecasting weather here differs from the weather offices back home. The first thing you realize is that the forecasters here have much fewer tools to work with than back in the states. First there is data. If you look at a typical weather map of the US (You can get a good one at <http://www.comet.ucar.edu/dstreme/>.) it shows hundreds of weather reporting stations and this represents only a fraction of the stations that are reporting data. In Antarctica, there are very few reporting stations and they may be hundreds of miles apart. The University of Wisconsin maintains a network of about 40 automated weather observing stations around the continent. You can see the locations of the sites at <http://uwamrc.ssec.wisc.edu/aws/AntAWS.gif> and you can get current temperatures around the continent at <http://uwamrc.ssec.wisc.edu/~amrc/AWSANT.GIF>. In addition there are 30 occupied sites that operate the entire year in Antarctica. Most of these are located on the coast and very few in the interior of the continent.

Continued →

*(MacWeather continued)*

MacWeather relies heavily on observations made by scientific teams in the field. I attended a briefing for field teams conducted by Ted, the head weather observer at MacWeather. He taught the field teams how to estimate cloud cover, cloud heights, wind speed and wind direction. Not only is this information vital to help MacWeather make better forecasts, it is also important for flights going out to pick up the field teams.



There is a weather satellite image of Antarctica available to the forecasters. It comes from a polar orbiting satellite that passes over the continent. You can view the latest image at <http://uwamrc.ssec.wisc.edu/~amrc/COMP.GIF>. You will notice when you view the image that there is a large black space where there is no image. Due to the way polar orbiting satellites cross Antarctica, there is a time period for any location where there is no image available. The weather satellites that cover North America are geo-stationary satellites. They stay in the same position over a point on the Earth giving continuous coverage. For McMurdo the blackout is about 6 hours meaning the forecasters at MacWeather do not have a satellite image for one-fourth of the day.



There is no weather RADAR in McMurdo. National Weather Service Offices like the one in Green Bay, Wisconsin have sophisticated Doppler Radar at their disposal. Upper air data from balloon soundings are critical for forecasters to understand what is happening in the atmosphere above the surface. In the United States there are about 50 balloon launching sites. At these sites, weather balloons are launched twice a day, every day. These launches allow weather forecasting computers to develop models of

how the atmosphere is behaving and help forecasters make better forecasts. In the entire continent of Antarctica there are a total of 9 balloon launch sites.

*Continued* →

*(MacWeather continued)*

I had an opportunity to help with a weather balloon launch at MacWeather. (See picture below.) If you would like to view the latest data from the McMurdo balloon sounding, go to <http://uwamrc.ssec.wisc.edu/~amrc/SKEWTMCM.GIF>.



Despite this lack of information, MacWeather is responsible for making weather forecasts for plane flights to New Zealand, South Pole and other locations around the continent. Ted made a great analogy that illustrated how difficult their job is. He said forecasting for flights across Antarctica is like knowing only the weather observations in Kansas City and Seattle and trying to forecast the weather for a flight from Miami to Alaska! The forecasters have to rely heavily on previous experience and the observations made by pilots and

people in the field. Despite their best efforts, however, weather in Antarctica can change without warning. It is important that each person keeps watching the sky and be his or her own weather forecaster.

*~ Photos supplied by Bruce Smith*

---