

OVERVIEW OF THE ANTARCTIC AUTOMATIC WEATHER STATION PROJECT

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ABSTRACT

The United States Antarctic Program (USAP) Automatic Weather Station (AWS) project has origins in groundbreaking work done by Professor Alan Peterson at the Radio Science Laboratory, Stanford University in 1979, which developed the forerunner of the current Antarctic AWS systems. Since 1980, the University of Wisconsin-Madison has been the steward of the USAP AWS program, with support from the Office of Polar Programs at the National Science Foundation.

This presentation will provide a brief review of the history of the AWS project from the development of the crucial low power computer components and key satellite communications systems that has made AWS systems possible in the extreme conditions of the Antarctic. Multiple versions of the weather stations have been built and installed over the years. Sensor selections and observing strategies will be reviewed and contrasted over the lifetime of the project. Applications that the AWS network has been and continues to be utilized for will be summarized.

The quality control system and review of AWS data flow will be presented. Real-time and archival quality products will be outlined including a re-introduction of new quality controlled datasets available from a limited set of AWS sites. Associated with this effort is a CLIMAT message project important for the climatological applications of the AWS project.

Currently 63 AWS sites in the network are installed over the Antarctic – the largest extent in the 28 year history of the program. This presentation provides an outline of the basic operations as well as highlights the objectives of the project. Collaborations, which are critical for the project, will be discussed including those at the formal and informal levels.

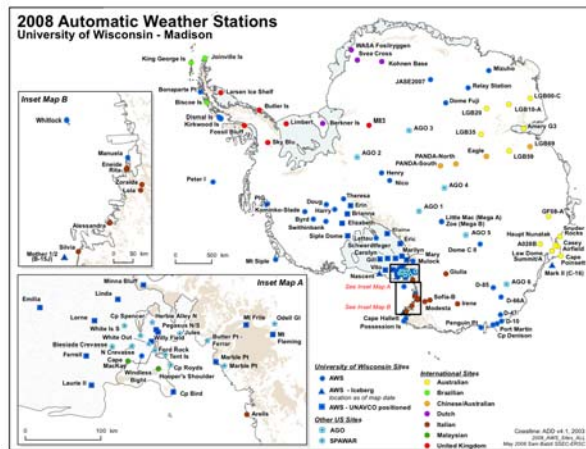


Figure 1. The Antarctic AWS network as of May 2008.

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