

# USAP ANTARCTIC AUTOMATIC WEATHER STATION PROGRAM STATUS AND FIELD REPORT

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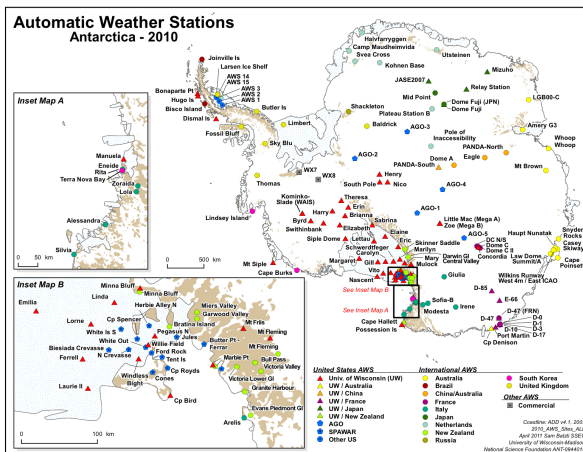
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## 1. INTRODUCTION

The 2010-2011 USAP AWS field was one of the more successful field seasons in the last decade. With 16 stations visited by the primary AWS field team, and another 6 visited by collaborators, nearly 100% of the planned work was completed.

Figure 1 depicts the AWS network as it was known prior to the 2010-2011 field season. This is a review of the accomplished activities by the joint Wisconsin and Colorado field team, led by Jonathan Thom and joined by Lee Welhouse and Melissa Nigro.

After several field seasons' attempts, a Tall Tower AWS has been installed, roughly 100 statute miles (~160 kilometers) south of McMurdo near the traverse route to South Pole (See Figure 2).



**Figure 1. The final 2010 AWS map for the Antarctic. While a few known AWS are missing, this map comprehensively maps the locations and operators of AWS across the Antarctic.**



**Figure 2. Tall Tower! Alexander AWS site after installation of several levels of instrumentation.**

The Tall Tower site is also name Alexander AWS site. The 30-meter tower (approximately 100 feet) has observing at 1,2,3,4,8,15 and 30 meters (See Table 1).

## 2. TALL TOWER! ALEXANDER AWS

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Table 1. Sensors on Tall Tower! Alexander AWS.

Level	Height (m)	Sensors
1	1	Wind speed, Temperature
2	2	Wind speed, Temperature
3	~3	Acoustic depth gauge
4	4	Wind speed and direction, Temperature
5	8	Wind speed and direction, Temperature, and Humidity
6	15	Wind speed and direction, Temperature
7	30	Wind speed and direction, Temperature, humidity, Net shortwave and longwave radiation

### 3. NEW AWS INSTALLATIONS AND SERVICING

Several new stations have been installed. Some sites are new such as Janet AWS site, to capture the climatology of unobserved West Antarctica (See Figure 3). Two additional AWS have been installed in the southern Ross Ice Shelf to support wind studies in the area. After attempts last field season, this year saw the installation of three new AWS systems in the Pine Island Glacier region, specifically on Thurston Island, Bear Peninsula and Evans Knoll.

Several AWS sites were replaced this season. Lettau AWS was replaced with a new AWS system. Additional AWS sites replaced with new systems includes Byrd, Franklin Island, Sabrina, Willie Field, and Minna Bluff. Minna Bluff AWS is the first AWS to utilize freewave modem communications to relay observations back to McMurdo Station. A second, new AWS has been installed at Ferrell AWS site to provide a side-by-side study of one year of the Wisconsin AWS 2B and AWS CR1000.

Additional sites have had servicing work. Gill AWS site had its tower raised and a new set of instrumentation installed. Marilyn AWS had its aerovane replaced. South Pole test site was repaired as well.

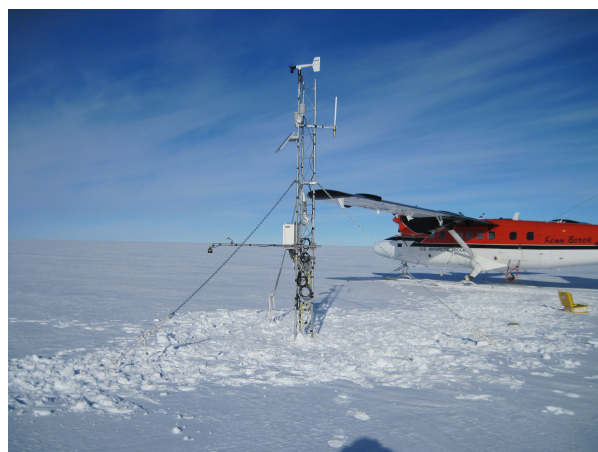


Figure 3. Janet AWS installed at 77.174 South and 123.390 West provides some of the first ever routine, year round observations in Marie Byrd Land, West Antarctica.

### 4. AWS REMOVALS

The 2010-2011 field season saw the largest removal of AWS sites from the network in history. Seven sites have been removed including Swithinbank, Mulock Glacier, and the three AWS sites at Megadunes, including Zoe and Little Mac. In addition, Mt. Friis and Mt. Fleming AWS have also been removed from the Wisconsin network.

### 5. COLLABORATIONS

Collaborations with the Mawson's Hut Foundation in Australia led to the installation of a new AWS at Cape Denison. Unfortunately this system has recently failed after an extremely high wind event of over 52.5 meters per second! AWS collaborations with the French Antarctic program, IPEV, led to the servicing of D-10 AWS, and replacement systems at E-66 AWS and D-85 AWS.

### 6. ACKNOWLEDGEMENTS

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