

## **M-AWS**

### **Mobile-Automatic Weather Station**

<https://twitter.com/microairpolar>



### **Principal investigator**

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### **Areas of contribution**

Observations

Outreach

### **Summary**

A Mobile-Automatic Weather Station (M-AWS) will be installed on an eco-vehicle and scientific platform that will move across the East Antarctic Ice Sheet. This will provide meteorological observations of the surface conditions in a transect across the less explored areas of Antarctica that will be used for verification of the numerical weather models and analyses across a wide range of altitude.

### **Description**

In the 2018-19 Antarctic summer, a mobile scientific platform will move across the most unexplored places of Eastern Antarctica in the Antarctica Unexplored Dome Fuji 2018/19 Expedition with ten scientific projects on it (More information at <http://greenland.net/windsled/>). The campaign will cover 2,000 km along a triangular route, from Novolazárevskaya to Dome Fuji, using an eco-vehicle called Windsled that uses only the wind energy to move across the East Antarctic Ice Sheet (Rosen 2017).

To record meteorological data during the expedition and to support the projects, the Mobile Automatic Weather Station (M-AWS) has been designed to resist the adverse conditions of the expedition by the project

MICROAIRPOLAR of the Universidad Autónoma de Madrid (UAM) and the Spanish Meteorological Service (AEMET). The M-AWS will be installed on the Windsled for measuring and recording temperature and wind direction and speed across the expedition.

The M-AWS will record meteorological data along a transect that cover a wide range of altitude, from near the sea level to the Dome Fuji at 3,810 m, over a vast area of Antarctica with low AWS and station density. At the end of the campaign, data will be quality-controlled and archived. This data will be used to support all other projects on the Windsled but also to assess the performance of the meteorological models and analyses to properly simulate the variations of temperature and wind speed along the Antarctic Ice Sheet. To provide quality near-surface data on the most remote places of Antarctica is important because the lack of real-time meteorological observations used for model assimilation may introduce significant deviations that could eventually reduce the predictability for short and medium range forecasts. This assessment is expected to contribute on the YOPP in the Southern Hemisphere (YOPP-SH) objectives. Using only zero-emissions instruments and vehicle will also add an educational outcome to the project.

### **Timeline**

2018-12-01 - 2019-02-12

### **Regional emphasis**

Northern hemisphere: No

Southern hemisphere: Yes

### **Further specification**

The campaign will cover 2,000 km along a triangular route, from Novolazárevskaya to Dome Fuji, in Eastern Antarctica.

### **Key project deliverables**

A dataset of surface-measured meteorological variables recorded over the transect during the YOPP-SH Special Observing Period for research purposes.

Model and analysis verifications for a wide range of altitudes.

**Data management**

Data will be quality-controlled and will be archived in a timely fashion after the inspection through the Pangea data publisher (<https://www.pangaea.de/>) and via the YOPP Data Portal for use by the YOPP community.

**Is data provided to WMO Global Telecommunication System**

No

**Real-time provision**

No

**Other information**

The project is part of the Spanish founded project "Understanding the succession of Antarctic microbial communities from deglaciated soils using new methods for big data" (MICROAIRPOLAR).