THE WORKING GROUP ON OBSERVATIONAL DATA (WG/OD): IMPLICATIONS FOR THE US ANTARCTIC PROGRAM (USAP)

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https://amrdcdata.ssec.wisc.edu/

1. INTRODUCTION

At the direction of the National Science Foundation (NSF), Antarctic Meteorological Research and Data Center (AMRDC; Lazzara et al., 2021a and 2022) leadership have engaged with the Working Group on Observational Data (WG/OD). Specifically, Matthew Lazzara is now the sub-focal point for the United States (representing the NSF) for World Meteorological Organization (WMO)'s Integrated Global Observing System (WIGOS). As a larger part of the United States meteorological enterprise, this group works on:

> "…specific issues and information needs in sharing and using meteorological Earth system observations…" (IMCO, 2021)

As the WG/OD is a part of committees and subcommittees of the Interagency Council for Advancing Meteorological Services (ICAMS) and supported by the Interagency Meteorological Coordinator Office (IMCO), this is all organized under the Office of Science and Technology and Policy (OSTP), an office of the White House. Until recently, US Antarctic Program (USAP) engagement with this group was limited, and now has routine engagement for the benefit of all.

2. OSCAR

One of the first tasks that has brought together the USAP with the WG/OD is having all US Automatic Weather Station (AWS) assets properly filed on the WMO's Observing Systems Capability Analysis and Review Tool (OSCAR) system (See Figure 1).

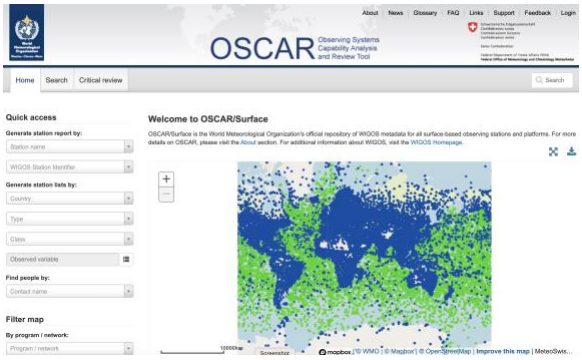

Figure 1. This is the OSCAR/Surface site, WMO's metadata site for all surface (and other in situ) observational data.

3. WIGOS IDS

Another important task is preparation for the evolution of world relay of weather observations from the Global Telecommunications System (GTS) to the WMO Information System (WIS) version 2.0 or WIS2.0. As a part of that effort, use of a brand-new identification system, WIGOS Station Identifiers or WSIs for weather reporting stations, is being utilized. The older

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5-digit system has now nearly run out of available numbers (especially in the Antarctic block of 89xxx). Hence, moving to the newer system is essential. Following WMO guidance, and as outlined in IMCO, 2021, efforts are underway to issue new WSIs to all US AWS. Currently only a portion of the AWS network has the historical older WMO block numbers assigned. This used to limit the number of stations that reported in real-time to the GTS for numerical weather prediction (NWP) centers to make use of the data for modeling and verification purposes. While other means have been used to provide more data (e.g., use of synoptic mobile messaging, etc.), planned usage of WSIs along with approved data formats will allow all US AWS sites to have their real-time observations made available on the GTS, and soon, the WIS2.0.

4. USAP ACTIVITIES

Over the past few years some important activities have been accomplished. US AWS data are now being made available in BUFR format to the community and to GTS via NOAA through the Antarctic-Internet Data Distribution (Lazzara et al., 2021b). This has become a more stable and reliable means to provide the observations for Numerical Weather Prediction (NWP) and other national centers to acquire and have access to the data – world-wide. This is being reflected in monitoring tools set up by the WMO to monitor data flow and availability (e.g. https://wdqms.wmo.int/). This data relay is done via an LDM or Local Data Manager link (also known in the US Antarctic community as the Antarctic-IDD) between AMRDC and the NOAA Telecommunications Gateway.

Updating and adding entries for the US AWS on OSCAR is a work in progress as is the proper assignment of WSIs. To follow proper protocol, existing WMO block numbered assigned sites will have a different WSI style than those that do not, for their primary WSI. In this case, a secondary WSI is being assigned that will allow the entire US AWS network to have one of its WSIs have the same naming convention and be ready for the future if it can all have the same primary WSI naming convention applied (See figure 2).

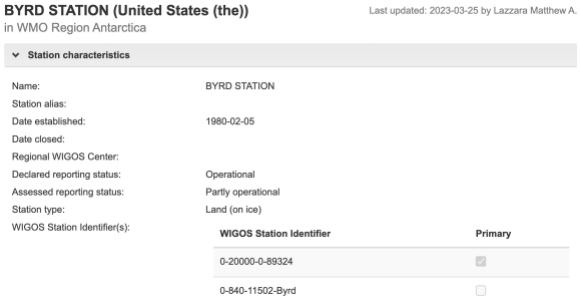

Figure 2. Here is an example of an entry for Byrd Station, which has been historically a staffed station as well as an AWS site. The WIGOS Station Identification (WSI) has both a primary and secondary designation to follow WMO rules and include the site in the larger AWS network using full capacity of the WSIs.

5. CONCERNS

There are a few concerns and issues to be worked on in the future. One is the current status of McMurdo Station radiosonde Global Climate Observing System (GCOS) Reference Upper-Air Network (GRUAN) filing status which is currently done via New Zealand (with the data acquired through the AMRDC). Another issue is the generation of CLIMAT messages for Palmer Station by the British Antarctic Survey. Additionally, in the US, the CLIMAT Message software used by McMurdo Station (Mac Weather), South Pole Meteorology Office, and AWS project is the WMO “CLIREP” software, which is using out of date Java, and is thus a security risk. If there is no other available software, should there be an investment in proper CLIMAT generation software? Perhaps one means forward is to partner with someone on this (and other) issue(s)?

6. FUTURE ACTIVITIES

Future activities that will be undertaken in the coming months include completing the OSCAR entries for the US AWS sites. Along with this is adding WSIs to the real-time

BUFR messages for the AWS observations. In the future, with proper edit access, updates are needed for Amundsen-Scott South Pole, McMurdo, and Palmer Stations, especially in the realm of adding information, etc. Providing more historical information and stations, both staffed and AWS, to OSCAR is currently not a fully funded activity and will only be accomplished on an ad hoc basis or await future supported funding and direction to be accomplished.

7. ACKNOWLEDGEMENTS

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