

**WORLD METEOROLOGICAL ORGANIZATION**

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CBS/OPAG-IOS/ET-ABO-1/5.2.3.8

**COMMISSION FOR BASIC SYSTEMS**  
OPEN PROGRAMME AREA GROUP  
ON INTEGRATED OBSERVING SYSTEMS

30.VIII.2013

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**EXPERT TEAM ON AIRCRAFT-BASED OBSERVING SYSTEMS**  
**FIRST SESSION**

ITEM: 5.2.3

Original: ENGLISH

Geneva, Switzerland, 10-13 September, 2013

## **GLOBAL AND REGIONAL ABO & AMDAR PROGRAM DEVELOPMENT**

Polar Aircraft-Based Observations  
*(Submitted by the Secretariat)*

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### **SUMMARY AND PURPOSE OF DOCUMENT**

Provides the background information to a request by EC-PORS for ET-ABO to consider and recommend ways in which upper air observations over Polar Regions might be extended.

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### **ACTION PROPOSED**

The Session is invited to note the information contained in the document and consider ways to address the request.

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## POLAR AIRCRAFT-BASED OBSERVATIONS DATA

### Background

1. The following are extracted from the Resolutions of Congress and the Executive Council, WMO-No. 508, 2012 edition.

#### **Annex to Resolution 56 (Cg-XVI)**

#### **AMENDMENTS TO THE MANUAL ON THE GLOBAL OBSERVING SYSTEM (WMO-NO. 544), VOLUME II, REGIONAL ASPECTS – THE ANTARCTIC**

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#### **7.6 Aircraft reports**

Members are encouraged to arrange for making, recording and distributing in real-time, observational reports from all flights to/from and within the Antarctic.

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#### **Resolution 58 (Cg-XVI)**

#### **WMO POLAR ACTIVITIES**

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Invites Members, particularly those that have operational activities in polar regions:

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(2) To provide additional observations in polar regions by using automatic weather and hydrometric stations, atmospheric soundings, and other geophysical observatories on land; by recruiting additional voluntary observing ships; **by equipping aircraft with appropriate means of recording and distributing observations**; and by deploying automated observing platforms on and under the sea and ice, in order to meet the needs of numerical weather prediction (NWP), hydrological services, climate studies and research programmes;

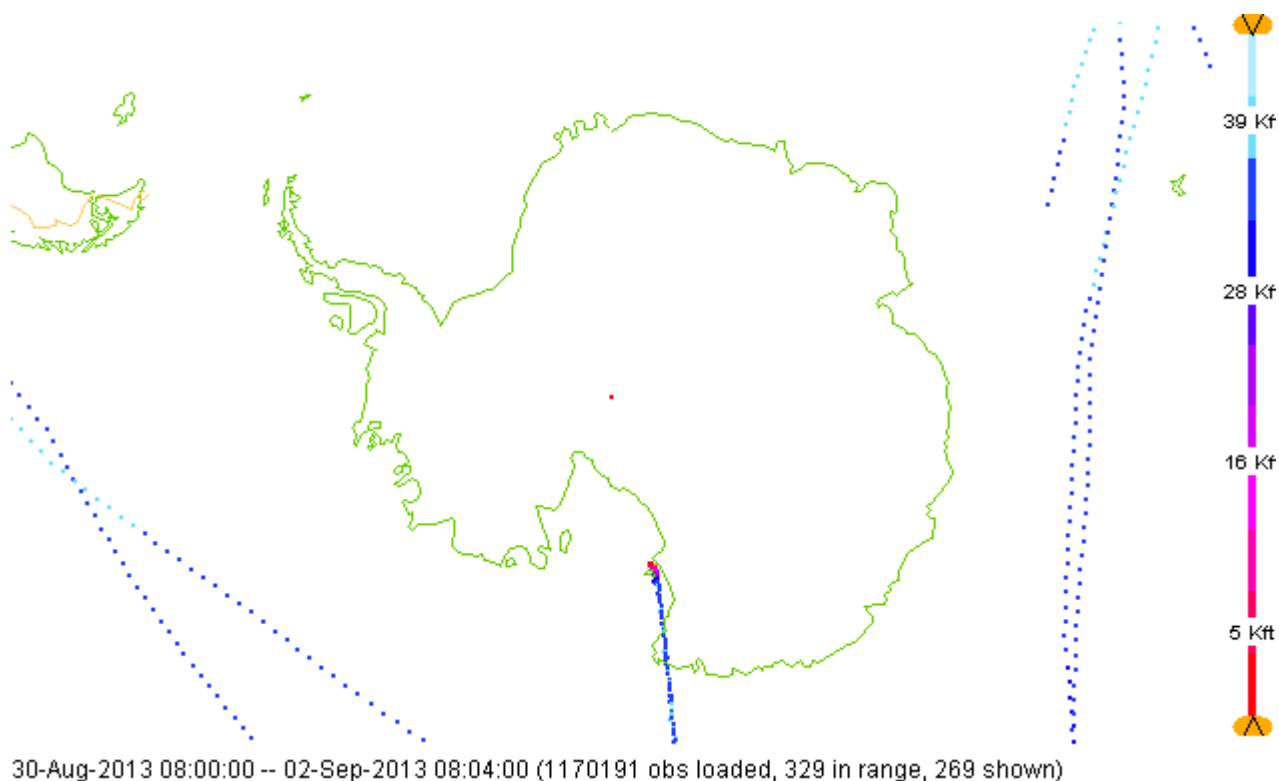
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### Current Sources of Polar Aircraft-based Observations

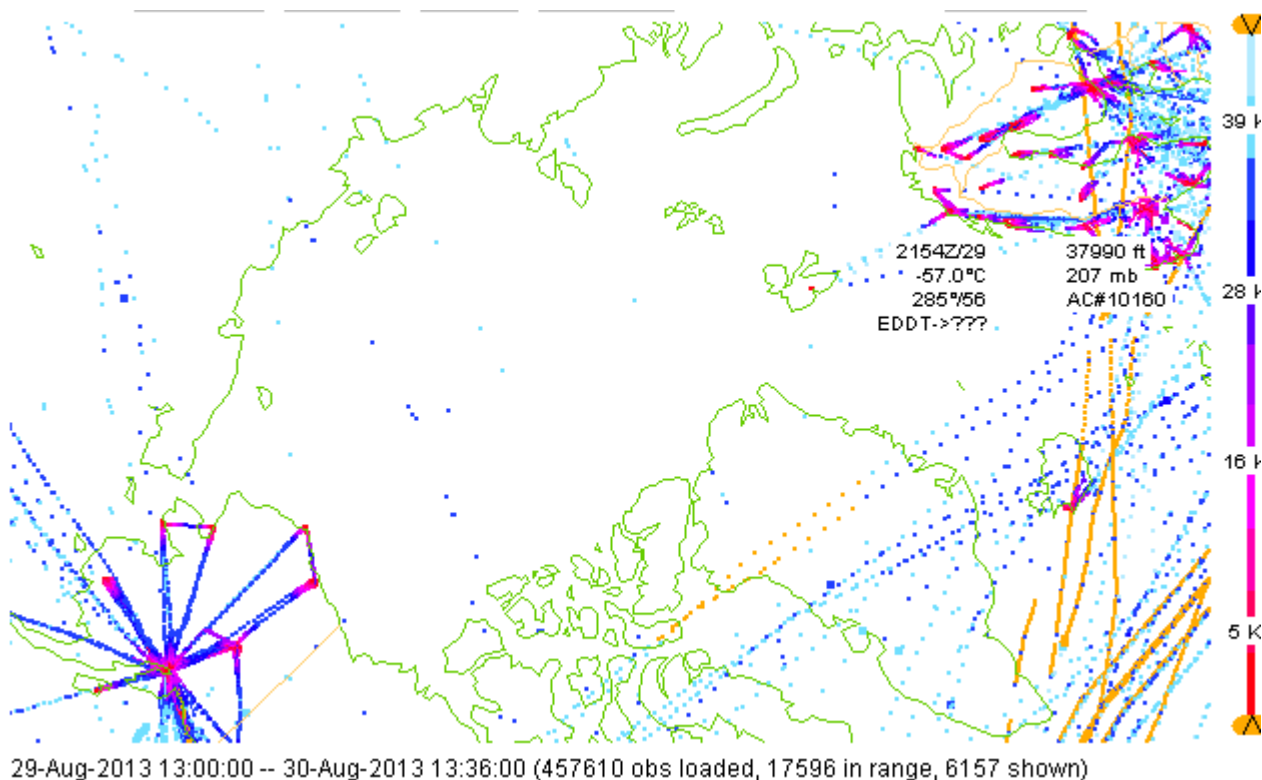
2. At the current time, there appears to be only one source of aircraft-based observations over the Antarctic regional and transmitted on the GTS, being data derived from the Australian Antarctic Division A319 aircraft (AU0500 / AC#10357) that is equipped with the AFIRS system – see the ESRL/GSD coverage map below. This data is limited to infrequent and irregular vertical profiles from the aircraft into Antarctic airports, depending on the southern hemisphere summer schedule of Australian Antarctic Division flights:

<https://secure3.aad.gov.au/proms/public/schedules/flight.cfm?season=1314>

3. There is a very limited amount of Antarctic, near-polar region level flight data.



4. The 2<sup>nd</sup> coverage map below shows recent ABO data generated over a 24 hour period, with a limited coverage of profiles at sites above 60N to around 70N from the USA MDCRS (Alaska Airways) and E-AMDAR over Norway, Finland and Sweden. Profiles from Svalbard (Norway) are generated by the E-AMDAR programme at around 78N. Some cruise level data is generated from trans-Atlantic traffic from both AMDAR and ADS-C sources.



### **Generation of Additional Data in Support of EC-PORS and the WWW**

5. The EC Panel of Experts on Polar Observations, Research and Services (EC-PORS) was re-established by WMO Executive Council ([Resolution 5, EC-LXIII](#)) to extend the research and monitoring activities first commenced under the International Polar Year (IPY) 2007–2008. Under its ToR, the EC-PORS should:

*For both polar regions:*

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*(b) To ensure that operational and research observing networks in polar regions (including AntON) are integrated within the framework of WIGOS and WIS and are enhanced to include cryosphere-related variables;*

...

6. ET-ABO has been requested to investigate the potential to extend and expand the coverage of ABO over Polar Regions in support of EC-PORS activities and monitoring of the Polar Regions in accordance with the Manual on the GOS.