

Real-time data processing at BAS, GTS monitoring and WMO work

Steve Colwell

British Antarctic Survey

Real-time data processing

- Data is sent to the Met Office via E-mail for insertion onto the GTS.
- SYNOP and TEMP messages from BAS stations.
- Construct and send SYNOPS from the BAS AWS network.
- Ozone data from Halley and Rothera are sent in FM 95 (CREX) format.
- CLIMAT messages.

- Data from Wisconsin AWS are sent to the Met Office in either SYNOP or SYNOP MOBIL format.
- CLIMAT message from Palmer station is sent from BAS.
- SYNOPS and Ozone data are sent for Vernadsky station.
- CLIMAT messages from stations that are not being put onto the GTS by their operators are constructed from the 6 hourly data that went out on the GTS. If more than 90% of data is available then the CLIMAT message is sent to the Met Office.

Getting WMO numbers for AWS

- It is not clear if data that is sent out as SYNOP MOBIL format is being used.
- One solution would be to apply to the WMO to have WMO numbers issues for all of the Wisconsin AWS so that the data could be sent out as a standard SYNOP.
- It would be interesting to hear the view of the Antarctic community on this.

GTS monitoring

- GTS feed arrives at BAS from the Met Office via FTP.
- Messages are decoded automatically and loaded into an Oracle database.
- Scripts are run to check how current the latest entry in the database is for each station.
- Statistics and plots are automatically produced from the data in the database.

Message



From: Steve Colwell [src@bas.ac.uk]
To: Colwell, Steve
Cc:
Subject: Missing synopsis file

Sent: Wed 04/06/2014 08:05

Id	Date	Days late	Name
20667	2014 05 28 06	-7	IM. M.V. POPOVA
20744	2014 05 28 09	-6	MALYE KARMAKULY MALYE KARMAKULY
23022	2014 05 28 09	-6	AMDERMA
23032	2014 05 28 09	-6	MARESALE
23058	2014 05 28 09	-6	ANTIPAJUTA
23242	2014 05 28 06	-7	NOVYJ PORT
89014	2014 05 28 11	-6	NORDENSKIOLD BASE
89257	2014 05 21 06	-14	UNIV. WI ID 8925 (LIMBERT AWS)
89327	2014 04 22 21	-42	UNIV. WI ID 8981 (MOUNT SIPLE)
89332	2014 04 29 21	-35	UNIV. WI ID 21361 (ELIZABETH)
89646	2014 05 11 02	-24	SITRY POINT
89815	2014 04 08 11	-56	CASEY (HAUPT NUNATAK)
89832	2014 05 29 12	-5	UNIV. WI ID 8914 (D-10)
93805	2014 05 25 21	-9	PUYSEGUR POINT AWS
94319	2014 05 19 16	-15	TELFER AERO
95322	2014 05 11 00	-24	RABBIT FLAT
95641	2014 05 08 04	-27	WITCHCLIFFE

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NATURAL ENVIRONMENT RESEARCH COUNCIL

[Science] [BAS home] [Met home] **Meteorology and Ozone Monitoring Unit**

 **Scientific Committee on Antarctic Research**

 **World Meteorological Organization**
Weather • Climate • Water

Web Page for

SCAR Expert Group on Operational Meteorology in the Antarctic & WMO EC-PORS Antarctic Task Team

The SCAR Expert Group on Operational Meteorology in the Antarctic is a sub group of the SCAR Standing Scientific Group on Physical Sciences (SSG/PS). The Chairman of the Expert Group is Steve Colwell (S.Colwell@bas.ac.uk). If you would like to join the Group please contact him. The Antarctic Task Team is a sub group of the WMO Executive Council team on Polar Observations, Research and Services. The Chair of the ATT is Johan Stander. Membership is by invitation. Jon Shanklin (J.Shanklin@bas.ac.uk), former chair of the Group and the ATT, currently maintains these pages.

Latest news:

1. 2014 May 2 - All but one ship has now left Antarctic waters for the winter. 31 ships contributed observations on the GTS, but at least 47 failed to do so.
2. 2014 April 24 - All Antarctic GSN stations have produced a CLIMAT message. This is the first time the 100% target has been achieved.
3. 2014 March 17 - SYNOPs from Russian Antarctic AWS and their new station Oazic Bangera now on the GTS
4. 2014 January 8 - Predictably the Akademik Shokalskiy and Xue Long became freed from the ice when the wind changed without needing assistance from Polar Star.
5. 2014 January 6 - The Japanese whaling research fleet operating in Antarctic waters is not transmitting meteorological observations.
6. 2013 December 24 - The tourist ship Akademik Shokalskiy is stuck in ice. She commenced sending meteorological observations once she became stuck.
7. 2013 December 9 - The new record low temperature announced for Antarctica is a ground temperature equivalent. It does not replace the existing air temperature record of -89.2° measured at Vostok on 1983 July 21. It is quite possible that if a ground temperature had been measured then it would still be the record ground temperature.
8. 2013 November 17 - The Antarctic tourist season has started with seven ships already in Antarctic waters. Only one has submitted meteorological reports.

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Monitoring

▶ UK Met Office global monitoring	▶ Australian BoM global monitoring
▶ ECMWF global monitoring	▶ NCDC data list
▶ Operational GSN stations with missing CLIMAT messages in the last 12 months (updated 2014 May) are: 88889 (May, April), 89377 (January), 89606 (June), 89625 (May, June, September, November, December), 89662 (February), 89872 (January), 89879 (July). Non operational GSN stations are: 68992, 89327. Please check our GCOS AntON CLIMAT monitoring results if your station is listed here and resend the data for the missing month(s). See the latest CLIMATs to check if your report has been received at BAS. See CLIMAT data for Antarctic AWS for all the University of Wisconsin AWS.	▶ The first five stations to submit CLIMAT reports for April were McMurdo, Novolazarevskaya, Progress, Mirnyj and Vostok. ▶ WMO no longer require distribution of the CLIMAT TEMP message and monitoring of these has ceased.
▶ BAS GTS monitoring	▶
▶ BAS GCOS monitoring results for SYNOP and TEMP messages in 2013 from the Antarctic and Oceanic Islands (AntON) (Updated 2014 April). Several AWS experience problems with low battery voltages restricting real-time transmissions during the winter. If your SYNOP or TEMP message percentage is lower than you think it should be, please check your GTS routing.	▶ All GUAN stations are now carrying out at least some radiosonde flights each month. Several stations experience problems with balloons bursting early during the winter due to low stratospheric temperatures.
• AntON CLIMAT monitoring in 2014 • AntON CLIMAT monitoring in 2013 • AntON CLIMAT monitoring in 2012 • AntON CLIMAT monitoring in 2011 • ABCN CLIMAT monitoring in 2010 • ABCN CLIMAT monitoring in 2009 • ABCN CLIMAT monitoring in 2008 • ABCN CLIMAT monitoring in 2007 • ABCN CLIMAT monitoring in 2006	• AntON SYNOP monitoring in 2014 • AntON SYNOP monitoring in 2013 • AntON SYNOP monitoring in 2012 • AntON SYNOP monitoring in 2011 • ABCN SYNOP monitoring in 2010

Ships

▶ Ships reporting in 2004/05	▶ Ships reporting in 2005/06
▶ Ships reporting in 2006/07	▶ Ships reporting in 2007/08
▶ Ships reporting in 2008/09	▶ Ships reporting in 2009/10
▶ Ships reporting in 2010/11	▶ Ships reporting in 2011/12
▶ Ships reporting in 2012/13	▶ Ships reporting in 2013/14 [Updated 2014 May 1]
▶ Sign up to send met reports through Yotreps	▶ Latest list of ships with significant errors/biases in their reports
▶ Download electronic met logbook software from the VOS website	▶ Download Turbowin and instruction for sending messages here
▶ Oceanographic ship locations (Sailwx)	▶ Ship locations (Sailwx)

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▶ Oceanographic ship locations (Sailwx)	▶ Ship locations (Sailwx)
▶ Live ships map (Marine Traffic)	▶ Palmer AIS (APRS.fi)

Planes

▶ Coding aircraft observations (Draft)	▶
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Overland traverses

▶ Reporting traverse observations (Draft)	▶
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Forecasting and Forecasts

▶ BAS Antarctic Weather Forecasting Manual	▶ International Antarctic Weather Forecasting Manual [updated 2009 June]
▶ Antarctic Mesoscale Prediction System Forecast products from Byrd Polar Research Center of Ohio State University	▶ UV forecasts from SCIAMACHY
▶ Antarctic ensemble plots from the Australian BoM & CSIRO	▶ Forecasts for Norwegian Antarctic sites
▶ TAFs and Forecast charts generated at Rothera for BAS operations	▶ Forecasts for Dronning Maud Land Air Network (DROMLAN)

Information

▶ University of Wisconsin Real time weather data and displays	▶ WMO Polar Observations, Research and Services
▶ Argentinian Antarctic weather information	▶ Australian Antarctic weather information
▶ Brazilian Antarctic weather information	▶ Chilean weather information
▶	▶ Italian Antarctic weather information
▶ Russian Antarctic weather information	▶ Russian weather server for Antarctica and sub Antarctic islands
▶ Polar View Antarctic portal	▶ UK Antarctic weather information
▶ SCAR READER database	▶

Other Programmes

▶ International Polar Year	▶ International Programme for Antarctic Buoys
▶ Automatic Observations on Glaciers	▶ WMO/ICOMM Expert Team on Sea Ice

CLIMAT monitoring 2013

WMO no	Station	GSN	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
89661	Cape Phillips		B	B	B	B	B	B	B	B	B	B	B	B
89662	Mario Zuchelli Station	X	NIL	NIL	B	B	B	B	B	B	B	B	B	B
89664	McMurdo	X	M	M	M	M	M	M	M	M	M	M	M	M
89665	Scott Base					0	0	0	0	0	0	0	0	0
89666	Cape Ross		B	B	B	B	B	B	B	B	B	B	B	B
89667	Pegasus North		M	M	M	M	M	M	M	M	M	M	M	M
A20629	Plateau					0	0	0	0	0	0	0	0	0
89734	Dome Fuji		M	M	M	M	M	M	M	M	M	M	M	M
89744	Relay Station	X	M	M	M	M	M	M	M	M	M	M	M	M
A20631	Pole of Relative Inaccessibility					0	0	0	0	0	0	0	0	0
89767	Amery Ice Shelf AWS (G3)		B	NIL	B	B	B	B	B	B	B	B	B	B
89768	Minna Bluff					0	0	0	0	0	0	0	0	0
89769	Linda					0	0	0	0	0	0	0	0	0
89799	Nico		M	M	M	M	M	M	M	M	M	M	M	M
89807	Casey (Snyder Rocks)		86	78	78	72	84	87	90	89	91	91	90	87
89809	Casey Skiway South		NIL	NIL	NIL	NIL	7	NIL	5	NIL	B	NIL	NIL	NIL
89811	Casey (Law Dome Summit)		B	B	NIL	NIL	NIL	0	NIL	NIL	NIL	B	B	B
89815	Casey (Haupt Nunatak)		NIL	NIL	NIL	NIL	NIL	0	0	0	0	0	0	0
89828	Dome C II	X	M	M	M	M	M	M	M	M	M	M	M	M
89832	D-10		M	M	M	M	M	M	M	M	0	M	M	M
89834	D-47		M	M	M	M	M	M	M	M	M	M	M	M
89836	D-85					0	0	0	0	0	0	0	0	0
89864	Manuela		M	M	M	M	M	M	M	M	M	M	M	M
89865	Whitlock	X	M	M	M	M	M	M	M	M	M	M	M	M
89866	Marble Point	X	M	M	M	M	M	M	M	M	M	M	M	M
89868	Schwerdtfeger					M	M	M	M	M	M	M	M	M
89869	Marilyn	X	M	M	M	M	M	M	M	M	M	M	M	M
89872	Ferrell	X	M	M	M	M	M	M	M	M	M	M	M	M
89873	Elaine		M	M	M	M	M	M	M	M	M	M	M	M
89879	Possession Island	X	M	M	M	M	M	M	0	M	M	M	M	M
	GSN messages (% of 42)		93	93	95	95	93	93	93	98	95	98	95	93
	Total Antarctic messages		73	70	72	70	69	70	68	71	70	74	74	74

Notes on GSN stations:
68992 – AWS failed. Replacement not expected before 2011.

CLIMAT monitoring 2014

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WMO no	Station	GSN	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
89657	Leningradskaya				NIL									
89659	Priestley (Nevée)		NIL	M	M									
89661	Cape Phillips		M	M	M									
89662	Mario Zuchelli Station	X	M	NIL	M									
89664	McMurdo	X	M	M	M									
89665	Scott Base													
89666	Cape Ross		M	M	M									
89667	Pegasus North				36									
89734	Dome Fuji		M	M	M									
89744	Relay Station	X	M	M	M									
89767	Amery Ice Shelf AWS (G3)		M	M	NIL									
89768	Minna Bluff	Failed												
89769	Linda													
89799	Nico		M	M	M									
89807	Casey (Snyder Rocks)		81	72	78									
89809	Casey Skiway South		NIL	NIL	0									
89811	Casey (Law Dome Summit)		M	NIL	NIL									
89815	Casey (Haupt Nunatak)													
89828	Dome C II	X	M	M	M									
89832	D-10		M	M	M									
89834	D-47		M	M	M									
89836	D-85													
89864	Manuela		M	M	M									
89865	Whitlock	X	M	M	M									
89866	Marble Point	X	M	M	M									
89868	Schwerdtfeger		M	M	M									
89869	Marilyn	X	M	M	M									
89872	Ferrell	X		M	M									
89873	Elaine		M	M	M									
89879	Possession Island	X	M	M	M									
	GSN messages (% of 42)		93	95	100									
	Total Antarctic messages		70	73	71									

Notes on GSN stations:
 68992 – AWS has been replaced, but data not yet on the GTS.
 89327 – AWS has failed.

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SYNOP monitoring 2013

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Performance of the Antarctic Observing Network (AntON) SYNOP

Surface stations

This chart shows the status of SYNOP messages for the main hours on the GTS during 2013, with green representing good performance, off green representing less than 90% of expected messages (acceptable, but not adequate for CLIMAT), yellow less than 80%, amber less than 50% and red less than 10%. Stations shown as white did not transmit in 2011. Note that for AWS transmitting via Argos a normal percentage for real-time transmission is around 70% and the non-real time data is recovered later for use in the CLIMAT message. Some AWS transmit asynchronously and miss the main hours.

WMO no	Station	GSN	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sub Antarctic stations (in Region I, III or V)														
61997	Isle Crozet	X		91	95				95					
61998	Isle Kerguelen	X		94	90									
68906	Gough Island	X	92	83		92	93	81	92			94	75	63
68992	Bouvetoya	X	0	0	0	0	0	0	0	0	0	0	0	0
68994	Marion Island	X	81	93		92	94							
88878	Pebble Island		77	71	87	73	69	75	83	80	72	70	82	79
88883	Weddell Island		80	77	79	77	79	73	81	76	84	83	85	81
88889	Mount Pleasant Airport	X												
88897	Sea Lion Island		73	0	0	0	0	0	0	0	0	0	0	54
88892	Sapper Hill		0	18	26	0	0	0	0	0	0	0	0	0
88900	Bird Island			82	93	85	79	95	90			91	81	
88903	Grytviken	X		85	95	93	93	95		72	91		90	92
88986	South Thule Island		94	95		93		92	95	5	0	0	0	0
93929	Enderby Island AWS													
93947	Campbell Island AWS	X												
94997	Heard Island (The Spit)													
94998	Macquarie Island	X												
95997	Heard Island (Atlas Cove)		0	0	0	0	0	0	0	0	0	0	0	0
Antarctic stations														
WMO no	Station	GSN	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
88963	Esperanza	X	87	90	84	90	91	91	91		90	95	93	93
88968	Orcadas	X	95	91	87	88	93		94		90	93	93	91
89002	Neumayer	X												
89003	Halvfaryggen EP11		83											
89004	SANAE	X	82	88	95	86	84	86	89	80				95
89009	Amundsen-Scott	X												

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TEMP monitoring 2013

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Upper air stations

The monthly columns show the status of TEMP messages with data to 100 hPa (after quality control) on the GTS, with yellow representing less than 70% of expected messages, amber representing less than 40% and red less than 10% of messages. Figures in bold include flights that did not appear on the GTS. Stations are assessed against their published programme in WMO No 9, Vol A at the beginning of the year.

NOTE monitoring does not distinguish between problems with generation and transmission of messages. Monitoring is manual and may have errors and there are occasional breaks in the BAS GTS feed. The 100 hPa level is chosen as the minimum target level for GUAN stations, but balloon performance often degrades during the polar winter and not all flights reach this level.

INDEX	STATION NAME	GUAN	1	2	3	4	5	6	7	8	9	10	11	12	
61998	ILES KERGOUELEN	12	X	74	53	70	66	74	70	77	54	70	67	66	74
68906	GOUGH ISLAND	00	X	0	0	74	86	0	0	0	0	40	51	90	83
68906	GOUGH ISLAND	12	X	0	0	64	76	0	0	0	0	33	58	80	87
68994	MARION ISLAND	00	X	83	85	48	0	0	0	0	0	0	0	0	0
68994	MARION ISLAND	12	X	77	71	41	0	0	0	0	0	0	0	0	0
88889	MOUNT PLEASANT AIRPORT	00	X	83	96	90	96	83	96	90	90	93	87	86	77
88889	MOUNT PLEASANT AIRPORT	12	X	0	10	0	0	0	0	0	0	0	0	13	16
94998	MACQUARIE ISLAND	00	X	96	100	100	96	96	96	96	93	93	96	100	93
94998	MACQUARIE ISLAND	12	X	100	100	96	96	96	96	96	100	90	70	0	45
89002	NEUMAYER	12	X	93	96	93	76	90	73	74	80	86	87	100	93
89009	AMUNDSEN-SCOTT	00	X	96	96	100	100	87	80	19	22	60	96	96	93
89009	AMUNDSEN-SCOTT	12	X	96	85	22	0	0	0	0	0	0	96	100	83
89022	HALLEY	12	X	96	100	96	100	100	86	68	58	83	100	100	93
89055	BASE MARAMBIO (CENTRO MET. ANTARTICO)	12	X	42	43	26	37	26	33	35	35	37	39	33	42
89062	ROTHERA	12	X	58	57	54	53	51	53	52	51	53	55	57	55
89512	NOVOLAZAREVSKAJA	00	X	93	89	93	86	93	63	80	74	66	70	70	90
89512	NOVOLAZAREVSKAJA	12	X	0	35	0	0	25	0	0	29	0	0	26	0
89532	SYOWA	00	X	87	92	93	83	90	90	58	64	63	64	76	70
89532	SYOWA	12	X	83	85	80	90	90	76	67	61	70	70	76	58
89564	MAWSON	12	X	100	96	100	93	90	96	96	100	96	96	100	100
89571	DAVIS	00	X	96	96	96	96	100	93	87	100	90	93	93	96
89571	DAVIS	12	X	96	0	0	0	0	0	0	0	0	0	70	100
89592	MIRNYJ	00	X	96	100	93	100	90	96	87	96	100	100	93	100
89592	MIRNYJ	12	X	0	39	0	0	38	0	0	45	0	0	43	0
89611	CASEY	00	X	100	96	90	93	96	86	80	93	86	96	96	96
89611	CASEY	12	X	100	96	100	93	96	93	83	87	86	93	100	100
89625	CONCORDIA	12	X	58	0	0	0	0	0	0	0	0	0	16	64
89642	DUMONT D'URVILLE	00	X	83	92	80	83	83	80	45	77	73	80	86	93
89662	MARIO ZUCCELLI STATION	00	X	77	0	0	0	0	0	0	0	0	0	80	93
89662	MARIO ZUCCELLI STATION	12	X	74	0	0	0	0	0	0	0	0	0	76	77
89664	MCMURDO	00	X	100	100	93	80	64	0	0	0	60	96	100	100
89664	MCMURDO	12	X	100	96	22	0	0	0	0	0	0	67	100	100

Notes: Balloons at 89009, 89022, 89625, 89642 and 89664 and to a lesser extent at other Antarctic stations, burst early in the winter months due to the low stratospheric temperature. .

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TEMP monitoring 2014

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68906	GOUGH ISLAND	12	X	90	96	93	93								
68994	MARION ISLAND	00	X	0	0	0	40								
68994	MARION ISLAND	12	X	0	0	0	33								
88889	MOUNT PLEASANT AIRPORT	00	X	90	96	90	90								
88889	MOUNT PLEASANT AIRPORT	12	X	0	0	0	13								
94998	MACQUARIE ISLAND	00	X	93	96	93	93								
94998	MACQUARIE ISLAND	12	X	93	96	93	100								
89002	NEUMAYER	12	X	93	96	93	96								
89009	AMUNDSEN-SCOTT	00	X	100	100	100	86								
89009	AMUNDSEN-SCOTT	12	X	96	92	25	0								
89022	HALLEY	12	X	96	89	94	93								
89055	BASE MARAMBIO (CENTRO MET. ANTARTICO)	12	X	45	39	35	30								
89062	ROTHERA	12	X	54	45	58	50								
89512	NOVOLAZAREVSKAJA	00	X	83	67	87	86								
89512	NOVOLAZAREVSKAJA	12	X	41	0	0	36								
89532	SYOWA	00	X	54	78	64	60								
89532	SYOWA	12	X	64	71	77	63								
89564	MAWSON	12	X	96	100	100	96								
89571	DAVIS	00	X	93	96	96	90								
89571	DAVIS	12	X	93	100	96	100								
89592	MIRNYJ	00	X	96	100	100	100								
89592	MIRNYJ	12	X	41	0	0	46								
89611	CASEY	00	X	100	96	100	100								
89611	CASEY	12	X	96	85	70	100								
89625	CONCORDIA	12	X	67	60	19	0								
89642	DUMONT D'URVILLE	00	X	83	67	74	76								
89662	MARIO ZUCCELLI STATION	00	X	87	21	0	0								
89662	MARIO ZUCCELLI STATION	12	X	80	21	0	0								
89664	MCMURDO	00	X	93	96	70	63								
89664	MCMURDO	12	X	100	100	25	0								

Notes: Balloons at 89009, 89022, 89625, 89642 and 89664 and to a lesser extent at other Antarctic stations, burst early in the winter months due to the low stratospheric temperature.

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http://www.antarctica.ac.uk/met/READER/upper_air/McMurdo.00.150.temperature.html

Google

1993	-42.0(74)	-42.0(67)	-45.2(48)	-52.7(56)	-64.5(38)	-70.7(36)	-72.6(38)	-75.7(32)	-77.9(40)	-74.0(41)	-59.8(60)	-46.9(77)
1994	-43.2(61)	-43.2(57)	-	-	-56.5(22)	-67.3(60)	-73.0(41)	-76.0(38)	-75.2(13)	-69.0(41)	-48.5(46)	-43.7(51)
1995	-41.1(41)	-41.7(71)	-	-51.7(50)	-60.6(32)	-66.9(20)	-70.1(29)	-	-	-72.4(38)	-60.9(60)	-52.5(77)
1996	-43.6(64)	-43.8(62)	-47.2(25)	-53.1(36)	-61.7(25)	-	-	-78.2(12)	-71.0(60)	-69.6(74)	-62.4(46)	-47.9(67)
1997	-41.5(74)	-43.6(53)	-45.3(35)	-51.4(20)	-62.7(22)	-66.9(20)	-	-	-74.9(30)	-70.9(38)	-62.3(53)	-50.3(70)
1998	-41.0(74)	-42.4(57)	-42.4(16)	-50.1(43)	-58.1(35)	-64.8(43)	-68.8(19)	-75.4(12)	-74.5(16)	-70.5(61)	-64.0(50)	-54.8(83)
1999	-46.5(96)	-44.5(92)	-46.4(74)	-53.5(83)	-62.2(87)	-69.3(83)	-73.9(74)	-77.7(80)	-76.0(86)	-71.6(87)	-66.8(63)	-55.2(35)
2000	-46.8(32)	-44.1(68)	-47.5(93)	-56.0(93)	-64.2(93)	-67.8(90)	-73.4(90)	-76.3(61)	-75.0(70)	-65.4(83)	-53.6(86)	-44.4(80)
2001	-43.0(87)	-43.3(85)	-46.0(83)	-53.7(76)	-59.8(87)	-66.4(73)	-73.3(67)	-74.1(61)	-76.3(93)	-71.4(74)	-68.3(90)	-57.0(96)
2002	-45.0(100)	-43.4(89)	-47.0(83)	-52.6(80)	-61.4(83)	-67.6(76)	-71.2(87)	-71.7(80)	-63.5(96)	-58.2(100)	-43.7(90)	-44.4(93)
2003	-43.1(100)	-43.7(92)	-44.8(93)	-52.9(86)	-63.4(80)	-69.3(90)	-74.8(93)	-76.7(87)	-75.6(86)	-68.5(96)	-59.9(100)	-45.9(96)
2004	-43.8(90)	-45.3(89)	-46.3(74)	-51.5(76)	-56.1(77)	-68.1(53)	-72.0(29)	-76.2(64)	-74.7(80)	-66.8(100)	-56.5(93)	-43.5(96)
2005	-43.1(96)	-43.4(96)	-46.9(100)	-51.4(93)	-61.4(90)	-65.5(93)	-74.1(83)	-77.4(87)	-72.9(93)	-66.2(93)	-52.8(93)	-50.7(96)
2006	-42.2(96)	-42.5(100)	-45.8(83)	-51.4(80)	-59.6(70)	-67.6(73)	-73.2(70)	-78.4(25)	-76.9(73)	-72.4(96)	-69.0(90)	-48.9(93)
2007	-47.0(93)	-42.6(89)	-47.0(87)	-51.8(76)	-61.3(96)	-67.6(93)	-71.8(96)	-76.1(96)	-74.6(93)	-66.4(96)	-62.4(90)	-52.7(100)
2008	-43.4(100)	-41.8(96)	-46.6(96)	-53.1(100)	-58.6(96)	-68.8(86)	-72.5(90)	-75.5(90)	-76.2(90)	-71.3(96)	-65.1(100)	-50.8(96)
2009	-42.3(96)	-44.0(100)	-45.2(100)	-53.2(83)	-59.5(100)	-67.6(90)	-72.6(61)	-75.3(45)	-75.0(66)	-67.3(77)	-62.2(90)	-44.0(100)
2010	-43.1(96)	-42.7(89)	-45.7(90)	-53.4(80)	-62.4(90)	-68.4(73)	-74.1(22)	-75.9(83)	-76.5(86)	-70.0(96)	-68.0(90)	-55.7(100)
2011	-44.1(87)	-44.3(100)	-46.7(83)	-53.2(73)	-61.6(83)	-68.8(73)	-73.6(70)	-77.5(80)	-75.9(76)	-71.2(87)	-62.0(90)	-51.1(87)
2012	-42.3(100)	-43.2(89)	-45.6(90)	-51.9(76)	-61.0(80)	-69.1(66)	-73.6(77)	-76.5(83)	-75.0(90)	-61.3(96)	-51.2(93)	-41.4(93)
2013	-41.9(100)	-42.4(96)	-45.6(93)	-52.8(80)	-63.1(80)	-69.4(76)	-74.1(54)	-76.4(58)	-73.5(86)	-65.8(100)	-58.0(100)	-42.3(100)
2014	-44.0(32)	-	-	-	-	-	-	-	-	-	-	-

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http://www.antarctica.ac.uk/met/READER/upper_air/McMurdo.00.100.temperature.html

Google

1993	-39.9(70)	-42.0(67)	-46.0(48)	-55.4(50)	-70.6(25)	-72.9(23)	-78.7(12)	-80.5(22)	-80.9(36)	-75.5(35)	-53.1(50)	-40.1(77)
1994	-41.0(61)	-42.4(50)	-	-	-59.5(19)	-73.1(46)	-78.7(25)	-	-77.6(13)	-67.6(32)	-38.9(40)	-37.5(51)
1995	-39.7(41)	-41.9(75)	-	-53.1(16)	-	-72.7(20)	-75.9(19)	-	-	-73.8(32)	-60.6(40)	-45.3(74)
1996	-40.6(58)	-42.7(62)	-47.9(22)	-57.4(33)	-65.7(19)	-	-	-	-72.6(43)	-72.5(74)	-62.1(46)	-44.6(61)
1997	-40.1(67)	-43.2(50)	-46.2(29)	-53.2(16)	-67.8(22)	-71.8(20)	-	-	-78.2(26)	-73.0(32)	-59.4(33)	-45.7(64)
1998	-39.7(70)	-41.6(53)	-	-49.8(20)	-59.9(12)	-67.7(26)	-	-	-73.4(10)	-72.3(51)	-63.9(50)	-51.1(83)
1999	-43.2(93)	-44.2(92)	-47.3(74)	-55.5(83)	-66.4(80)	-72.8(53)	-	-	-79.0(43)	-74.0(90)	-66.7(63)	-48.4(29)
2000	-43.7(29)	-43.4(58)	-47.9(96)	-58.1(100)	-67.4(74)	-72.3(50)	-77.6(12)	-	-78.2(63)	-63.2(70)	-42.9(86)	-41.5(83)
2001	-42.0(83)	-43.5(82)	-47.6(83)	-56.4(76)	-64.7(83)	-69.6(36)	-79.4(16)	-77.9(22)	-80.3(43)	-72.1(67)	-68.2(90)	-51.3(96)
2002	-42.0(96)	-42.6(89)	-48.1(80)	-56.2(80)	-64.4(64)	-72.9(43)	-75.1(48)	-74.3(35)	-61.9(80)	-57.8(93)	-42.2(86)	-43.3(90)
2003	-43.1(96)	-43.9(92)	-46.7(93)	-56.5(83)	-66.8(64)	-72.8(30)	-79.2(25)	-	-77.7(26)	-69.5(90)	-54.9(100)	-43.7(93)
2004	-42.1(87)	-44.5(86)	-47.4(74)	-54.4(76)	-60.3(77)	-72.1(33)	-	-	-76.6(63)	-64.7(96)	-53.5(93)	-40.6(96)
2005	-42.0(96)	-43.2(92)	-48.0(100)	-53.9(93)	-65.2(83)	-70.2(93)	-79.3(38)	-81.2(25)	-75.2(83)	-66.4(87)	-45.8(90)	-47.7(96)
2006	-41.3(96)	-42.2(100)	-46.3(83)	-54.7(76)	-63.8(70)	-72.0(33)	-79.8(16)	-82.5(22)	-81.1(63)	-75.0(96)	-68.6(90)	-43.8(93)
2007	-44.4(93)	-42.1(89)	-48.1(83)	-54.4(76)	-66.4(96)	-72.6(73)	-77.3(93)	-81.1(93)	-76.5(90)	-65.3(96)	-61.2(83)	-49.6(100)
2008	-40.6(100)	-41.5(93)	-47.5(96)	-56.9(100)	-63.8(96)	-73.9(80)	-77.9(67)	-80.2(87)	-80.5(90)	-72.6(96)	-64.6(100)	-47.3(96)
2009	-40.5(96)	-43.7(100)	-46.7(96)	-56.4(83)	-64.0(100)	-71.6(66)	-	-	-77.9(43)	-66.4(74)	-60.9(90)	-38.4(100)
2010	-41.4(96)	-42.8(85)	-46.4(90)	-56.2(76)	-65.8(70)	-	-	-79.3(54)	-78.9(86)	-72.1(96)	-68.4(90)	-53.4(100)
2011	-41.2(87)	-43.3(100)	-47.1(83)	-56.0(70)	-66.4(80)	-74.3(73)	-79.5(61)	-82.2(61)	-79.7(76)	-74.0(87)	-59.0(93)	-46.2(83)
2012	-40.2(100)	-42.9(89)	-46.8(93)	-55.4(76)	-65.3(64)	-72.1(20)	-79.9(16)	-	-76.1(53)	-55.9(93)	-44.2(93)	-40.0(93)
2013	-40.9(100)	-42.1(100)	-47.0(93)	-56.1(80)	-66.8(64)	-	-	-	-74.8(60)	-65.1(96)	-53.4(100)	-40.3(100)
2014	-42.0(93)	-42.4(96)	-46.1(70)	-53.3(63)	-65.5(61)	-	-	-	-	-	-	-

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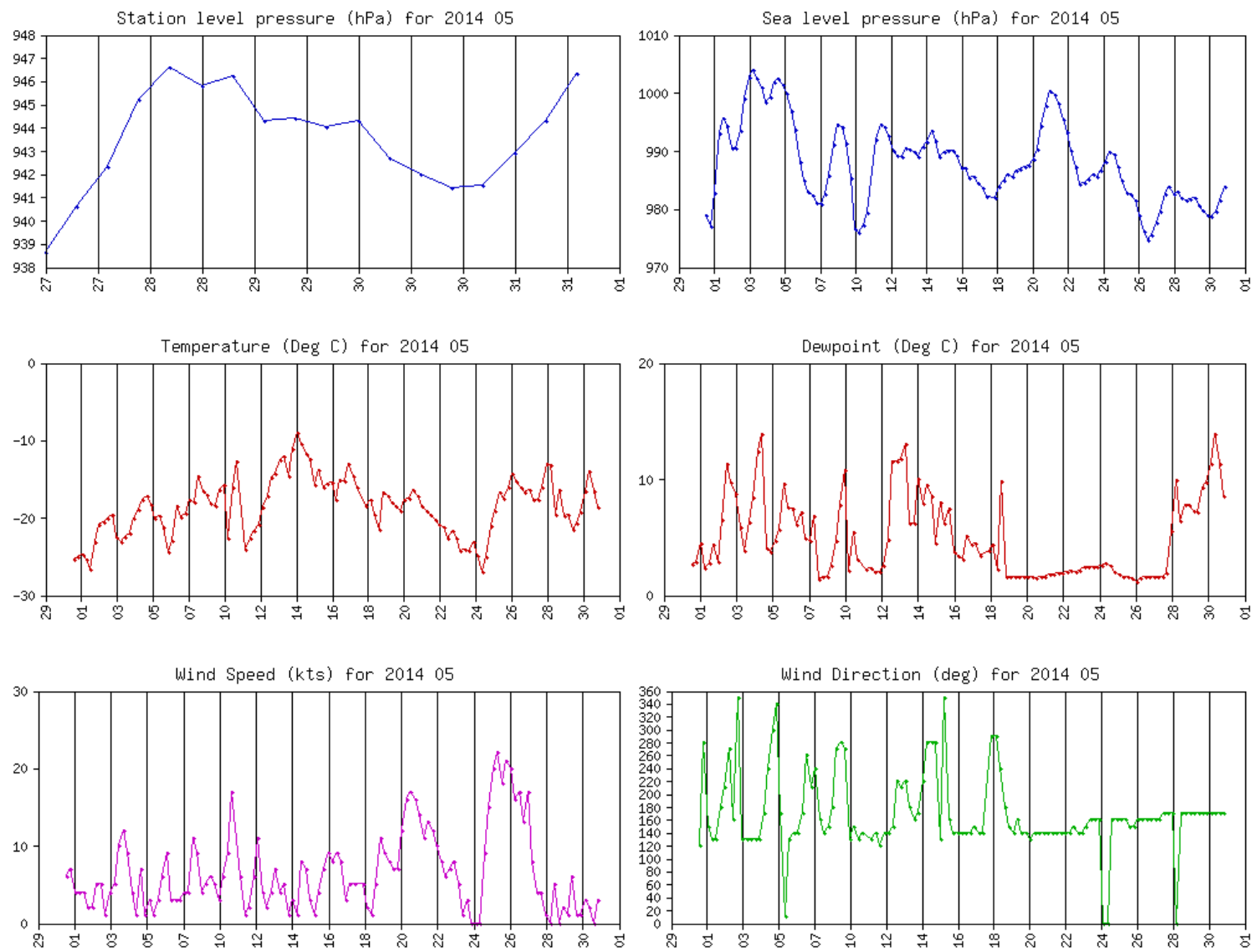
World Meteorological Organisation (WMO)

- Global Climate Observing System (GCOS).
 - BAS acts as the monitoring centre for Antarctica.
- Executive Council Panel of Experts on Polar Observations, Research and Services (EC-PORS).
 - I represent the UK and SCAR at EC-PORS.
 - I chair the Antarctic Task Team (ATT).
 - This group manages AntON.
- I represent the Antarctic region for WMO Integrated Global Observing System (WIGOS)
 - Ensuring that regulations match the requirements of the Antarctic community.

AntON successes

- The list of how realtime data comes out from Antarctica has been updated.
- Russian AWS at Druzhnaya(89575), Leningradskaja (89657), Molodeznaja (89542), Russkaya (89132) and Oazic Bangera (89601) are now transmitting data in near real-time. There is an issue with the dewpoint values in the synop coding.
- 89657 86/// /1701 11193 20097 39414 49788 57005=

89657 (LENINGRADSKAJA) data for 2014 05



Questions