

# MONITORING EXPLOSIVE CYCLONES ON THE COAST OF THE ANTARCTIC CONTINENT

BY ROMAO, M. AND PIRES, L. B. M.

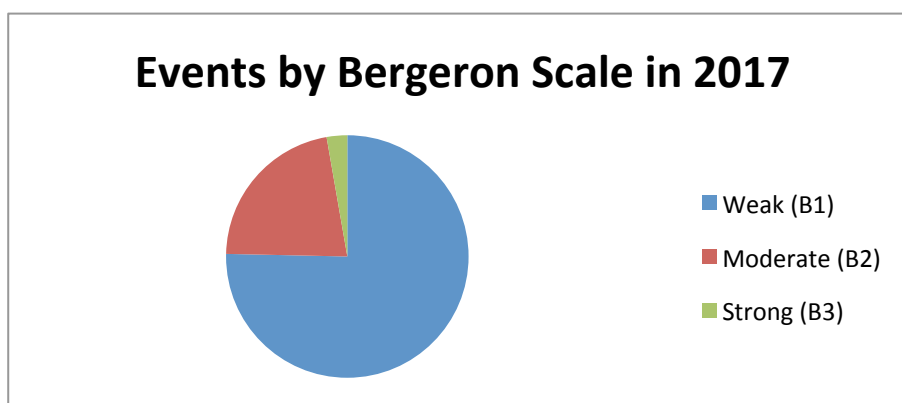
## AUGUST 2017

During this month, 27 events were registered among the 13 research stations that we used as references for the monitoring of explosive cyclones located on the coast of Antarctic, at the stations of: Halley, Syowa, Casey, Mawson, Davis, Frei, McMurdo, Marambio, Palmer and Mirny, totaling 13 more cases than in the previous month. The most intense cyclone recorded was at the Syowa station on August 11th with sustained winds of up to 35.5 m/s (79 mph). The cyclone which registered the lowest atmospheric pressure at sea level was at the Davis station, with values reaching 946 hPa. Throughout 2017 the station with the largest number of events has been the Australian Casey with 13 cases, followed by the Davis and Frei stations with 8 cases each. McMurdo's American station and Marambio's Argentina station recorded their first explosive cyclone this year. Russkaya's Russian station was not operating this month, so it was not possible to monitor that region.

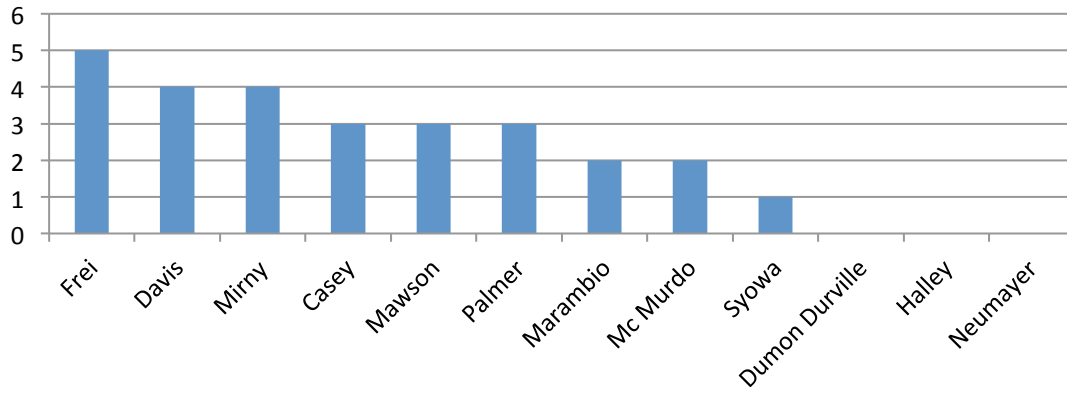
### STATISTICS OF THE MONTH

Classification	Bergeron Scale	Intensity	Total of cases registered in the month
<b>B1</b>	1 a 1.2	Weak	18
<b>B2</b>	1.3 a 1.8	Moderate	07
<b>B3</b>	>1.8	Strong	02

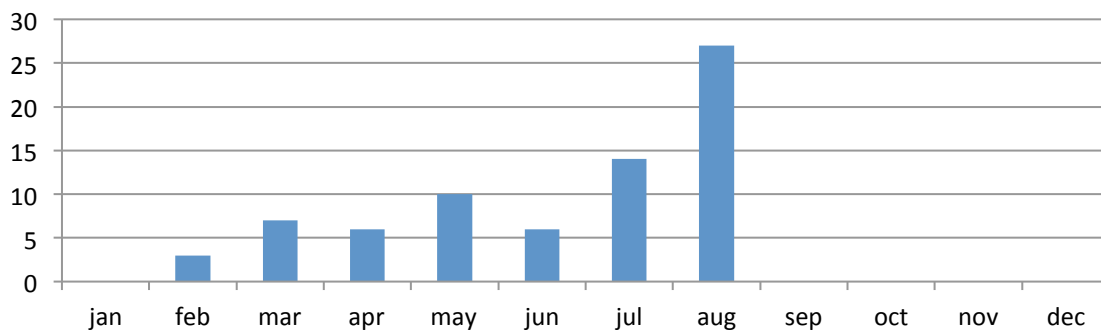
Highest pressure drop	Lowest recorded pressure	Highest sustained wind	Average minimum pressures	Mean of pressure drops
-55.8 hPa/24H	949.2 hPa	35.5 m/s (79.4 mph)	958.8 hPa	-30.7 hPa/24H
Davis Station	Syowa Station	Syowa Station		
August 13	August 11	August 11		



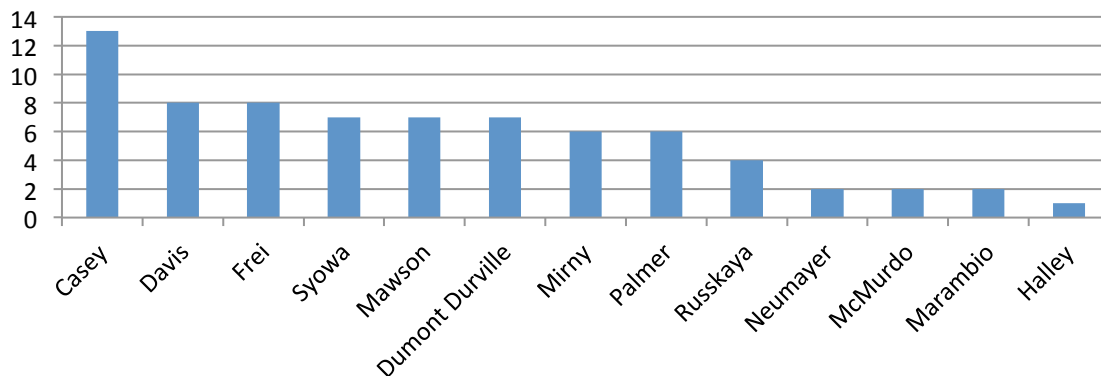
### Total of events registered in each station in the month of August/2017



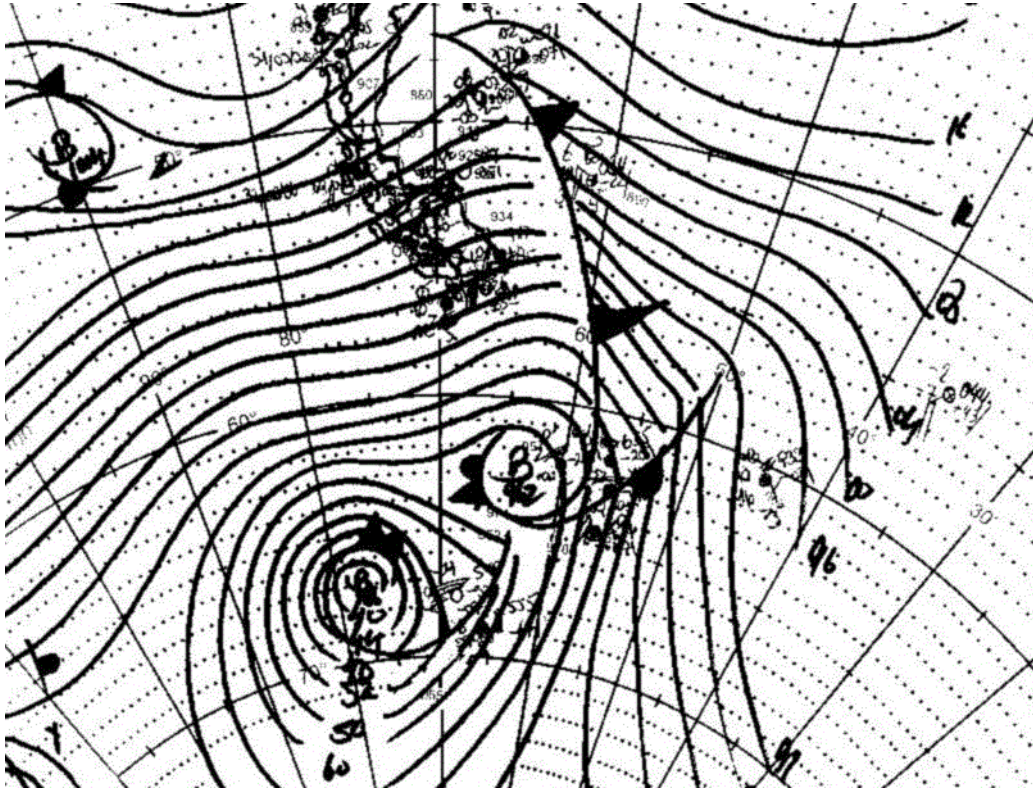
### Explosive Cyclones in the Antarctic Total of monthly events



### Total of events registered by station in 2017

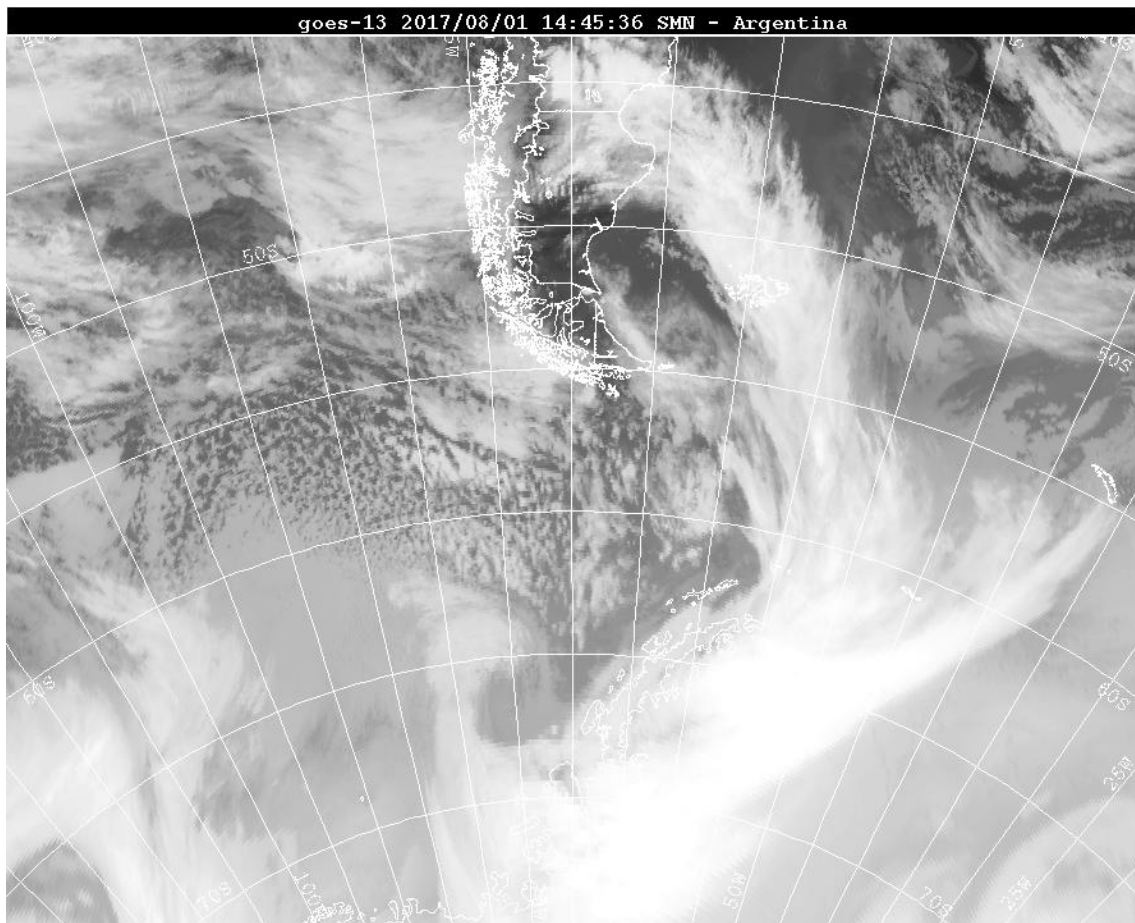


**EXPLOSIVE CYCLONE N°47/2017- DATA: 01/AUG/2017**  
**LOCAL: FREI STATION – WMO 89056 (OPERATED BY CHILE)**



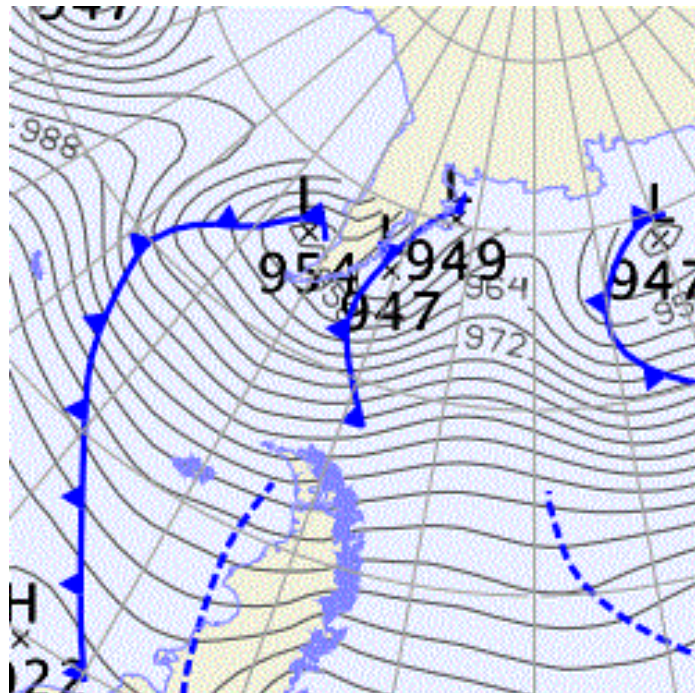
DROP OF PRESSURE IN 24H: 29.0 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 961.0 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 961.0 hPa  
SUSTAINED MAXIMUM WIND: 18.5 m/s (41 mph)  
MAXIMUM WIND GUST: 23.5 m/s (53 mph)  
BERGERON: 1.2 (WEAK)

**EXPLOSIVE CYCLONE N°48/2017- DATA: 01/AUG/2017**  
**LOCAL: PALMER STATION – WMO 89061 (OPERATED BY USA)**



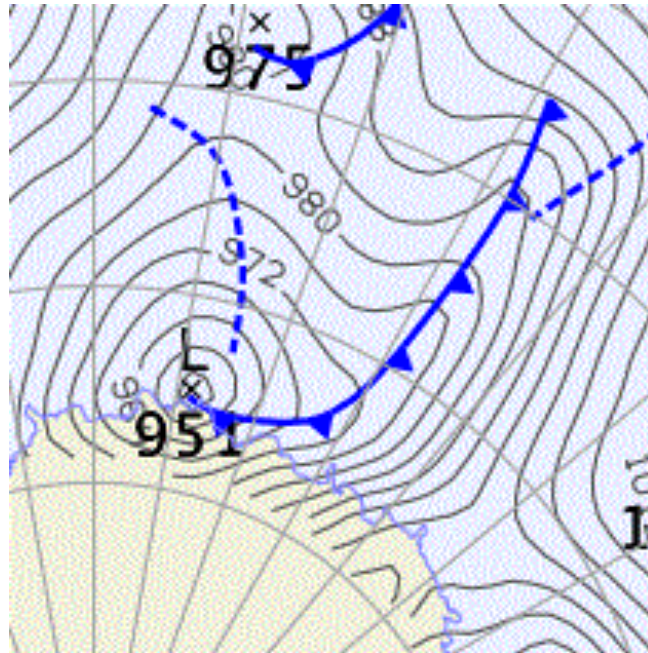
**DROP OF PRESSURE IN 24H: 34.3 hPa**  
**MINIMUM PRESSURE REGISTERED ON STATION: 950.4 hPa**  
**MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 940 hPa**  
**SUSTAINED MAXIMUM WIND: 15.0 m/s (34 mph)**  
**BERGERON: 1.4 (MODERATE)**

**EXPLOSIVE CYCLONE N°49/2017- DATA: 01/AUG/2017**  
**LOCAL: MARAMBIO STATION –WMO 89055 (OPERATED BY ARGENTINA)**



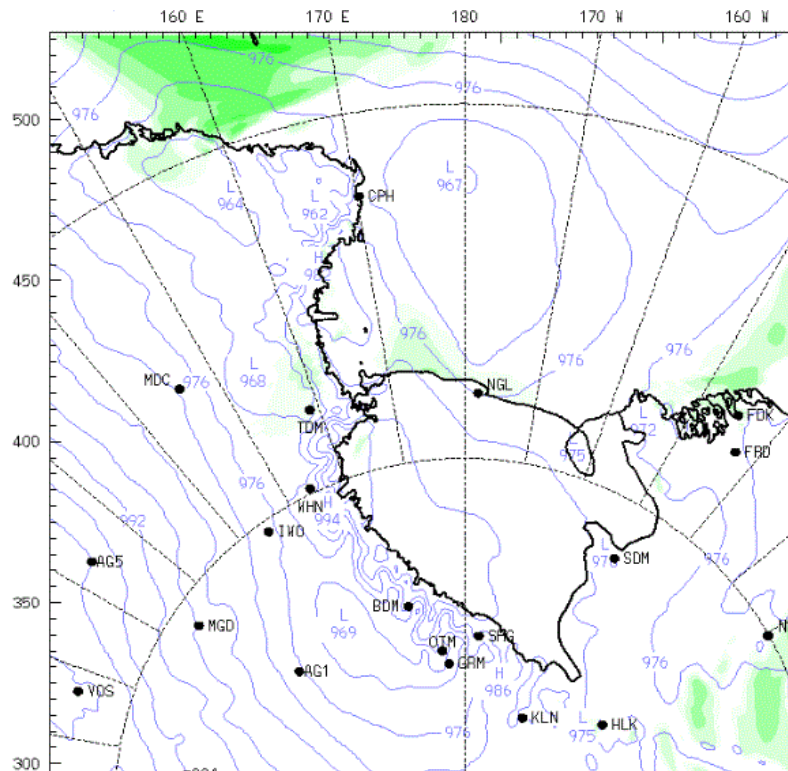
DROP OF PRESSURE IN 24H: 34.8 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 953.5 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 953.0 hPa  
SUSTAINED MAXIMUM WIND: 17 m/s (38 mph)  
BERGERON: 1.5 (MODERATE)

**EXPLOSIVE CYCLONE N°50/2017- DATA: 07/AUG/2017**  
**LOCAL: CASEY STATION – WMO 89611 (OPERATED BY AUSTRALIA)**



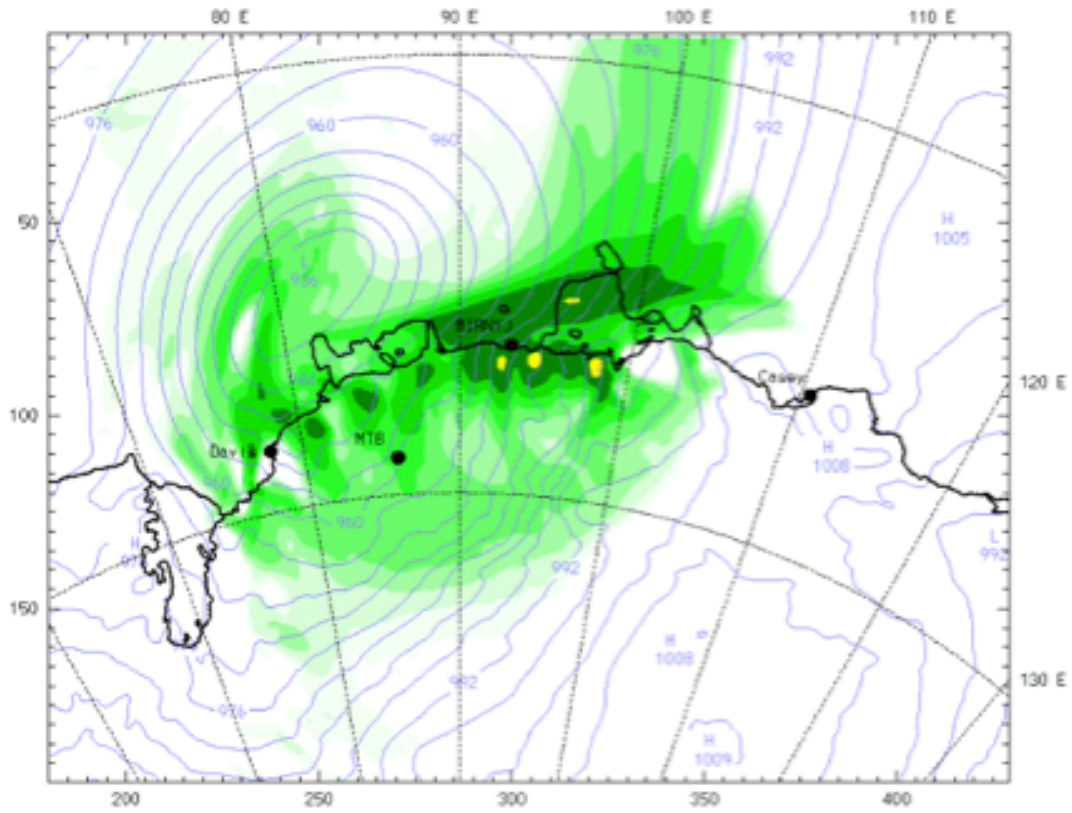
DROP OF PRESSURE IN 24H: 44.4 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 950.3 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 950.0 hPa  
SUSTAINED MAXIMUM WIND: 49.0 m/s (110 mph)  
MAXIMUM WIND GUST: 56.5 m/s (124 mph)  
BERGERON: 1.9 (STRONG)

**EXPLOSIVE CYCLONE N°51/2017- DATA: 09/AUG/2017**  
**LOCAL: MCMURDO STATION – WMO 89664 (OPERATED BY USA)**



DROP OF PRESSURE IN 24H: 26.2 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 967.4 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 967.0 hPa  
SUSTAINED MAXIMUM WIND: 16.0 m/s (36.0 mph)  
MAXIMUM WIND GUST: 21.0 m/s (47 mph)  
BERGERON: 1.1 (WEAK)

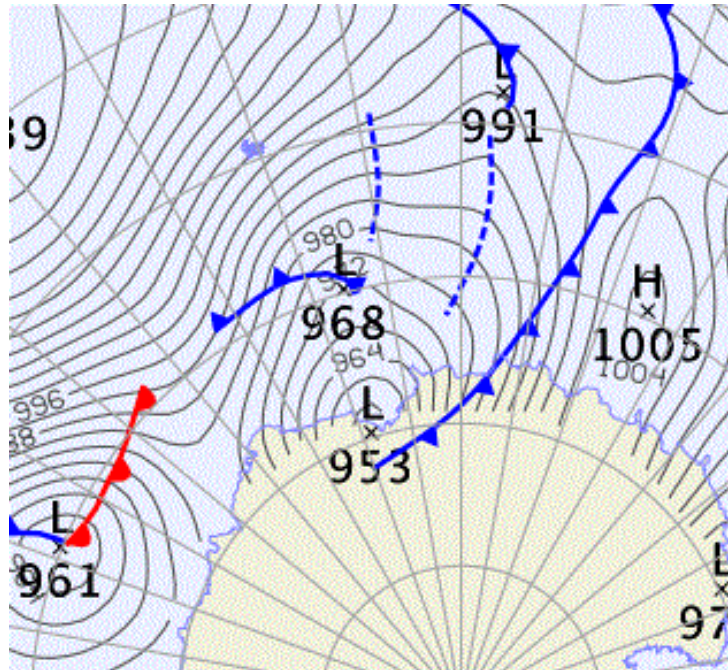
**EXPLOSIVE CYCLONE N°52/2017- DATA: 09/AUG/2017**  
**LOCAL: DAVIS STATION – WMO 89571 (OPERATED BY AUSTRALIA)**



DROP OF PRESSURE IN 24H: 38.5 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 946.0 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 936 hPa  
SUSTAINED MAXIMUM WIND: 23.5 m/s (53.0 mph)  
MAXIMUM WIND GUST: 31.5 m/s (70 mph)  
BERGERON: 1.6 (MODERATE)

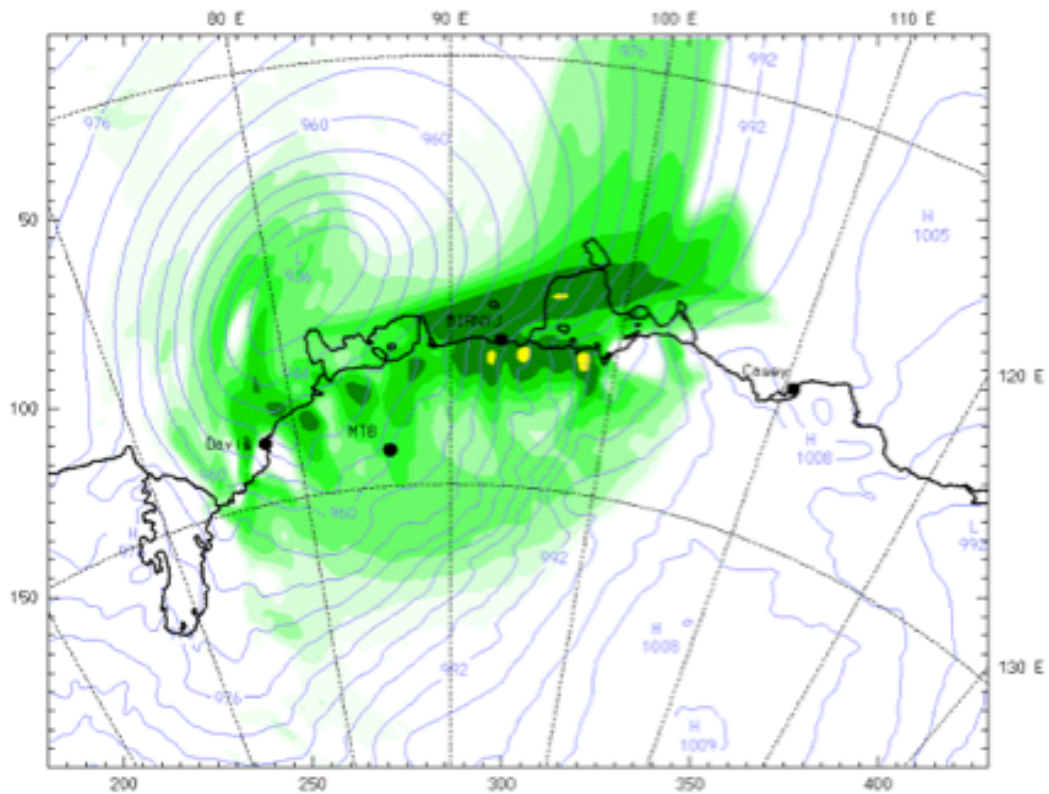


**EXPLOSIVE CYCLONE N°53/2017- DATA: 09/AUG/2017**  
**LOCAL: MAWSON STATION – WMO 89564 (OPERATED BY AUSTRALIA)**



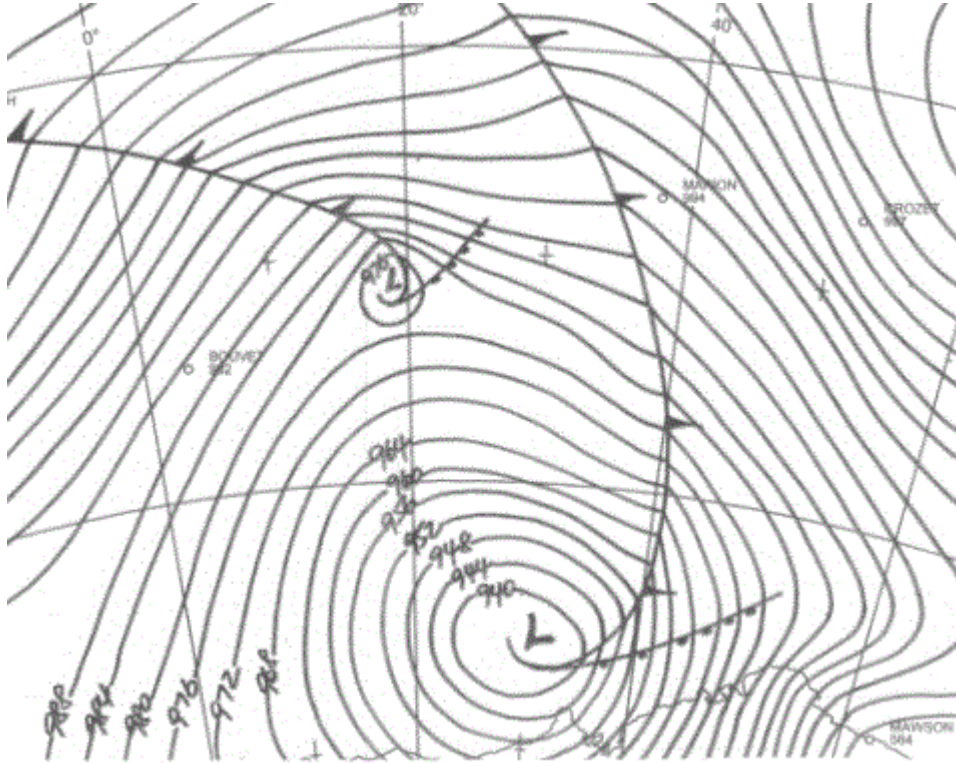
DROP OF PRESSURE IN 24H: 25.3 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 962.5 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 953.0 hPa  
SUSTAINED MAXIMUM WIND: 19.5 m/s (44.0 mph)  
MAXIMUM WIND GUST: 29.5 m/s (66 mph)  
BERGERON: 1.1 (WEAK)

**EXPLOSIVE CYCLONE N°54/2017- DATA: 09/AUG/2017**  
**LOCAL: MIRNY STATION – WMO 89592 (OPERATED BY RUSSIA)**



DROP OF PRESSURE IN 24H: 26.1 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 966.8 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 936.0 hPa  
SUSTINED MAXIMUM WIND: 15.0 m/s (34.0 mph)  
MAXIMUM WIND GUST: 19.5 m/s (44.0 mph)  
BERGERON: 1.1 (WEAK)

**EXPLOSIVE CYCLONE N°55/2017- DATA: 11/AUG/2017**  
**LOCAL: SYOWA STATION – WMO 89532 (OPERATED BY JAPAN)**



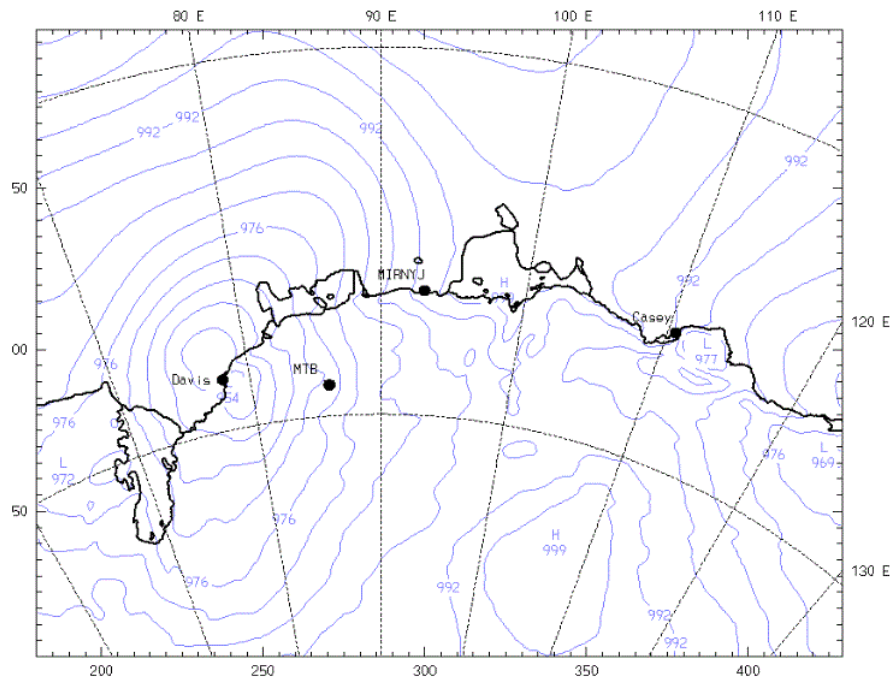
DROP OF PRESSURE IN 24H: 27.2 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 949.2 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 940.0 hPa  
SUSTAINED MAXIMUM WIND: 35.5 m/s (79.0 mph)  
BERGERON: 1.1 (WEAK)

**EXPLOSIVE CYCLONE N°56/2017- DATA: 12/AUG/2017**  
**LOCAL: MAWSON STATION – WMO 89564 (OPERATED BY AUSTRALIA)**

NO IMAGE

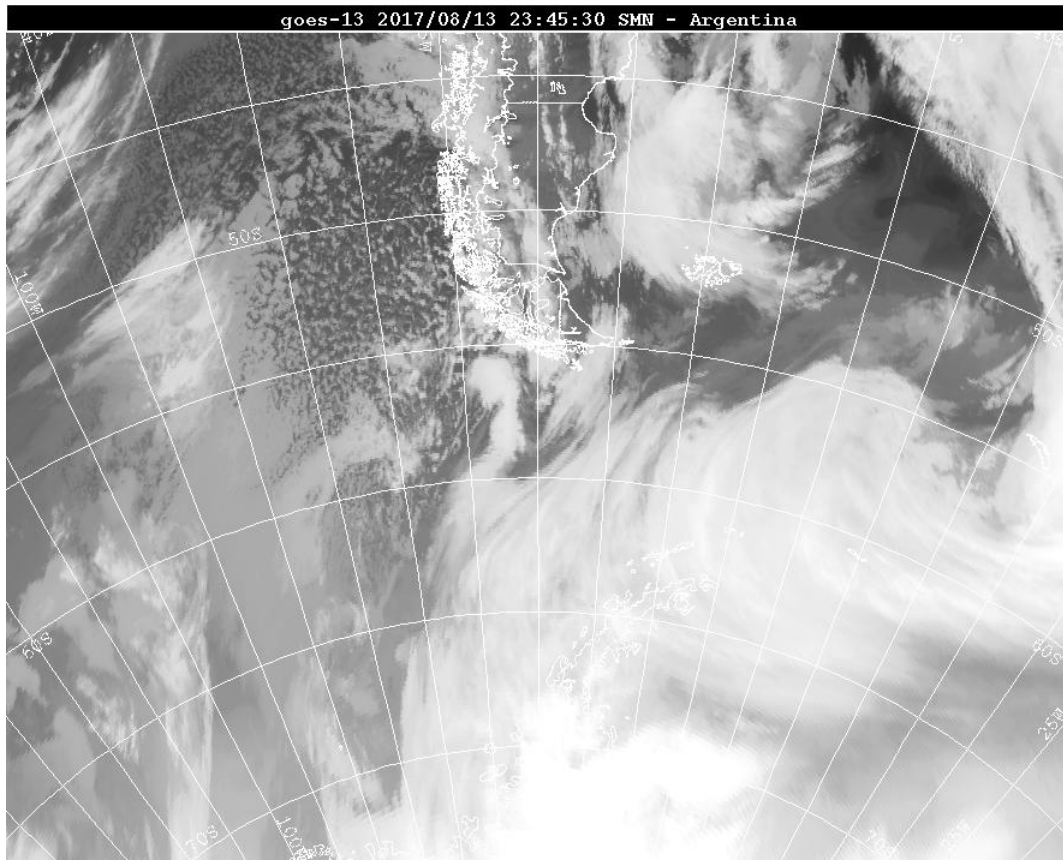
DROP OF PRESSURE IN 24H: 25.9 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 980.9 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 980.0 hPa  
SUSTINED MAXIMUM WIND: 32.0 m/s (72.0 mph)  
MAXIMUM WIND GUST: 36.5 m/s (80.0 mph)  
BERGERON: 1.1 (WEAK)

**EXPLOSIVE CYCLONE N°57/2017- DATA: 13/AUG/2017**  
**LOCAL: DAVIS STATION – WMO 89571 (OPERATED BY AUSTRALIA)**



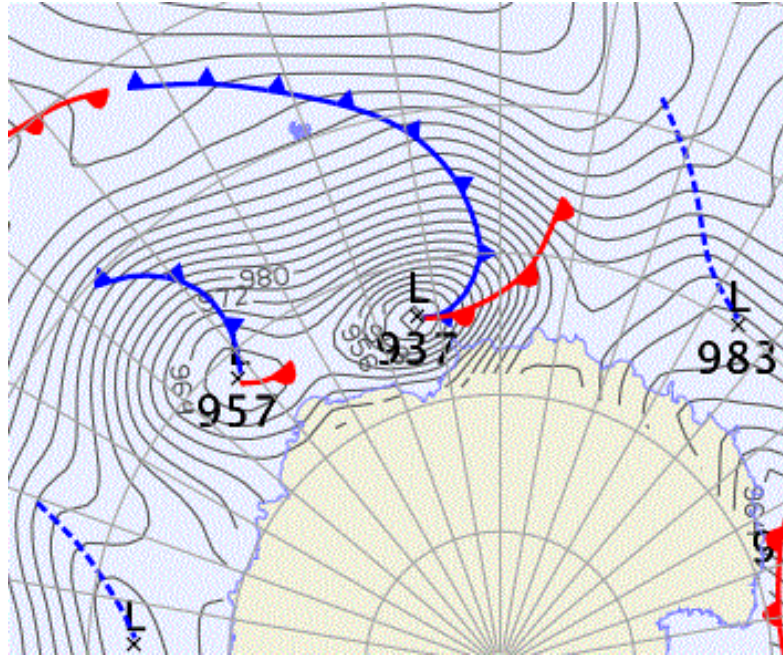
DROP OF PRESSURE IN 24H: 55.8 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 955.4 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 954.0 hPa  
SUSTAINED MAXIMUM WIND: 27.5 m/s (61.0 mph)  
MAXIMUM WIND GUST: 34.5 m/s (77.0 mph)  
BERGERON: 2.3 (STRONG)

**EXPLOSIVE CYCLONE N°58/2017- DATA: 14/AUG/2017**  
**LOCAL: FREI STATION – WMO 89056 (OPERATED BY CHILE)**



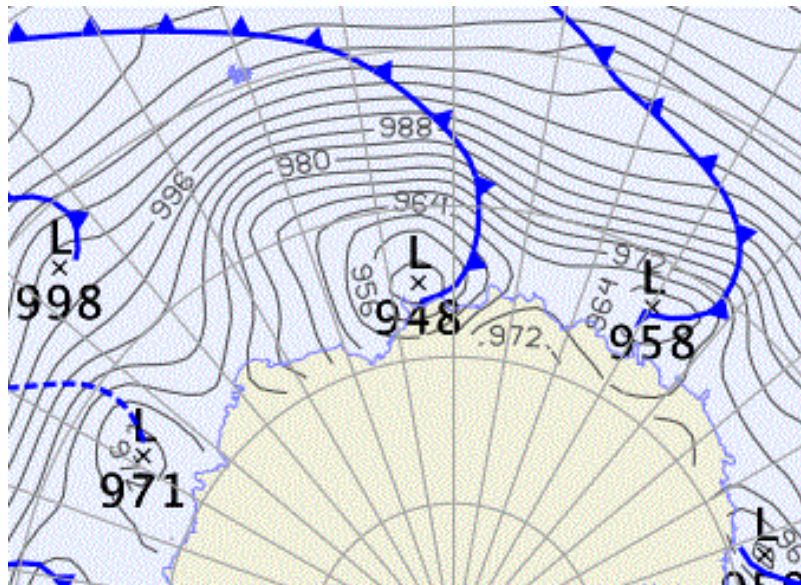
**DROP OF PRESSURE IN 24H: 27.0 hPa**  
**MINIMUM PRESSURE REGISTERED ON STATION: 967.0 hPa**  
**MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 967.0 hPa**  
**SUSTAINED MAXIMUM WIND: 22.5 m/s (50.0 mph)**  
**MAXIMUM WIND GUST: 26.5 m/s (59.0 mph)**  
**BERGERON: 1.1 (WEAK)**

**EXPLOSIVE CYCLONE N°59/2017- DATA: 17/AUG/2017**  
**LOCAL: DAVIS STATION – WMO 89571 (OPERATED BY AUSTRALIA)**



DROP OF PRESSURE IN 24H: 36.6 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 959.3 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 937.0 hPa  
SUSTINED MAXIMUM WIND: 10.5 m/s (24 mph)  
MAXIMUM WIND GUST: 14.5 m/s (32 mph)  
BERGERON: 1.5 (MODERATE)

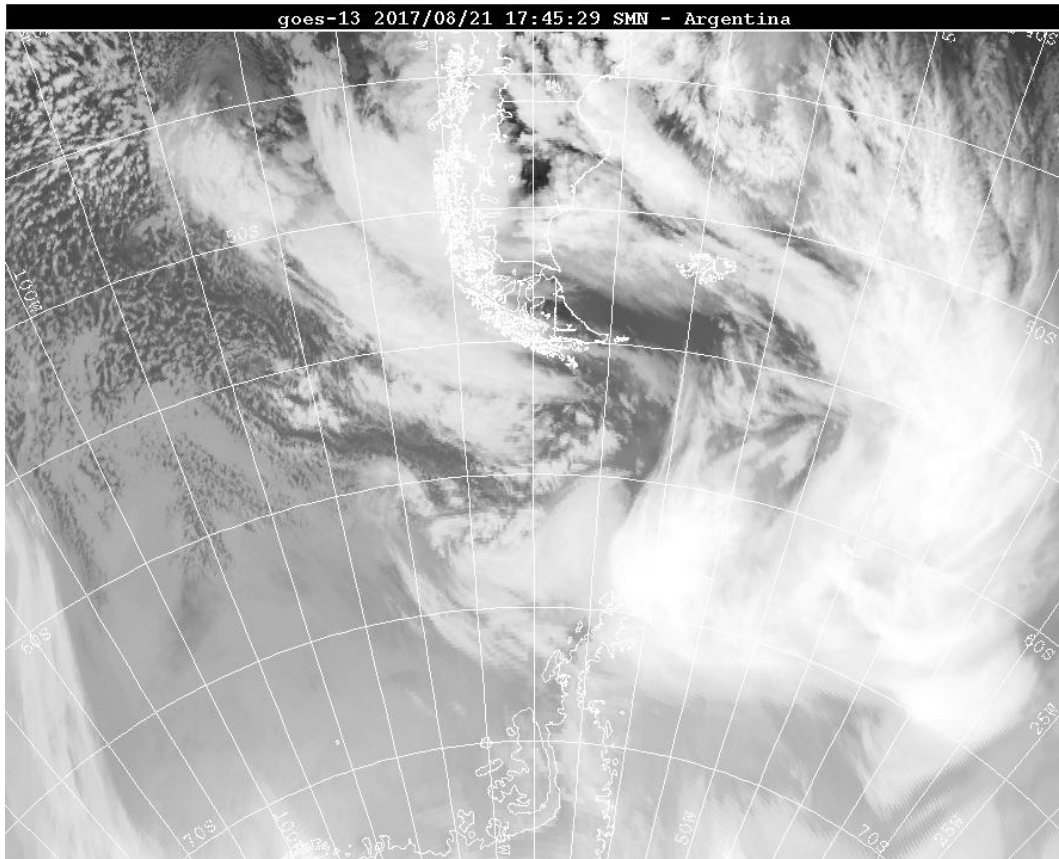
**EXPLOSIVE CYCLONE N°60/2017- DATA: 17/AUG/2017**  
**LOCAL: MIRNY STATION – WMO 89592 (OPERATED BY RUSSIA)**



DROP OF PRESSURE IN 24H: 35.6 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 958.9 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 948 hPa  
SUSTAINED MAXIMUM WIND: 10.0 m/s (22 mph)  
MAXIMUM WIND GUST: 11.5 m/s (26 mph)  
BERGERON: 1.5 (MODERATE)



**EXPLOSIVE CYCLONE N°61/2017- DATA: 21/AUG/2017**  
**LOCAL: FREI STATION – WMO 89056 (OPERATED BY CHILE)**

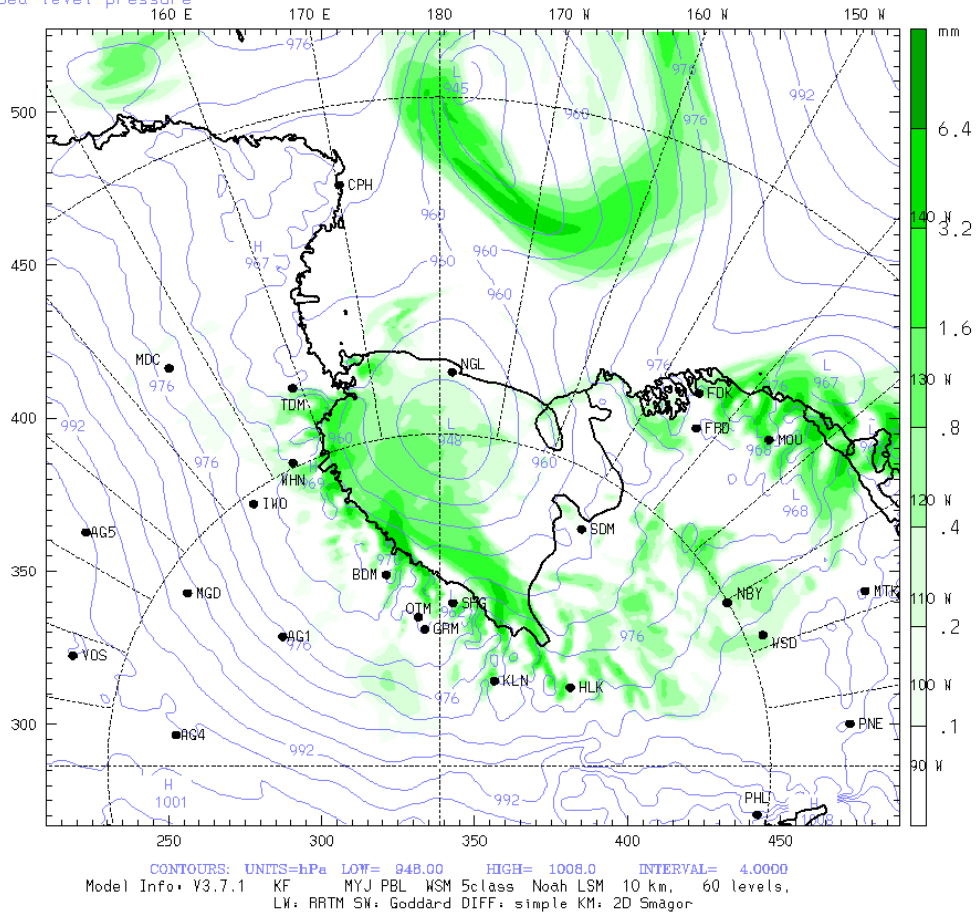


**DROP OF PRESSURE IN 24H: 24.0 hPa**  
**MINIMUM PRESSURE REGISTERED ON STATION: 966.0 hPa**  
**MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 958.0 hPa**  
**SUSTAINED MAXIMUM WIND: 26.0 m/s (58 mph)**  
**MAXIMUM WIND GUST: 36.0 m/s (80 mph)**  
**BERGERON: 1.0 (WEAK)**

**EXPLOSIVE CYCLONE N°62/2017- DATA: 22/AUG/2017**  
**LOCAL: MCMURDO STATION – WMO 89664 (OPERATED BY USA)**

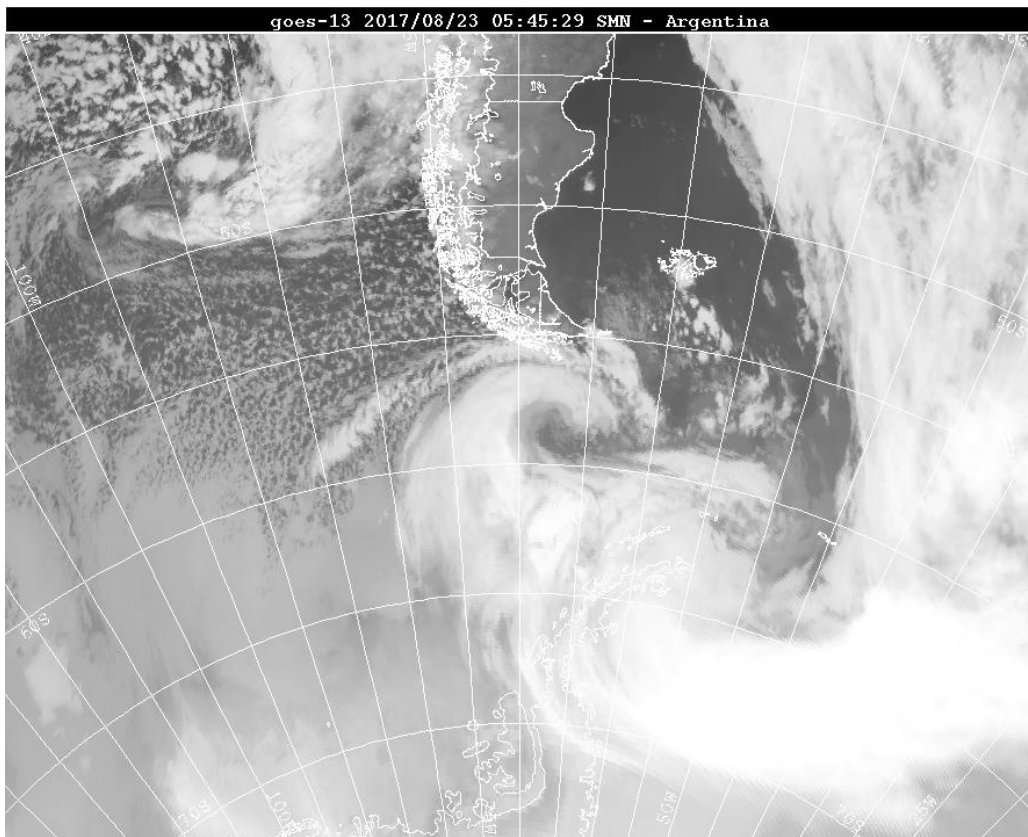
AMPS 10-km WRF -- Ross-Beardmore Window  
 Fcst. 9 h  
 Total precip. in past 3 h  
 Sea-level pressure

Init. 12 UTC Mon 21 Aug 17  
 Valid. 21 UTC Mon 21 Aug 17



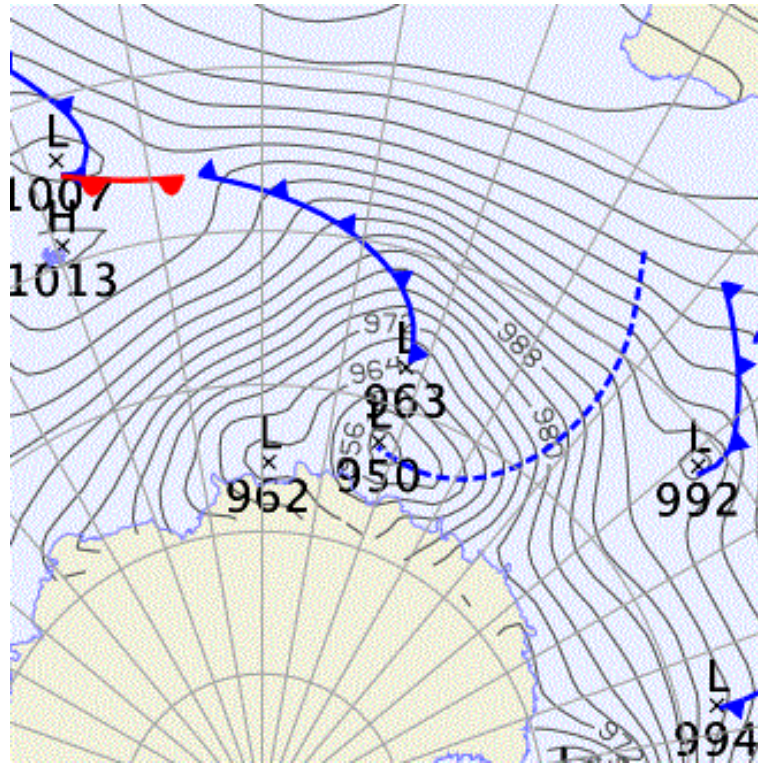
**DROP OF PRESSURE IN 24H: 29.5 hPa**  
**MINIMUM PRESSURE REGISTERED ON STATION: 952.8 hPa**  
**MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 948 hPa**  
**SUSTAINED MAXIMUM WIND: 17.5 m/s (39 mph)**  
**MAXIMUM WIND GUST: 22.5 m/s (50 mph)**  
**BERGERON: 1.2 (WEAK)**

**EXPLOSIVE CYCLONE N°63/2017- DATA: 23/AUG/2017**  
**LOCAL: FREI STATION –WMO 89056 (OPERATED BY CHILE)**



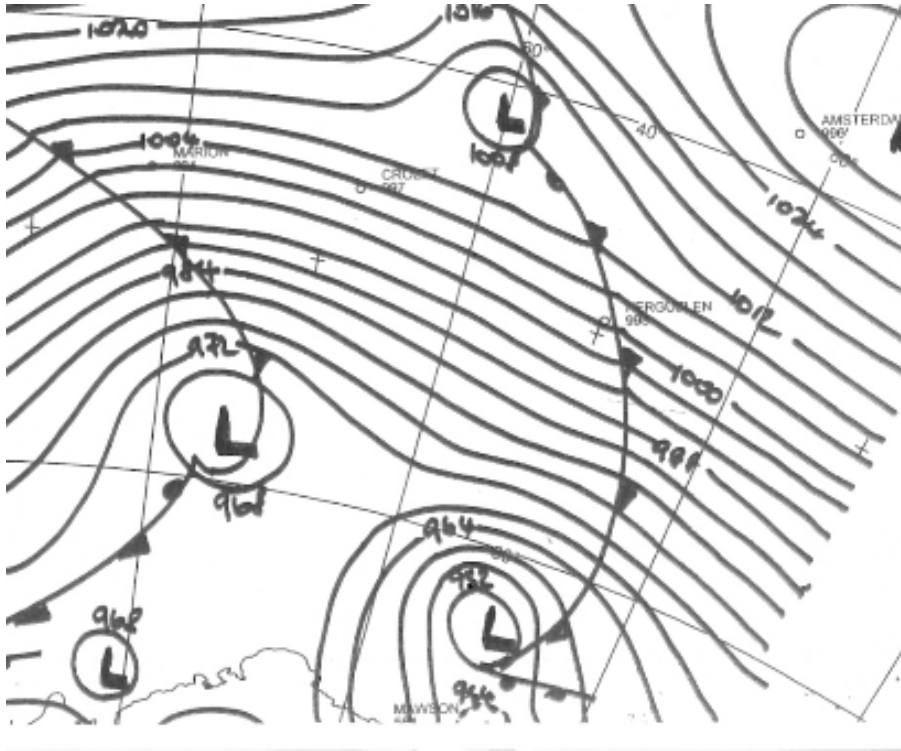
DROP OF PRESSURE IN 24H: 27.2 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 951.4 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 940.0 hPa  
SUSTAINED MAXIMUM WIND: 32.5 m/s (73 mph)  
MAXIMUM WIND GUST: 41.0 m/s (92 mph)  
BERGERON: 1.1 (WEAK)

**EXPLOSIVE CYCLONE N°64/2017- DATA: 23/AUG/2017**  
**LOCAL: CASEY STATION – WMO 89611 (OPERATED BY AUSTRALIA)**



DROP OF PRESSURE IN 24H: 24.5 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 954.8 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 950.0 hPa  
SUSTAINED MAXIMUM WIND: 7.5 m/s (17 mph)  
MAXIMUM WIND GUST: 9.5 m/s (21 mph)  
BERGERON: 1.0 (WEAK)

**EXPLOSIVE CYCLONE N°65/2017- DATA: 25/AUG/2017**  
**LOCAL: MAWSON STATION – WMO 89564 (OPERATED BY AUSTRALIA)**



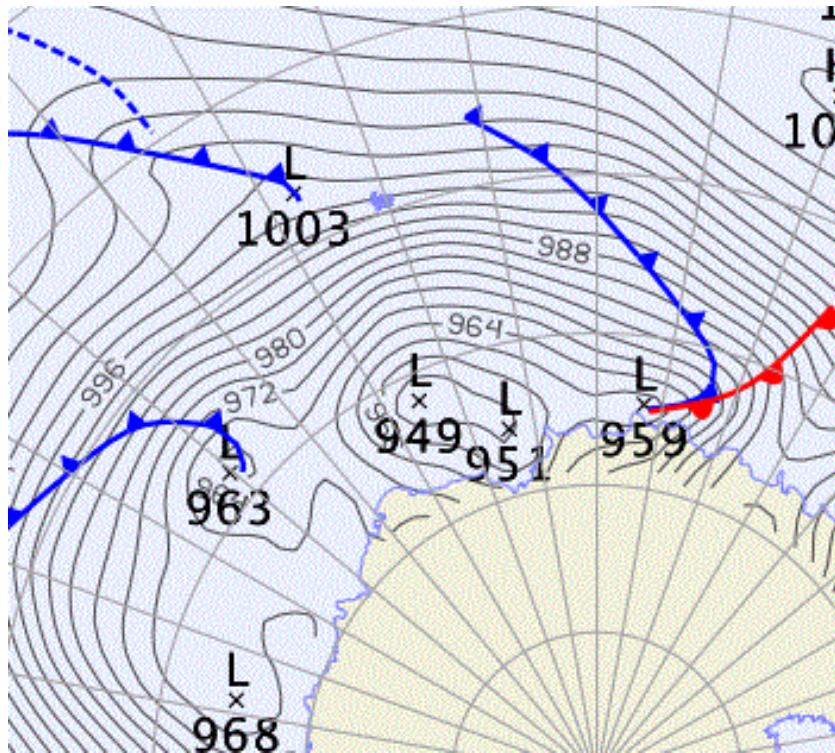
DROP OF PRESSURE IN 24H: 29.4 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 961.2 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 954.0 hPa  
SUSTAINED MAXIMUM WIND: 27.5 m/s (61.0 mph)  
BERGERON: 1.2 (WEAK)

**EXPLOSIVE CYCLONE N°66/2017- DATA: 26/AUG/2017**  
**LOCAL: MIRNY STATION – WMO 89592 (OPERATED BY RUSSIA)**

NO IMAGE

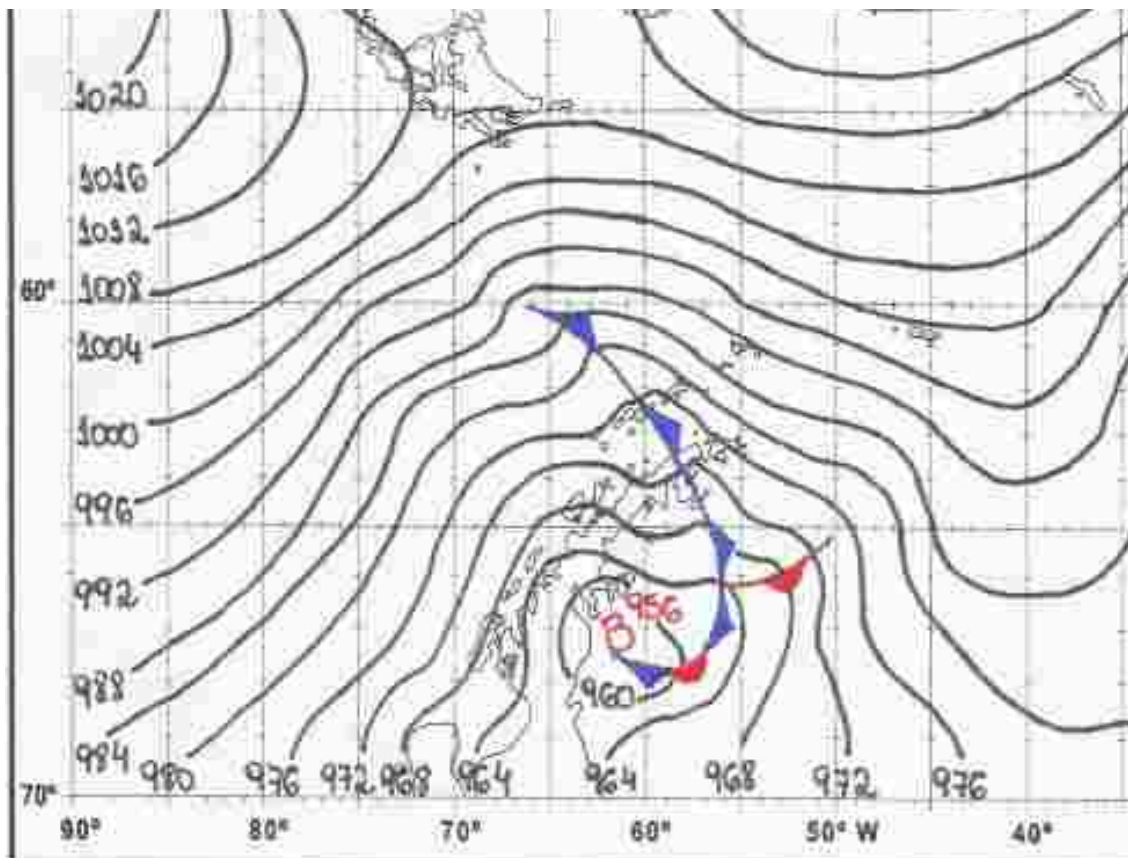
DROP OF PRESSURE IN 24H: 29.6 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 960.7 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 948.0 hPa  
SUSTAINED MAXIMUM WIND: 9.5 m/s (21.0 mph)  
MAXIMUM WIND GUST: 11.5 m/s (26 mph)  
BERGERON: 1.2 (WEAK)

**EXPLOSIVE CYCLONE N°67/2017- DATA: 26/AUG/2017**  
**LOCAL: DAVIS STATION – WMO 89571 (OPERATED BY AUSTRALIA)**



DROP OF PRESSURE IN 24H: 36.1 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 956.8 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 951.0 hPa  
SUSTINED MAXIMUM WIND: 18.5 m/s (41.0 mph)  
MAXIMUM WIND GUST: 23.5 m/s (53 mph)  
BERGERON: 1.5 (MODERATE)

**EXPLOSIVE CYCLONE N°68/2017- DATA: 27/AUG/2017**  
**LOCAL: PALMER STATION – WMO 89061 (OPERATED BY USA)**

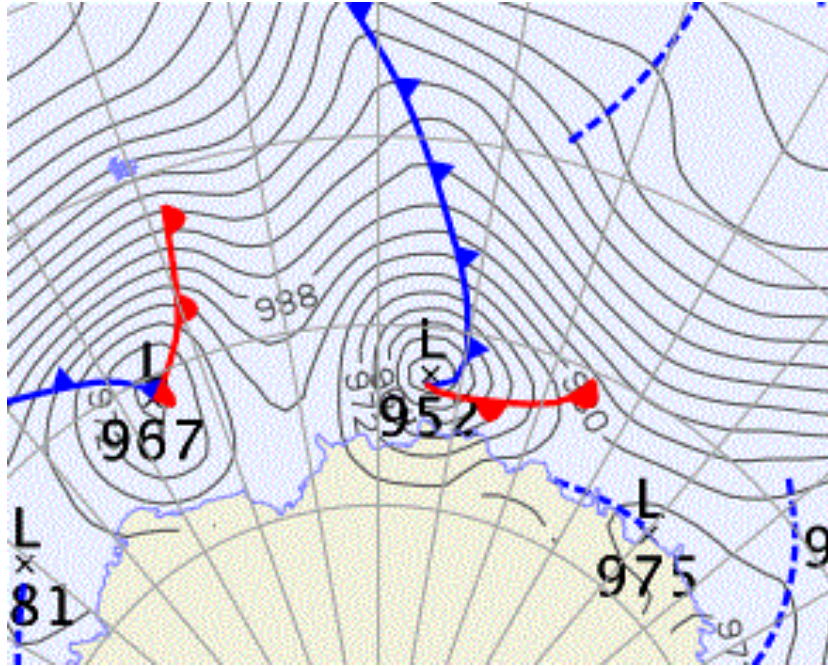


DROP OF PRESSURE IN 24H: 28.5 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 963.2 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 956.0 hPa  
SUSTINED MAXIMUM WIND: 21.0 m/s (47.0 mph)  
BERGERON: 1.2 (WEAK)



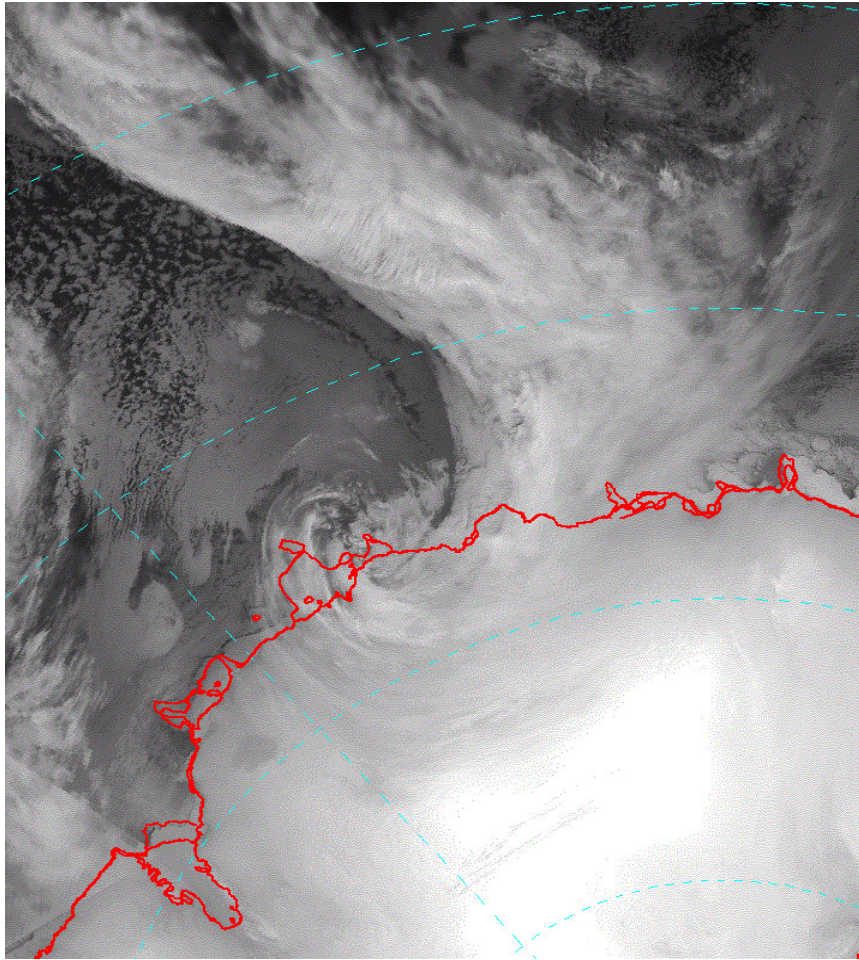


**EXPLOSIVE CYCLONE N°70/2017- DATA: 29/AUG/2017**  
**LOCAL: MIRNY STATION – WMO 89592 (OPERATED BY RUSSIA)**



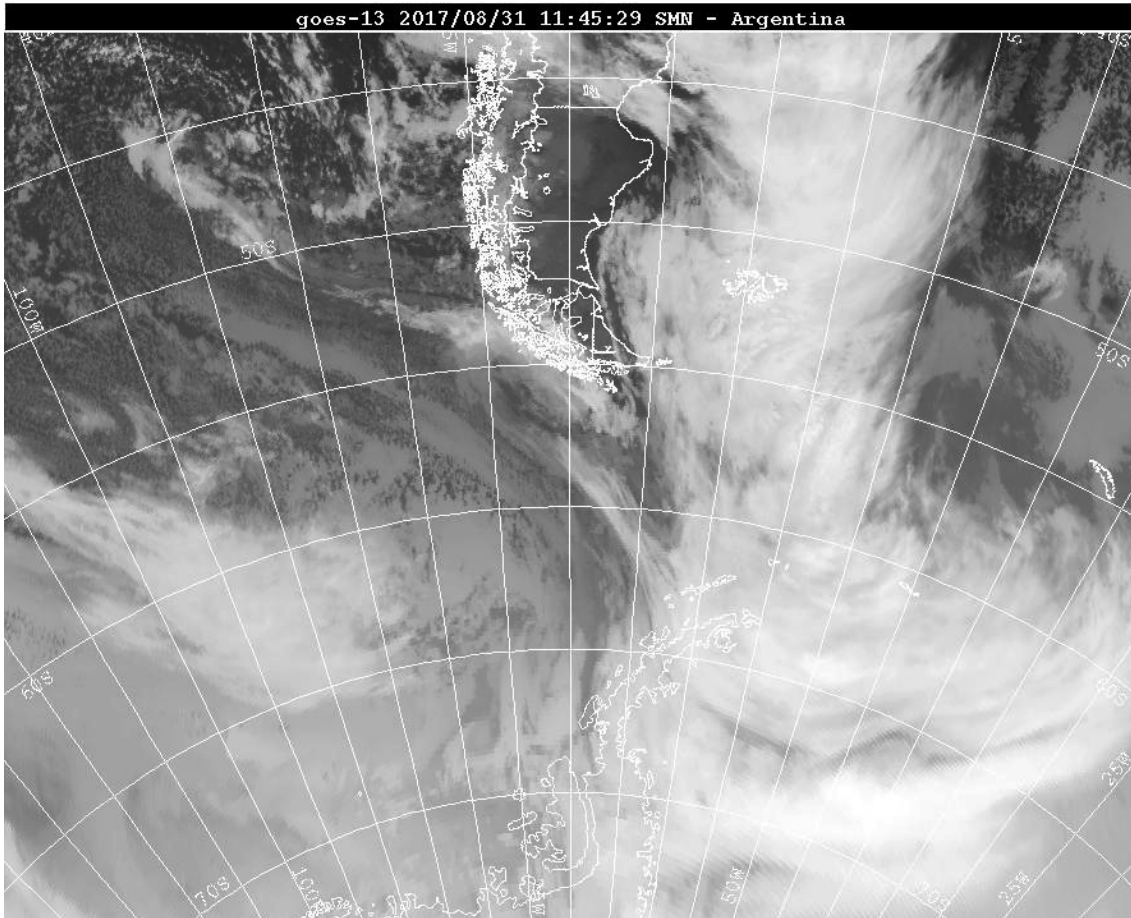
DROP OF PRESSURE IN 24H: 26.8 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 956.1 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 952.0 hPa  
SUSTAINED MAXIMUM WIND: 5.5 m/s (12.3 mph)  
MAXIMUM WIND GUST: 6.0 m/s (13.4 mph)  
BERGERON: 1.1 (WEAK)

**EXPLOSIVE CYCLONE N°71/2017- DATA: 29/AUG/2017**  
**LOCAL: CASEY STATION – WMO 89611 (OPERATED BY AUSTRALIA)**



DROP OF PRESSURE IN 24H: 28.4 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 949.7 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 943.0 hPa  
SUSTINED MAXIMUM WIND: 34.5 m/s (77.2 mph)  
MAXIMUM WIND GUST: 42.5 m/s (95.0 mph)  
BERGERON: 1.2 (WEAK)

**EXPLOSIVE CYCLONE N°72/2017- DATA: 31/AUG/2017**  
**LOCAL: FREI STATION – WMO 89056 (OPERATED BY CHILE)**



**DROP OF PRESSURE IN 24H: 25.0 hPa**  
**MINIMUM PRESSURE REGISTERED ON STATION: 973.4 hPa**  
**MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 970.0 hPa**  
**SUSTINED MAXIMUM WIND: 14.5 m/s (32.0 mph)**  
**BERGERON: 1.1 (WEAK)**

**EXPLOSIVE CYCLONE N°73/2017- DATA: 31/AUG/2017**  
**LOCAL: PALMER STATION – WMO 89061 (OPERATED BY USA)**

NO IMAGE

DROP OF PRESSURE IN 24H: 26.2 hPa  
MINIMUM PRESSURE REGISTERED ON STATION: 966.1 hPa  
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 966.0 hPa  
SUSTINED MAXIMUM WIND: 7.0 m/s (16 mph)  
BERGERON: 1.1 (WEAK)

**Sources:**

<https://worldview.earthdata.nasa.gov>

<http://www.weathersa.co.za>

<http://www.bom.gov.au>

<https://data.aad.gov.au>

<http://www.smn.gov.ar>

<http://meteoarmada.directemar.cl>