

MONITORING EXPLOSIVE CYCLONES ON THE COAST OF THE ANTARCTIC CONTINENT

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

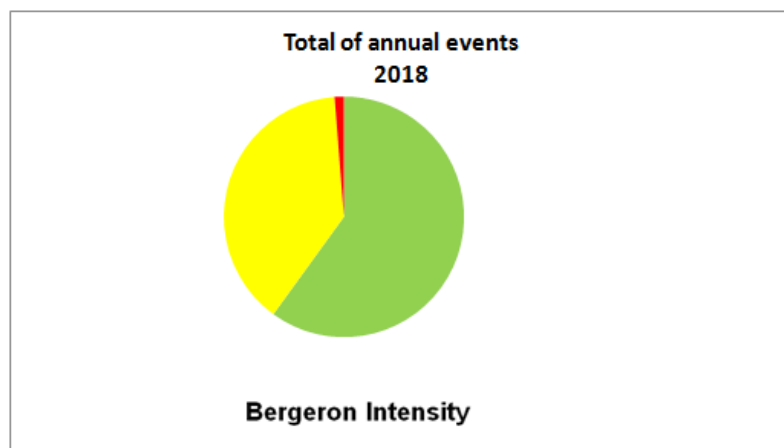
SEPTEMBER 2018

During this month, 14 events were recorded among the 13 research stations located on the coast of the Antarctic utilized as references for the monitoring of bomb cyclones. There was a decrease in the number of cases both in relation to the previous month, Aug. 2018 (-36%), and in relation to the same month of the previous year, Sept. 2017 (-33%). The stations that were affected by cyclones this month were: Casey, Fossil Bluff, Dumont D'Urville, Mirny, Frei, Halley, McMurdo, Palmer, Neumayer, and Syowa. The most intense cyclone recorded was no. 78/2018 at the Casey station on the 27th with sustained winds of up to 32.5 m/s (73 mph). The cyclone with the lowest recorded atmospheric pressure at sea level was no. 74/2018 at the Palmer station, with values reaching 939.7 hPa.

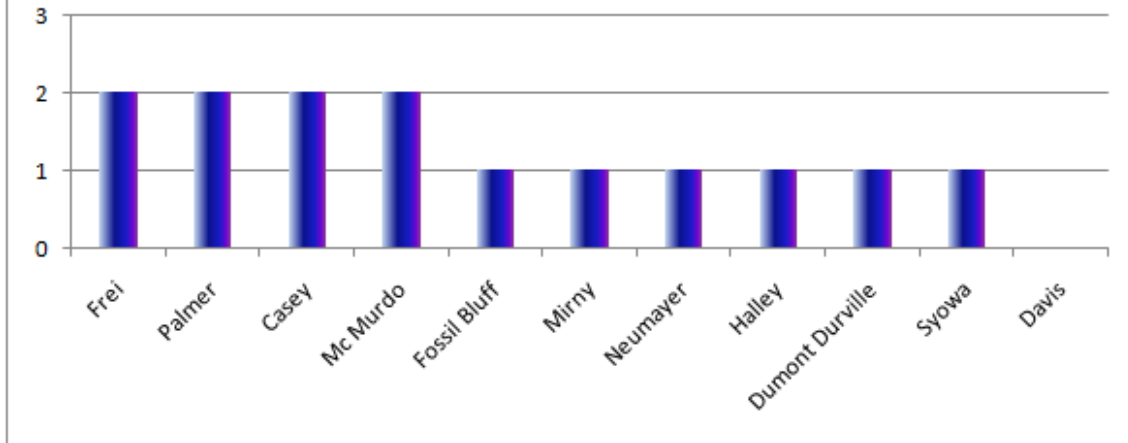
STATISTICS OF THE MONTH

Classification	Bergeron Scale	Intensity	Total of cases registered in the month
B1	1 a 1.2	Weak	09
B2	1.3 a 1.8	Moderate	05
B3	>1.8	Strong	00

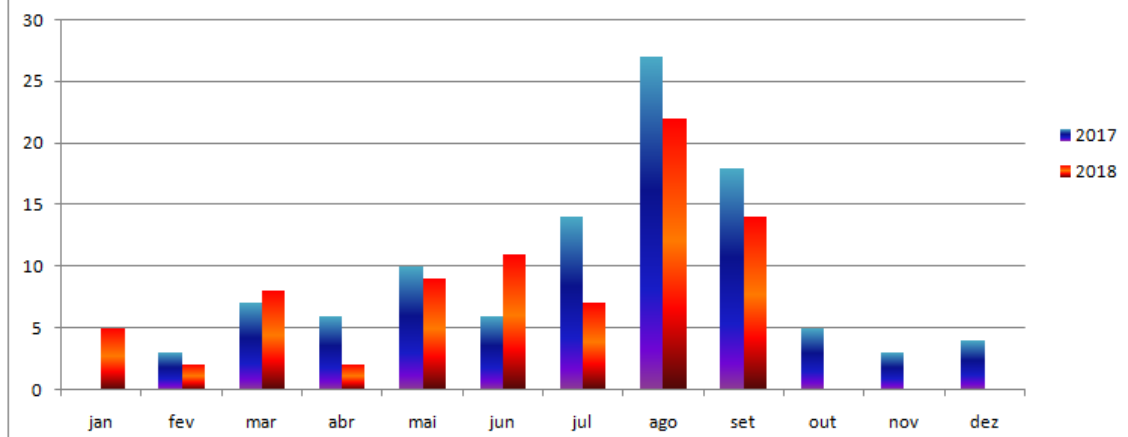
Highest pressure drop	Lowest recorded pressure	Highest sustained wind
-42.9 hPa/24h	939.7 hPa	32.5 m/s
Syowa	Palmer	Casey
Spet. 03th	Spet. 13h	Sept. 27



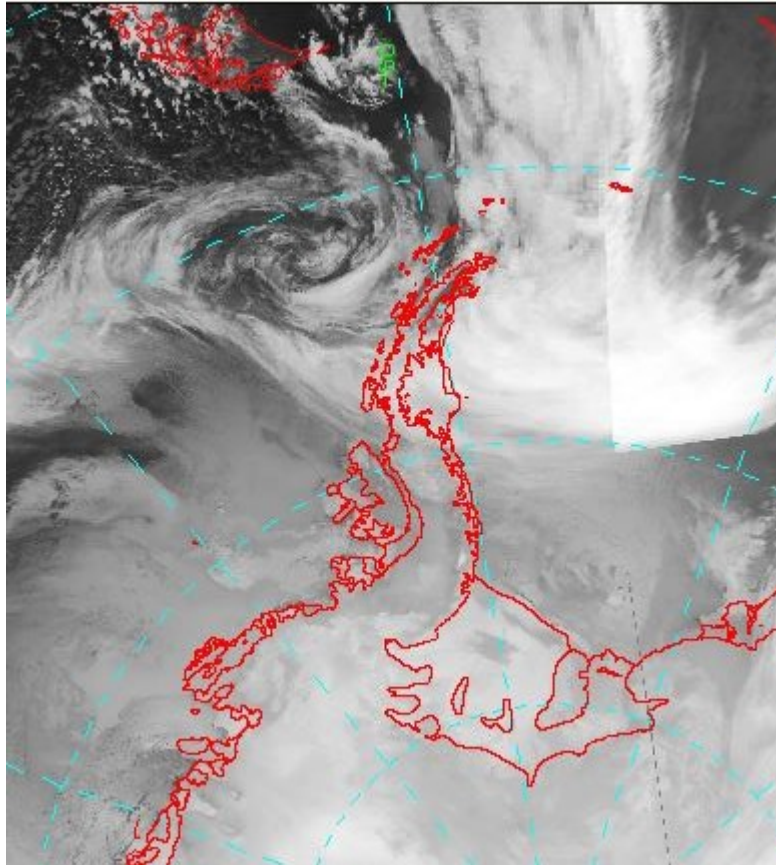
Total of events registered in each station in the month of September/2018



Explosive Cyclones in the Antarctic

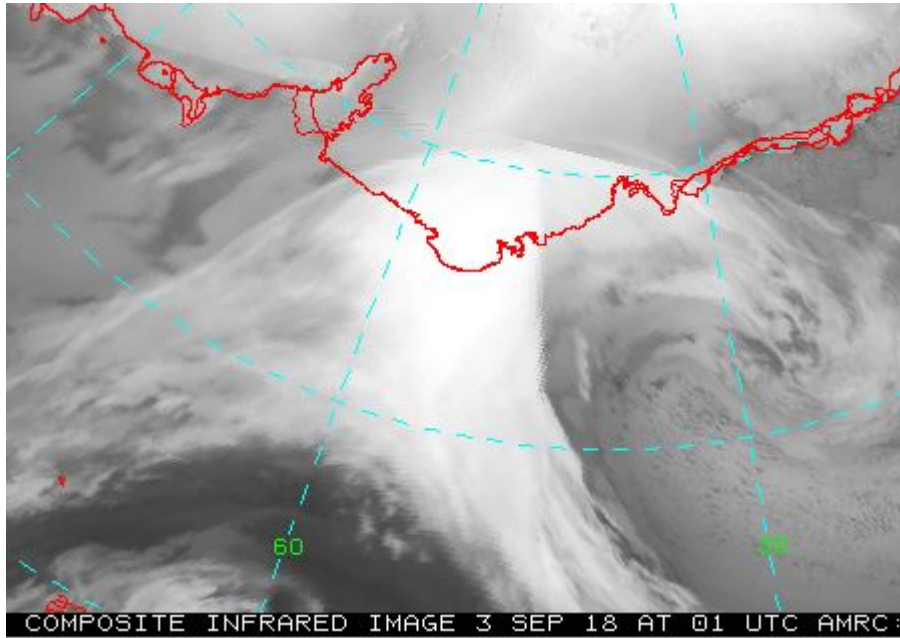


BOMB CYCLONE N°67/2018- DATA: SEP/02/2018
LOCAL: FREI STATION – WMO 89056 (OPERATED BY CHILE)



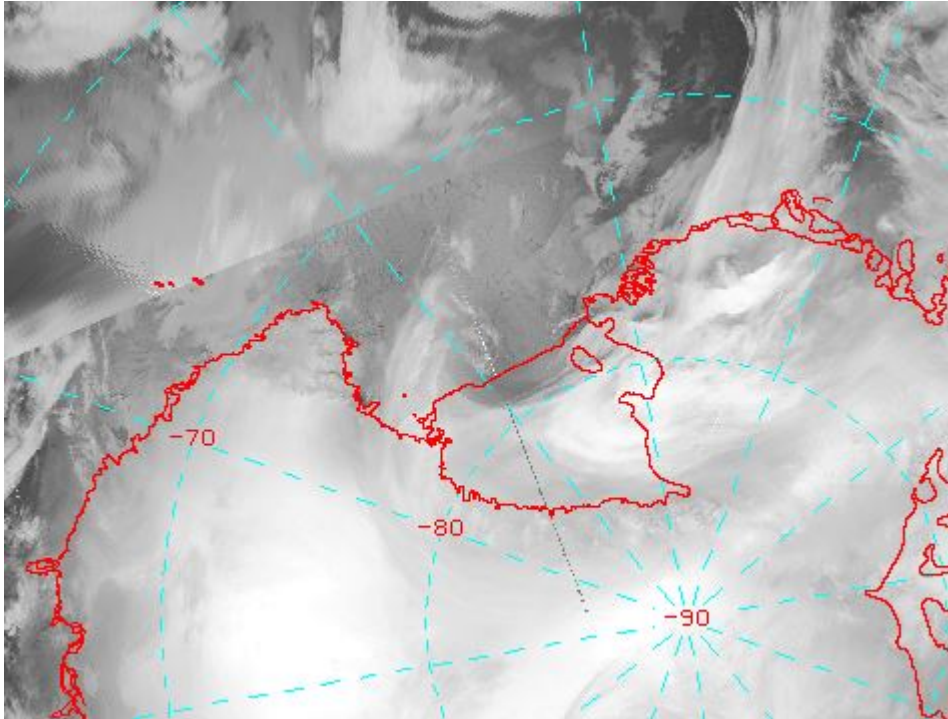
Drop of pressure in 24h	-24.4 hPa
Minimum pressure registred on station	968.2 hPa
Min. pressure estimation in the cyclone core	964 hPa
Sustined maximum wind	17.0 m/s (38 mph)
Maximum wind gust	None m/s (mph)
Bergeron	1.0 (weak)

BOMB CYCLONE N°68/2018- DATA: SEP/03/2018
LOCAL: SYOWA STATION – WMO 89532 (OPERATED BY JAPAN)



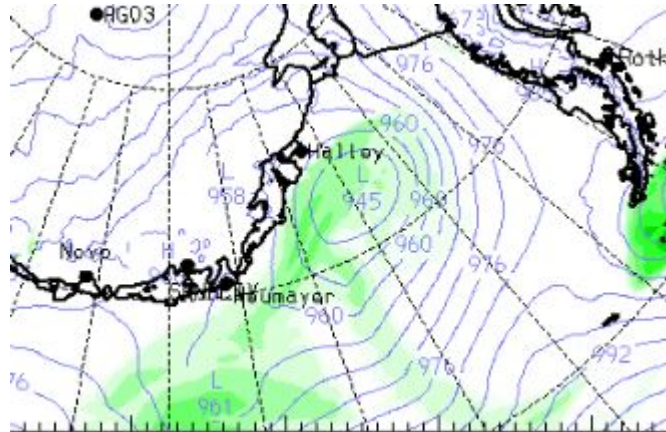
Drop of pressure in 24h	42.9 hPa
Minimum pressure registred on station	944.3 hPa
Min. pressure estimation in the cyclone core	939 hPa
Sustined maximum wind	24.0 m/s (54 mph)
Maximum wind gust	None m/s (mph)
Bergeron	1.8 (moderate)

BOMB CYCLONE N°69/2018- DATA: SEP/03/2018
LOCAL: MCMURDO STATION – WMO 89664 (OPERATED BY
U.S.A.)



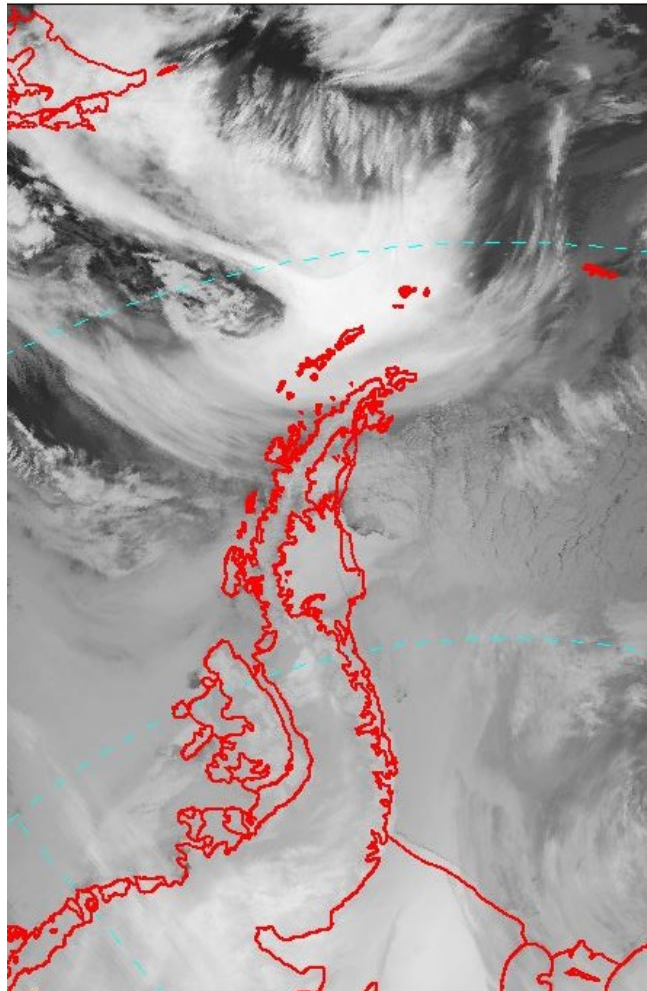
Drop of pressure in 24h	-26.5 hPa
Minimum pressure registered on station	944.7 hPa
Min. pressure estimation in the cyclone core	921 hPa
Sustined maximum wind	20.0 m/s (45 mph)
Maximum wind gust	24.0 m/s (54 mph)
Bergeron	1.1 (weak)

BOMB CYCLONE N°70/2018- DATA: SEP/04/2018
LOCAL: HALLEY STATION – WMO 89022 (OPERATED BY U.K.)



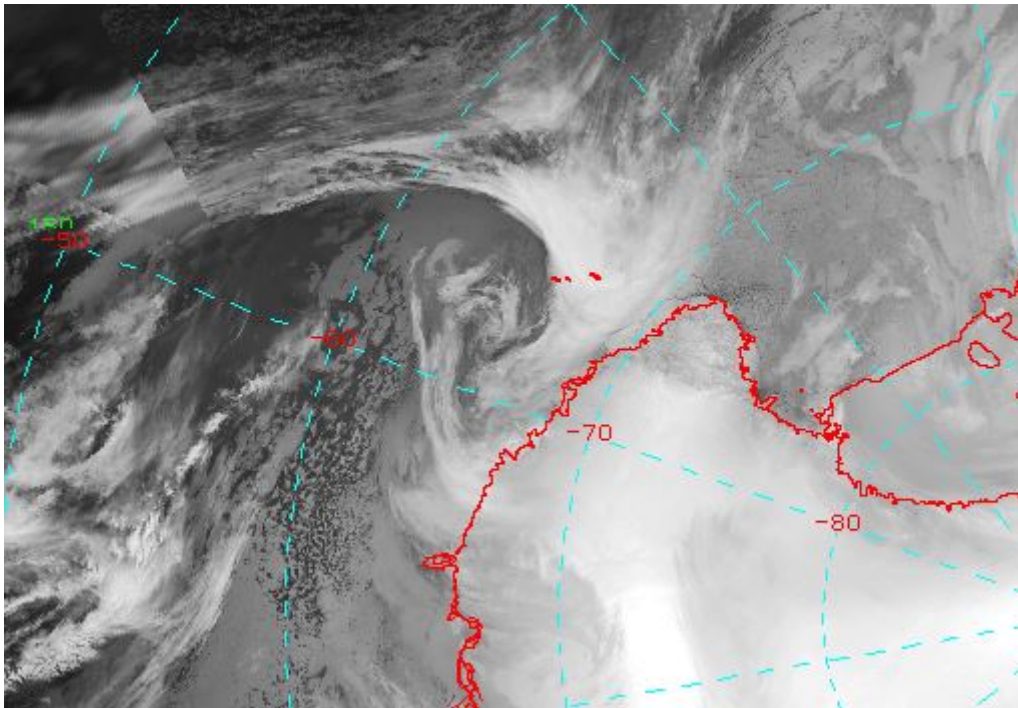
Drop of pressure in 24h	-28.0 hPa
Minimum pressure registred on station	950.6 hPa
Min. pressure estimation in the cyclone core	945 hPa
Sustined maximum wind	13.0 m/s (29 mph)
Maximum wind gust	none m/s (mph)
Bergeron	1.2 (weak)

BOMB CYCLONE N°71/2018- DATA: SEP/04/2018
LOCAL: FREI STATION – WMO 89056 (OPERATED BY CHILE)



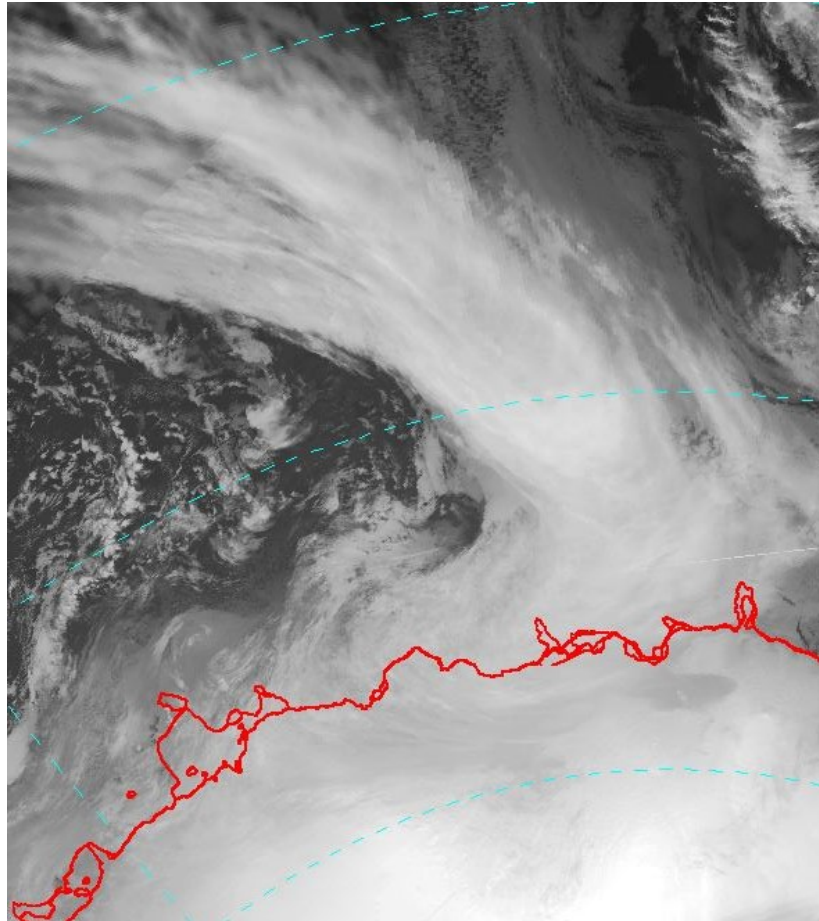
Drop of pressure in 24h	24.0 hPa
Minimum pressure registred on station	960.5 hPa
Min. pressure estimation in the cyclone core	955 hPa
Sustined maximum wind	27.0 m/s (60 mph)
Maximum wind gust	32.0 m/s (72 mph)
Bergeron	1.0 (weak)

BOMB CYCLONE N°72/2018- DATA: SEP/04/2018
LOCAL: DUMONT D'URVILLE STATION – WMO 89642 (OPERATED
BY FRANCE)



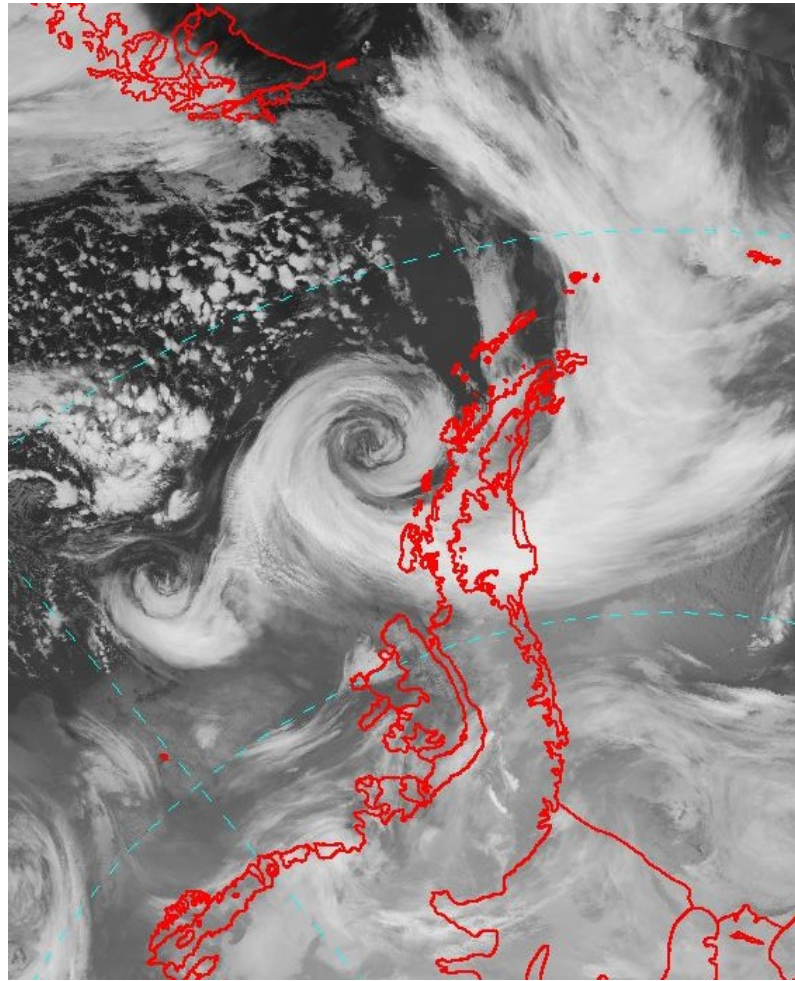
Drop of pressure in 24h	24.6 hPa
Minimum pressure registred on station	960.4 hPa
Min. pressure estimation in the cyclone core	949 hPa
Sustined maximum wind	21.5 m/s (48 mph)
Maximum wind gust	32.5 m/s (73 mph)
Bergeron	1.0 (weak)

BOMB CYCLONE N°73/2018- DATA: SEP/05/2018
LOCAL: CASEY STATION – WMO 89611 (OPERATED BY
AUSTRALIA)



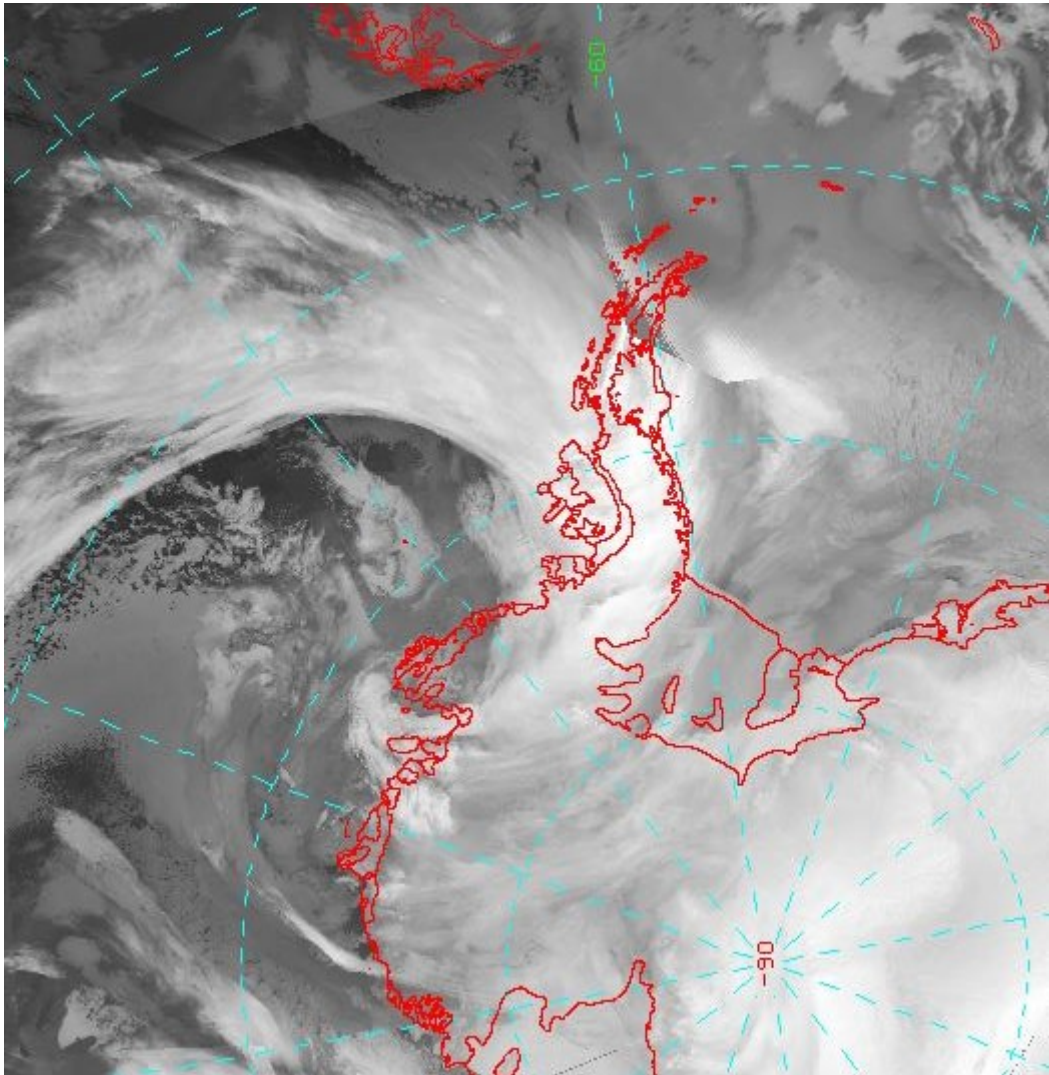
Drop of pressure in 24h	25.9 hPa
Minimum pressure registred on station	945.9 hPa
Min. pressure estimation in the cyclone core	945 hPa
Sustined maximum wind	36.5 m/s (82 mph)
Maximum wind gust	43.5 m/s (97 mph)
Bergeron	1.1 (weak)

BOMB CYCLONE N°74/2018- DATA: SEP/13/2018
LOCAL: PALMER STATION – WMO 89061 (OPERATED BY U.S.A.)



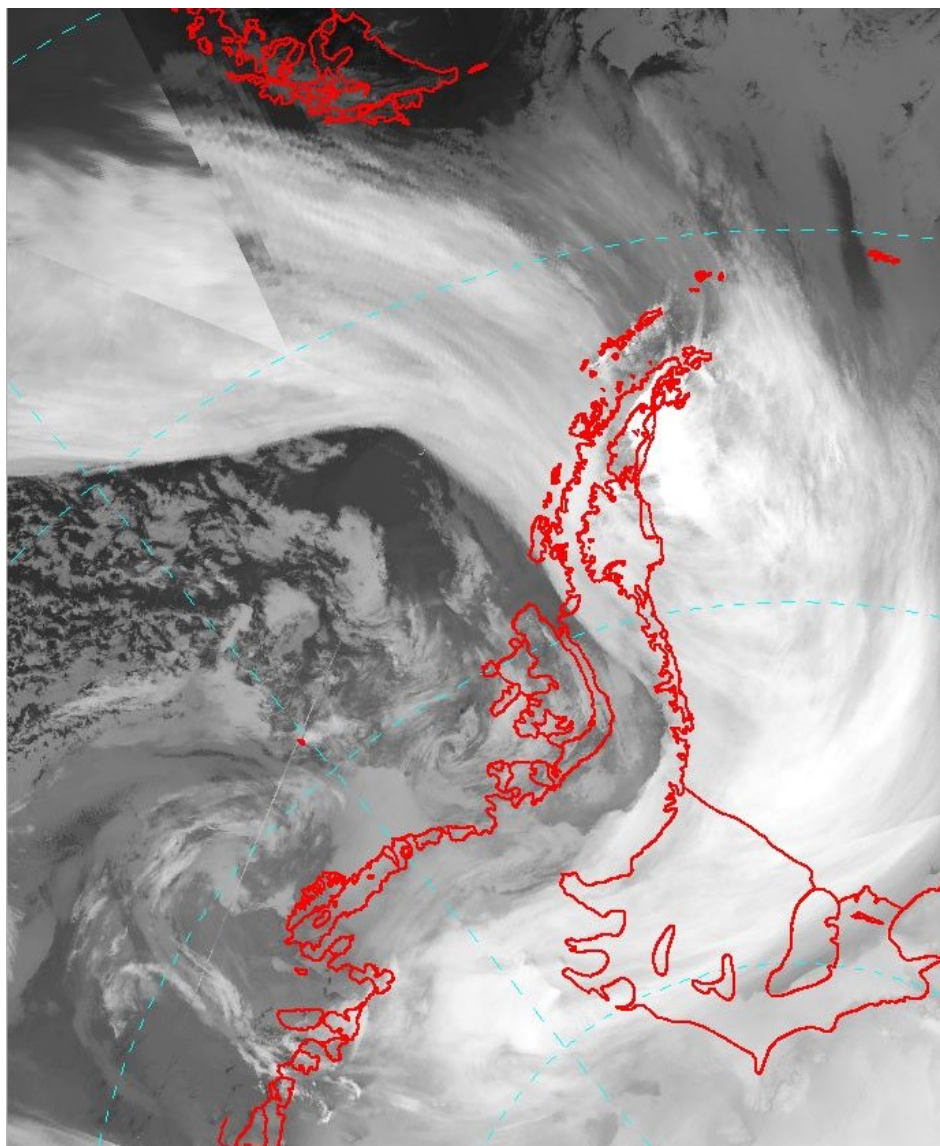
Drop of pressure in 24h	29.5 hPa
Minimum pressure registred on station	939.7 hPa
Min. pressure estimation in the cyclone core	930 hPa
Sustined maximum wind	24.0 m/s (54 mph)
Maximum wind gust	none m/s (mph)
Bergeron	1.2 (weak)

BOMB CYCLONE N°75/2018- DATA: SEP/26/2018
LOCAL: FOSSIL BLUFF STATION – WMO 89065 (OPERATED BY
U.K.)



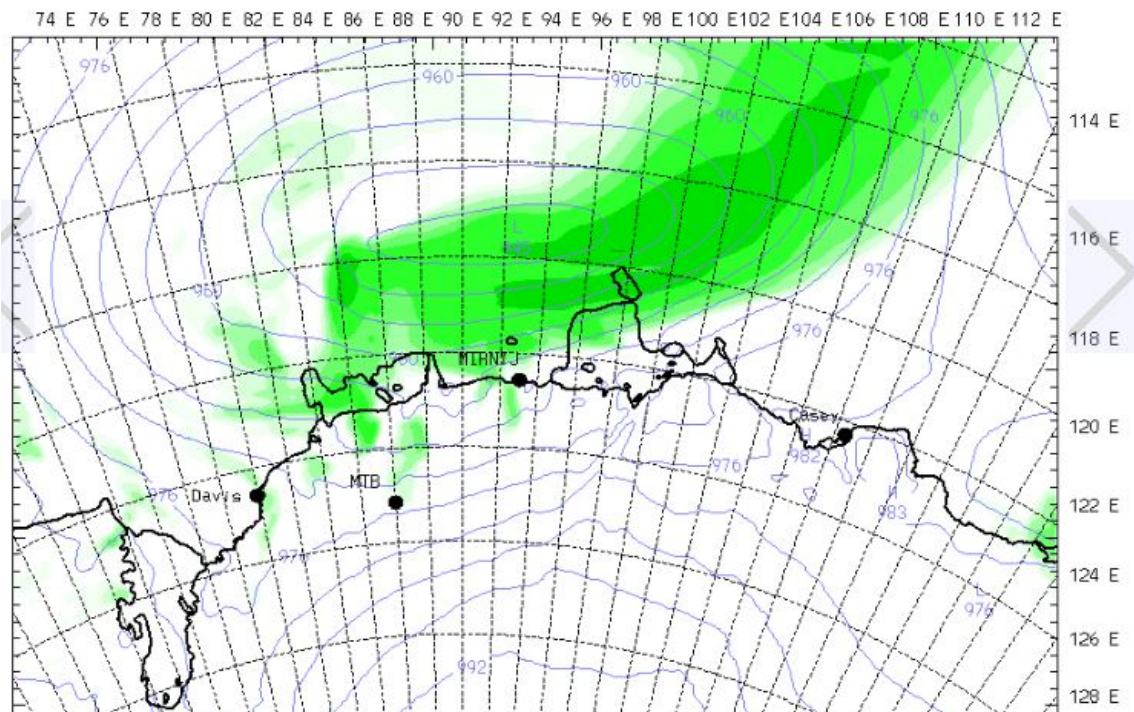
Drop of pressure in 24h	39.3 hPa
Minimum pressure registred on station	965.1 hPa
Min. pressure estimation in the cyclone core	960 hPa
Sustined maximum wind	21.1 m/s (47 mph)
Maximum wind gust	none m/s (mph)
Bergeron	1.6 (moderate)

BOMB CYCLONE N°76/2018- DATA: SEP/27/2018
LOCAL: PALMER STATION – WMO 89061 (OPERATED BY U.S.A.)



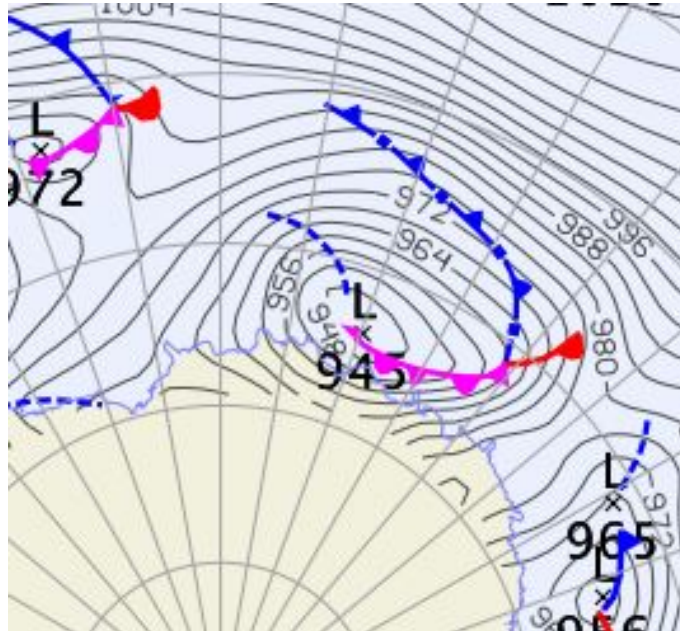
Drop of pressure in 24h	27.0 hPa
Minimum pressure registered on station	977.7 hPa
Min. pressure estimation in the cyclone core	970 hPa
Sustained maximum wind	23.0 m/s (51 mph)
Maximum wind gust	none m/s (mph)
Bergeron	1.1 (weak)

BOMB CYCLONE N°77/2018- DATA: SEP/27/2018
LOCAL: MIRNY STATION – WMO 89592 (OPERATED BY RUSSIA)



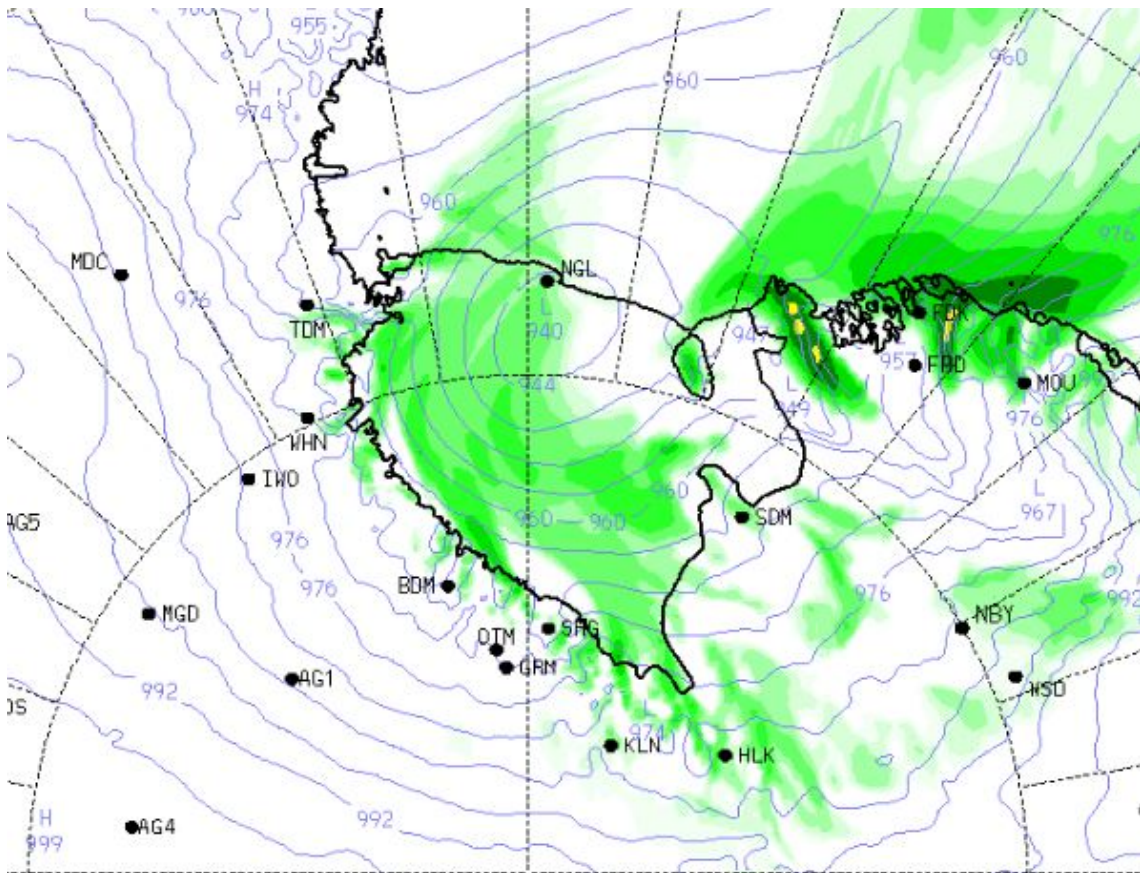
Drop of pressure in 24h	32.5 hPa
Minimum pressure registered on station	957.8 hPa
Min. pressure estimation in the cyclone core	943 hPa
Sustined maximum wind	10.0 m/s (22 mph)
Maximum wind gust	11.0 m/s (25 mph)
Bergeron	1.4 (moderate)

BOMB CYCLONE N°78/2018- DATA: SEP/27/2018
LOCAL: CASEY STATION – WMO 89611 (OPERATED BY
AUSTRALIA)



Drop of pressure in 24h	35.0 hPa
Minimum pressure registred on station	945.3 hPa
Min. pressure estimation in the cyclone core	945 hPa
Sustined maximum wind	32.5 m/s (73 mph)
Maximum wind gust	37.5 m/s (84 mph)
Bergeron	1.5 (moderate)

BOMB CYCLONE N°79/2018- DATA: SEP/28/2018
LOCAL: MCMURDO STATION – WMO 89664 (OPERATED BY
U.S.A.)



Drop of pressure in 24h	36.1 hPa
Minimum pressure registred on station	945.1 hPa
Min. pressure estimation in the cyclone core	938 hPa
Sustined maximum wind	11.5 m/s (26 mph)
Maximum wind gust	16.0 m/s (36 mph)
Bergeron	1.5 (moderate)

BOMB CYCLONE N°80/2018- DATA: SEP/29/2018
LOCAL: NEUMAYER STATION – WMO 89002 (OPERATED BY
GERMANY)

No image

Drop of pressure in 24h	24.9 hPa
Minimum pressure registred on station	964.0 hPa
Min. pressure estimation in the cyclone core	962hPa
Sustined maximum wind	24.2 m/s (54 mph)
Maximum wind gust	none m/s (mph)
Bergeron	1.0 (weak)

Sources:

AMRC – UW Madison

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

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

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

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

<http://meteoarmada.directemar.cl>