

MONITORING EXPLOSIVE CYCLONES ON THE COAST OF THE ANTARCTIC CONTINENT

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

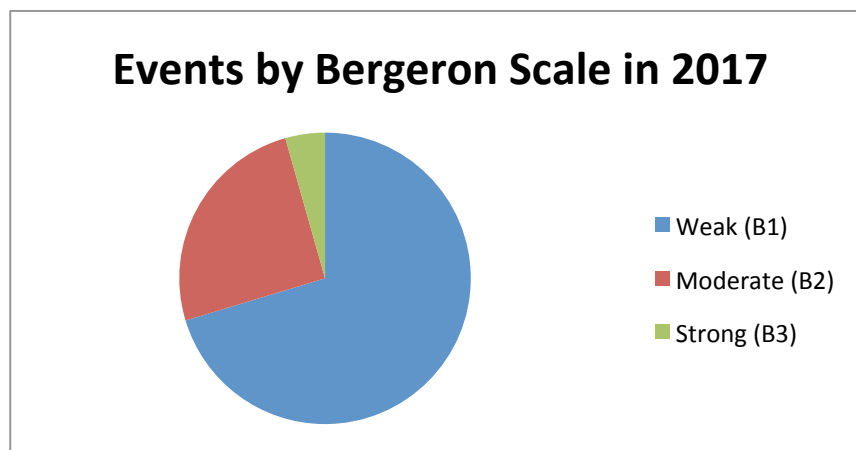
SEPTEMBER 2017

During this month, 18 events were registered among the 13 research stations located on the coast of the Antarctic utilized as references for the monitoring of explosive cyclones, at the stations of: Syowa, Casey, Mawson, Davis, Frei, Marambio, Palmer, Mirny, Halley and Neumayer, totaling 09 less cases than in the previous month. The most intense cyclone recorded was at the Casey station on September 8th with sustained winds of up to 50.0 m/s (113 mph). The cyclone which registered the lowest atmospheric pressure at sea level was at the Davis station, on September 24th, with values reaching 939.9 hPa. Throughout 2017 the station with the largest number of events has been the Australian Casey with 16 cases, followed by the Davis and Frei stations with 10 cases each. Russkaya's Russian station was not operating this month, so it was not possible to monitor that region.

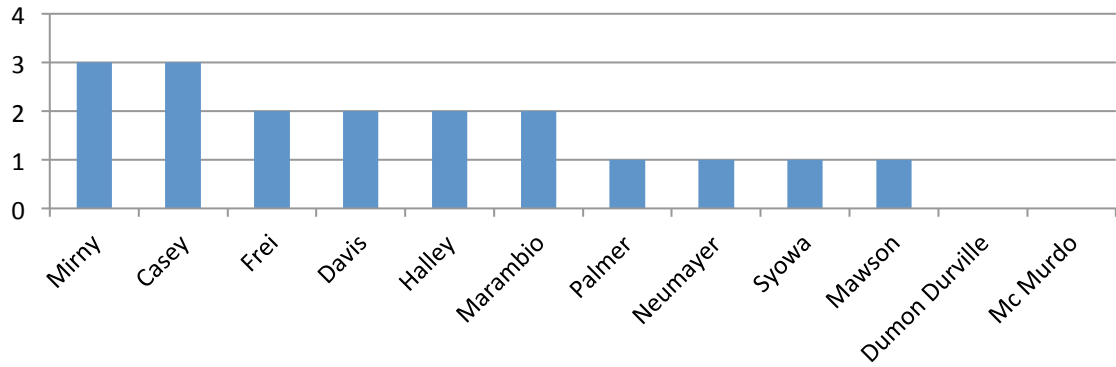
STATISTICS FOR THE MONTH

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	07
B3	>1.8	Strong	02

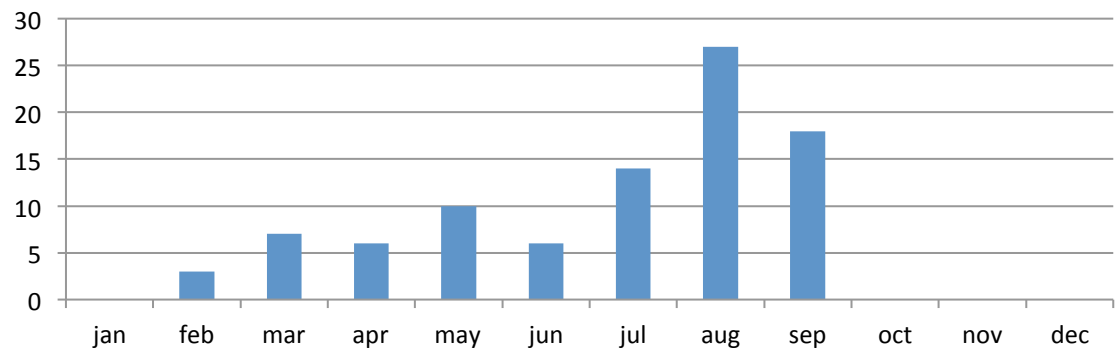
Highest pressure drop	Lowest recorded pressure	Highest sustained wind	Average minimum pressures	Mean of pressure drops
-46.4 hPa/24H	939.9 hPa	50.5 m/s	952.3 hPa	-31.8 hPa/24H
Casey Station September 08	Davis Station September 24	Casey Station September 08		



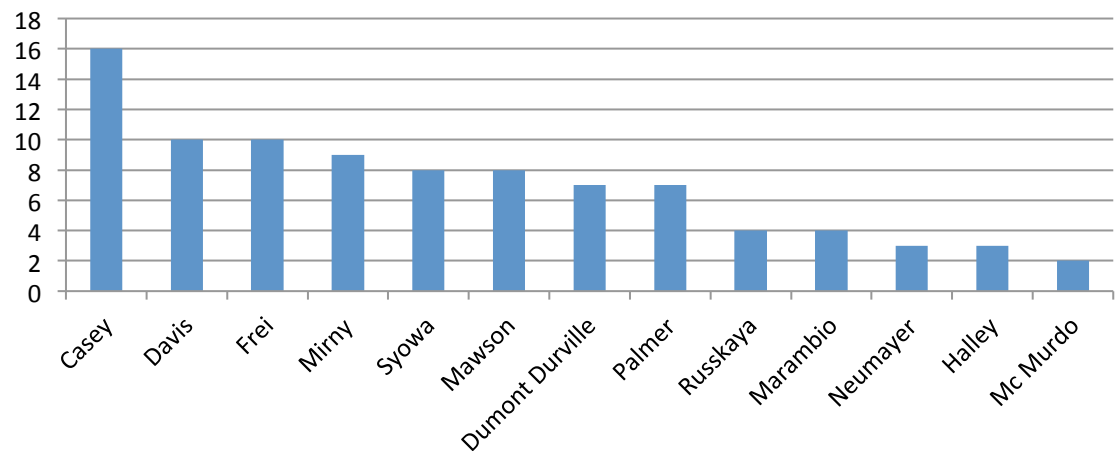
Total of events registered in each station in the month of September/2017



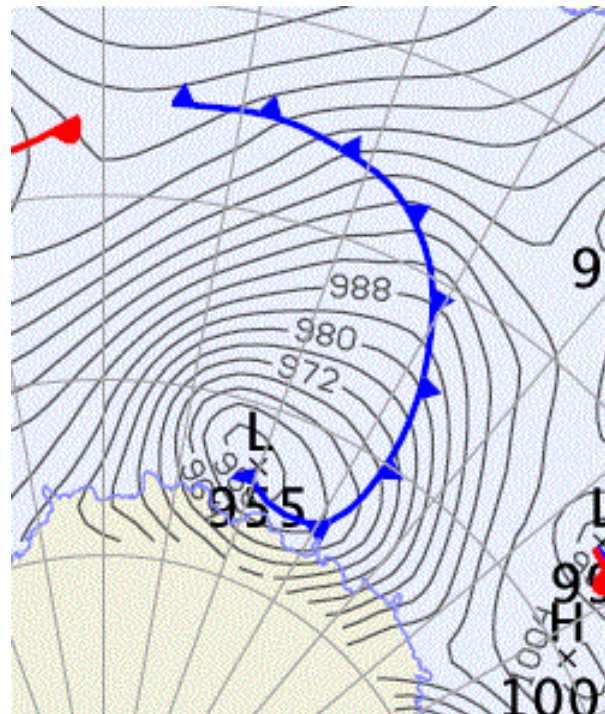
Explosive Cyclones in the Antarctic Total of monthly events



Total of events registered by station in 2017



EXPLOSIVE CYCLONE N°74/2017- DATA: 01/SEP/2017
LOCAL: CASEY STATION – WMO 89661 (OPERATED BY AUSTRALIA)



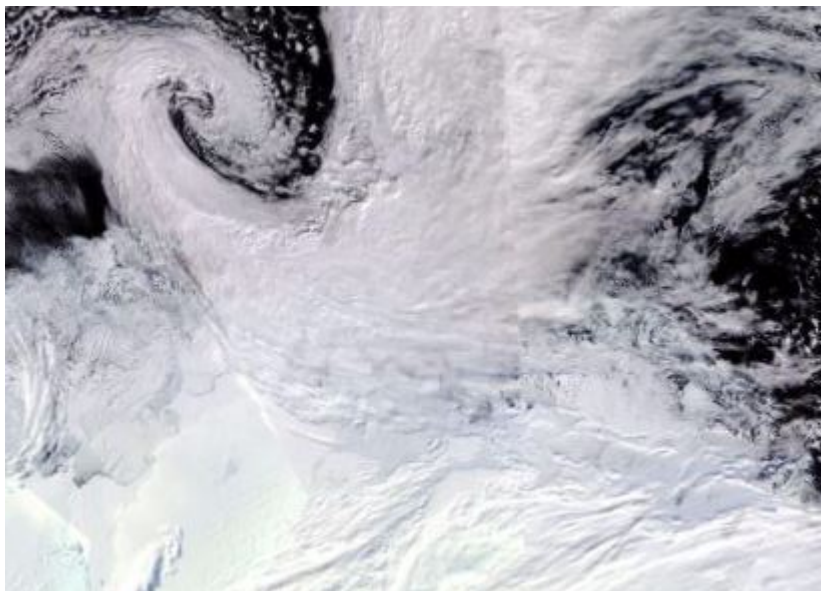
DROP OF PRESSURE IN 24H: -40.3 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 951.8 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 951.0 hPa
SUSTAINED MAXIMUM WIND: 35.3 m/s (79 mph)
MAXIMUM WIND GUST: 43.3 m/s (97 mph)
BERGERON: 1.7 (MODERATE)

EXPLOSIVE CYCLONE N°75/2017- DATA: 04/SEP/2017
LOCAL: DAVIS STATION – WMO 89611 (OPERATED BY AUSTRALIA)

NO IMAGE

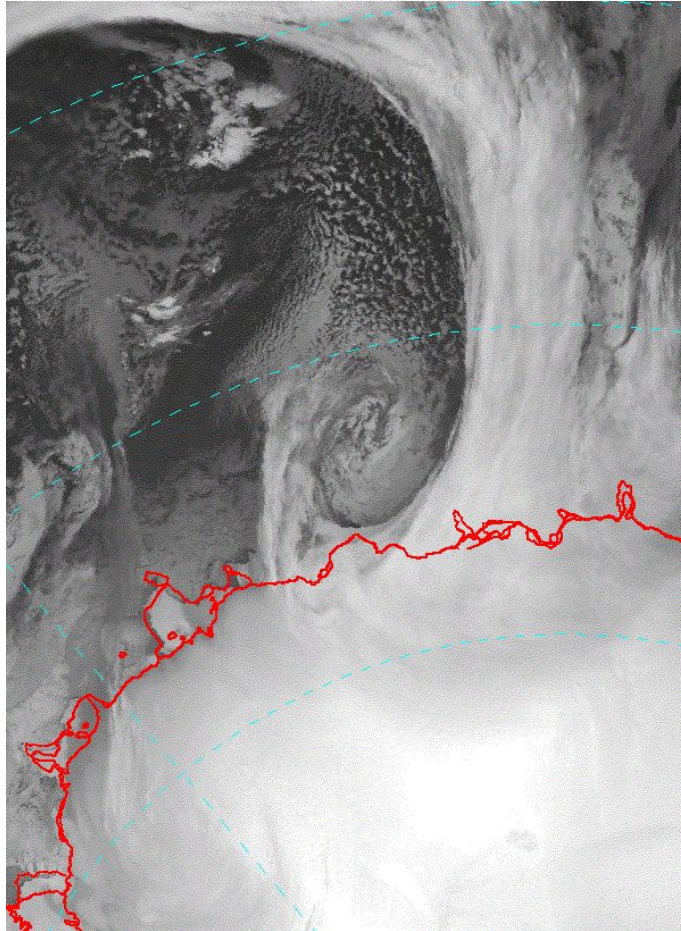
DROP OF PRESSURE IN 24H: -31.9 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 941.6 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 941 hPa
SUSTAINED MAXIMUM WIND: 23.5 m/s (53 mph)
MAXIMUM WIND GUST: 27.5 m/s (62 mph)
BERGERON: 1.3 (MODERATE)

EXPLOSIVE CYCLONE N°76/2017- DATA: 06/SEP/2017
LOCAL: MIRNY STATION –WMO 89592 (OPERATED BY RUSSIA)



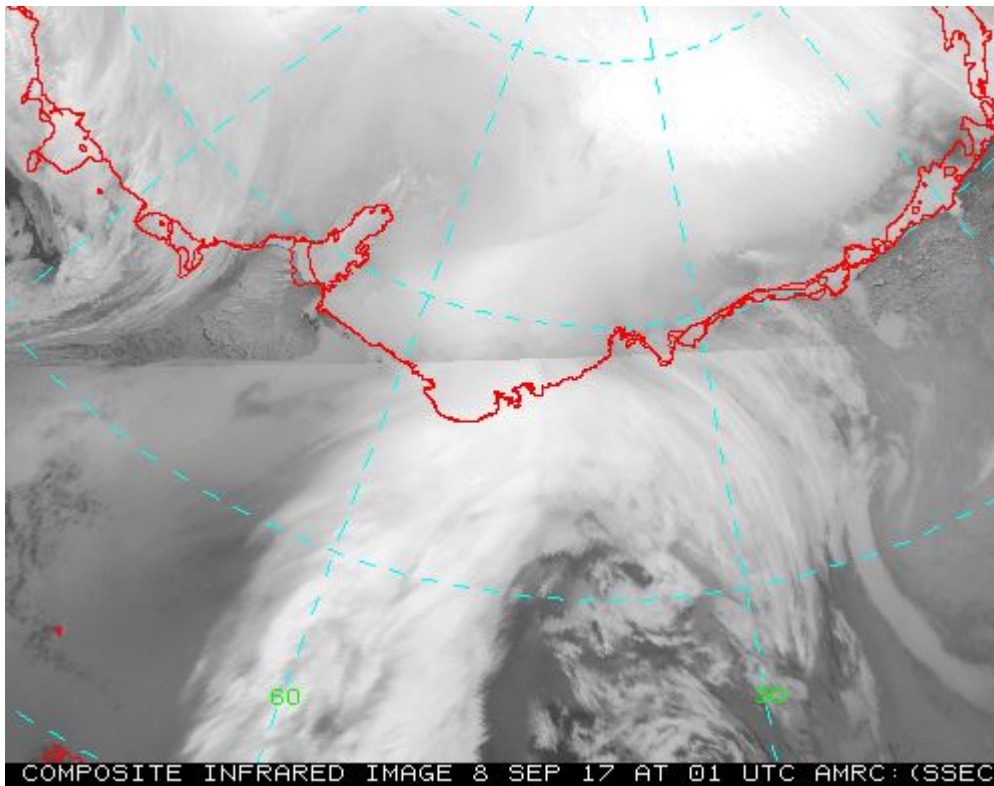
DROP OF PRESSURE IN 24H: -25.7 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 946.3 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: none hPa
SUSTAINED MAXIMUM WIND: 12.0 m/s (27 mph)
MAXIMUM WIND GUST: 13.5 m/s (30 mph)
BERGERON: 1.1 (WEAK)

EXPLOSIVE CYCLONE N°77/2017- DATA: 06/SEP/2017
LOCAL: CASEY STATION – WMO 89611 (OPERATED BY AUSTRALIA)



DROP OF PRESSURE IN 24H: -41.0 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 950.9 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 950.0 hPa
SUSTAINED MAXIMUM WIND: 24.5 m/s (55 mph)
MAXIMUM WIND GUST: 32.5 m/s (73 mph)
BERGERON: 1.7 (MODERATE)

EXPLOSIVE CYCLONE N°78/2017- DATA: 08/SEP/2017
LOCAL: SYOWA STATION – WMO 89532 (OPERATED BY JAPAN)



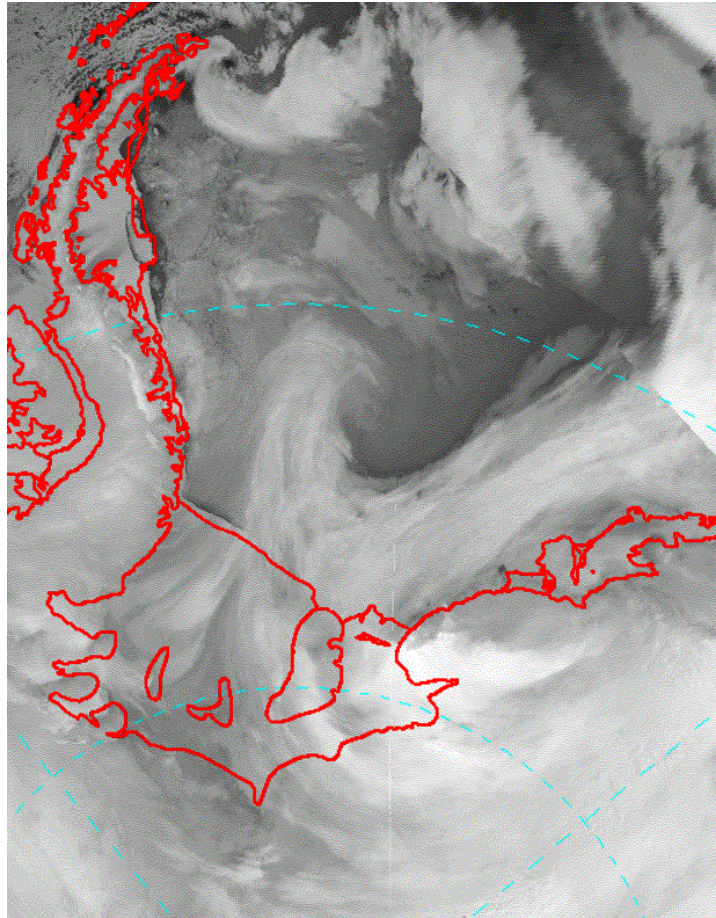
DROP OF PRESSURE IN 24H: -28.4 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 961.2 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 936.0 hPa
SUSTAINED MAXIMUM WIND: 20.0 m/s (45.0 mph)
MAXIMUM WIND GUST: none m/s (mph)
BERGERON: 1.2 (WEAK)

EXPLOSIVE CYCLONE N°79/2017- DATA: 08/SEP/2017
LOCAL: CASEY STATION – WMO 89611 (OPERATED BY AUSTRALIA)

NO IMAGE

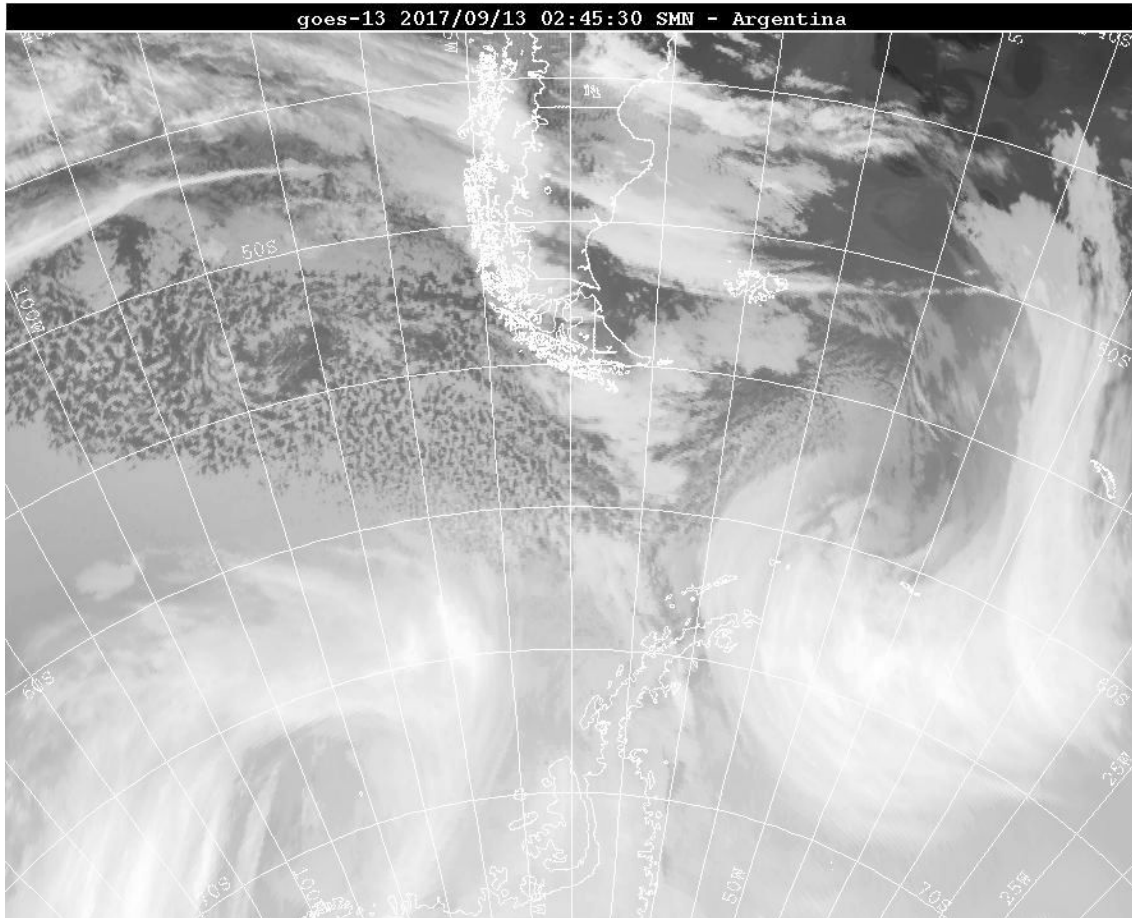
DROP OF PRESSURE IN 24H: -46.4 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 952.9 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: none hPa
SUSTAINED MAXIMUM WIND: 50.5 m/s (113 mph)
MAXIMUM WIND GUST: 61.1 m/s (137 mph)
BERGERON: 1.9 (STRONG)

EXPLOSIVE CYCLONE N°80/2017- DATA: 12/SEP/2017
LOCAL: HALLEY STATION – WMO 89022 (OPERATED BY UK)



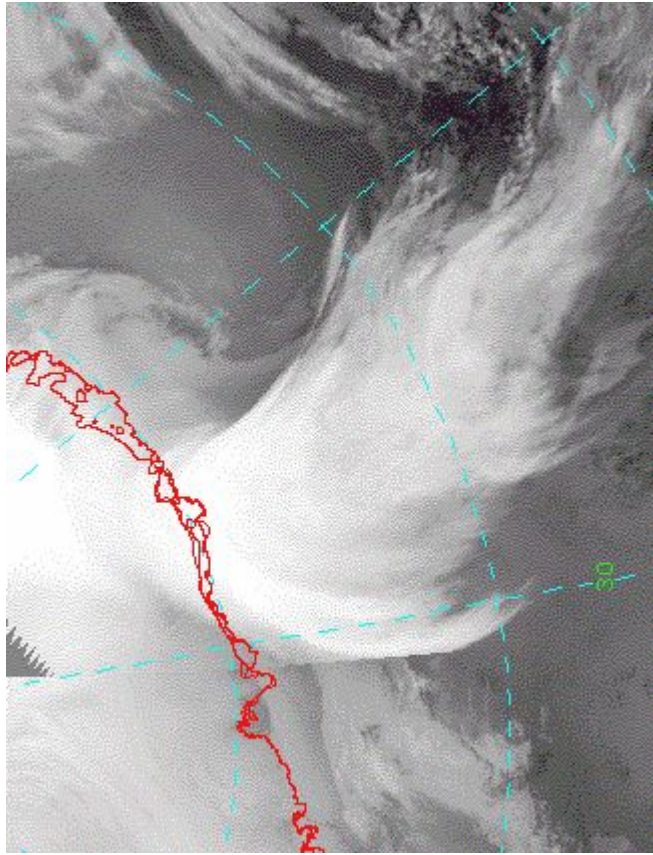
DROP OF PRESSURE IN 24H: -24.0 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 964.7 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 943.0 hPa
SUSTINED MAXIMUM WIND: 17.5 m/s (39.0 mph)
MAXIMUM WIND GUST: none m/s (mph)
BERGERON: 1.0 (WEAK)

EXPLOSIVE CYCLONE N°81/2017- DATA: 13/SEP/2017
LOCAL: FREI STATION – WMO 89056 (OPERATED BY CHILE)



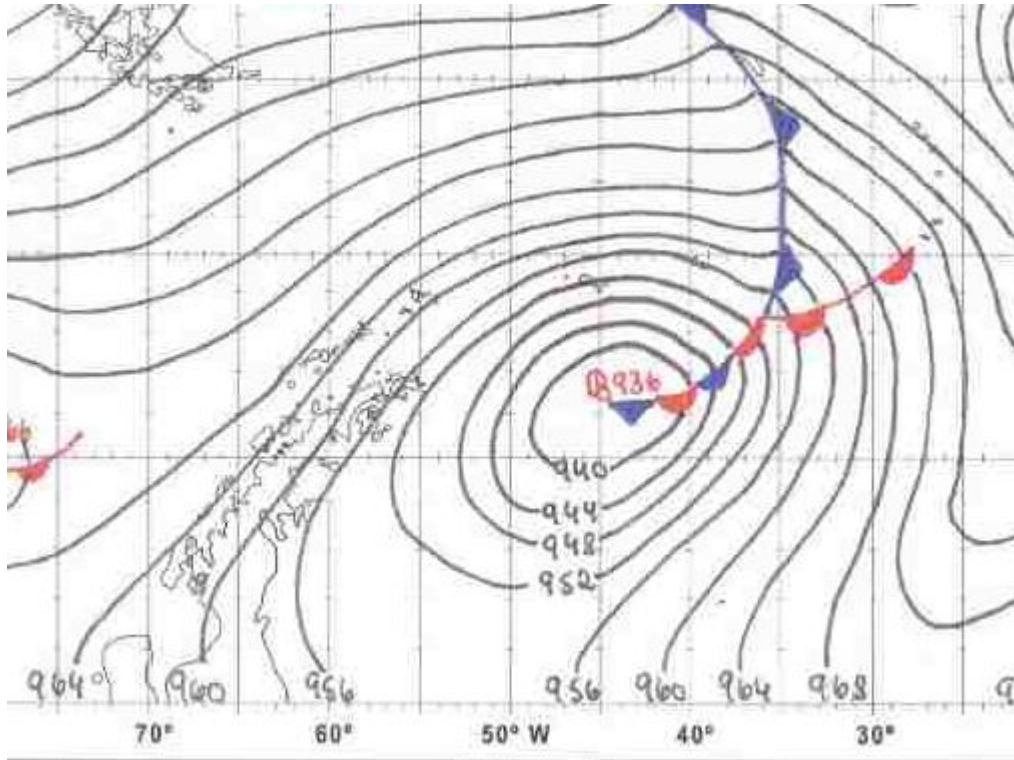
DROP OF PRESSURE IN 24H: -24.0 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 958.8 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 936.0 hPa
SUSTAINED MAXIMUM WIND: 17.0 m/s (38.0 mph)
MAXIMUM WIND GUST: 22.5 m/s (50.0 mph)
BERGERON: 1.0 (WEAK)

EXPLOSIVE CYCLONE N°82/2017- DATA: 13/SEP/2017
LOCAL: NEUMAYER STATION – WMO 89022 (OPERATED BY GERMANY)



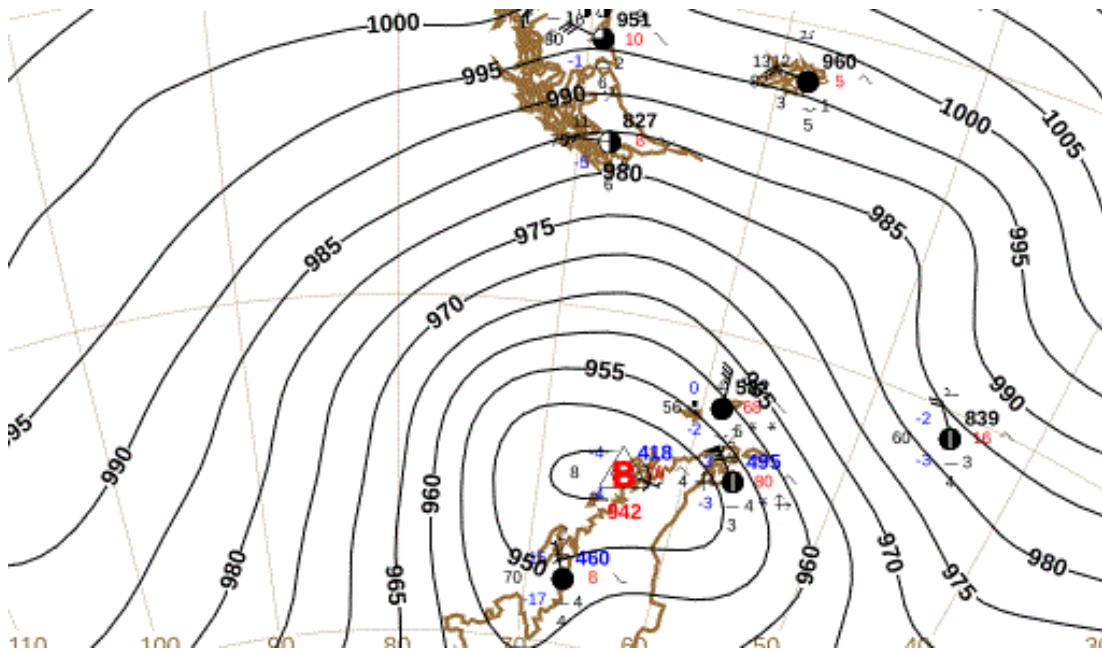
DROP OF PRESSURE IN 24H: -27.7 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 952.1 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 936.0 hPa
SUSTINED MAXIMUM WIND: 31.5 m/s (71.0 mph)
MAXIMUM WIND GUST: none m/s (mph)
BERGERON: 1.2 (WEAK)

EXPLOSIVE CYCLONE N°83/2017- DATA: 13/SEP/2017
LOCAL: MARAMBIO STATION – WMO 89055 (OPERATED BY ARGENTINA)



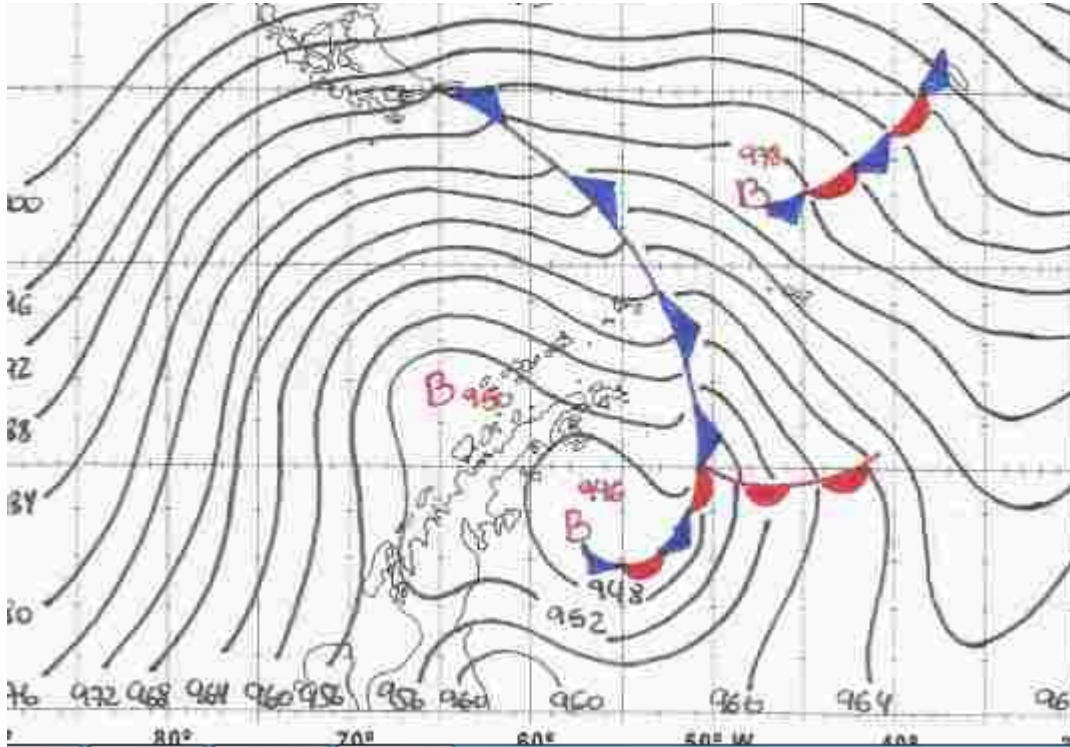
DROP OF PRESSURE IN 24H: -24.1 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 951.6 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 936.0 hPa
SUSTINED MAXIMUM WIND: 14.9 m/s (33.0 mph)
MAXIMUM WIND GUST: none m/s (mph)
BERGERON: 1.0 (WEAK)

EXPLOSIVE CYCLONE N°84/2017- DATA: 17/SEP/2017
LOCAL: PALMER STATION – WMO 89061 (OPERATED BY USA)



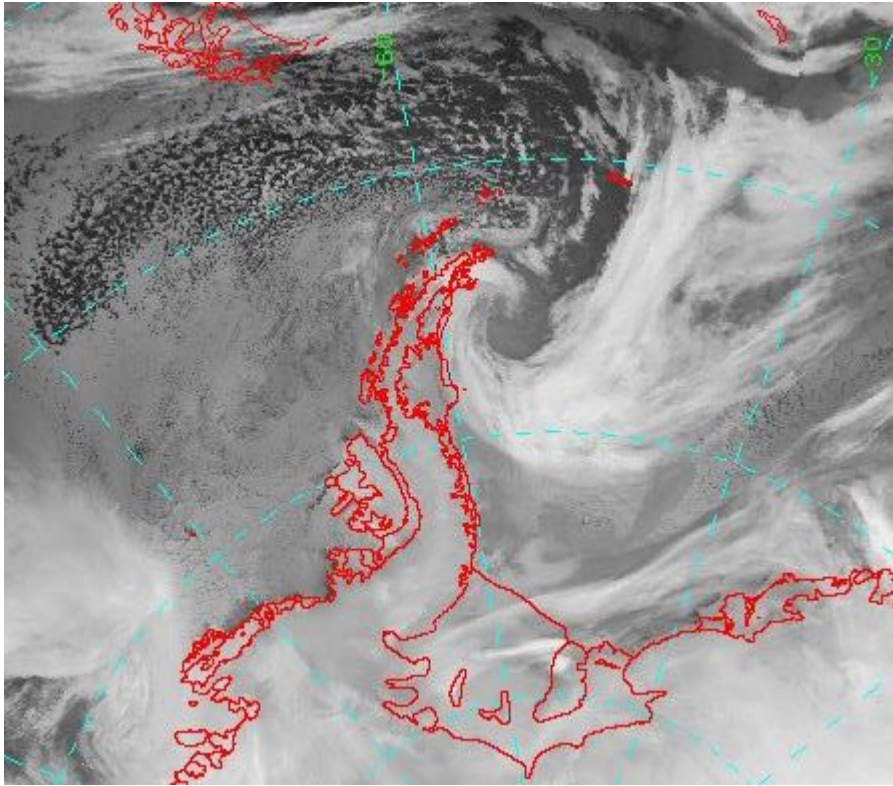
DROP OF PRESSURE IN 24H: -34.0 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 942.0 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 942.0 hPa
SUSTAINED MAXIMUM WIND: 12.5 m/s (28.0 mph)
MAXIMUM WIND GUST: none m/s (mph)
BERGERON: 1.4 (MODERATE)

EXPLOSIVE CYCLONE N°85/2017- DATA: 17/SEP/2017
LOCAL: FREI STATION – WMO 89056 (OPERATED BY CHILE)



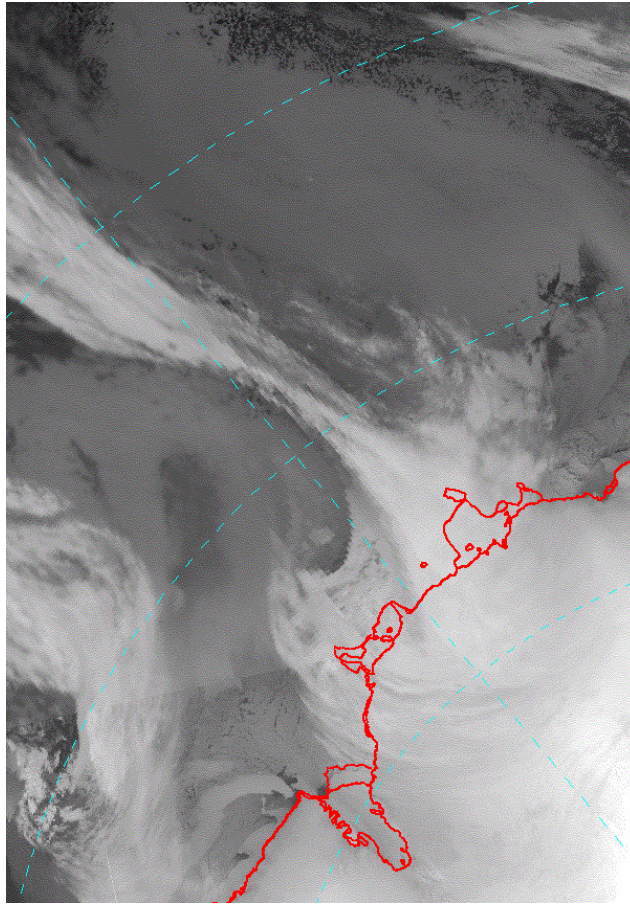
DROP OF PRESSURE IN 24H: -28.4 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 952.5 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 942.0 hPa
SUSTINED MAXIMUM WIND: 20.0 m/s (45.0 mph)
MAXIMUM WIND GUST: 25.5 m/s (57.0 mph)
BERGERON: 1.2 (WEAK)

EXPLOSIVE CYCLONE N°86/2017- DATA: 17/SEP/2017
LOCAL: MARAMBIO STATION – WMO 89055 (OPERATED BY ARGENTINA)



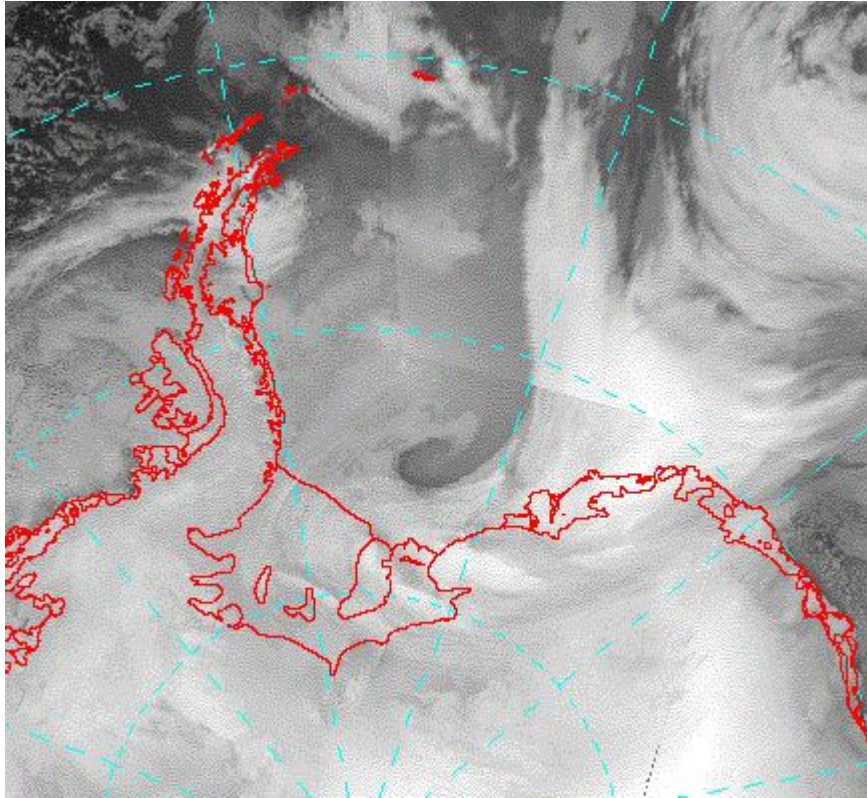
DROP OF PRESSURE IN 24H: -26.1 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 945.8 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 942.0 hPa
SUSTINED MAXIMUM WIND: 36.0 m/s (81 mph)
MAXIMUM WIND GUST: none m/s (mph)
BERGERON: 1.1 (WEAK)

EXPLOSIVE CYCLONE N°87/2017- DATA: 21/SEP/2017
LOCAL: MIRNY STATION – WMO 89592 (OPERATED BY RUSSIA)



DROP OF PRESSURE IN 24H: -32.9 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 956.2 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 949 hPa
SUSTINED MAXIMUM WIND: 10.0 m/s (22 mph)
MAXIMUM WIND GUST: 11.0 m/s (25 mph)
BERGERON: 1.4 (MODERATE)

EXPLOSIVE CYCLONE N°88/2017- DATA: 22/SEP/2017
LOCAL: HALLEY STATION – WMO 89022 (OPERATED BY UK)



DROP OF PRESSURE IN 24H: -33.4 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 947.2 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 928.0 hPa
SUSTAINED MAXIMUM WIND: 22.1 m/s (49 mph)
MAXIMUM WIND GUST: none m/s (mph)
BERGERON: 1.4 (MODERATE)

EXPLOSIVE CYCLONE N°89/2017- DATA: 23/SEP/2017
LOCAL: MAWSON STATION – WMO 89564 (OPERATED BY AUSTRALIA)

NO IMAGE

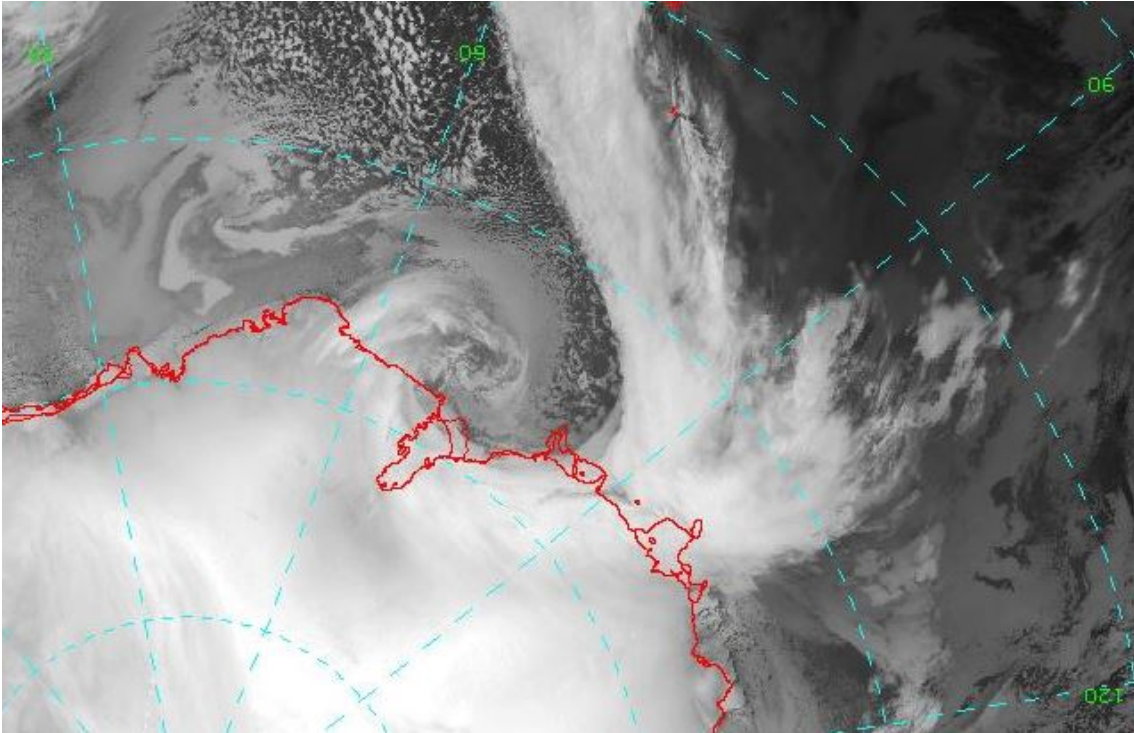
DROP OF PRESSURE IN 24H: -34.2 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 941.8 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 926 hPa
SUSTAINED MAXIMUM WIND: 40.0 m/s (90 mph)
MAXIMUM WIND GUST: 50.0 m/s (112 mph)
BERGERON: 1.4 (MODERATE)

EXPLOSIVE CYCLONE N°90/2017- DATA: 24/SEP/2017
LOCAL: MIRNY STATION –WMO 89592 (OPERATED BY RUSSIA)

NO IMAGE

DROP OF PRESSURE IN 24H: -24.6 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 966.0 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 965.0 hPa
SUSTAINED MAXIMUM WIND: 11.0 m/s (25 mph)
MAXIMUM WIND GUST: 14.0 m/s (31 mph)
BERGERON: 1.0 (WEAK)

EXPLOSIVE CYCLONE N°91/2017- DATA: 24/SEP/2017
LOCAL: DAVIS STATION – WMO 89571 (OPERATED BY AUSTRALIA)



DROP OF PRESSURE IN 24H: -45.2 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 939.9 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 934.0 hPa
SUSTAINED MAXIMUM WIND: 32.0 m/s (72 mph)
MAXIMUM WIND GUST: 44.0 m/s (98 mph)
BERGERON: 1.9 (STRONG)

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>