MONITORING EXPLOSIVE CYCLONES ON THE COAST OF THE ANTARCTIC CONTINENT

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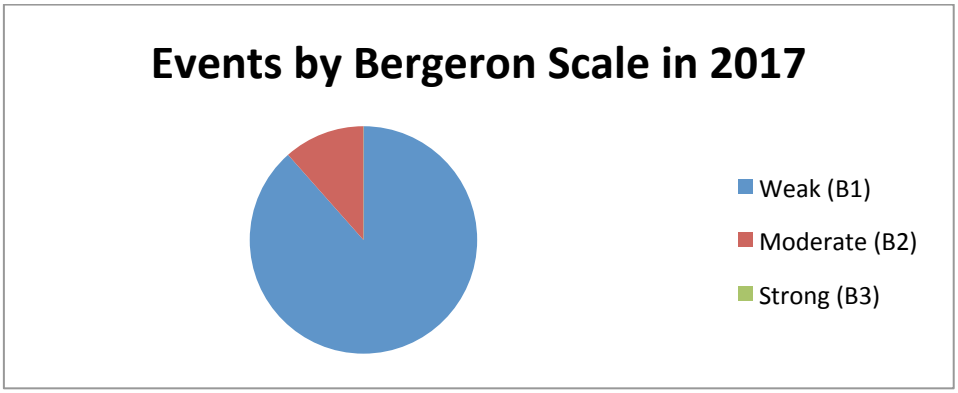
MAY 2017

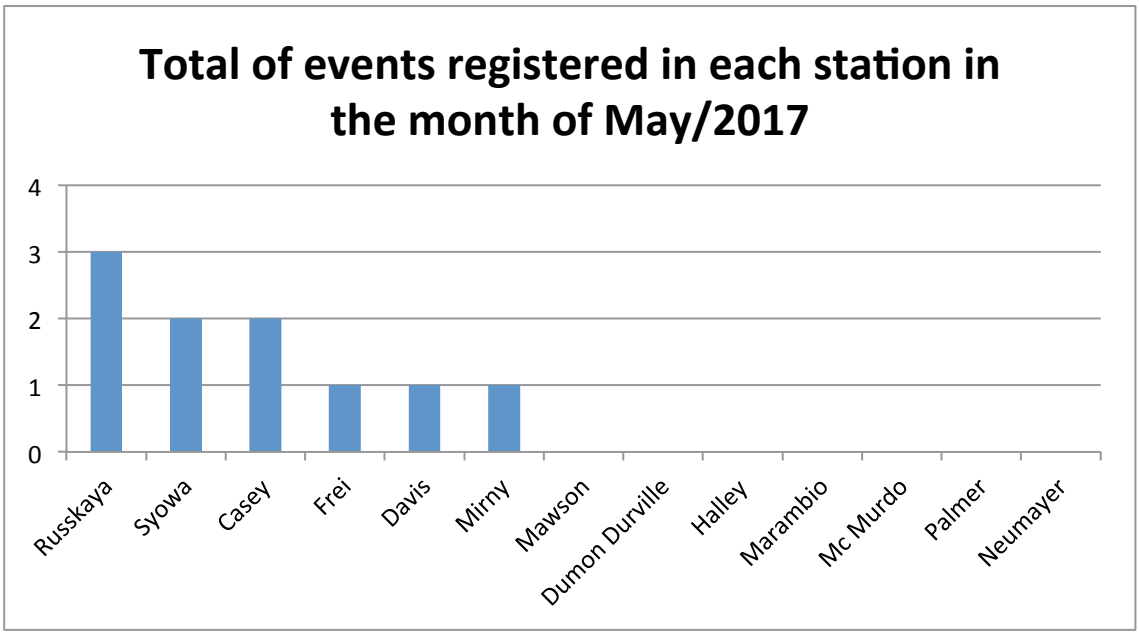
During this month, 10 events were registered among the 13 research stations that we used as references for the monitoring of explosive cyclones located on the coast of Antarctic, at the stations of: Russkaya, Syowa, Casey, Frei, Davis and Mirny. The most intense cyclone recorded was at the Russkaya station on May 26th with sustained winds of up to 85 m/s (190 mph). The cyclone which registered the lowest atmospheric pressure at sea level was also at the Russkaya station, with values reaching 937 hPa.
The Chilean Frei station (WMO 89056) recorded its first explosive cyclone this year. It is noteworthy that this is the first time in 27 years that a cyclone of this category has been recorded there so late. Since 1991 there have always been records of at least 1 explosive cyclone occurring there in the first four months of the year; however, this year the first event was noted nearly at the end of May.
During this year the station with the highest number of events has been Casey with 7 cases, followed by the Dumont D'Urville station with 4 cases, so far only Marambio, Halley and McMurdo have not yet registered any explosive cyclones.

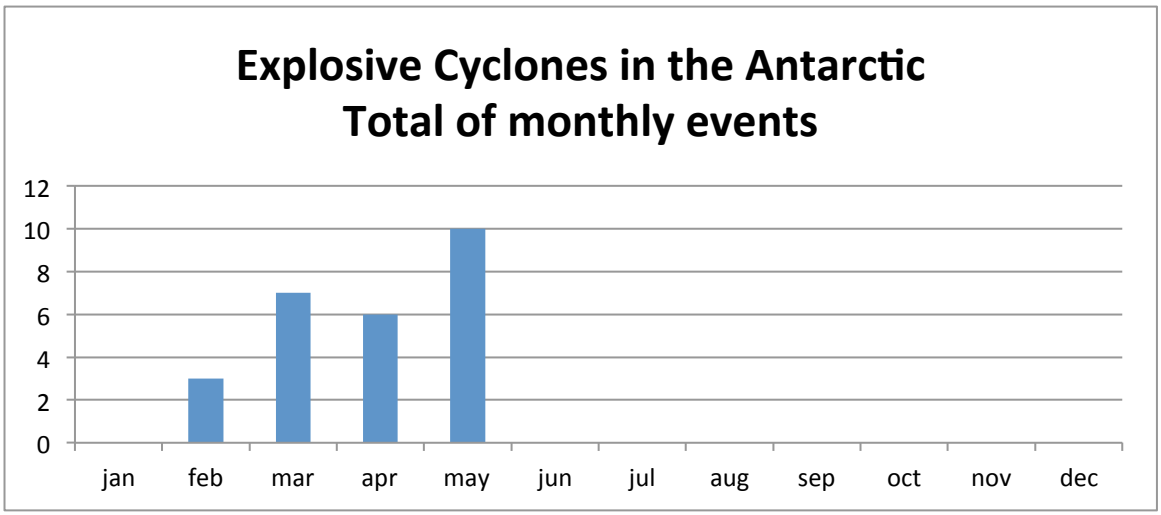
STATISTICS OF THE MONTH

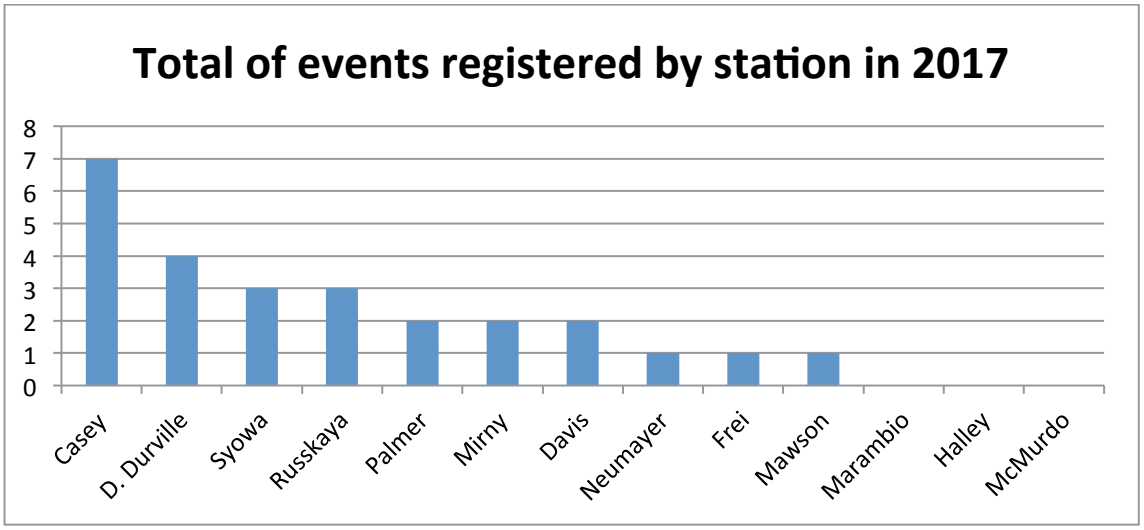
Classification	Bergeron Scale	Intensity	Total of cases registered in the month
B1	1 a 1.2	Weak	09
B2	1.3 a 1.8	Moderate	01
B3	>1.8	Strong	00

Highest pressure drop	Lowest recorded pressure	Highest sustained wind	Average minimum pressures	Mean of pressure drops
30.9 hPa/24H	937.0 hPa	88 m/s (196.85 mph)	959.3 hPa	26.3 hPa/24H
Russkaya Station	Russkaya Station	Russkaya Station		
May 21	May. 26	May 02		

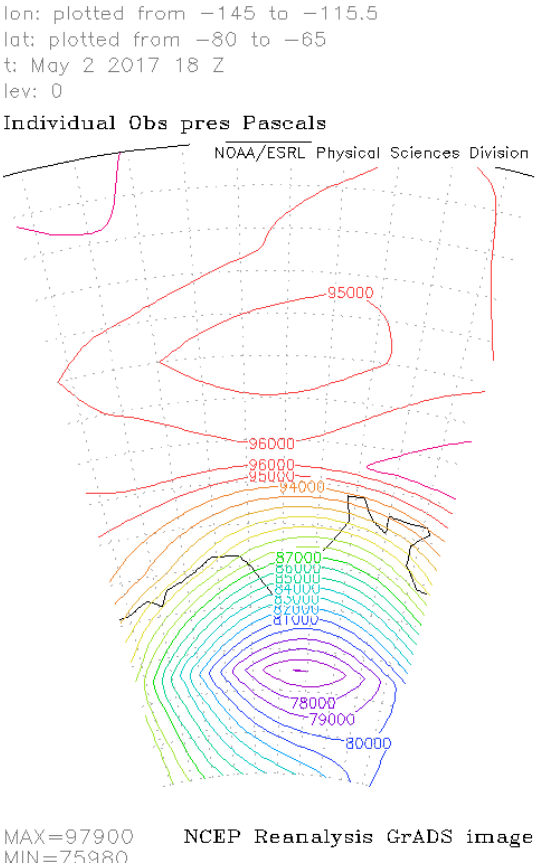

Events by Bergeron Scale in 2017
Weak (B1)
Moderate (B2)
Strong (B3)


Total of events registered in each station in the month of May/2017
4
3
2
1
0
Russkaya
Syowa
Casey
Frei
Davis
Mirny
Mawson
Dumon Durville
Halley
Marambio
Mc Murdo
Palmer
Neumayer


Explosive Cyclones in the Antarctic
Total of monthly events
12
10
8
6
4
2
0
jan
feb
mar
apr
may
jun
jul
aug
sep
oct
nov
dec

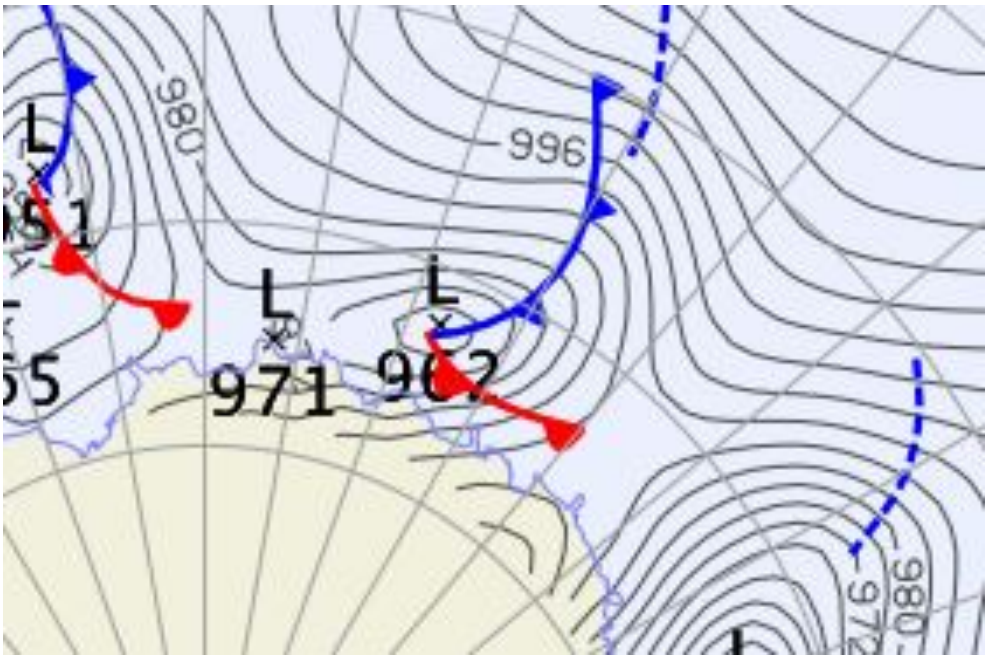


EXPLOSIVE CYCLONE Nº17/2017- DATA: 02/MAY/2017
LOCAL: RUSSKAYA STATION – WMO 89132 (OPERATED BY RUSSIA)



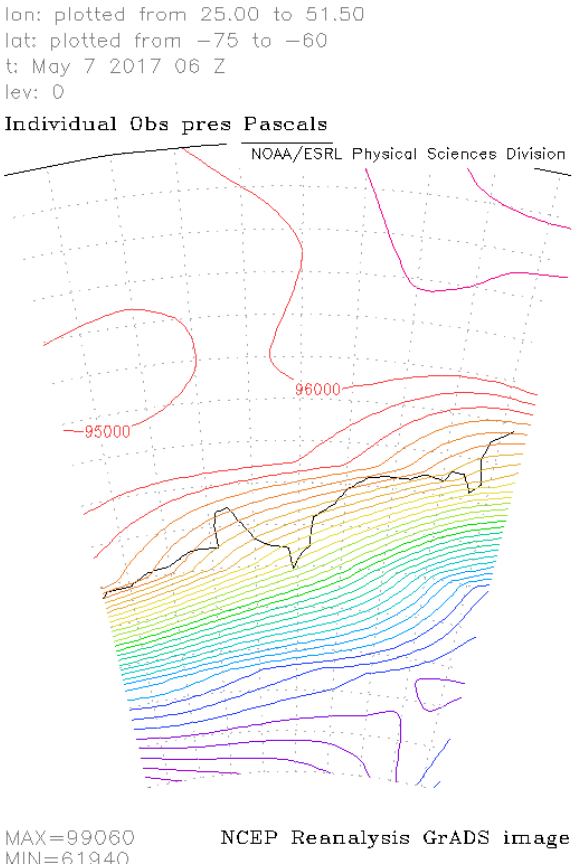
DROP OF PRESSURE IN 24H: 25.6 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 942.4 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 942.0 hPa
SUSTAINED MAXIMUM WIND: 88.0 m/s (197 mph)
BERGERON: 1.1 (WEAK)

EXPLOSIVE CYCLONE Nº18/2017- DATA: 02/MAY/2017
LOCAL: CASEY STATION – WMO 89611 (OPERATED BY AUSTRALIA)



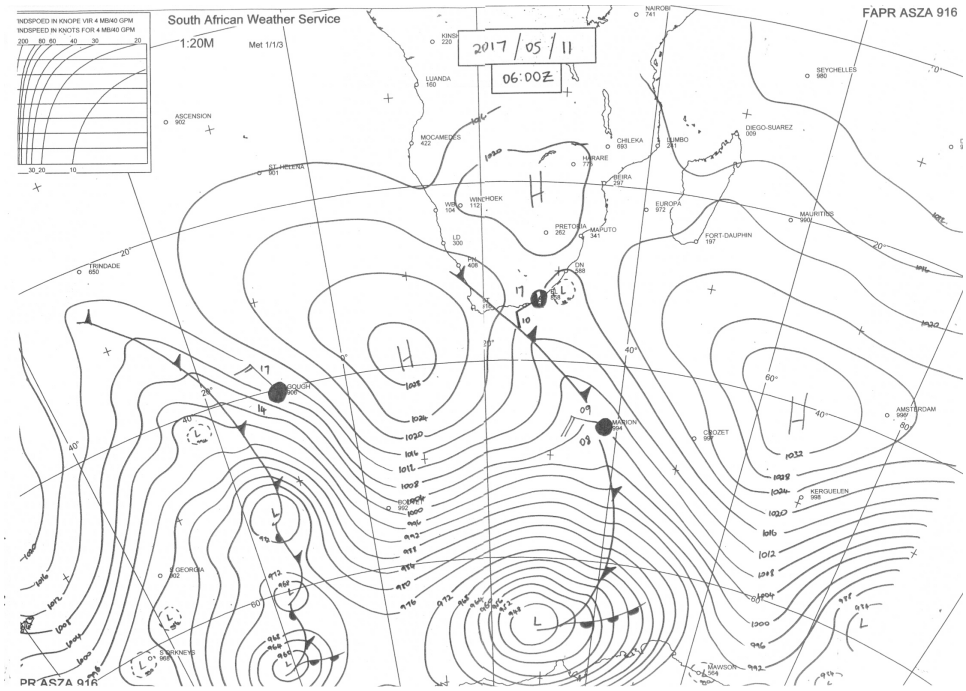
DROP OF PRESSURE IN 24H: 27.5 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 970.9 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 962 hPa
SUSTAINED MAXIMUM WIND: 32.0 m/s (72.0 mph)
MAXIMUM WIND GUST: 37.5 m/s (84.0 mph)
BERGERON: 1.1 (WEAK)

EXPLOSIVE CYCLONE Nº19/2017- DATA: 07/MAY/2017
LOCAL: SYOWA STATION –WMO 89532 (OPERATED BY JAPAN)



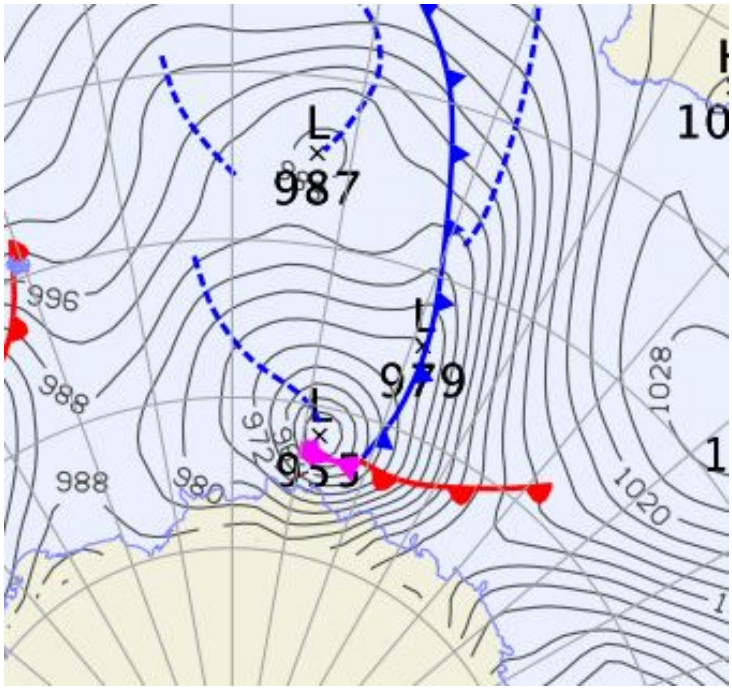
DROP OF PRESSURE IN 24H: 25.0 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 958.7 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 950.0 hPa
SUSTAINED MAXIMUM WIND: 25.5 m/s (57.0 mph)
BERGERON: 1.0 (WEAK)

EXPLOSIVE CYCLONE Nº20/2017- DATA: 11/MAY/2017
LOCAL: SYOWA STATION – WMO 89532 (OPERATED BY JAPAN)



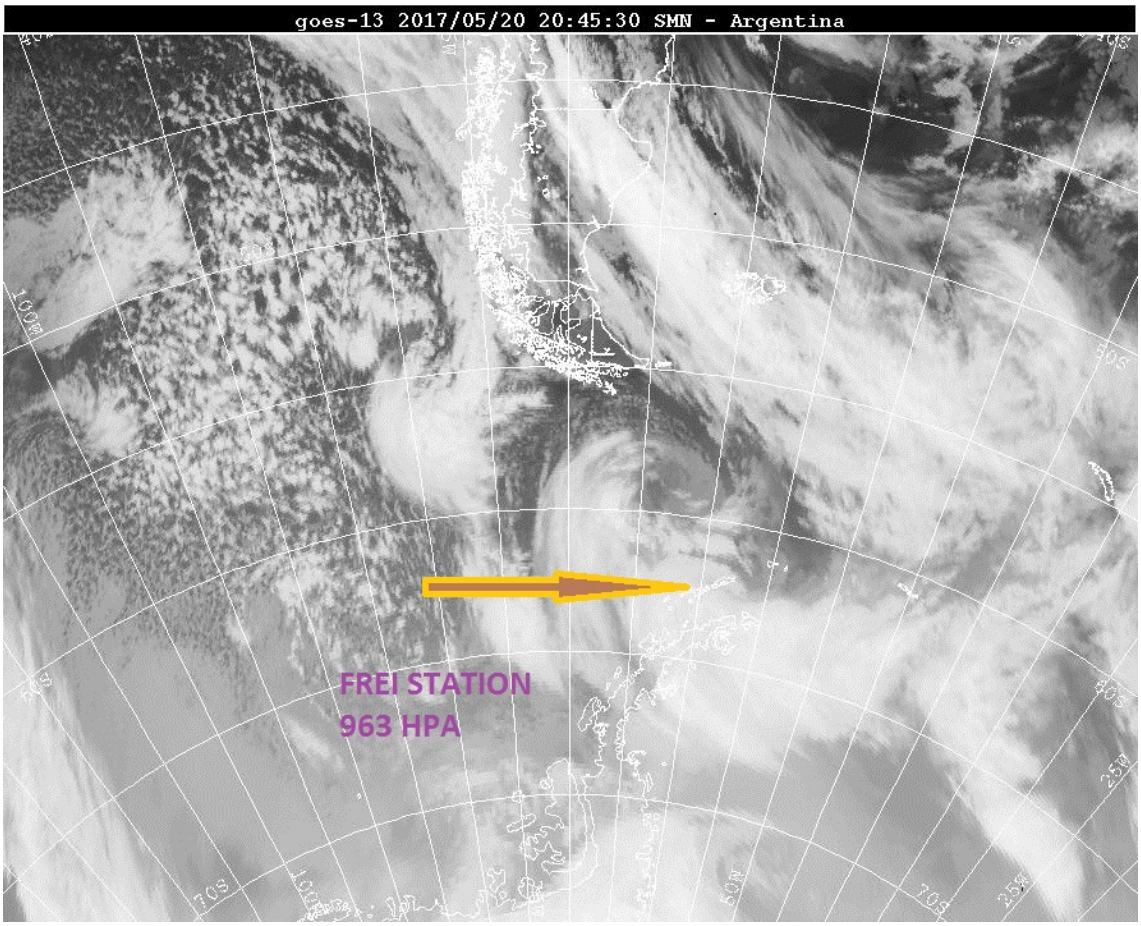
DROP OF PRESSURE IN 24H: 25.7 hPa
MINIMUM PRESSURE REGISTERED ON STATION: 960.1 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 955.0 hPa
SUSTAINED MAXIMUM WIND: 23.5 m/s (53 mph)
BERGERON: 1.1 (WEAK)

EXPLOSIVE CYCLONE Nº21/2017- DATA: 18/MAY/2017
LOCAL: CASEY STATION – WMO 89611 (OPERATED BY AUSTRALIA)



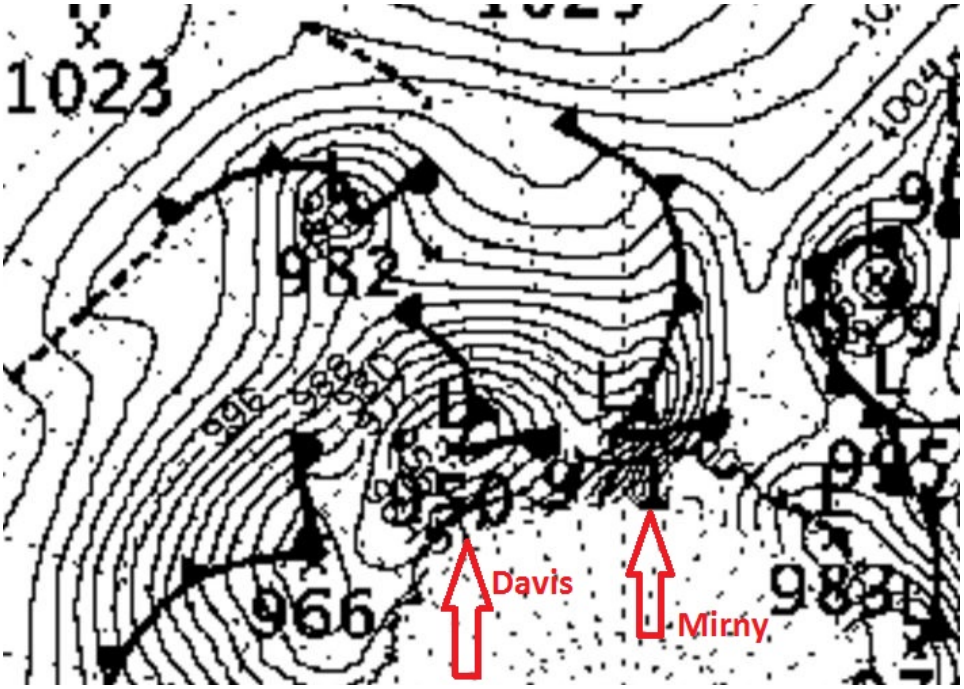
DROP OF PRESSURE IN 24H: 25.3 hPa
MINIMUM PRESSURE REGISTRED ON STATION: 972.0 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 955.0 hPa
SUSTAINED MAXIMUM WIND: 39.5 m/s (88.0 mph)
MAXIMUM WIND GUST: 51.5 m/s (115 mph)
BERGERON: 1.1 (WEAK)

EXPLOSIVE CYCLONE Nº22/2017- DATA: 21/MAY/2017
LOCAL: FREI STATION – WMO 89056 (OPERATED BY CHILE)



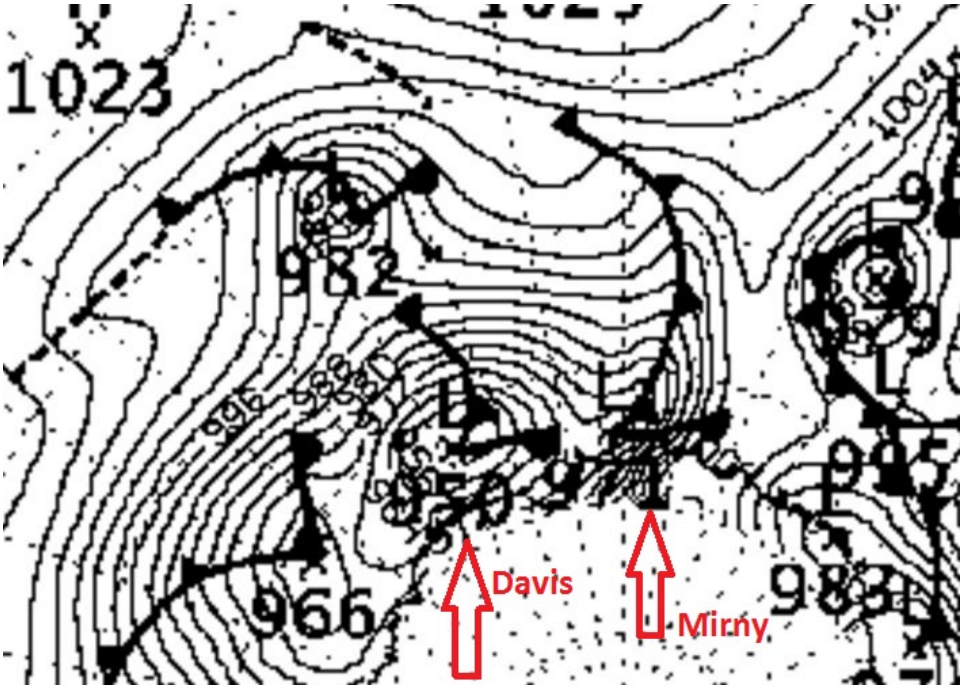
DROP OF PRESSURE IN 24H: 25.0 hPa
MINIMUM PRESSURE REGISTRED ON STATION: 963.0 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 963.0 hPa
SUSTINED MAXIMUM WIND: 17.0 m/s (38.0 mph)
MAXIMUM WIND GUST: 22.5 m/s (50 mph)
BERGERON: 1.0 (WEAK)

EXPLOSIVE CYCLONE Nº23/2017- DATA: 21/MAY/2017
LOCAL: MIRNY STATION – WMO 89592 (OPERATED BY RUSSIA)



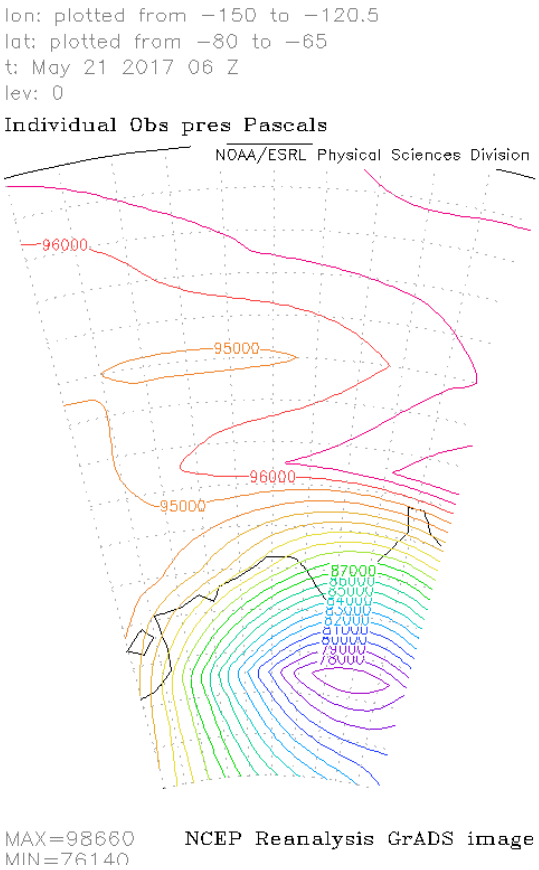
DROP OF PRESSURE IN 24H: 26.5 hPa
MINIMUM PRESSURE REGISTRED ON STATION: 978.9 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 971.0 hPa
SUSTINED MAXIMUM WIND: 14.0 m/s (31.0 mph)
MAXIMUM WIND GUST: 17.0 m/s (38 mph)
BERGERON: 1.1 (WEAK)

EXPLOSIVE CYCLONE Nº24/2017- DATA: 21/MAY/2017
LOCAL: DAVIS STATION – WMO 89571 (OPERATED BY AUSTRALIA)



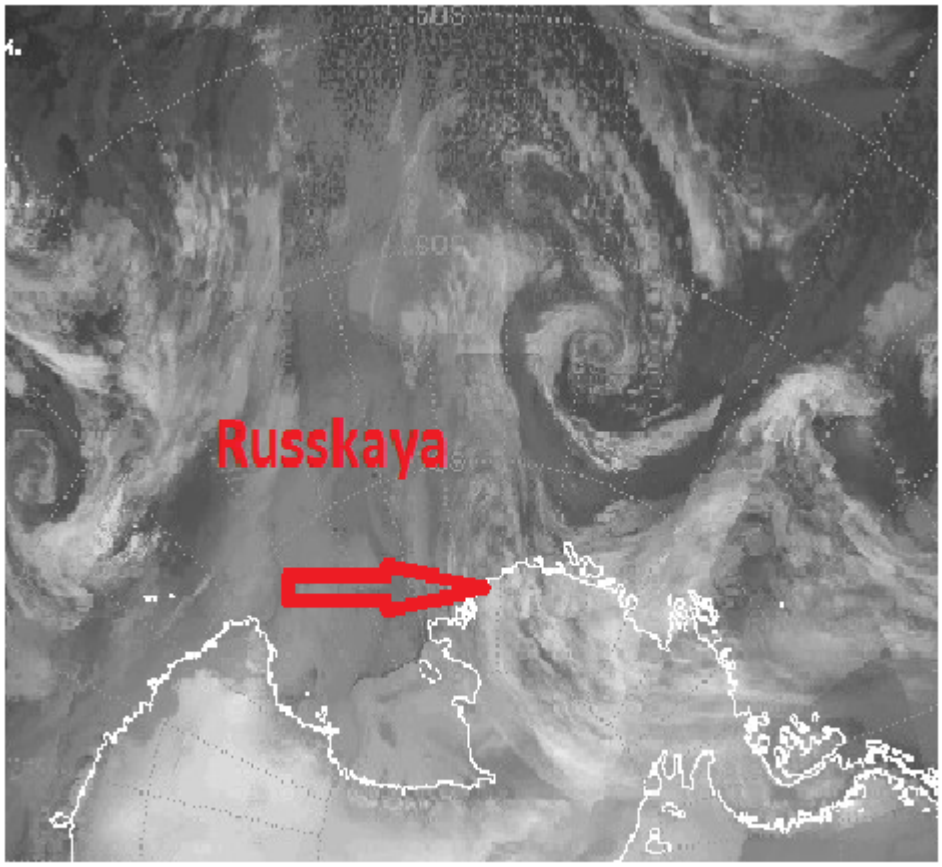
DROP OF PRESSURE IN 24H: 25.5 hPa
MINIMUM PRESSURE REGISTRED ON STATION: 968.2 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 950.0 hPa
SUSTINED MAXIMUM WIND: 18.5 m/s (41.0 mph)
MAXIMUM WIND GUST: 35.0 m/s (78 mph)
BERGERON: 1.1 (WEAK)

EXPLOSIVE CYCLONE Nº25/2017- DATA: 21/MAY/2017
LOCAL: RUSSKAYA STATION – WMO 89132 (OPERATED BY RUSSIA)



DROP OF PRESSURE IN 24H: 30.9 hPa
MINIMUM PRESSURE REGISTRED ON STATION: 942.0 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 942.0 hPa
SUSTINED MAXIMUM WIND: 33.0 m/s (74.0 mph)
BERGERON: 1.3 (MODERATE)

EXPLOSIVE CYCLONE Nº26/2017- DATA: 26/MAY/2017
LOCAL: RUSSKAYA STATION – WMO 89132 (OPERATED BY RUSSIA)



DROP OF PRESSURE IN 24H: 25.7 hPa
MINIMUM PRESSURE REGISTRED ON STATION: 937.0 hPa
MINIMUM PRESSURE ESTIMATED IN THE CYCLONE CORE: 937.0 hPa
SUSTINED MAXIMUM WIND: 85.0 m/s (190.0 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