

# **International Polar Year 2007-2008 DATABASE**

## **CATALOGUE OF THE MEAN SEA LEVEL PRESSURE FIELDS RANGED BY THEIR PROBABILITY**

(West Antarctic Sector)

(As First Results of IPY project # 1151 'Analysis of the transformation of large-scale atmospheric circulation of the troposphere in the Southern hemisphere in consequence of the climate warming impact for development of the physical-statistical methods of weather at Antarctic Peninsula'), Supervisor Prof. V. Martazinova

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For both austral summer (DJF) and winter (JJA) figures are organized as follows:

1. **The most probable mean sea level pressure fields, decades 1971-1980, 1981-1990, 1991-2000 and 2001-2007;**
2. **Monthly Fields, 1991-2000:**
  - Most Probable Fields (First probability class);
  - Second probability class;
  - Raremost class;
3. **Winter, Individual years' Monthly Most Probable Fields**

#### **Method (References):**

Tymofeyev V., 2009 On the role of tropospheric circulation in the recent climate change in the Antarctic Peninsula Region. Bulletin of Geography - Physical Geography Series (Poland), N 1, 2009, p. 63-75.

Martazinova V., Tymofeyev V., 2007: Interdecadal changes of tropospheric circulation in Southern extratropics during the recent warming in the Antarctic Peninsula (U.S. Geological Survey and The National Academies; USGS OF-2007-1047. Extended Abstract.067)

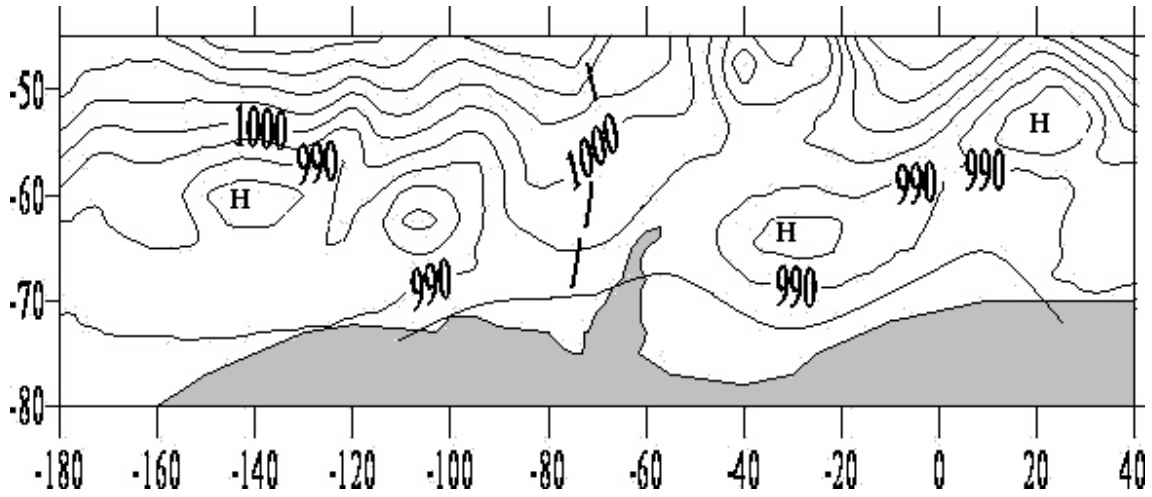
Martazinova V.F., 2005: The classification of synoptic Patterns by Method of Analogs, J. Environ. Sci. Eng., 7, 61-65.

Data: ERA-40, ECMWF (1971-2002), NCEP-NCAR (2003- currently)

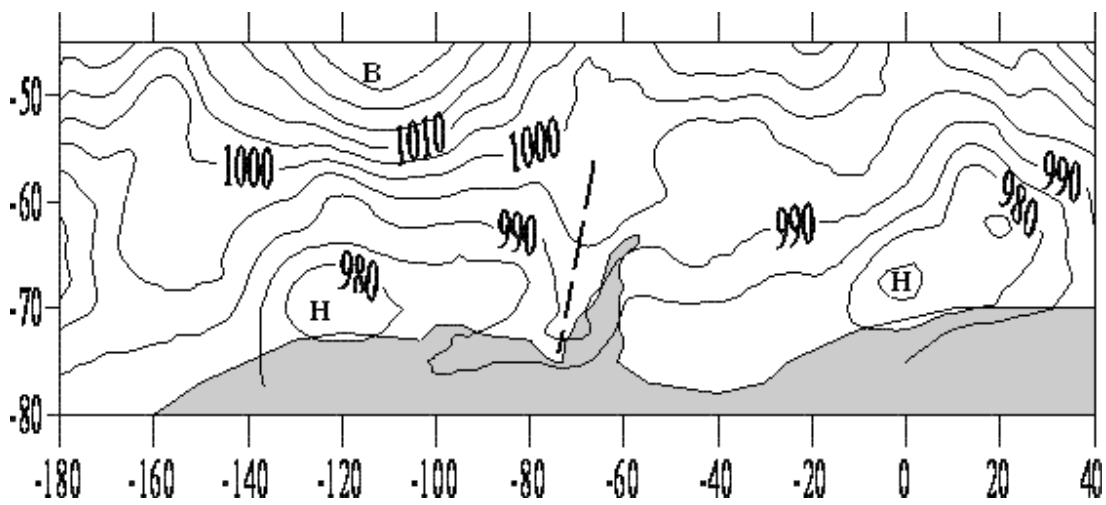
AUSTRAL SUMMER (DJF)

1. The most probable mean sea level pressure fields (hPa), January, decades 1971-1980, 1981-1990, 1991-2000, and 2001-2007.

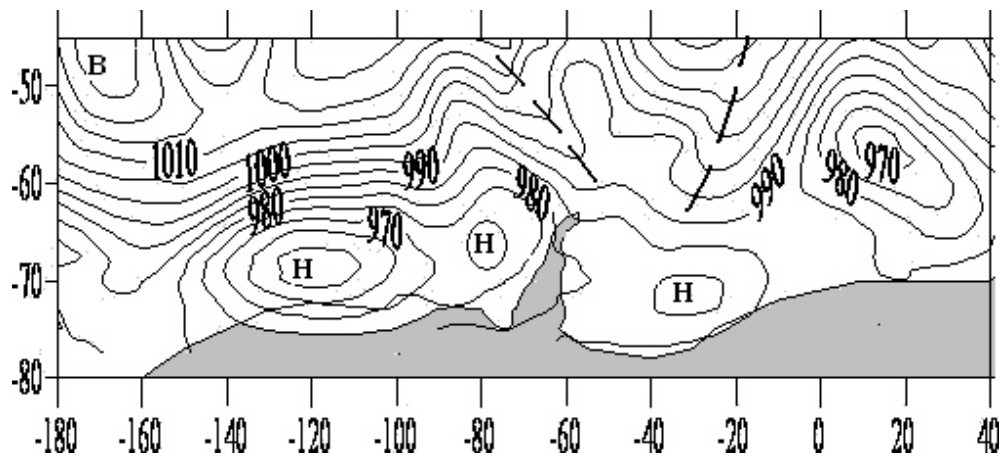
1971-1980



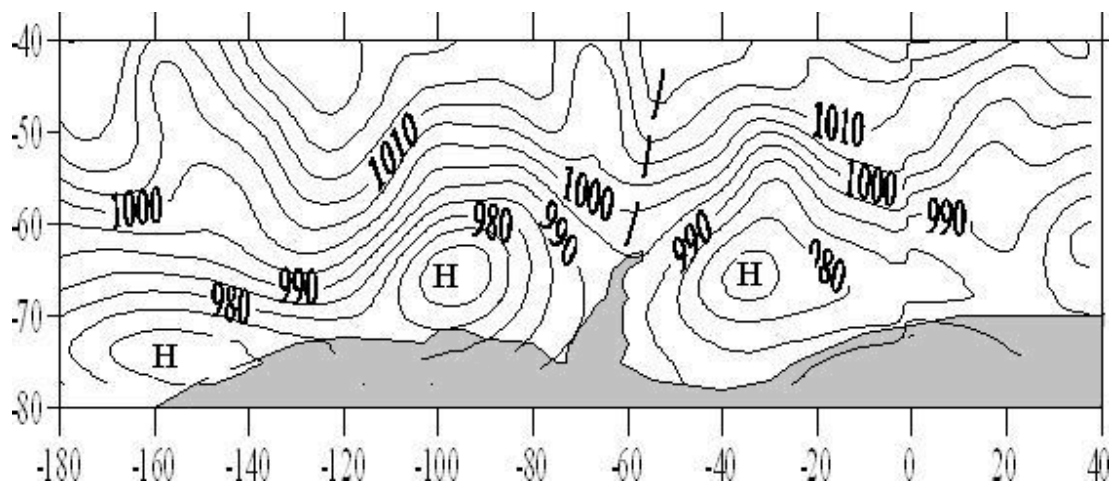
1981-1990



1991-2000



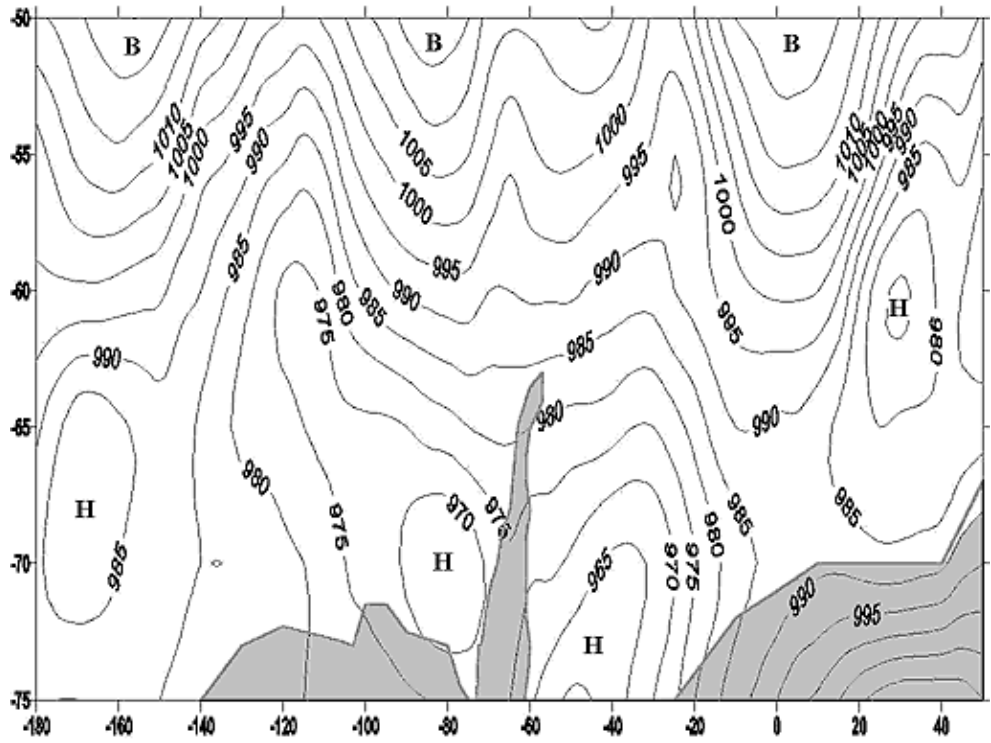
2001-2007



Note: Here 'H' means Low Center, and 'B' - High Center! - still not adopted to English.



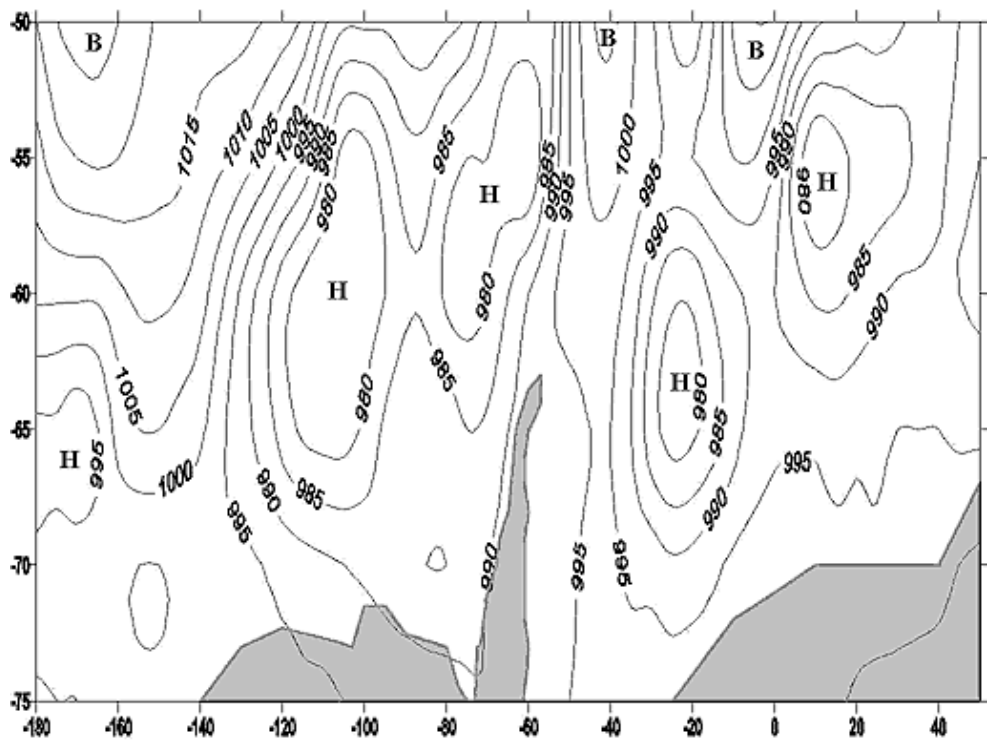
February



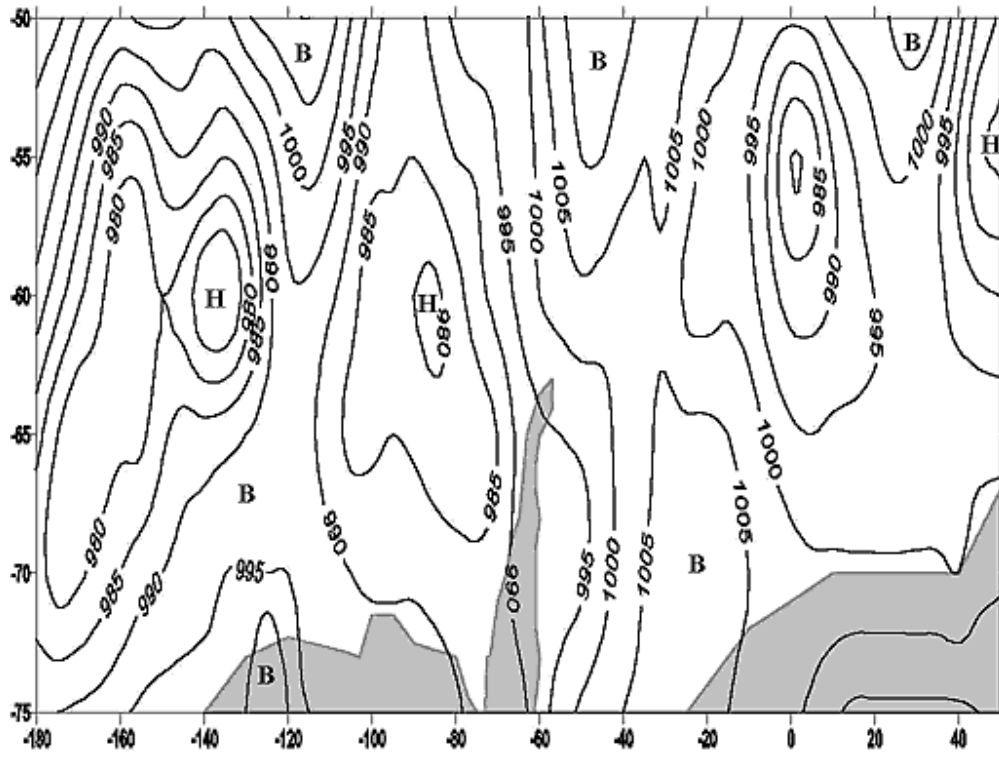
Skill probability: December 78%, January 88,7%, and February (93.6%).

### AUSTRAL SUMMER, MONTHLY FIELDS IN 1991-2000 SECOND PROBABILITY CLASS

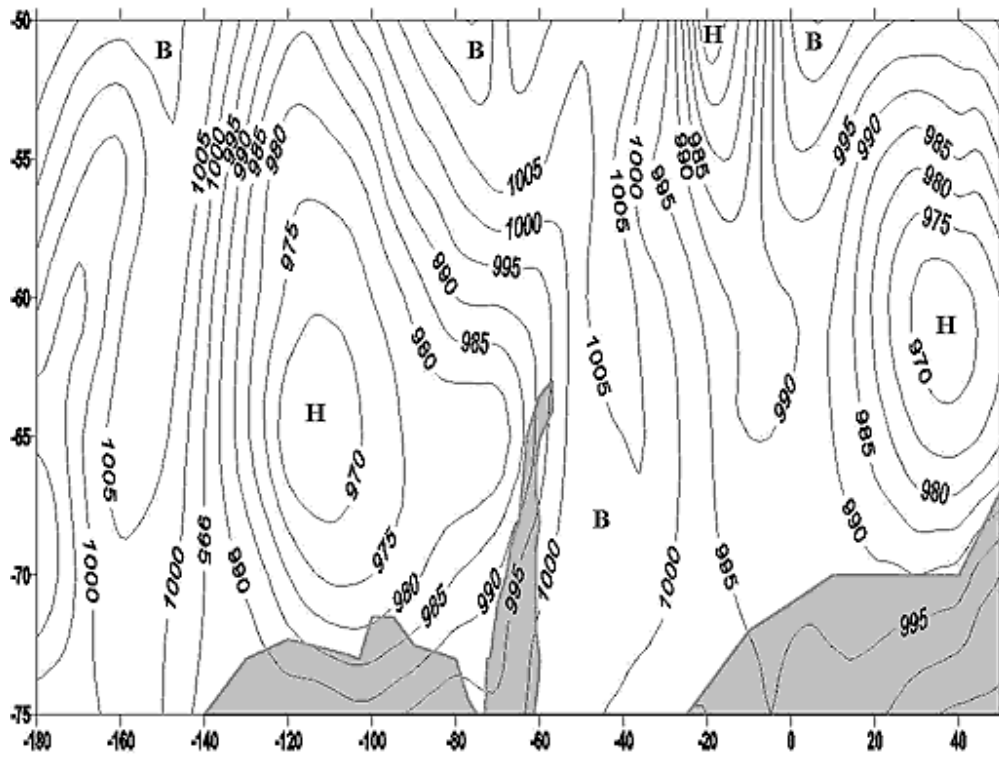
December



January

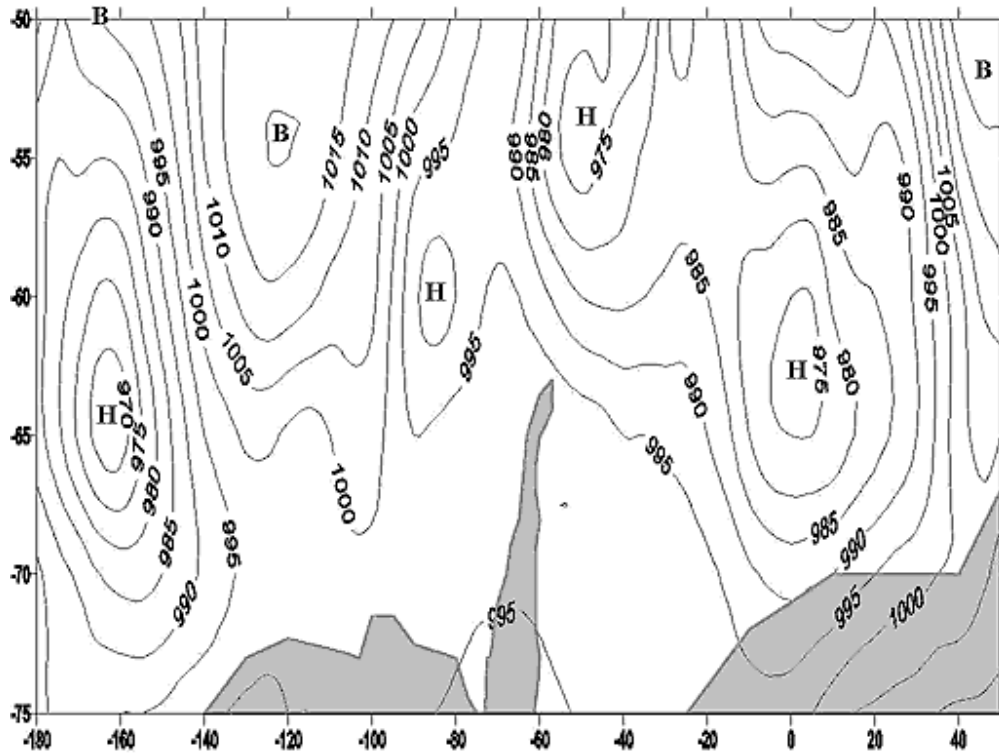
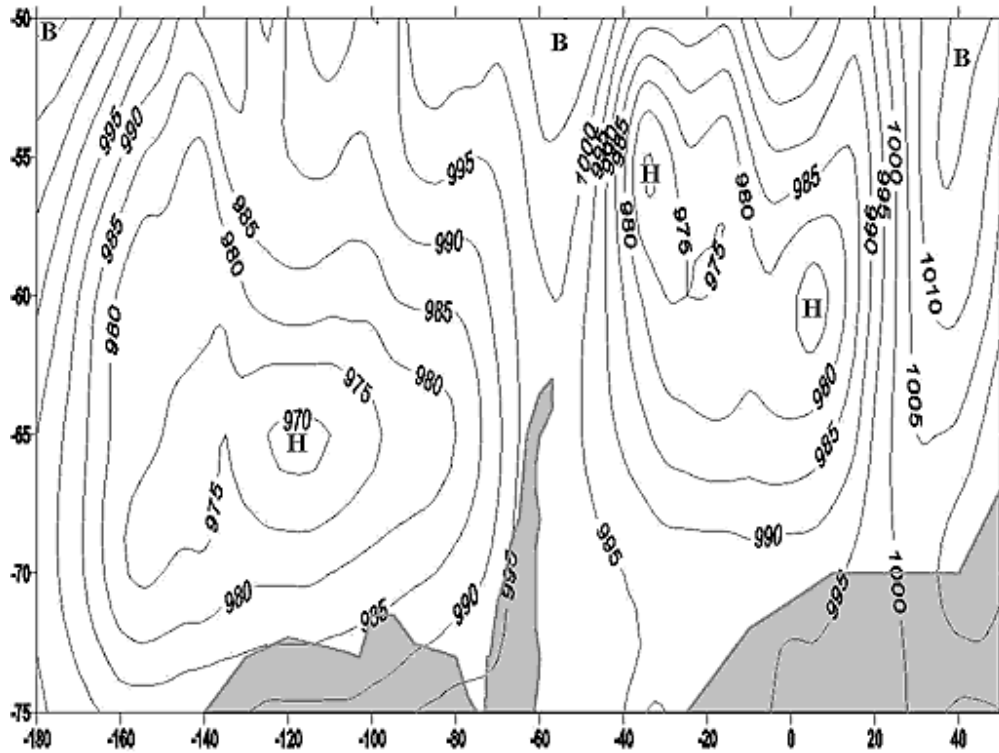


February



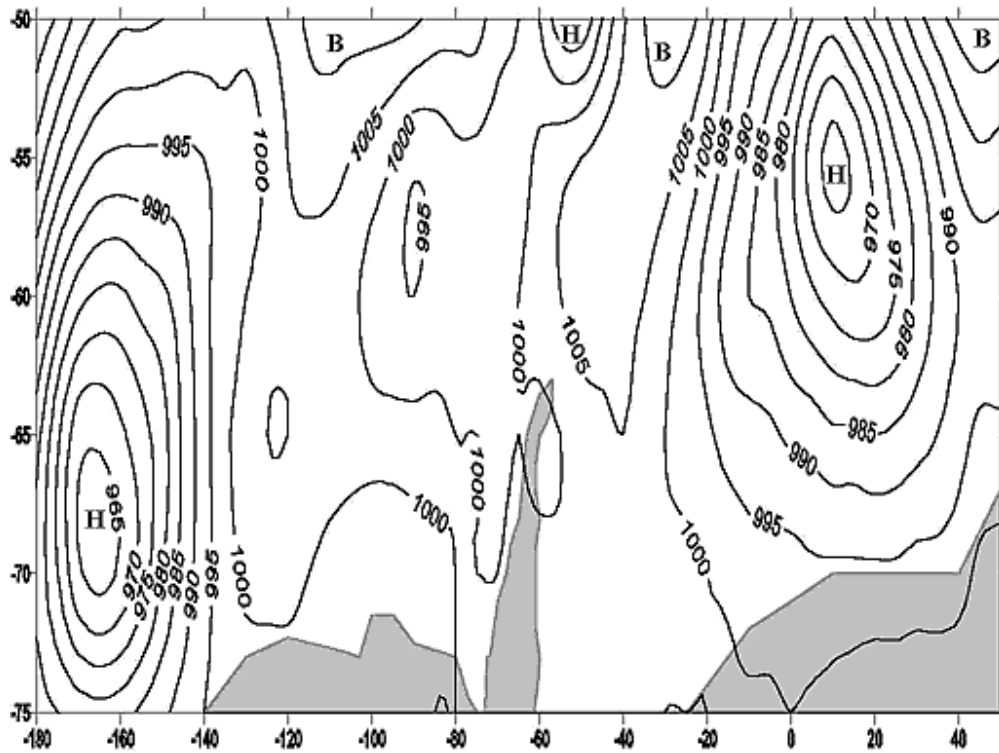
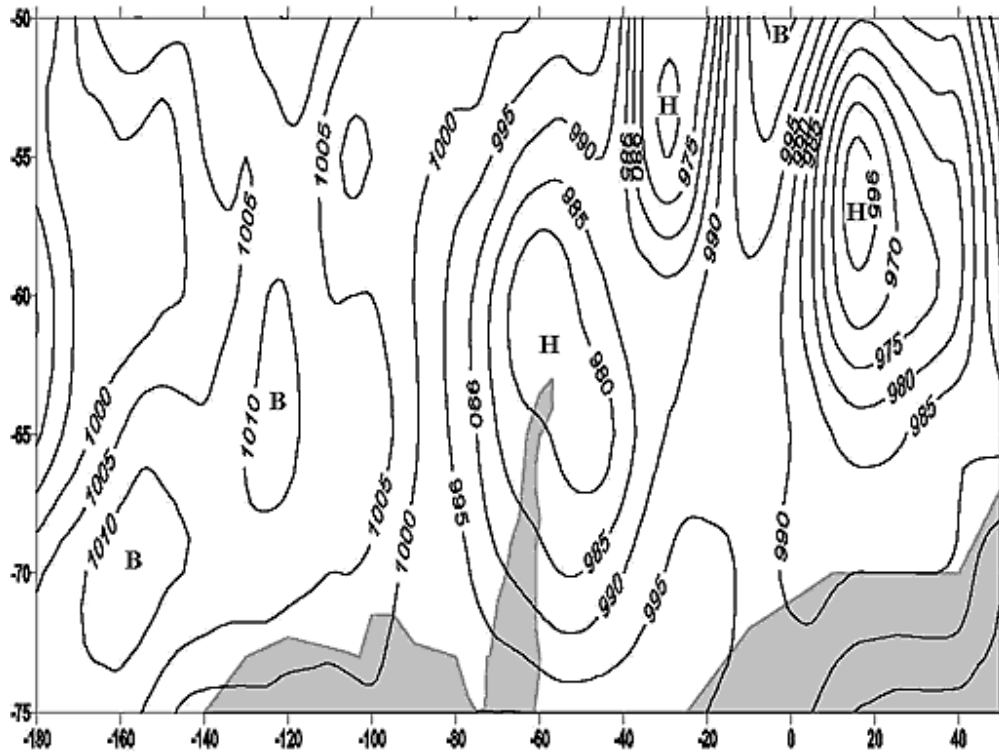
Skill probability: December - 9.7%, January 7,4% February 6,4%

**AUSTRAL SUMMER, MONTHLY FIELDS IN 1991-2000  
RAREMOST PROBABILITY CLASS  
DECEMBER - 2 fields:**



December, skill probability 7.9%, and 4.5%.

**JANUARY - 2 fields:**



**January, skill probability 2.9%, and 1%, 1991-2000**

**FEBRUARY:**

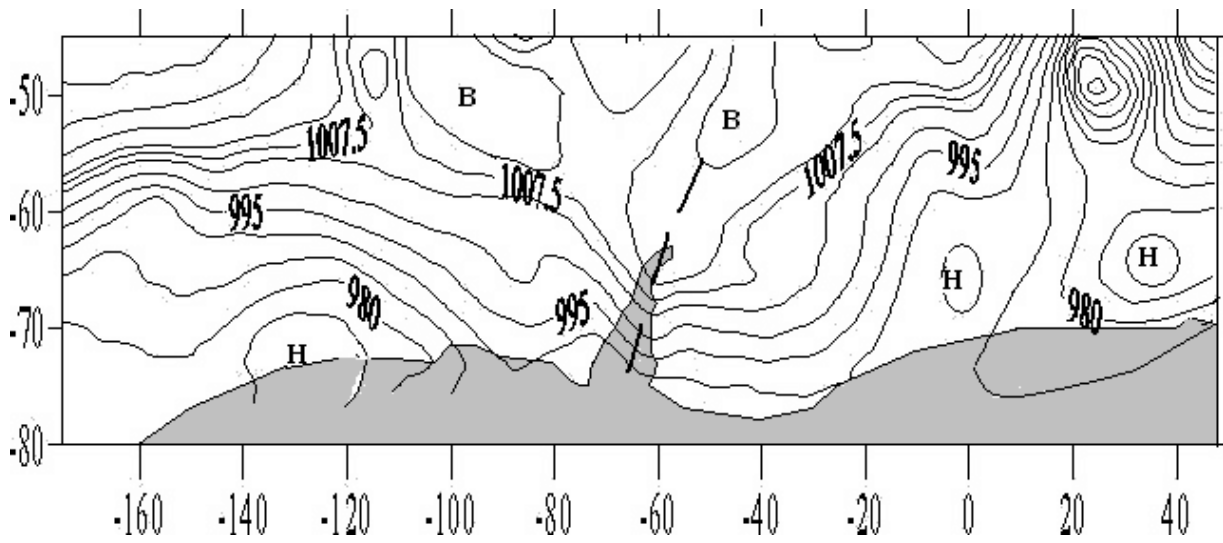
No raremost MSLP fields are distinguished for February.

**AUSTRAL WINTER (JJA)**

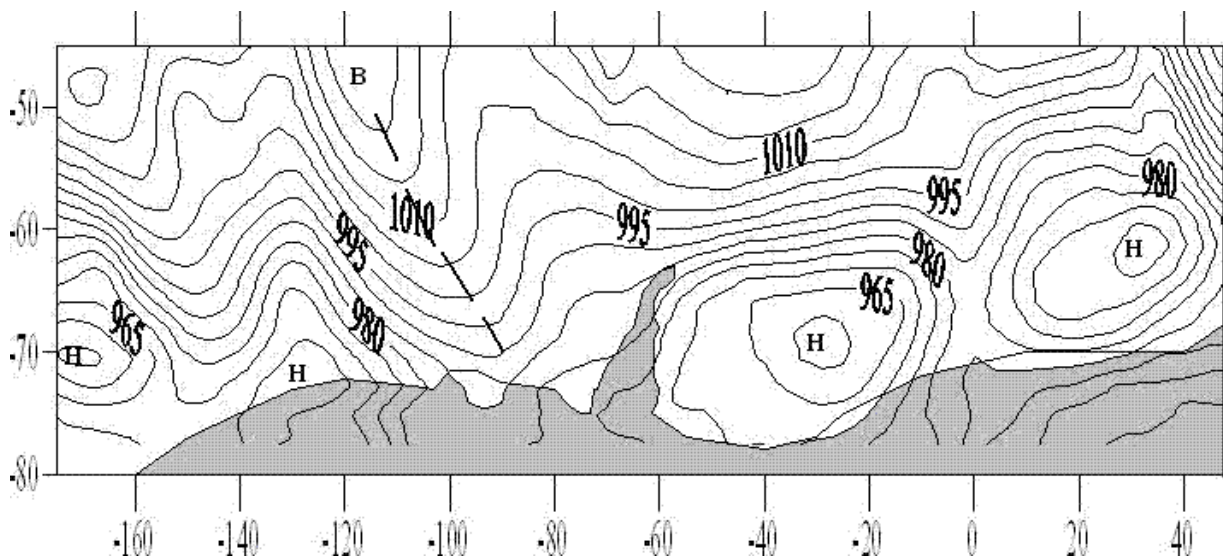
**INDIVIDUAL DECADES, MOST PROBABLE FIELDS**

2. The most probable mean sea level pressure fields, July, decades 1971-1980, 1981-1990, 1991-2000 and 2001-2007.

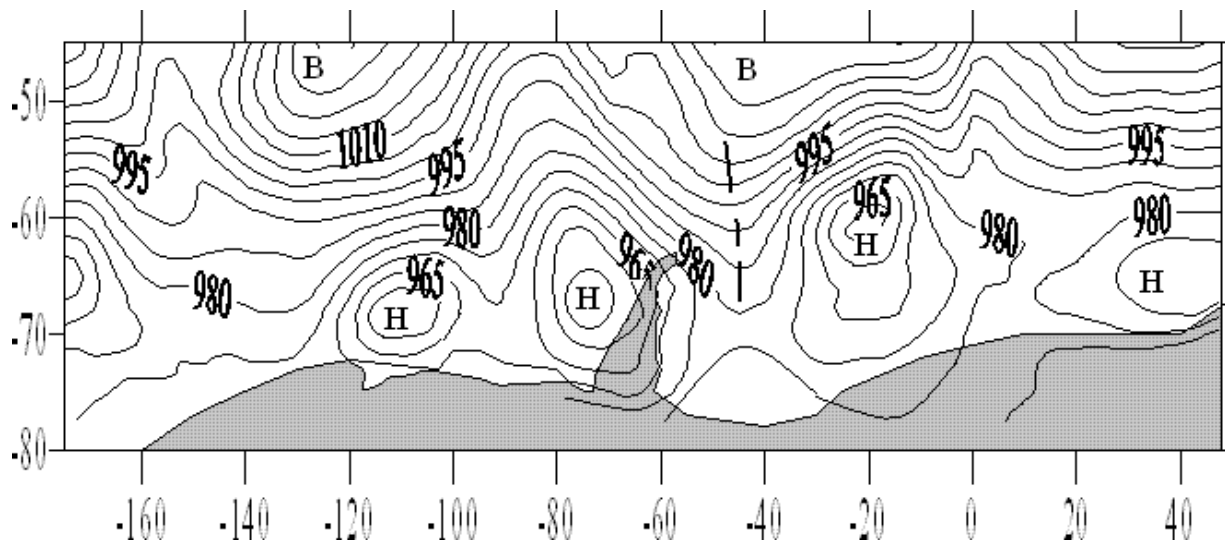
1971-1980



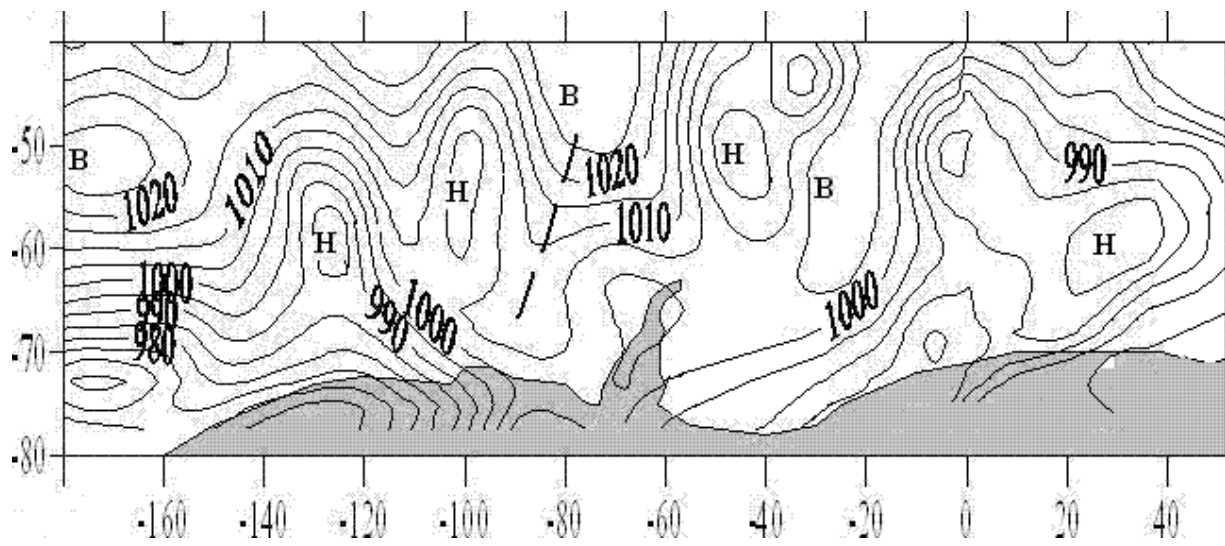
1981-1990



1991-2000



2001-2007

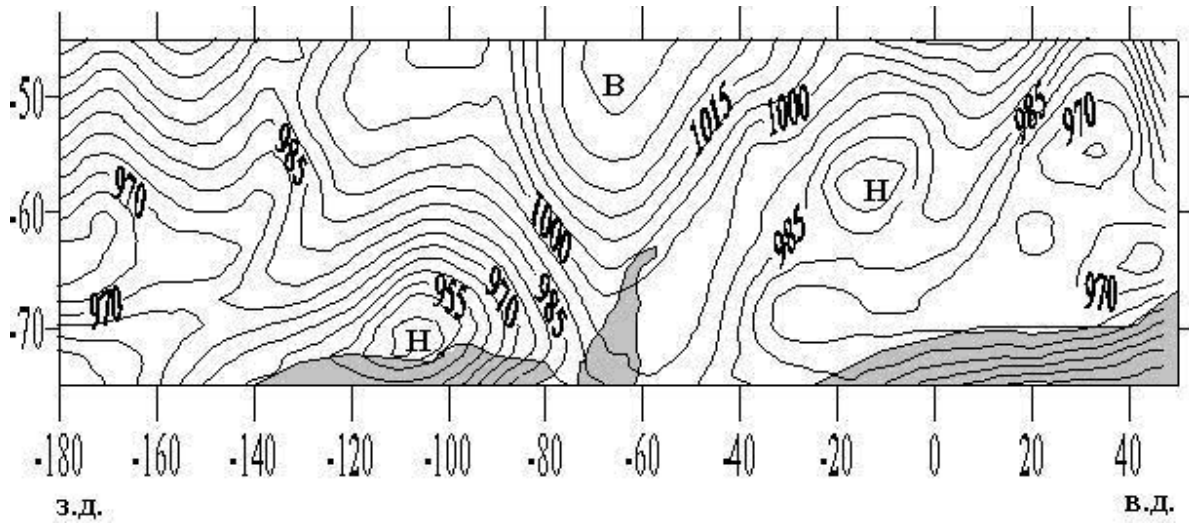


Note: Here also 'H' means Low Center, and 'B' - High Center! - still not adopted to English.

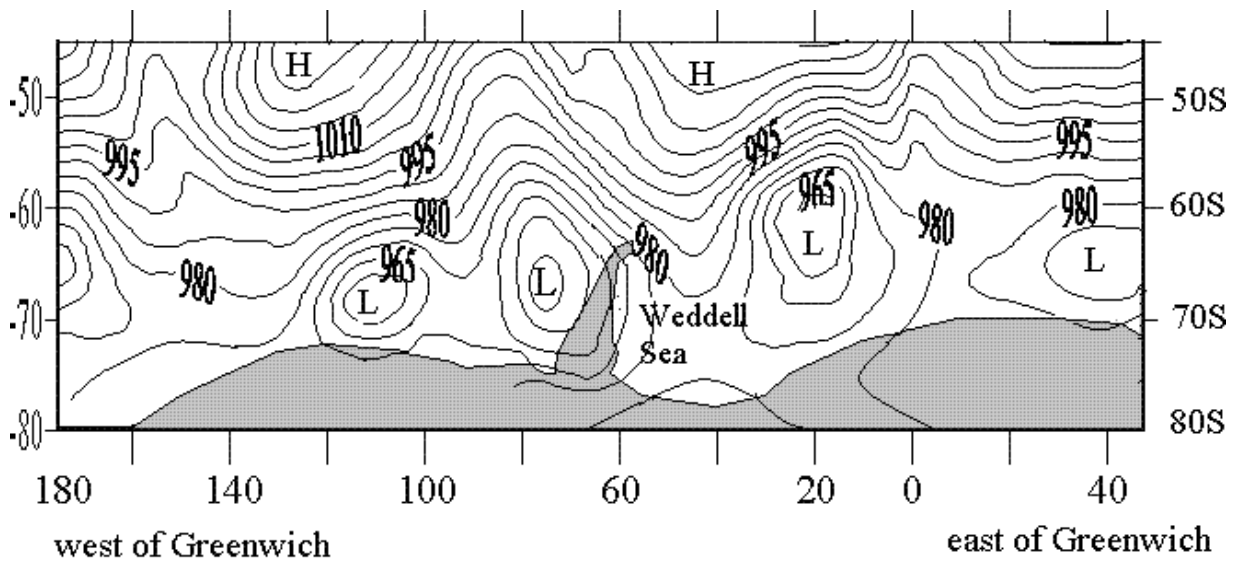
# WINTER, MONTHLY MOST PROBABLE FIELDS

Decade 1991-2000

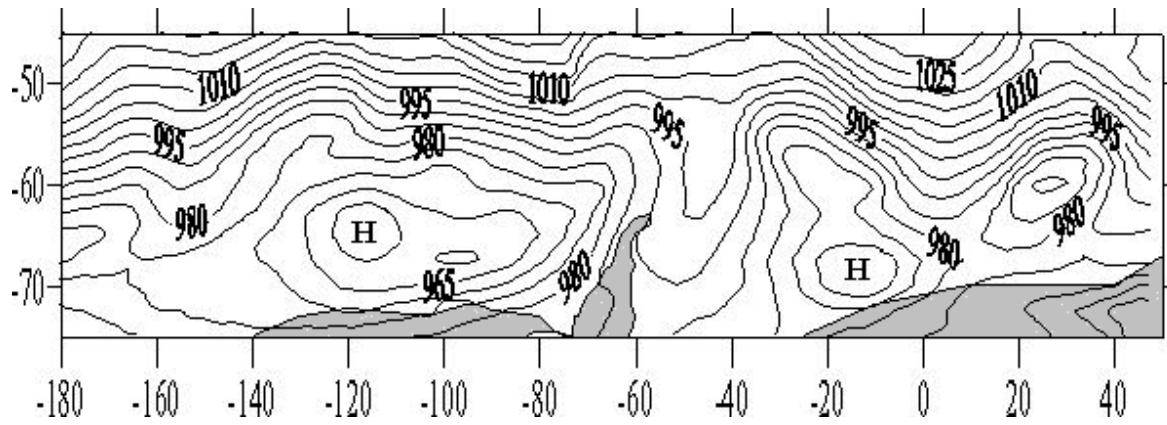
June



July



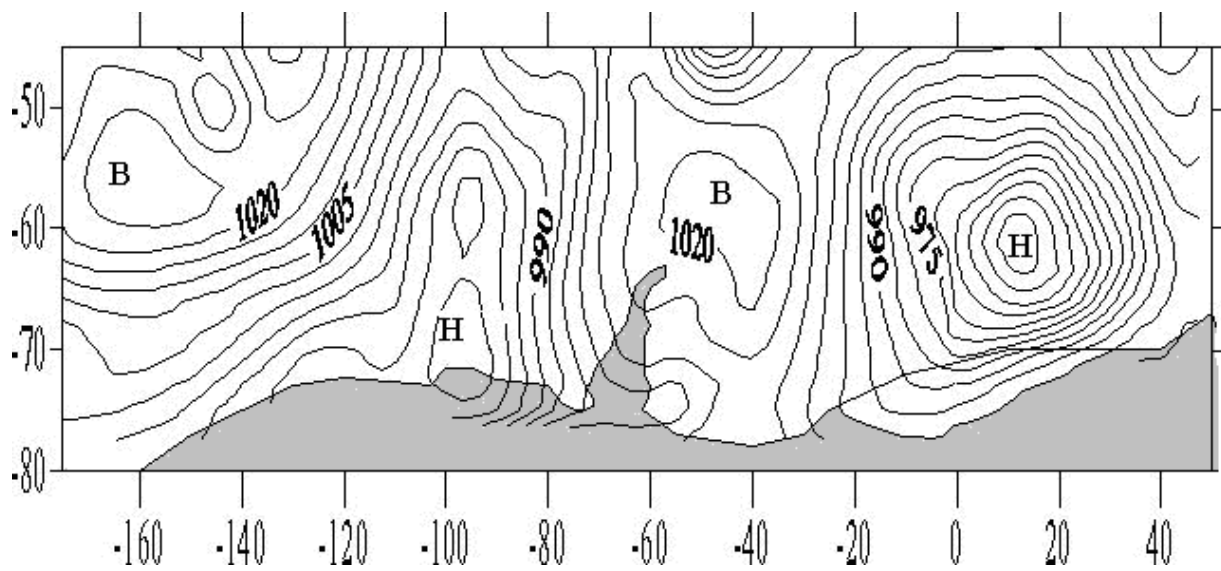
August



**Skill probability: June 62% , July 67%, August 72%.**

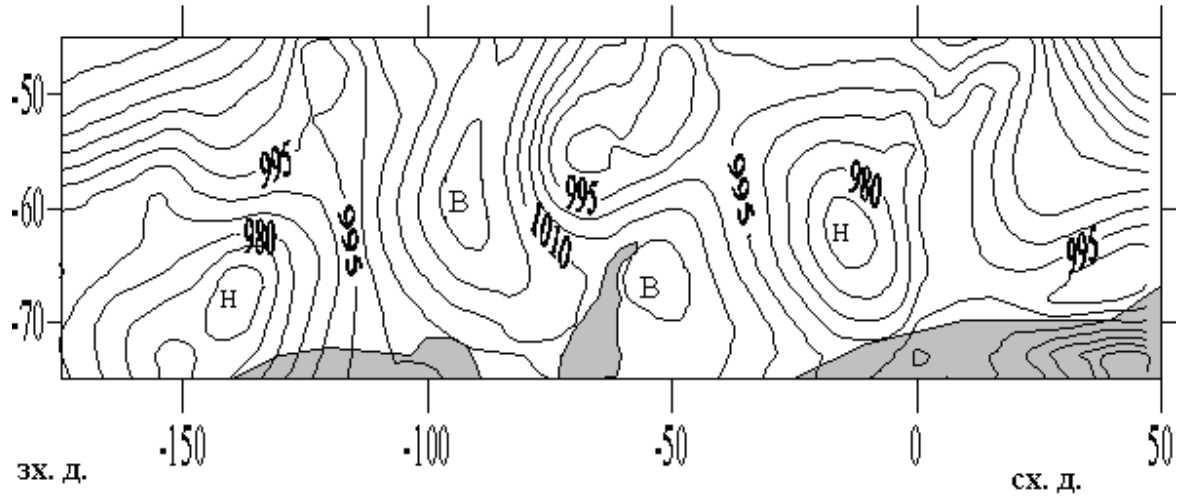
**WINTER MONTHS, Decade 1991-2000, SECOND PROBABILITY CLASS**

June

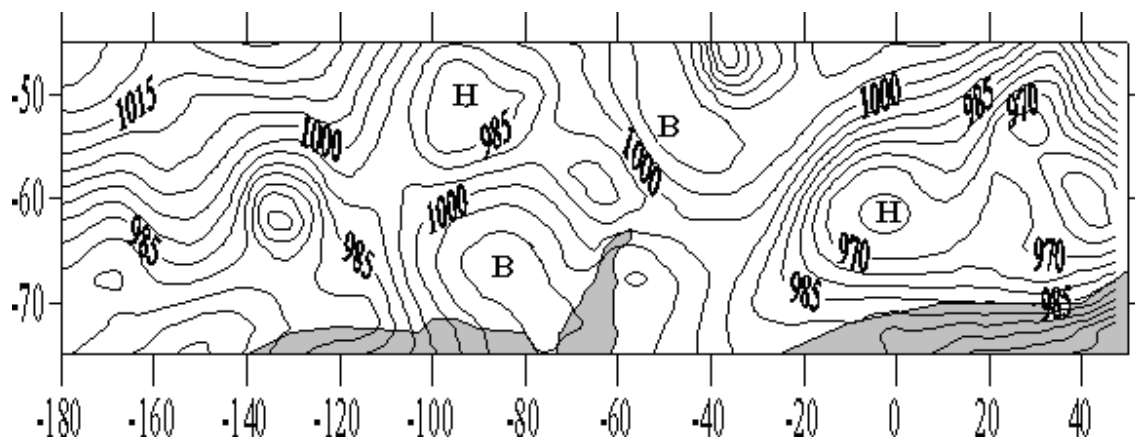


July

ГД. III.



August

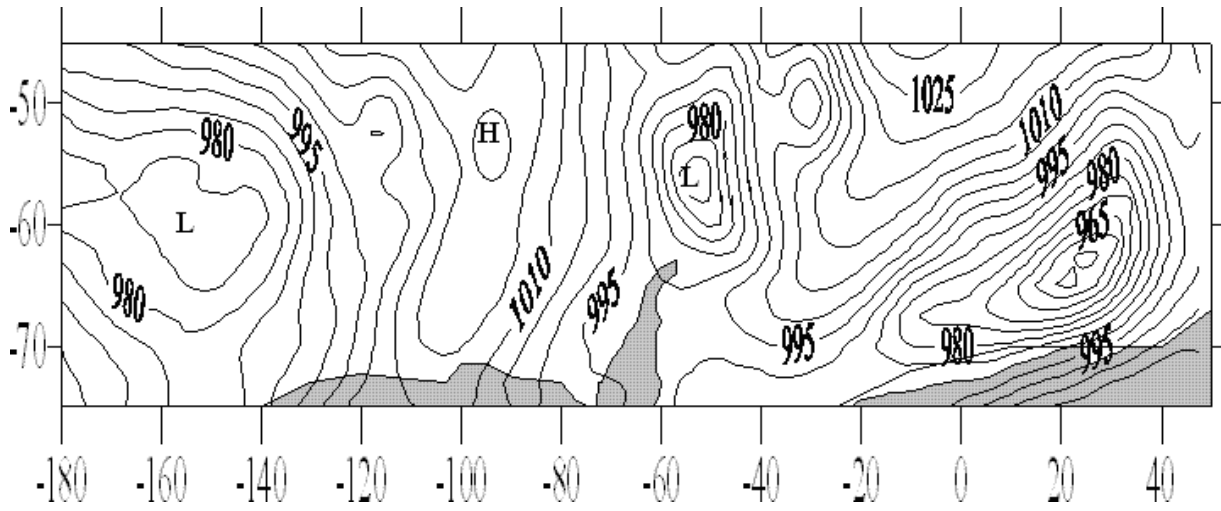


Skill probability: June 31%, July 23%, August 19%.

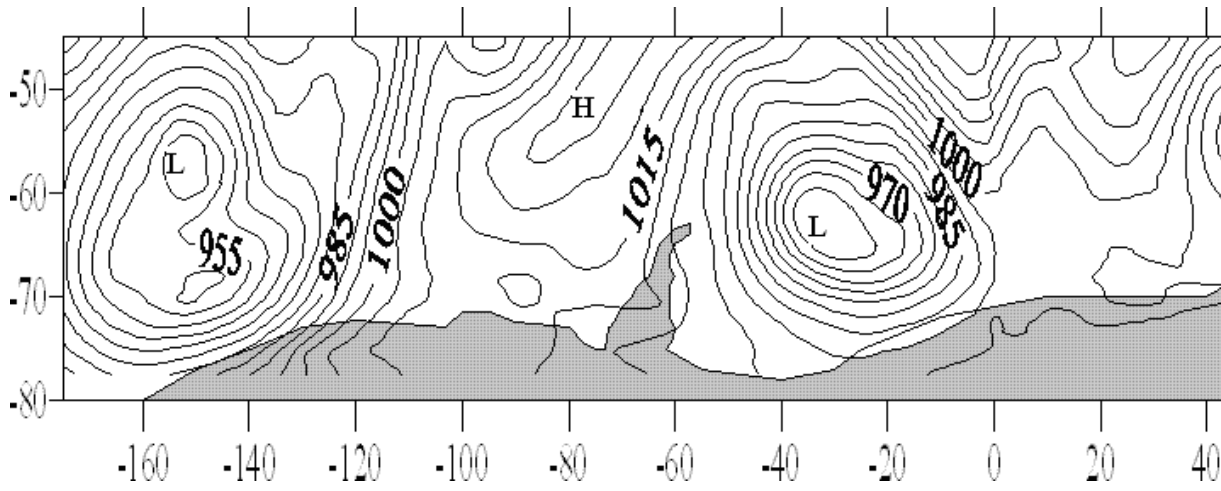
**WINTER, Decade 1991-2000, RAREMOST PROBABILITY CLASS  
JUNE (3 MSLP fields):**

(English abbreviations for Low and High Centers are used)

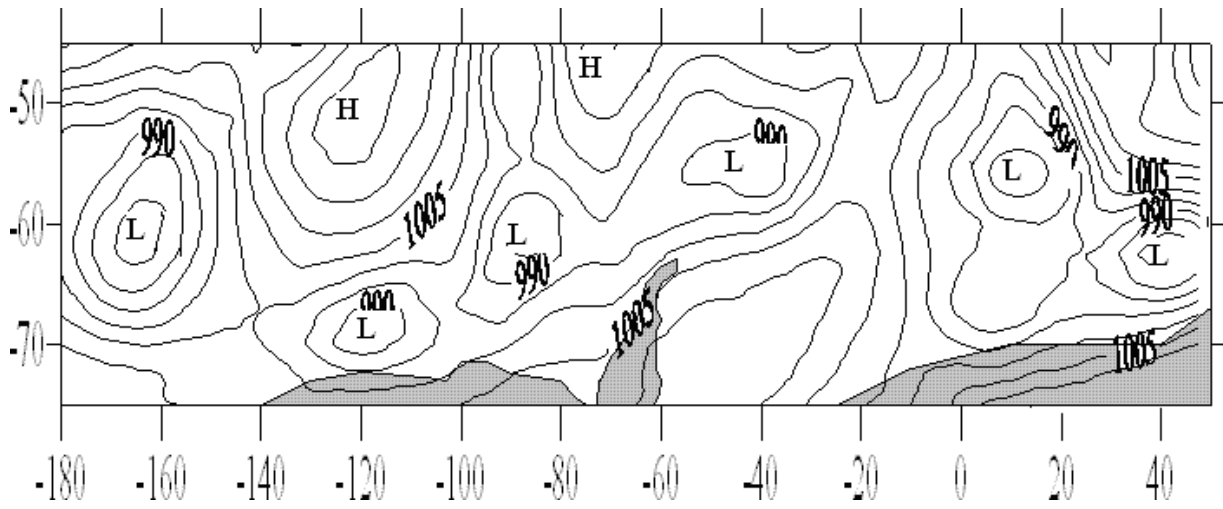
June-1



June-2

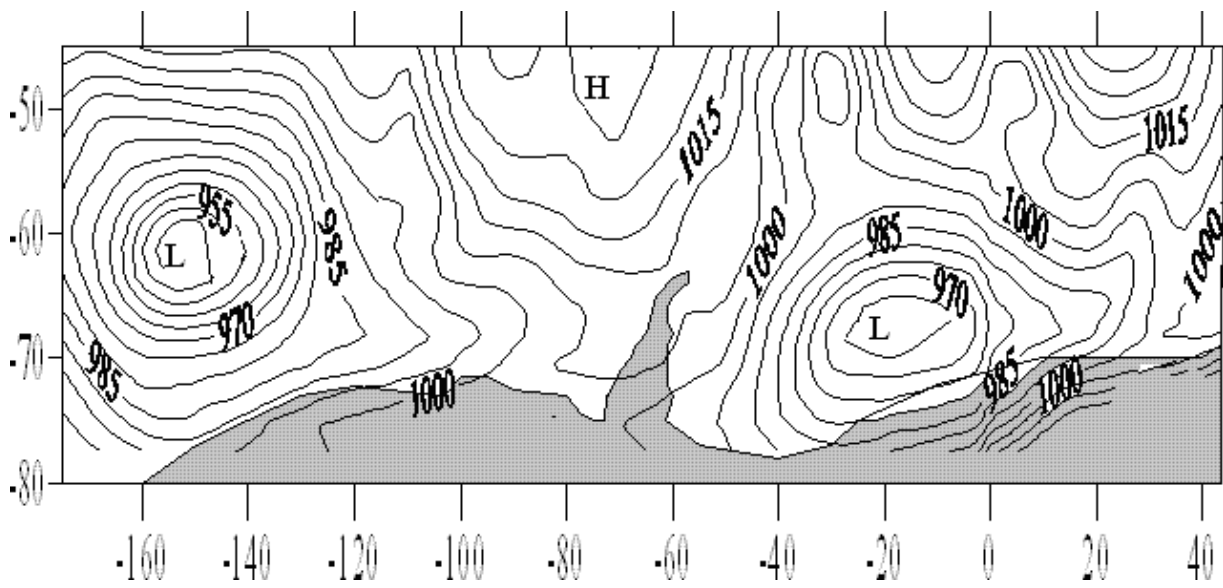


June-3

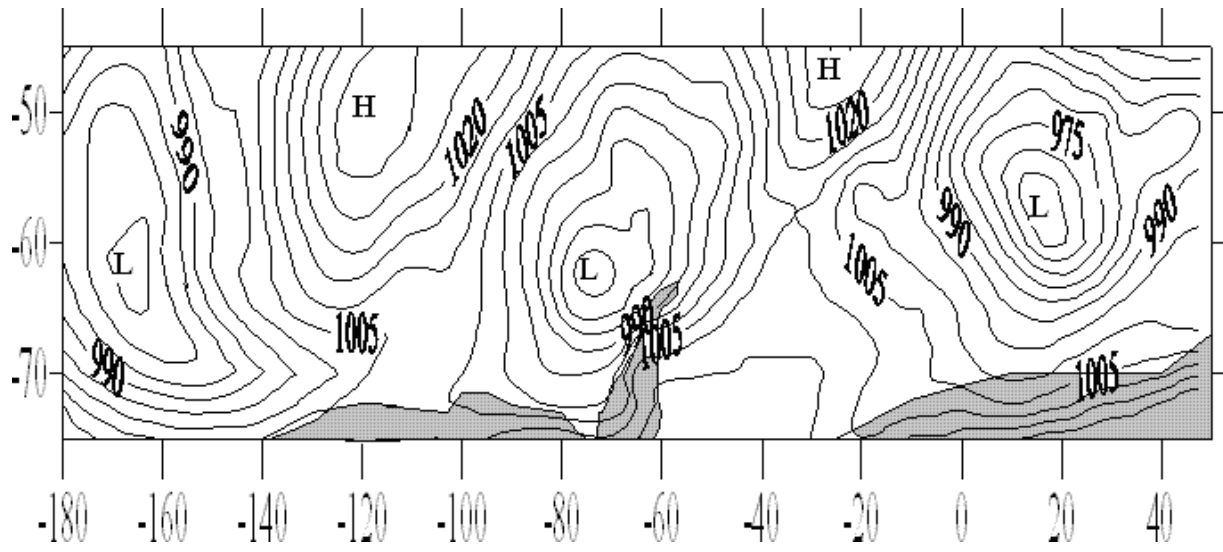


**JULY - rarest (2 MSLP fields):**

July-1

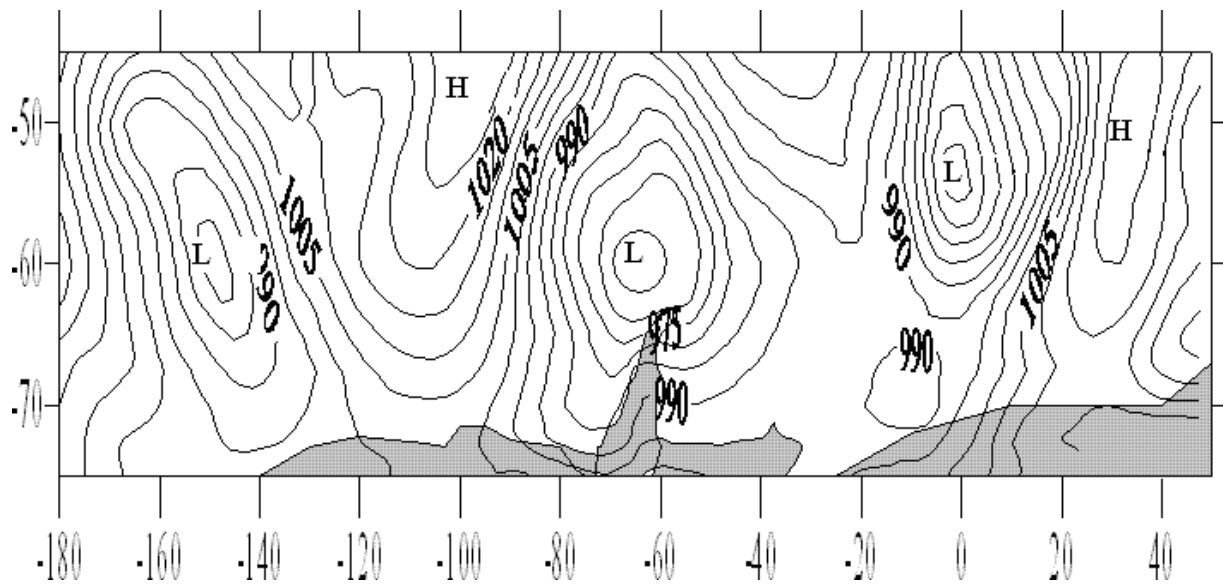


July-2

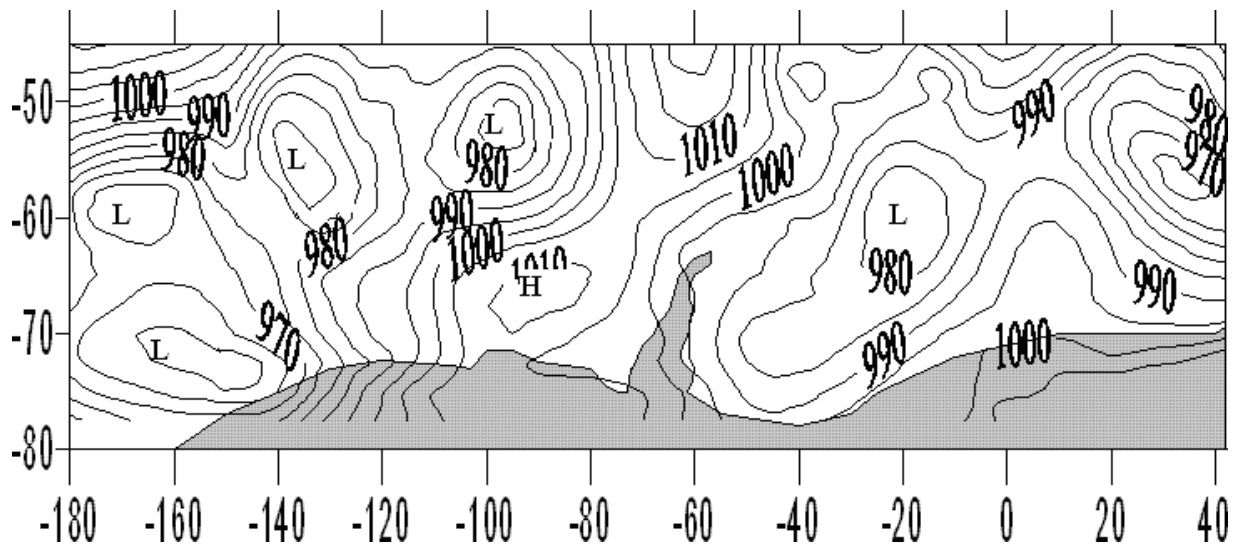


**AUGUST - raremost (3 MSLP fields):**

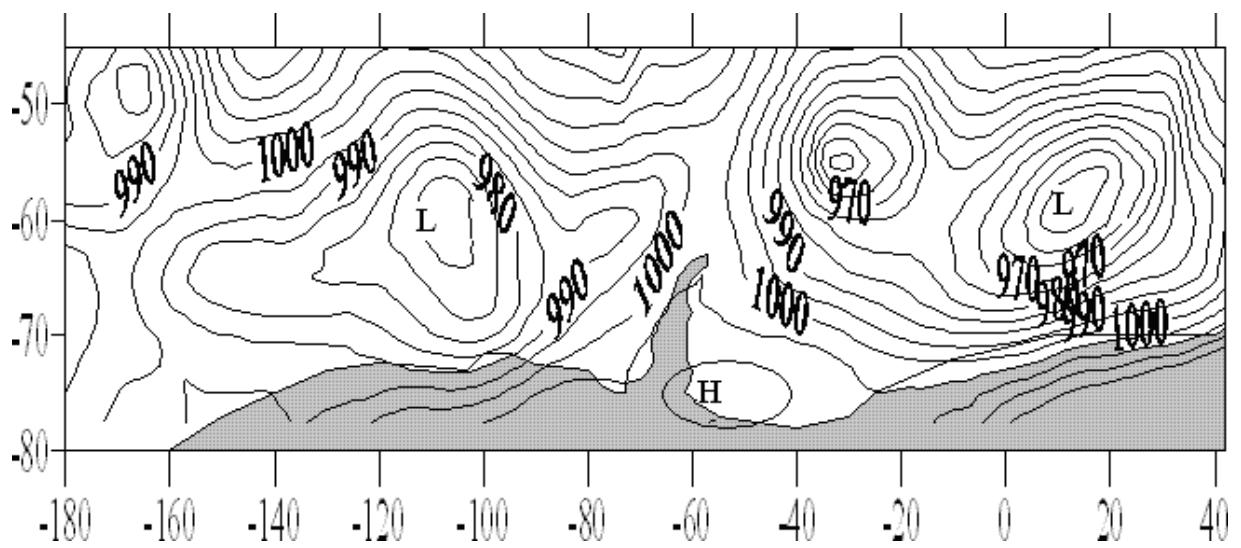
August-1



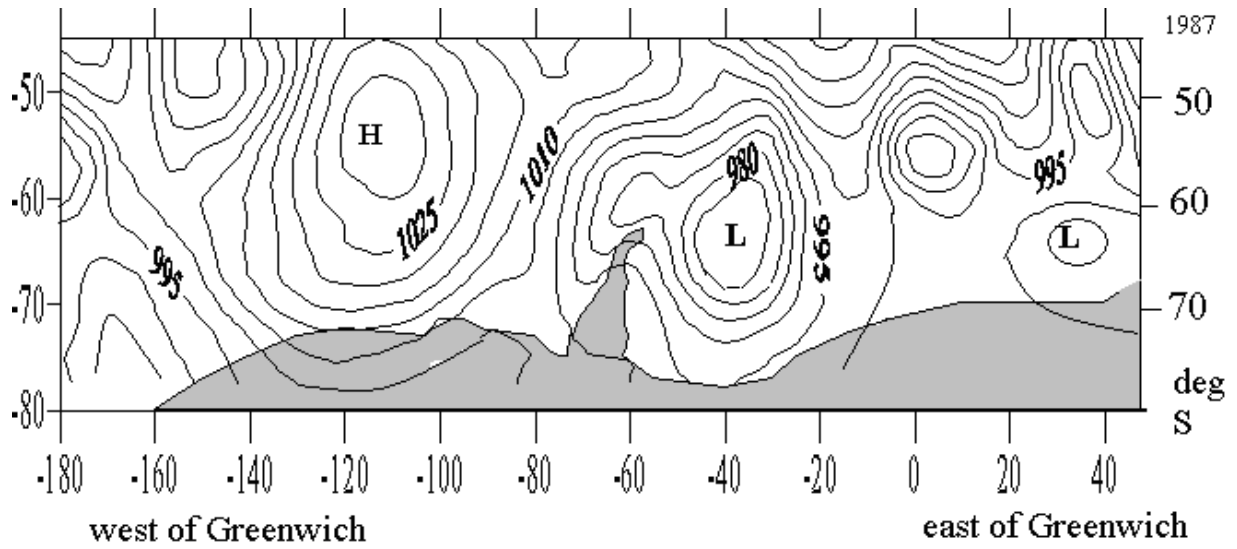
August-2



August-3



**WINTER, INDIVIDUAL YEARS' MONTHLY MOST PROBABLE FIELDS**

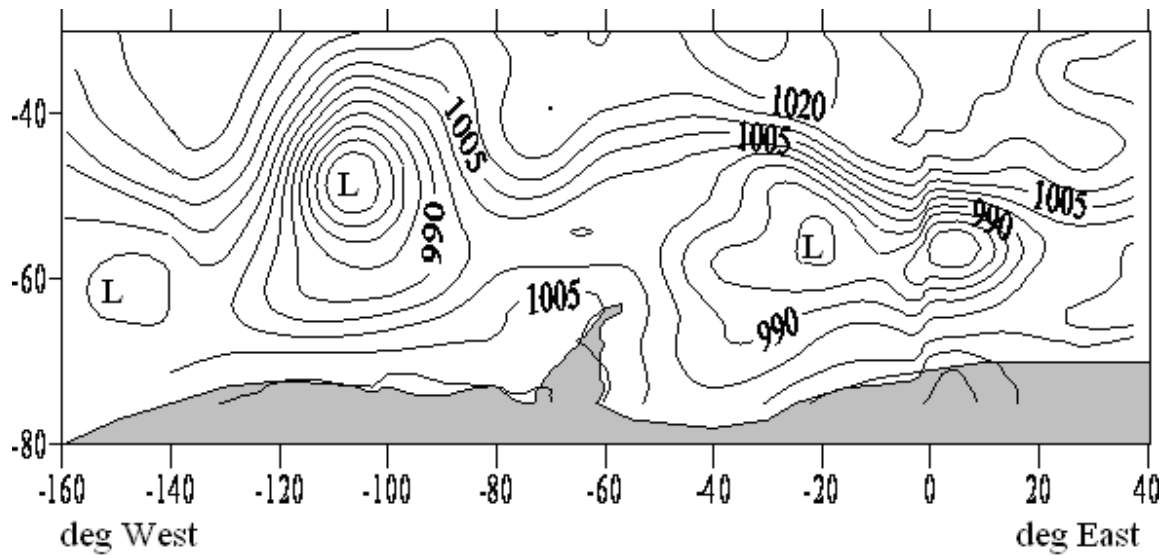


**Most probable mslp, July 1987 (coldest in the modern climate epoch).**

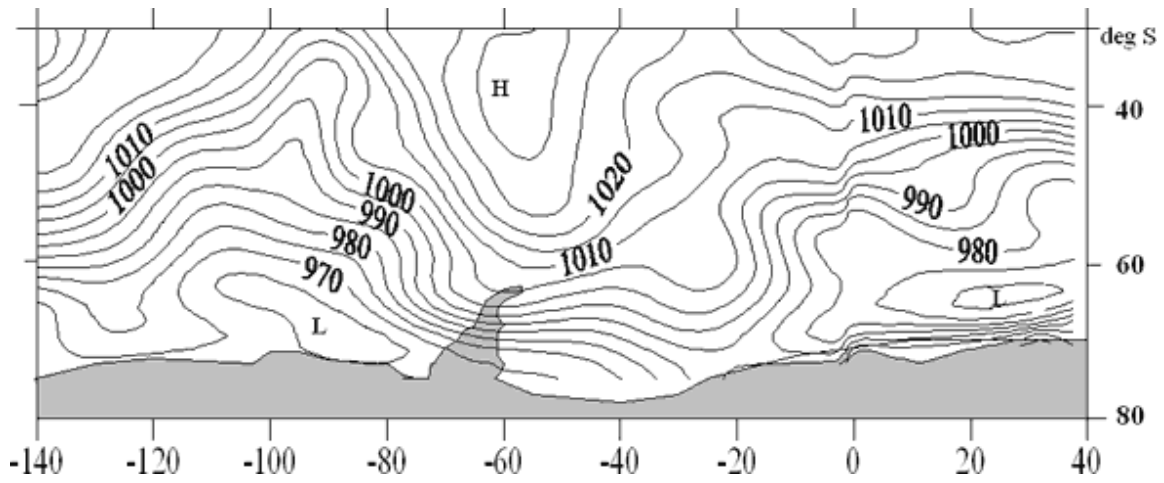
**LATEST DECADE 2001-2007:**

**JULY**

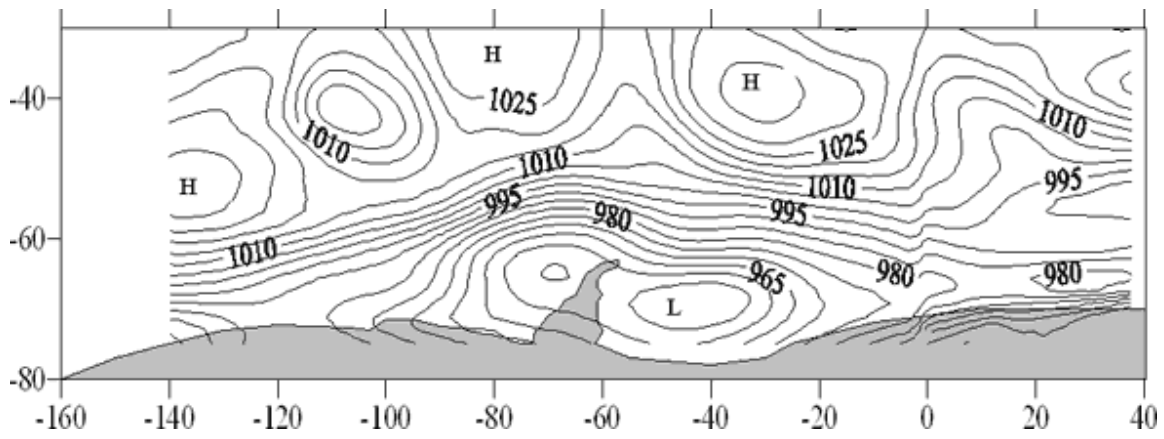
July, 2006



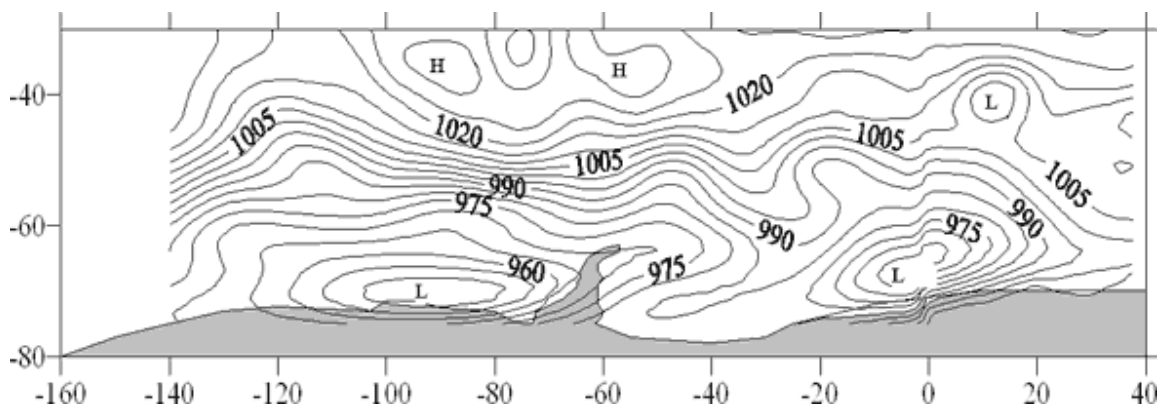
July, 2005



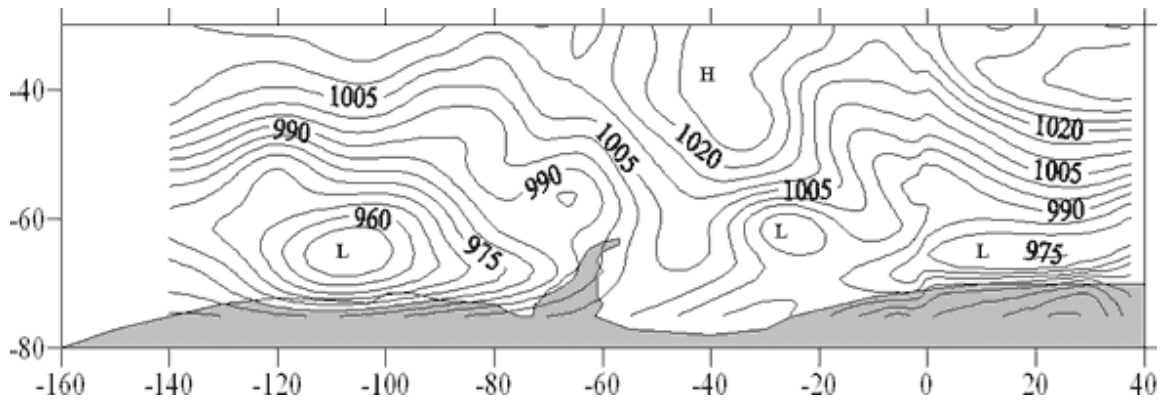
July, 2004



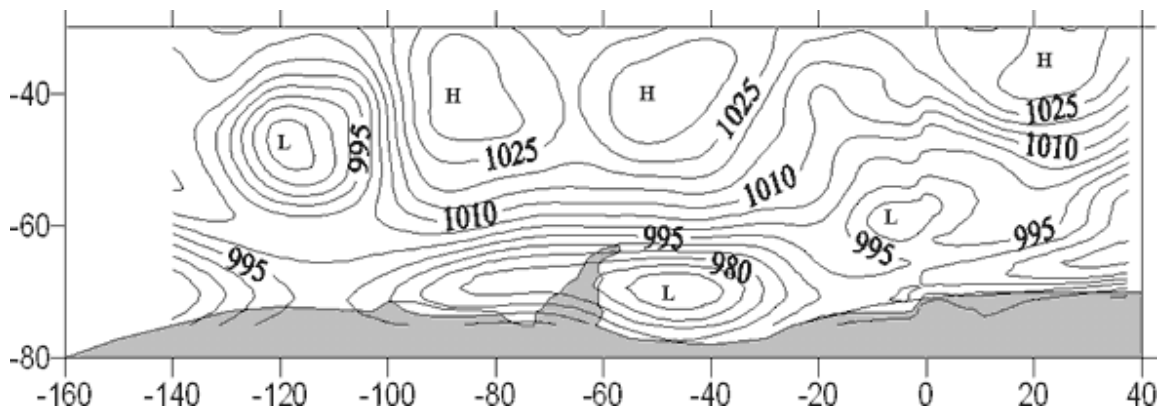
July, 2003



July, 2002

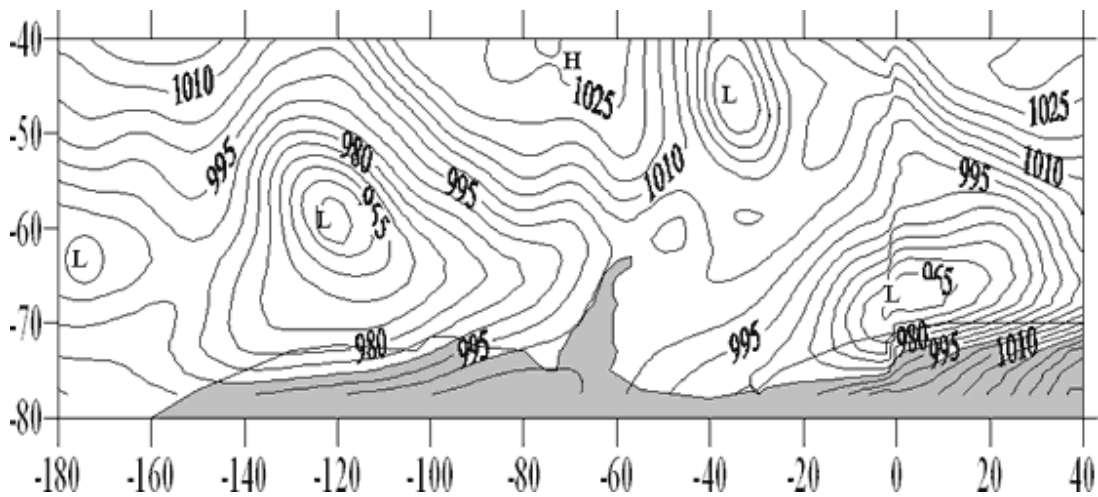


July, 2001

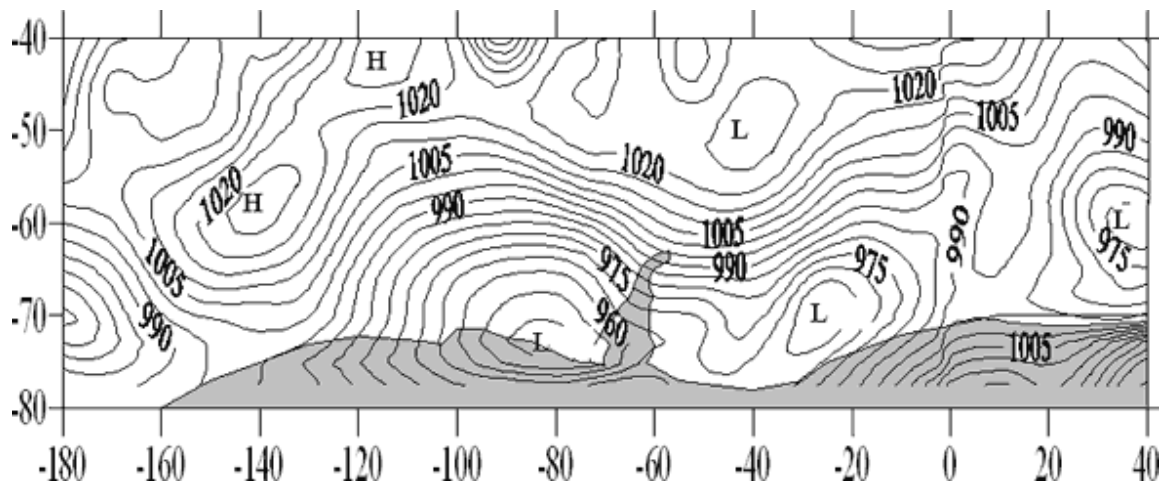


**AUGUST**

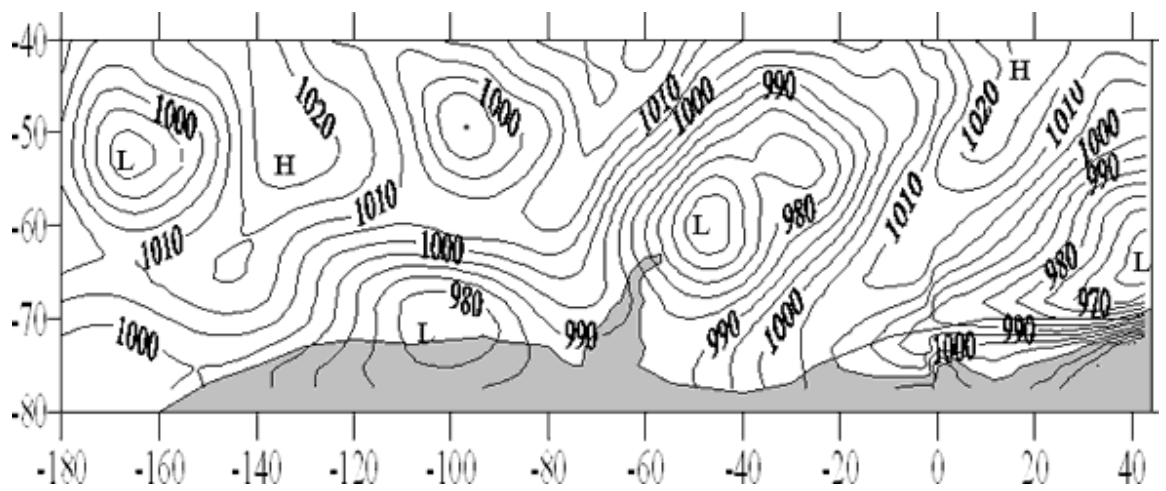
August, 2006



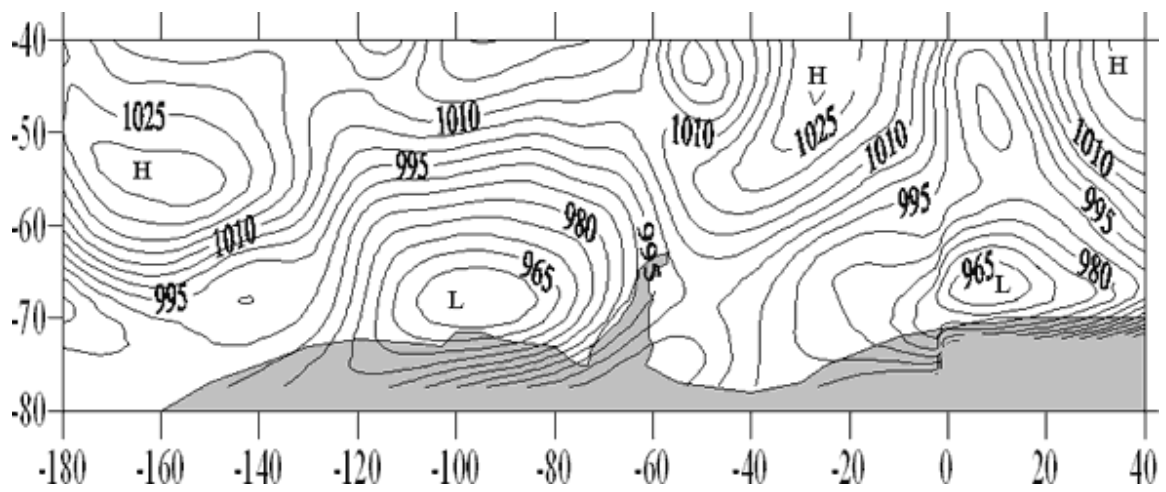
August, 2005



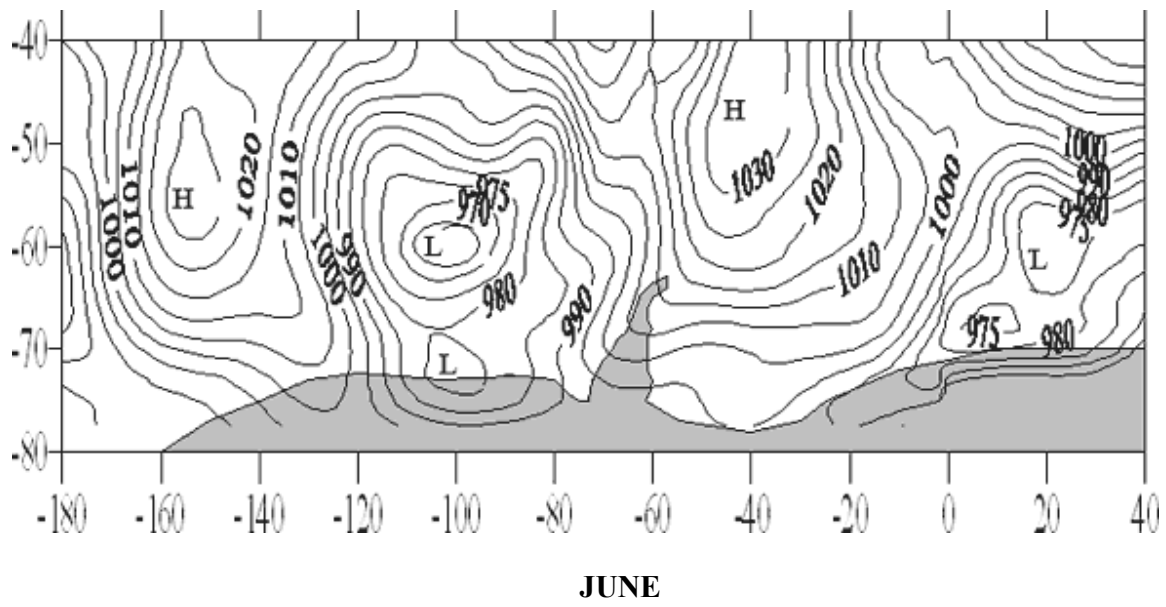
August, 2004



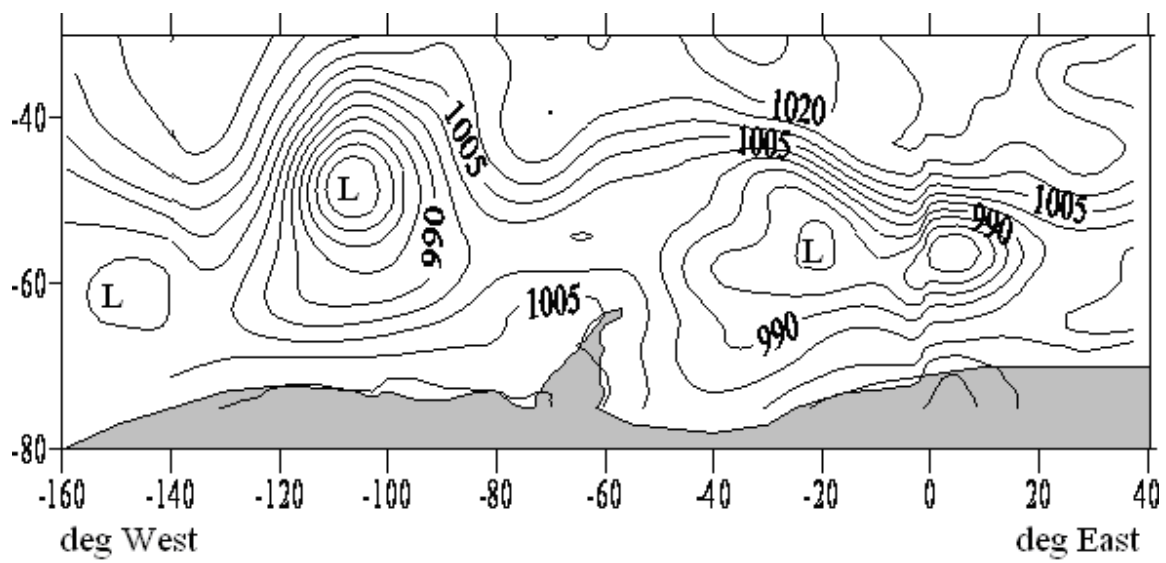
August, 2003



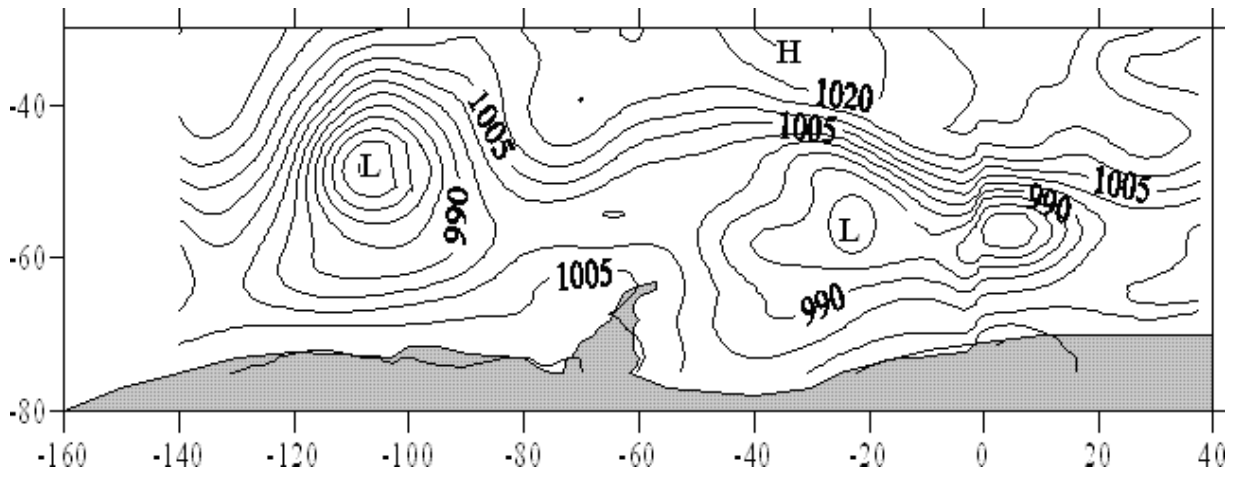
August, 2002



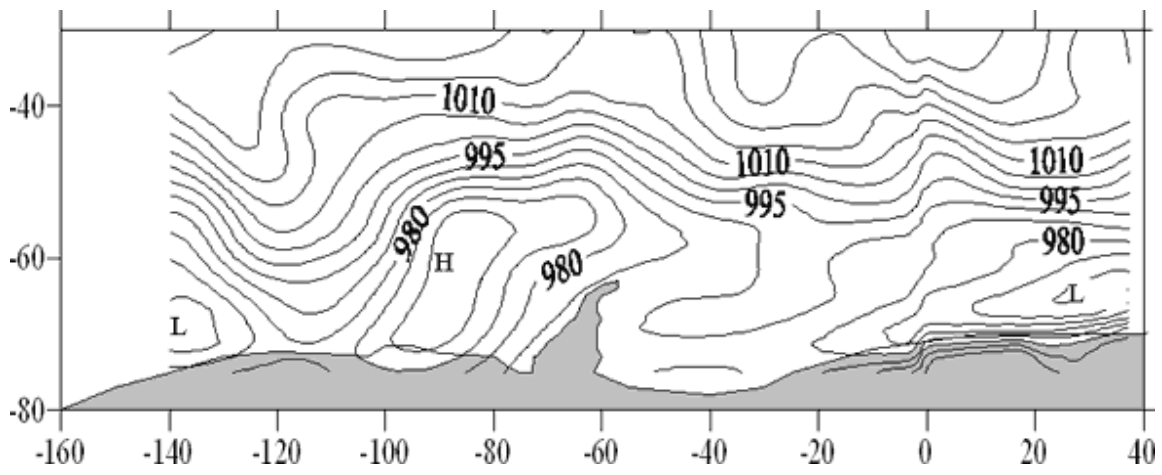
June, 2006



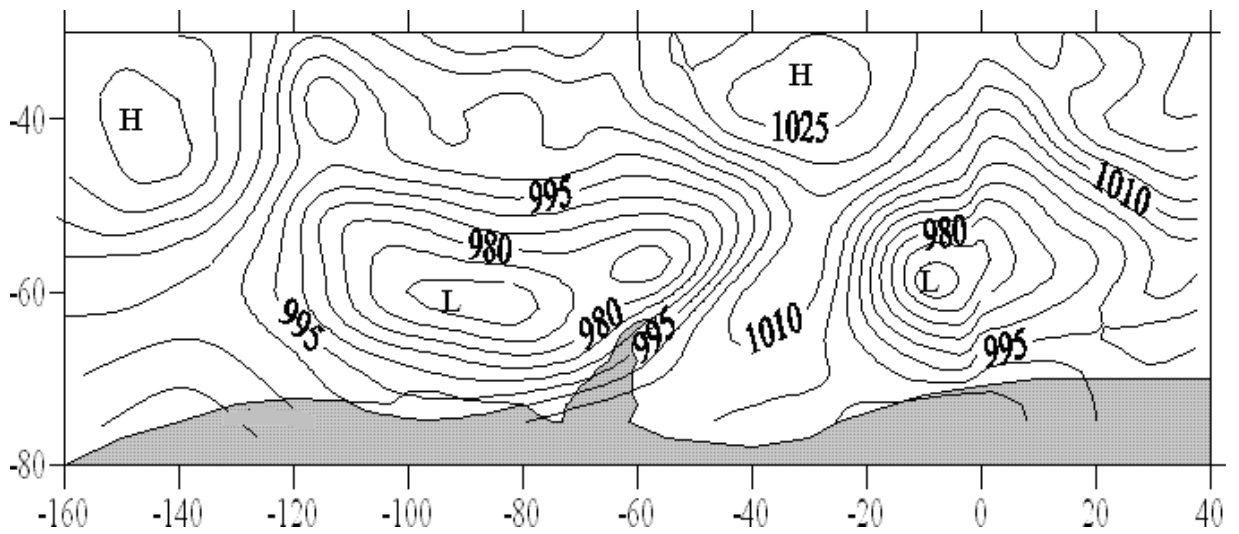
June, 2005



June, 2004



June, 2003



June, 2002

