

State Committee of the USSR on Hydrometeorology and  
Control of Natural Environment

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DESCRIPTION OF THE ARCHIVE "DAILY DATA ON GROUND-LEVEL PRESSURE  
AT THE NODES OF A REGULAR GRID OF THE NORTHERN HEMISPHERE  
ON MAGNETIC TAPES OF A UNIFIED SYSTEM COMPUTER

NCAR MAINTAINS A VERSION OF THIS DATA ON A 6250BPS  
UNLABELED TAPE, ONLY THE ACTUAL DATA FILES ARE  
RECORDED ON THE TAPE.

## INTRODUCTION

The archive "Daily Data on Ground-Level Pressure at the Nodes of a Regular Grid of the Northern Hemisphere" on magnetic tapes of a unified system computer is a version of the ground-level pressure data archive using magnetic tapes of an M-222 computer.

### 1. INITIAL ARCHIVE

Name of archive. "Daily Data on Ground-Level Pressure at the Nodes of a Regular Grid of the Northern Hemisphere" on magnetic tapes of an M-222 computer.

#### 1.1. Method of arranging the data in space

The archive consists of data on the northern hemisphere. The information is given at the nodes of a regular grid with a resolution of  $5^\circ$  in latitude,  $10^\circ$  in longitude, and is ordered north - south from  $90^\circ\text{N}$  to  $15^\circ\text{N}$  and west - east from  $0^\circ\text{E}$  to  $350^\circ\text{E}$ . The number of points (nodes of the grid) for a single pressure field is  $16 \times 36 = 576$ .

#### 1.2. Observation period

The archive includes daily data on ground-level pressure for the period 1880-1979; observation period up to 1973 - 12 hours Greenwich mean time, and from 1973 on - 0 hours Greenwich mean time.

#### 1.3. Structure of the magnetic tape archive

The data of the archive form four files. Each file contains information on a 25-year series of observations and is recorded on a separate reel. The file information is divided into the following periods: 1880-1904, 1905-1929, 1930-1954, 1955-1979 (Table 1).

Data of one observation, including the pressure values for one day at 576 points of a regular geographical grid, are taken as one file record.

Data of one observation, packed with three numbers per cell, are placed in 192 cells.

1.4. Quality of the data

The data of the archive were checked. The check identified and corrected erroneous pressure values to within 20 mb.

The information for the periods 1945-46 and 1973-79 was not checked.

## 2. RESULTANT ARCHIVE

2.1. Name of the archive. "Daily Data on Ground-Level Pressure at the Nodes of a Regular Grid of the Northern Hemisphere on Magnetic Tapes of a Unified System Computer."

2.2. The temporal and spatial characteristics of the archive are the same as those of the initial archive and are described in Section 1.

### 2.3. Physical meaning of variables

The archive contains values of ground-level pressure at the nodes of a geographical grid, expressed in millibars.

### 2.4. Capacity of the archive

The capacity of the archive is 43 million bytes.

2.5. Structure of the archive on magnetic tapes of the unique system computer.

The archive of ground-level pressure data is based on magnetic tapes of a unique system computer.

In terms of the observation periods, the archive is divided into four data files on separate magnetic tapes (Table 2).

A description file is placed in front of each data file. The description file is set up in the data description language.

Each tape and file have standard marks, including the description files.

A data file represents a set of logical records.

The realization of the pressure field for one day is used as the logical records of the data file. The records are ordered in chronological order (the entire file is ordered by years, within a year by months, and within a month by days). Each record contains the values of three tag elements

(year, month, day) and 576 values of ground-level pressure. Each value in the record is stored as a binary integer with a fixed point (in PL/1 language, FIXED BIN type). The size of the record is LRECL = 1158 bytes. The records are blocked, and the block size is BLKSIZE = 2316 bytes.

Since the pressure values are entered in the archive in deviations from 1000 enlarged tenfold, in order to convert them to natural values, the zero reading should be located at 1000, and the scale factor should be 0.1.

The tag elements of the record can take on the following values:

year: 1880, 1979;

number of month in a year: 1, 12;

number of day in a month: 1, 31 or 1, 31 or 1, 29.

The absence of information from the archive is coded by the number 32767.

In the case of complete absence of any observation, the corresponding record contains values of tag elements characterizing this field. The remainder of the record is filled with the absence constant.

A detailed description of the recording of data on magnetic tape is contained in the data description files (see Appendix 1).

DATA VALUES APPEAR TO USE TWO'S COMPLEMENT NOTATION FOR NEGATIVE VALUES,

DATA VALUES ARE ORDERED ON THE TAPE RECORDS AS FOLLOWS,

VALUE	INDEX	LAT/LON
1	1, 1	90N 0E
2	1, 2	90N, 10E
36	1, 36	90N 35DE
37	2, 1	85N 0E
576	4 16, 36	15N 35DE

WITH THIS ORDERING IT IS USUALLY CONSIDERED TO USE AN ARRAY 36, 16 RATHER THAN 16, 36