

National Climatic Data Center

DATA DOCUMENTATION

FOR

DATA SET 3500 (DSI-3500)

Monthly Climatic Data for the World - Surface and Upper Air

December 2, 2002

National Climatic Data Center
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Table of Contents

Topic	Page Number
1. Abstract.....	3
2. Element Names and Definitions:	3
3. Start Date.....	5
4. Stop Date.....	6
5. Coverage.....	6
6. How to order data.....	6
7. Archiving Data Center.	7
8. Technical Contact.....	7
9. Known Uncorrected Problems.....	7
10. Quality Statement.....	7
11. Essential Companion Data Sets.....	7
12. References.....	7

1. **Abstract:** The National Climatic Data Center processes international electronic transmissions in CLIMAT (surface land station format), CLIMAT SHIP (ocean ship format) and CLIMAT TEMP (upper air format), for the purpose of building a surface/upper air database and publishing the Monthly Climatic Data for the World bulletin. Approximately 1200 surface and 500 upper air stations are processed. These data are used in agricultural and energy assessment activities, in crop yield model development, and in the analysis of global atmospheric and regional climatic variations. The National Center for Atmospheric Research (NCAR) produces the data sets DSI-9645 and TD9648 (obsolete), which are also archived at NCDC, from the MCDW annual. (This data set contains data from 1986 onward. However, the data sets listed above contain other data from as early as 1731.

2. **Element Names and Definitions:**

SURFACE & UPPER AIR DESIGNATOR: (Surface, Upper Air) The designator indicates whether the data are surface or upper air, and which of three types of reports the data represent. The designator has one of the following values:

- 1 = Surface current
- 2 = Surface late report
- 3 = Surface corrections
- 4 = Upper Air current
- 5 = Upper Air late report
- 6 = Upper Air corrections

WMO STATION NUMBER: (Surface, Upper Air) The WMO stations numbers are assigned by the World Meteorological Organization. A complete list is published in the WMO Publication Number 9, Volume A - Stations.

DATA PERIOD TYPE: (Surface, Upper Air) The data period type indicates whether the data is a single month or some average of months. The present system only allows a single month.

YEAR: (Surface, Upper Air) Year of record.

MONTH: (Surface, Upper Air) Month of record. Range = 01 - 12.

WMO REGION NUMBER: (Surface, Upper Air)

- 1 = Africa
- 2 = Asia
- 3 = South America
- 4 = North America
- 5 = South-West Pacific
- 6 = Europe
- 7 = Antarctica
- 8 = Ship Stations

NUMBER OF DAYS OBSERVATIONS TAKEN: (Surface) The number of days observations were taken during the month of data.

MEAN STATION PRESSURE: (Surface) Mean station pressure is the mean station atmospheric pressure for the month of record, expressed in millibars to the nearest tenth.

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MEAN SEA LEVEL PRESSURE: (Surface) Mean sea level pressure is the mean sea level pressure for the month of record as computed for the station, expressed in tenths of a millibar. For high-altitude stations, the height of a standard pressure level (whole gpm) is normally given instead: If a Y appears at the right side of the value, the value is understood to be the height of the 850 millibar pressure level. If a Z appears, it is the 700 millibar level, instead.

MEAN TEMPERATURE: (Surface) Mean temperature is the monthly mean of temperature for the month of record. Mean temperature is expressed in tenths of a degree Celsius.

DEPARTURE OF MEAN TEMPERATURE FROM AVERAGE: (Surface) Temperature departure is the result of subtracting a long-term average temperature for the same month from the above mean temperature.

MEAN VAPOR PRESSURE: (Surface) Vapor pressure is the amount of atmospheric pressure due to water vapor alone. Mean vapor pressure is the mean for the month of record. Units are tenths of a millibar.

DEPARTURE OF MEAN VAPOR PRESSURE FROM AVERAGE: (Surface) Vapor pressure departure is the result of subtracting a long-term average vapor pressure for the month of record from the current mean value.

NUMBER OF DAYS WITH PRECIPITATION: (Surface) The number of days with precipitation of one millimeter or greater.

TOTAL PRECIPITATION: (Surface) All precipitation for the month is totaled. The total is expressed in whole millimeters.

DEPARTURE OF TOTAL PRECIPITATION FROM AVERAGE: (Surface) Precipitation departure is the result of subtracting a long-term average precipitation total for the month of record from the current total precipitation value.

PRECIPITATION QUINTILE: (Surface) All past precipitation totals for the month of record, and the current total, are listed in order of increasing amounts; the list is divided into five equal sections; precipitation quintile is the section number, 1 - 5, that the current total appears in. However, a current total lower than any other total is assigned 0; and a current total higher than any other total is assigned 6.

SUNSHINE DURATION: (Surface) Sunshine duration is given in whole hours.

SUNSHINE PERCENT OF LONG-TERM AVERAGE: (Surface) Sunshine percent of long-term average is the result of dividing sunshine duration by a long-term average sunshine duration for the month of record, and multiplying the result by 100 percent.

MEAN SEA SURFACE TEMPERATURE: (Surface) The mean sea surface temperature is the monthly mean air temperature from the present month and year. Temperatures are expressed in tenths of a degree Celsius.

DEPARTURE OF MEAN SEA SURFACE TEMPERATURE FROM AVERAGE: (Surface) The

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temperature departure is the result of subtracting a long-term average temperature for the month from the mean temperature.

OBSERVATION TIME CODE: (Upper Air)

1 = 00 Hours GMT
2 = 12 Hours GMT
3 = Both
/ = Other
Blank = Unknown

NUMBER OF LEVELS: (Upper Air) The number of levels can be up to 12. The ten standard levels are SFC, 850, 700, 500, 300, 200, 150, 100, 50, and 30 millibars. The upper air records for unreported levels are blank and filled up to 12 levels.

LEVEL QUALITY INDICATOR: (Upper Air) Level quality indicator is not used. This space is reserved for a future quality control module.

PRESSURE LEVEL AT THE SURFACE: (Upper Air) The pressure level at the surface is expressed in the standard pressure levels, SFC, 850, 700, 500, 300, 200, 150, 100, 50, and 30 millibars.

HEIGHT OF PRESSURE LEVEL: (Upper Air) The height of pressure level is the station elevation if the pressure level is SFC. Otherwise it is the height (gpm) of a standard pressure level.

NUMBER OF MISSING DAYS OF TEMPERATURE: (Upper Air) Number of missing days of temperature is the number of days in the data month in which no temperature data are available for each pressure level.

MEAN TEMPERATURE FOR UPPER AIR: (Upper Air) Mean temperature is the monthly mean temperature for the present month and year at each pressure level. Units are tenths of a degree.

MEAN DEW POINT TEMPERATURE DEPRESSION: (Upper Air) Mean dew point temperature depression is the difference between the monthly mean temperature and the monthly mean dew point temperature at each pressure level.

NUMBER OF DAYS WIND OBSERVATIONS MISSING: (Upper Air) The number of missing days of mean vector wind is the number of days in the data month for which no wind data are available at each level.

WIND STEADINESS FACTOR: (Upper Air) The wind steadiness factor is the ratio of the monthly mean vector wind speed to the monthly mean scalar wind speed for the current month and year.

MEAN VECTOR WIND DIRECTION: (Upper Air) The direction of the mean vector wind is the compass direction, in degrees zero to 359, from which the wind blew, of the resultant wind for the month.

MEAN VECTOR WIND SPEED: (Upper Air) The mean vector wind speed is the speed of the month's resultant wind.

3. Start Date: 19860101

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4. **Stop Date:** Ongoing.

5. **Coverage:** Global Coverage

- a. Southernmost Latitude: 90S
- b. Northernmost Latitude: 90N
- c. Westernmost Longitude: 180W
- d. Easternmost Longitude: 180E

6. **How to Order Data:**

Ask NCDC's Climate Services about the cost of obtaining this data set.
Phone: 828-271-4800
FAX: 828-271-4876
e-mail: NCDC.Orders@noaa.gov

7. **Archiving Data Center:**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, NC 28801-5001
Phone: (828) 271-4800.

8. **Technical Contact:**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, NC 28801-5001
Phone: (828) 271-4800.

9. **Known Uncorrected Problems:** Currently, there are no known uncorrected problems in the DSI-3500 data set.

10. **Quality Statement:** No quality control is performed on the 3500 data set.

11. **Essential Companion Datasets:** None.

12. **References:**

World Meteorological Organization (WMO) Publication No. 9, Volume A (digital version).

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