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Understanding the Preliminary Monthly Climate Data (WS Form F-6)

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The preliminary climate data pages consist of 3 parts.
Part1 is the site information including the station location, the month and year of the report, and the latitude and longitude of the station.
Part 2 is the daily information which consists of 18 columns of data, with one row of data for each day of the month. The day runs from 0000 to 2359 Local Standard Time (0100 to 0059 Daylight Savings Time).
Part 3 of the report (noted as Page 2) is the monthly section which consists of various averages and totals for the month.

An excerpt of a WS Form F6 is shown below. An explanation of each column of the data can be found below the example.

```
PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

                                    STATION:   WASHINGTON NATIONAL
                                    MONTH:     MARCH
                                    YEAR:      2003
                                    LATITUDE:   38 50 N
                                    LONGITUDE:  77  2 W

   TEMPERATURE IN F:        :PCPN:    SNOW:   WIND      :SUNSHINE: SKY    :PK WND
================================================================================
1   2   3   4   5   6A  6B   7     8    9   10  11  12  13   14  15   16    17  18
                                            AVG MX 2MIN
DY MAX MIN AVG DEP HDD CDD   WTR   SNW DPTH SPD SPD DIR MIN PSBL S-S WX    SPD DR
================================================================================
 1  40  33  37  -5  28   0  0.01   0.1    3  5.7 14 190   M    M  10 18    15 190
 2  52  36  44   2  21   0  0.41   0.0    1  9.2 21 320   M    M   9 1     28 320
 3  42  20  31 -11  34   0     T     T    0 13.3 28 340   M    M   2       35 340
 4  46  23  35  -8  30   0  0.00   0.0    0  6.0 10 180   M    M   7        M   M
 5  68  38  53  10  12   0  0.07   0.0    0  5.8 16 350   M    M   9 18    18 360
 6  49  30  40  -3  25   0  0.22   0.0    0 13.6 26  20   M    M   9 1     29  10
 7  89  69  79   3   0  14  0.14   0.0    0  6.3 25 240   M    M   6 13    33 250
 8  87  71  79   3   0  14  0.00   0.0    0  6.8 25 280   M    M   7       32 260
 9  91  72  82   6   0  17  0.28   0.0    0  7.5 23 250   M    M   8 13    31 260
10  76  69  73  -3   0   8  0.23   0.0    0  9.2 16  50   M    M  10 138   18  60
11  86  67  77   1   0  12  0.04   0.0    0  6.3 20 280   M    M   7 138   25 280
12  85  61  73  -4   0   8  0.34   0.0    0  7.0 23 220   M    M   5 138   30 220
13  83  62  73  -4   0   8     T   0.0    0  3.7 13 360   M    M   6       18 350
14  79  67  73  -4   0   8     T   0.0    0  6.3 16  90   M    M   7 1     21  50
31  45  31  38 -13  27   0     T     T    0 12.7 31 300   M    M   4 8     39 320
================================================================================
SM 1767 1152      549   0  4.20       0.1 276.6          M       205
================================================================================
AV 57.0 37.2                            8.9 FASTST  PSBL  %   7    MAX(MPH)
                              MISC ---->      37 330                44  330
================================================================================
NOTES:
# LAST OF SEVERAL OCCURRENCES
```

Note: An "M" in any column means the data are Missing for that element.

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Column		
1	**DY**	The **day** of the month.
2	**MAX**	The **highest** temperature for the day in degrees Fahrenheit (F).
3	**MIN**	The **lowest** temperature for the day in degrees Fahrenheit (F).
4	**AVG**	The **average** temperature for the day, computed by finding the average of the values in columns 2 and 3, then rounding (if necessary). Example; 55.5 rounds up to 56, 55.4 rounds down to 55 degrees.
5	**DEP**	**Departure** from normal. The difference between column 4 and the 30 year normal temperature for this date. A minus (-) is number of degrees below normal. A zero (0) indicates that the average for that day was the Normal.
6a & 6b	**HDD & CDD**	**Degree Day:** A gauge of the amount of heating or cooling needed for a building using 65 degrees as a baseline. To compute heating/cooling degree-days, take the average temperature for a day and subtract the reference temperature of 65 degrees. If the difference is positive, it is called a "**Cooling Degree Day**". If the difference is negative, it is called a "**Heating Degree Day**". The magnitude of the difference is the number of days. For example, if your average temperature for a day is 50 degrees in September, the difference of the average temperature for that day and the reference temperature of 65 degrees would yield a minus 15. Therefore, you have 15 Heating Degree Days that day. If the average temperature is 77 degrees for a day, you would have 12 Cooling Degree Days (77-65). If the average temperature for the day is 65 degrees, there are no Heating or Cooling degree days. Electrical, natural gas, power, and heating, and air conditioning industries utilize heating and cooling degree information to calculate their energy needs. The Heating season runs from July 1st through June 30th. The Cooling season runs from Jan 1st through Dec 31st.
7	**WTR**	Total **precipitation** for the day to the nearest hundredth of an inch. This includes all forms of precipitation, both liquid and water equivalent of any snow or ice that occurred (T = Trace, some precipitation fell but not enough to measure).
8	**SNW**	Total **snowfall** for the day to the nearest tenth of an inch.
9	**DPTH**	Snow **depth** on the ground to the nearest inch at 1200UTC. 7am EST., 6am CST, 5am MST, 4am PST, 3am AST, etc.
10	**AVG SPD**	**Average wind speed** for the day in miles per hour (mph).
11	**MX SPD**	The **highest wind speed** in mph averaged over a 2 minute period.
12	**2MIN DIR**	The **direction** (in compass degrees divided by 10) from which the wind speed in column 11 came from. (N=36 S=18 W=27 E=09, etc.)
13	**MIN**	The number of **minutes** of sunshine received at the station. Not reported at all locations.
14	**PSBL**	The percentage of **possible** sunshine. Computed by dividing the minutes of sunshine in column 13 by the total possible minutes. Not reported at all locations.
15	**S-S**	The average sky cover between sunrise and sunset in tenths of sky covered. The minimum of "0" means no clouds observed, "10" means clouds covered the entire sky for that day.
16	**WX**	A coded number representing certain types of **weather** observed during the day. 1 = Fog 2 = Fog reducing visibility to 1/4 mile or less 3 = Thunder 4 = Ice pellets 5 = Hail 6 = Glaze or rime 7 = Blowing dust or sand: visibility 1/2 mile or less 8 = Smoke or haze 9 = Blowing snow X = Tornado In the example above on the 12th, you see "138" coded for the day. That means Fog, Thunder and Smoke or Haze were observed at some time during that day.
17	**SPD**	Peak wind **speed** for the day in mph. The highest wind speed observed at the station.
18	**DR**	The compass **direction** from which the peak wind speed came.

SM is the Sum of that column. Note; these MAY not line up exactly under the column! Using the example shown above, the monthly snowfall (0.1)inch is offset slightly to the right.
AV is the Average for that column

* An excerpt from the third part of a WS Form F6 (Page 2) is shown below. An explanation of each column of data can be found below the example.

```
[TEMPERATURE DATA]         [PRECIPITATION DATA]         SYMBOLS USED IN COLUMN 16

AVERAGE MONTHLY: 42.7    TOTAL FOR MONTH:   5.97    1 = FOG
DPTR FM NORMAL:   3.0    DPTR FM NORMAL:    1.95    2 = FOG REDUCING VISIBILITY
HIGHEST:     80 ON 30    GRTST 24HR  2.05 ON 19-20      TO 1/4 MILE OR LESS
LOWEST:      13 ON  4                               3 = THUNDER
                        SNOW, ICE PELLETS, HAIL    4 = ICE PELLETS
                        TOTAL MONTH:  10.8 INCHES  5 = HAIL
                        GRTST 24HR   6.5 ON  3- 3  6 = GLAZE OR RIME
                        GRTST DEPTH:    9 ON  4    7 = BLOWING DUST OR SAND:
                                                       VSBY 1/2 MILE OR LESS
                                                   8 = SMOKE OR HAZE
NO. OF DAYS WITH          WEATHER - DAYS WITH      9 = BLOWING SNOW
                                                   X = TORNADO
MAX 32 OR BELOW:   2     0.01 INCH OR MORE:   11
MAX 90 OR ABOVE:   0     0.10 INCH OR MORE:    9
MIN 32 OR BELOW:  22     0.50 INCH OR MORE:    4
MIN  0 OR BELOW:   0     1.00 INCH OR MORE:    2

HDD (BASE 65)
TOTAL THIS MO.   687    CLEAR  (SCALE 0-3)  10
DPTR FM NORMAL  -122    PTCLDY (SCALE 4-7)  15
SEASONAL TOTAL  1767    CLOUDY (SCALE 8-10)  6
DPTR FM NORMAL  -348

CDD (BASE 65)

TOTAL THIS MO.     4
DPTR FM NORMAL     4    PRESSURE DATA
SEASONAL TOTAL     4    HIGHEST SLP 30.45 ON 22
DPTR FM NORMAL     4    LOWEST  SLP 29.50 ON  6
```

REMARKS

TEMPERATURE DATA	Cumulative temperature information for the month including averages, departure from normal, and the highest/lowest temperatures observed and on what day they occurred.
NO. OF DAYS WITH	Number of days during the month that meet the criteria shown.
HDD (BASE 65)	Heating degree day information based on an average temperature of 65 degrees. Included are the Total this Month, Departure from Normal for the Month, the Seasonal Total and the Seasonal Departure from Normal. The Heating season runs from July 1st through June 30th.
CDD (BASE 65)	Cooling degree day information based on an average temperature of 65 degrees. Included are the Total this Month, Departure from Normal for the Month, the Seasonal Total and the Seasonal Departure from Normal. The Cooling season runs from Jan 1st through Dec 31st.
REMARKS	Additive remarks made by observer.
PRECIPITATION DATA	Cumulative precipitation (for both rain and frozen precipitation) information, for the month including total for the month, departure from normal for that month, greatest 24 hour amount not necessarily midnight to midnight, and greatest snow depth at 1200UTC.
WEATHER - DAYS WITH	Number of days during the month that meet the temperature, precipitation and sky cover criteria shown.
PRESSURE DATA	Magnitude of highest and lowest sea level pressure (in inches) and the day on which it occurred.

SYMBOLS USED IN COLUMN 16	A coded number representing certain types of weather observed during the day. 1 = Fog 2 = Fog reducing visibility to 1/4 mile or less 3 = Thunder 4 = Ice pellets 5 = Hail 6 = Glaze or rime 7 = Blowing dust or sand: visibility 1/2 mile or less 8 = Smoke or haze 9 = Blowing snow X = Tornado

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