

D2: CODE FOR HOURLY OBSERVATIONS

04/11/2005

SURFACE HOURLY ABBREVIATED FORMAT

ONE HEADER RECORD FOLLOWED BY DATA RECORDS:

COLUMN DATA DESCRIPTION

01-06 USAF = AIR FORCE CATALOG STATION NUMBER

08-12 WBAN = NCDC WBAN NUMBER

14-25 YR--MODAHRMN = YEAR-MONTH-DAY-HOUR-MINUTE IN GREENWICH
MEAN TIME (GMT)

27-29 DIR = WIND DIRECTION IN COMPASS DEGREES, 990 = VARIABLE, REPORTED
AS

'***' WHEN AIR IS CALM (SPD WILL THEN BE 000)

31-37 SPD & GUS = WIND SPEED & GUST IN MILES PER HOUR

39-41 CLG = CLOUD CEILING--LOWEST OPAQUE LAYER
WITH 5/8 OR GREATER COVERAGE, IN HUNDREDS OF FEET,
722 = UNLIMITED

43-45 SKC = SKY COVER -- CLR-CLEAR, SCT-SCATTERED-1/8 TO 4/8,
BKN-BROKEN-5/8 TO 7/8, OVC-OVERCAST,
OBS-OBSCURED, POB-PARTIAL OBSCURATION

47-47 L = LOW CLOUD TYPE, SEE BELOW

49-49 M = MIDDLE CLOUD TYPE, SEE BELOW

51-51 H = HIGH CLOUD TYPE, SEE BELOW

53-56 VSB = VISIBILITY IN STATUTE MILES TO NEAREST TENTH

NOTE: FOR SOME STATIONS, VISIBILITY IS REPORTED ONLY UP TO A
MAXIMUM OF 7 OR 10 MILES IN METAR OBSERVATIONS, BUT TO HIGHER
VALUES IN SYNOPTIC OBSERVATIONS, WHICH CAUSES THE VALUES TO
FLUCTUATE FROM ONE DATA RECORD TO THE NEXT. ALSO, VALUES
ORIGINALLY REPORTED AS '10' MAY APPEAR AS '10.1' DUE TO DATA
BEING ARCHIVED IN METRIC UNITS AND CONVERTED BACK TO ENGLISH.

58-65 WW WW WW = PRESENT WEATHER--LISTED BELOW

67-67 W = PAST WEATHER INDICATOR, SEE BELOW

69-77 TEMP & DEWP = TEMPERATURE & DEW POINT IN FAHRENHEIT

79-84 SLP = SEA LEVEL PRESSURE IN MILLIBARS TO NEAREST TENTH

86-90 ALT = ALTIMETER SETTING IN INCHES TO NEAREST HUNDREDTH

92-97 STP = STATION PRESSURE IN MILLIBARS TO NEAREST TENTH

99-101 MAX = MAXIMUM TEMPERATURE IN FAHRENHEIT (TIME PERIOD VARIES)

103-105 MIN = MINIMUM TEMPERATURE IN FAHRENHEIT (TIME PERIOD VARIES)
 107-111 PCP01 = 1-HOUR LIQUID PRECIP REPORT IN INCHES AND HUNDREDTHS --
 THAT IS, THE PRECIP FOR THE PRECEDING 1 HOUR PERIOD
 113-117 PCP06 = 6-HOUR LIQUID PRECIP REPORT IN INCHES AND HUNDREDTHS --
 THAT IS, THE PRECIP FOR THE PRECEDING 6 HOUR PERIOD
 119-123 PCP24 = 24-HOUR LIQUID PRECIP REPORT IN INCHES AND HUNDREDTHS
 THAT IS, THE PRECIP FOR THE PRECEDING 24 HOUR PERIOD
 125-129 PCPXX = LIQUID PRECIP REPORT IN INCHES AND HUNDREDTHS, FOR
 A PERIOD OTHER THAN 1, 6, OR 24 HOURS (USUALLY FOR 12 HOUR PERIOD
 FOR STATIONS OUTSIDE THE U.S., AND FOR 3 HOUR PERIOD FOR THE U.S.)
 T = TRACE FOR ANY PRECIP FIELD
 131-132 SD = SNOW DEPTH IN INCHES

NOTES:

- *'s IN FIELD INDICATES ELEMENT NOT REPORTED.
- SOME VALUES WERE CONVERTED FROM METRIC TO ENGLISH UNITS. THIS WILL OCCASIONALLY RESULT IN MINOR DIFFERENCES VS ORIGINAL DATA DUE TO ROUNDING.
- COLUMN POSITION REFERS TO ASCII TEXT DATA.
- THIS FORMAT CAN BE EASILY IMPORTED INTO A SPREADSHEET OR A DATABASE MANAGEMENT SYSTEM SINCE FIELDS ARE SPACE-DELIMITED.
- THIS FORMAT DOES NOT INCLUDE QUALITY CONTROL FLAGS, WHICH ARE AVAILABLE IN THE ADVANCED FORMAT THROUGH THE CLIMATE DATA ONLINE SYSTEM.

PRESENT WEATHER CODE TABLE

The code that denotes a specific type of weather observed.

- 00-49 No precipitation at the station at the time of observation

 00-19 No precipitation, fog, ice fog (except for 11 and 12),

duststorm, sandstorm, drifting or blowing snow at the station at the time of observation or, except for 09 and 17, during the preceding hour

- 00: Cloud development not observed or not observable
- 01: Clouds generally dissolving or becoming less developed
- 02: State of sky on the whole unchanged
- 03: Clouds generally forming or developing
- 04: Visibility reduced by smoke, e.g. veldt or forest fires, industrial smoke or volcanic ashes
- 05: Haze
- 06: Widespread dust in suspension in the air, not raised by wind at or near the station at the time of observation
- 07: Dust or sand raised by wind at or near the station at the time of observation, but no well-developed dust whirl(s) or sand whirl(s), and no duststorm or sandstorm seen or, in the case of ships, blowing spray at the station
- 08: Well developed dust whirl(s) or sand whirl(s) seen at or near the station during the preceding hour or at the time of observation, but no duststorm or sandstorm
- 09: Duststorm or sandstorm within sight at the time of observation, or at the station during the preceding hour
- 10: Mist
- 11: Patches of shallow fog or ice fog at the station, whether on land or sea, not deeper than about 2 meters on land or 10 meters at sea
- 12: More or less continuous shallow fog or ice fog at the station, whether on land or sea, not deeper than about 2 meters on land or 10 meters at sea
- 13: Lightning visible, no thunder heard
- 14: Precipitation within sight, not reaching the ground or the surface of the sea
- 15: Precipitation within sight, reaching the ground or the surface of the sea, but distant, i.e., estimated to be more than 5 km from the station
- 16: Precipitation within sight, reaching the ground or the surface of the sea, near to, but not at the station
- 17: Thunderstorm, but no precipitation at the time of observation
- 18: Squalls at or within sight of the station during the preceding hour or at the time of observation
- 19: Funnel cloud(s) (Tornado cloud or waterspout) at or within sight

of the station during the preceding hour or at the time of observation

20-29 Precipitation, fog, ice fog or thunderstorm at the station during the preceding hour, but not at the time of observation

20: Drizzle (not freezing) or snow grains not falling as shower(s)

21: Rain (not freezing) not falling as shower(s)

22: Snow not falling as shower(s)

23: Rain and snow or ice pellets not falling as shower(s)

24: Freezing drizzle or freezing rain not falling as shower(s)

25: Shower(s) of rain

26: Shower(s) of snow or of rain and snow

27: Shower(s) of hail (Hail, small hail, snow pellets), or rain and hail

28: Fog or ice fog

29: Thunderstorm (with or without precipitation)

30-39 Duststorm, sandstorm, or blowing snow

30: Slight or moderate duststorm or sandstorm has decreased during the preceding hour

31: Slight or moderate duststorm or sandstorm no appreciable change during the preceding hour

32: Slight or moderate duststorm or sandstorm has begun or has increased during the preceding hour

33: Severe duststorm or sandstorm has decreased during the preceding hour

34: Severe duststorm or sandstorm no appreciable change during the preceding hour

35: Severe duststorm or sandstorm has begun or has increased during the preceding hour

36: Slight or moderate drifting snow generally low (below eye level)

37: Heavy drifting snow generally low (below eye level)

38: Slight or moderate blowing snow generally high (above eye level)

39: Heavy blowing snow generally high (above eye level)

40-49 Fog or ice fog at the time of observation

40: Fog or ice fog at a distance at the time of observation, but not

at the station during the preceding hour, the fog or ice fog extending to a level above that of the observer

41: Fog or ice fog in patches

42: Fog or ice fog, sky visible, has become thinner during the preceding hour

43: Fog or ice fog, sky invisible, has become thinner during the preceding hour

44: Fog or ice fog, sky visible, no appreciable change during the preceding hour

45: Fog or ice fog, sky invisible, no appreciable change during the preceding hour

46: Fog or ice fog, sky invisible, has begun or has become thicker during the preceding hour

47: Fog or ice fog, sky invisible, has begun or has become thicker during the preceding hour

48: Fog, depositing rime, sky visible

49: Fog, depositing rime, sky invisible

50-99 Precipitation at the station at the time of observation

50-59 Drizzle

50: Drizzle, not freezing, intermittent, slight at time of observation

51: Drizzle, not freezing, continuous, slight at time of observation

52: Drizzle, not freezing, intermittent, moderate at time of observation

53: Drizzle, not freezing, continuous, moderate at time of observation

54: Drizzle, not freezing, intermittent, heavy (dense) at time of observation

55: Drizzle, not freezing, continuous, heavy (dense) at time of observation

56: Drizzle, freezing, slight

57: Drizzle, freezing, moderate or heavy (dense)

58: Drizzle and rain, slight

59: Drizzle and rain, moderate or heavy

60-69 Rain

- 60: Rain, not freezing, intermittent, slight at time of observation
- 61: Rain, not freezing, continuous, slight at time of observation
- 62: Rain, not freezing, intermittent, moderate at time of observation
- 63: Rain, not freezing, continuous, moderate at time of observation
- 64: Rain, not freezing, intermittent, heavy at time of observation
- 65: Rain, not freezing, continuous, heavy at time of observation
- 66: Rain, freezing, slight
- 67: Rain, freezing, moderate or heavy
- 68: Rain or drizzle and snow, slight
- 69: Rain or drizzle and snow, moderate or heavy

70-79 Solid precipitation not in showers

- 70: Intermittent fall of snowflakes, slight at time of observation
- 71: Continuous fall of snowflakes, slight at time of observation
- 72: Intermittent fall of snowflakes, moderate at time of observation
- 73: Continuous fall of snowflakes, moderate at time of observation
- 74: Intermittent fall of snowflakes, heavy at time of observation
- 75: Continuous fall of snowflakes, heavy at time of observation
- 76: Diamond dust (with or without fog)
- 77: Snow grains (with or without fog)
- 78: Isolated star-like snow crystals (with or without fog)
- 79: Ice pellets

80-99 Showery precipitation, or precipitation with current or recent thunderstorm

- 80: Rain shower(s), slight
- 81: Rain shower(s), moderate or heavy
- 82: Rain shower(s), violent
- 83: Shower(s) of rain and snow mixed, slight
- 84: Shower(s) of rain and snow mixed, moderate or heavy
- 85: Show shower(s), slight
- 86: Snow shower(s), moderate or heavy
- 87: Shower(s) of snow pellets or small hail, with or without rain or rain and snow mixed, slight
- 88: Shower(s) of snow pellets or small hail, with or without rain or rain and snow mixed, moderate or heavy
- 89: Shower(s) of hail (hail, small hail, snow pellets) , with or without rain or rain and snow mixed, not associated with thunder,

slight

90: Shower(s) of hail (hail, small hail, snow pellets), with or without rain or rain and snow mixed, not associated with thunder, moderate or heavy

91: Slight rain at time of observation, thunderstorm during the preceding hour but not at time of observation

92: Moderate or heavy rain at time of observation, thunderstorm during the preceding hour but not at time of observation

93: Slight snow, or rain and snow mixed or hail (Hail, small hail, snow pellets), at time of observation, thunderstorm during the preceding hour but not at time of observation

94: Moderate or heavy snow, or rain and snow mixed or hail (Hail, small hail, snow pellets) at time of observation, thunderstorm during the preceding hour but not at time of observation

95: Thunderstorm, slight or moderate, without hail (Hail, small hail, snow pellets), but with rain and/or snow at time of observation, thunderstorm at time of observation

96: Thunderstorm, slight or moderate, with hail (hail, small hail, snow pellets) at time of observation, thunderstorm at time of observation

97: Thunderstorm, heavy, without hail (Hail, small hail, snow pellets), but with rain and/or snow at time of observation, thunderstorm at time of observation

98: Thunderstorm combined with duststorm or sandstorm at time of observation, thunderstorm at time of observation

99: Thunderstorm, heavy, with hail (Hail, small hail, snow pellets) at time of observation, thunderstorm at time of observation

PAST WEATHER CODE TABLE

The code that denotes a specific type of past weather observed.

0: Cloud covering 1/2 or less of the sky throughout the appropriate period

1: Cloud covering more than 1/2 of the sky during part of the appropriate period and covering 1/2 or less during part of the period

2: Cloud covering more than 1/2 of the sky throughout the appropriate period

3: Sandstorm, duststorm or blowing snow

4: Fog or ice fog or thick haze

- 5: Drizzle
- 6: Rain
- 7: Snow, or rain and snow mixed
- 8: Shower(s)
- 9: Thunderstorm(s) with or without precipitation

LOW CLOUD TYPE

- 0: No low clouds
- 1: Cumulus humilis or Cumulus fractus other than of bad weather or both
- 2: Cumulus mediocris or congestus, with or without Cumulus of species fractus or humilis or Stratocumulus all having bases at the same level
- 3: Cumulonimbus calvus, with or without Cumulus, Stratocumulus or Stratus
- 4: Stratocumulus cumulogenitus
- 5: Stratocumulus other than Stratocumulus cumulogenitus
- 6: Stratus nebulosus or Stratus fractus other than of bad weather, or both
- 7: Stratus fractus or Cumulus fractus of bad weather, or both (pannus) usually below Altostratus or Nimbostratus
- 8: Cumulus and Stratocumulus other than Stratocumulus cumulogenitus, with bases at different levels
- 9: Cumulonimbus capillatus (often with an anvil), with or without Cumulonimbus calvus, Cumulus, Stratocumulus, Stratus or pannus

MIDDLE CLOUD TYPE

- 0: No middle clouds
- 1: Altostratus translucidus
- 2: Altostratus opacus or Nimbostratus
- 3: Altocumulus translucidus at a single level
- 4: Patches (often lenticular) of Altocumulus translucidus, continually changing and occurring at one or more levels
- 5: Altocumulus translucidus in bands, or one or more layers of Altocumulus translucidus or opacus, progressively invading the sky; these Altocumulus clouds generally thicken as a whole
- 6: Altocumulus cumulogenitus (or cumulonimbogenitus)
- 7: Altocumulus translucidus or opacus in two or more layers, or

Alto cumulus opacus in a single layer, not progressively invading the sky, or Alto cumulus with Altostratus or Nimbostratus

8: Alto cumulus castellanus or floccus

9: Alto cumulus of a chaotic sky; generally at several levels

HIGH CLOUD TYPE

0: No High Clouds

1: Cirrus fibratus, sometimes uncinus, not progressively invading the sky

2: Cirrus spissatus, in patches or entangled sheaves, which usually do not increase and sometimes seem to be the remains of the upper part of a Cumulonimbus; or Cirrus castellanus or floccus

3: Cirrus spissatus cumulonimbogenitus

4: Cirrus uncinus or fibratus, or both, progressively invading the sky; they generally thicken as a whole

5: Cirrus (often in bands) and Cirrostratus, or Cirrostratus alone, progressively invading the sky; they generally thicken as a whole, but the continuous veil does not reach 45 degrees above the horizon

6: Cirrus (often in bands) and Cirrostratus, or Cirrostratus alone, progressively invading the sky; they generally thicken as a whole; the continuous veil extends more than 45 degrees above the horizon, without the sky being totally covered

7: Cirrostratus covering the whole sky

8: Cirrostratus not progressively invading the sky and not entirely covering it

9: Cirrocumulus alone, or Cirrocumulus predominant among the High clouds