

quantitative precipitation, thunderstorms, severe weather, and snowfall amount, the time indicates the end of the period over which the forecasts are valid. For the max/min temperature, the date group gives only the approximate ending time of the daytime and nighttime periods for which the max and min temperature guidance, respectively, are valid.

3. X/N - MAXIMUM/MINIMUM TEMPERATURE

KDCA	ETA MOS GUIDANCE			12/05/2003						0000 UTC											
DT	/DEC	5		/DEC	6					/DEC	7				/						
HR	06	09	12	15	18	21	00	03	06	09	12	15	18	21	00	03	06	09	12	18	00
X/N							36					32			34				26		44

The max/min surface temperature forecasts are displayed for projections of 24, 36, 48, 60, and 72 hours after the initial data time (0000 or 1200 UTC). Although the forecasts are presented at consecutive 12-h intervals, each forecast is actually valid for a daytime or nighttime period. For the Eta-based MOS guidance, daytime is defined as 7 a.m. to 7 p.m. Local Standard Time (LST). Nighttime is defined as 7 p.m. to 8 a.m. LST. Thus, the valid date in the appropriate column of the DT and HR lines must be converted by the forecaster to his/her local date. This local date then denotes the appropriate daytime or nighttime for the max or min temperature forecast. For the 0000 UTC forecast cycle, the temperatures are shown in max/min (X/N) order and are valid for today's max, tonight's min, tomorrow's max, tomorrow night's min, and the day after tomorrow's max. For the 1200 UTC cycle, the temperatures are shown in min/max (N/X) order and are valid for tonight's min, tomorrow's max, tomorrow night's min, the day after tomorrow's max, and the night after tomorrow night's min. Each temperature forecast is presented to the nearest whole degree Fahrenheit, and three characters are allowed. A missing forecast is indicated by a 999.

4. TMP - SURFACE TEMPERATURE

KDCA	ETA MOS GUIDANCE			12/05/2003						0000 UTC											
DT	/DEC	5		/DEC	6					/DEC	7				/						
HR	06	09	12	15	18	21	00	03	06	09	12	15	18	21	00	03	06	09	12	18	00
												...									
TMP	34	34	34	35	35	35	35	36	37	36	34	32	32	31	30	30	29	28	27	42	38

Time-specific 2-m temperature forecasts are valid every 3 hours from 6 to 60 hours, and then every 6 hours to 72 hours after 0000 and 1200 UTC. These forecasts are valid at 0600, 0900, ..., 2100, 0000 UTC, and so forth. Each temperature forecast is presented to the nearest whole degree Fahrenheit; a missing forecast is indicated by a 999. Note that only three characters are available for the temperature forecasts. Thus, two consecutive forecasts of 100 degrees or more or of -10 degrees or less appear with no spaces between them.

5. DPT - SURFACE DEW POINT

KDCA	ETA MOS GUIDANCE			12/05/2003						0000 UTC											
DT	/DEC	5		/DEC	6					/DEC	7				/						
HR	06	09	12	15	18	21	00	03	06	09	12	15	18	21	00	03	06	09	12	18	00
												...									
DPT	25	27	29	33	35	35	35	36	37	36	32	29	28	26	23	22	20	19	18	23	22

Time-specific 2-m dew point forecasts are valid every 3 hours from 6 to 60 hours, and then every 6 hours to 72 hours after 0000 and 1200 UTC. These forecasts are valid at 0600, 0900, ..., 2100, 0000 UTC, and so forth. Each dew point forecast is presented to the nearest whole degree Fahrenheit; a missing forecast is indicated by a 999. Three characters are available for the dew point forecasts so that two consecutive forecasts of -10 degrees or less appear with no spaces between them.

6. CLD - TOTAL SKY COVER CATEGORIES

KDCA	ETA	MOS	GUIDANCE 12/05/2003 0000 UTC																		
DT	/DEC	5	/DEC 6						/DEC 7						/						
HR	06	09	12	15	18	21	00	03	06	09	12	15	18	21	00	03	06	09	12	18	00
...																					
CLD	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	OV	BK	BK	SC	FW	CL

Forecast categories of total sky cover (see the following table) are available in plain language for projections at 3-h intervals from 6 to 60 hours, and then every 6 hours to 72 hours after the initial data times (0000 and 1200 UTC). All forecasts are valid for specific times (i.e., 0600, 0900, 1200, and so forth). Two characters identify the category (CL - clear; FW - few; SC - scattered; BK - broken; OV - overcast); a missing forecast is denoted by XX.

Total Sky Cover Categories

- CL - clear;
- FW - > 0 to 2 octas of total sky cover;
- SC - > 2 to 4 octas of total sky cover;
- BK - > 4 to < 8 octas of total sky cover;
- OV - 8 octas of total sky cover or totally obscured.

The categorical guidance is prepared by using probability forecasts of the same categories.

7. WDR - SURFACE WIND DIRECTION / WSP - SURFACE WIND SPEED

KDCA	ETA	MOS	GUIDANCE 12/05/2003 0000 UTC																		
DT	/DEC	5	/DEC 6						/DEC 7						/						
HR	06	09	12	15	18	21	00	03	06	09	12	15	18	21	00	03	06	09	12	18	00
...																					
WDR	05	04	04	03	02	02	02	01	36	36	35	34	34	33	34	34	33	33	33	32	33
WSP	08	12	16	13	11	13	14	14	13	13	15	15	15	19	20	21	20	19	18	19	14

Surface wind direction (WDR) and speed (WSP) forecasts are given at 3-h intervals for projections of 6 to 60 hours, and then every 6 hours to 72 hours after the initial data times (0000 and 1200 UTC). These are forecasts of the 10-m winds (a 2-minute average) at specific times throughout each day (i.e., 0600, 0900, 1200 UTC, and so forth). The wind direction is given in tens of degrees and varies from 01 (10 degrees) to 36 (360 degrees). The normal meteorological convention for specifying wind direction is followed. The wind speed is given in knots; the maximum speed allowed in the message is 98 knots. For both direction and speed, missing forecasts are denoted by 99. A calm wind is indicated by a wind direction and speed of 00.

8. P06 - PROBABILITY OF PRECIPITATION IN A 6-H PERIOD

KDCA	ETA		MOS GUIDANCE				12/05/2003				0000 UTC										
DT	/DEC		5		/DEC		6		/DEC		7		/								
HR	06	09	12	15	18	21	00	03	06	09	12	15	18	21	00	03	06	09	12	18	00
P06			100		93		63		85		74	...	55		38		6		4	0	0

The P06 forecasts are for the probability of 0.01 inches or more of liquid-equivalent precipitation (PoP) occurring during a 6-h period. The 6-h PoP's are valid for intervals of 6-12, 12-18, 18-24, 24-30, 30-36, 36-42, 42-48, 48-54, 54-60, 60-66, and 66-72 hours after the initial data times (0000 and 1200 UTC). In the message, the forecast values are displayed under the ending time of the 6-h period. The probability is given to the nearest percent. Values range from 0 to 100%. A missing forecast value is indicated by 999.

9. P12 - PROBABILITY OF PRECIPITATION IN A 12-H PERIOD

KDCA	ETA		MOS GUIDANCE				12/05/2003				0000 UTC										
DT	/DEC		5		/DEC		6		/DEC		7		/								
HR	06	09	12	15	18	21	00	03	06	09	12	15	18	21	00	03	06	09	12	18	00
P12						100					88	...			64				15		0

The P12 forecasts are for the probability of 0.01 inches or more of liquid-equivalent precipitation (PoP) occurring during a 12-h period. For nearly all stations, the 12-h PoP's are valid for intervals of 12-24, 24-36, 36-48, 48-60, and 60-72 hours after the initial data times (0000 and 1200 UTC). For stations in Hawaii, however, the 12-h PoP's are valid for intervals of 6-18, 18-30, 30-42, 42-54, and 54-66 hours after 0000 and 1200 UTC. In the message, the forecast values are displayed under the ending time of the 12-h period. The probability is given to the nearest percent. Values range from 0 to 100%. A missing forecast value is indicated by 999.

10. Q06 - QUANTITATIVE PRECIPITATION AMOUNT IN A 6-H PERIOD

KDCA	ETA		MOS GUIDANCE				12/05/2003				0000 UTC										
DT	/DEC		5		/DEC		6		/DEC		7		/								
HR	06	09	12	15	18	21	00	03	06	09	12	15	18	21	00	03	06	09	12	18	00
Q06			4		3		3		3		3	...	2		1		0		0	0	0

Guidance for liquid-equivalent precipitation amount (QPF) accumulated during a 6-h period is presented in categorical form on the line designated Q06. These forecasts are available for projections of 6-12, 12-18, 18-24, 24-30, 30-36, 36-42, 42-48, 48-54, 54-60, 60-66, and 66-72 hours after the initial data time (0000 and 1200 UTC). The forecasts are displayed beneath the hour indicating the end of the 6-h period. The Q06 guidance is a categorical forecast of liquid-equivalent precipitation equaling or exceeding certain specified amounts in the 6-h periods. The categories are as follows:

Q06 Categories
 0 = no precipitation expected;

- 1 = 0.01 - 0.09 inches;
- 2 = 0.10 - 0.24 inches;
- 3 = 0.25 - 0.49 inches;
- 4 = 0.50 - 0.99 inches;
- 5 = \geq 1.00 inches.

Missing forecasts are denoted by 9. The categorical guidance is prepared by using probability forecasts of the same categories.

11. Q12 - QUANTITATIVE PRECIPITATION AMOUNT IN A 12-H PERIOD

KDCA	ETA MOS GUIDANCE					12/05/2003					0000 UTC											
DT	/DEC 5					/DEC 6					/DEC 7					/						
HR	06	09	12	15	18	21	00	03	06	09	12	15	18	21	00	03	06	09	12	18	00	
Q12								3					3					1			0	0

Guidance for liquid-equivalent precipitation amount (QPF) accumulated during a 12-h period is presented in categorical form on the line designated Q12. These forecasts are available for projections of 12-24, 24-36, 36-48, 48-60, and 60-72 hours after the initial data time (0000 and 1200 UTC). For stations in Hawaii, however, the 12-h QPF's are valid for intervals of 6-18, 18-30, 30-42, 42-54, and 54-66 hours after 0000 and 1200 UTC. The forecasts are displayed beneath the hour indicating the end of the 12-h period. The Q12 guidance is a categorical forecast of liquid-equivalent precipitation equaling or exceeding certain specified amounts in the 12-h periods. The categories are as follows:

- Q12 Categories
- 0 = no precipitation expected;
 - 1 = 0.01 - 0.09 inches;
 - 2 = 0.10 - 0.24 inches;
 - 3 = 0.25 - 0.49 inches;
 - 4 = 0.50 - 0.99 inches;
 - 5 = 1.00 - 1.99 inches;
 - 6 = \geq 2.00 inches.

Missing forecasts are denoted by 9. The categorical guidance is prepared by using probability forecasts of the same categories.

12. T06 - PROBABILITY OF THUNDERSTORMS/CONDITIONAL PROBABILITY OF SEVERE THUNDERSTORMS IN A 6-H PERIOD

KDCA	ETA MOS GUIDANCE					12/05/2003					0000 UTC										
DT	/DEC 5					/DEC 6					/DEC 7					/					
HR	06	09	12	15	18	21	00	03	06	09	12	15	18	21	00	03	06	09	12	18	00
T06			1/0	1/0	1/11	3/0	3/0	3/0	1/1	1/7	0/0	0/0	0/0	0/13							

The T06 line represents forecasts for the probability of thunderstorms (to the left of the diagonal) and the conditional probability of severe thunderstorms (to the right of the diagonal) occurring

during a 6-h period. The 6-h probability forecasts are valid for intervals of 6-12, 12-18, 18-24, 24-30, 30-36, 36-42, 42-48, 48-54, 54-60, and 66-72 hours after the initial data times (0000 and 1200 UTC). Because of the line width, the 60-66 h forecast is not available. In the message, the pair of forecast values is displayed under the ending time of the 6-h period. The thunderstorm probability is given to the nearest whole percent. Values range from 0 to 100%. A missing forecast value is indicated by 999. The conditional severe thunderstorm probability is given to the nearest whole percent. Values range from 0 to 98%. A missing forecast value is given by 99. Both the thunderstorm and conditional severe storm probabilities are available year-round for stations in the contiguous U.S. Note that these probabilities represent the likelihood of the event within a box approximately 47 km on a side and containing the station specified. Forecasts are unavailable for stations in Alaska, Hawaii, or Puerto Rico because reports from the National Lightning Detection Network used to define the thunderstorm predictand were unavailable for locations in those areas.

13. T12 - PROBABILITY OF THUNDERSTORMS/CONDITIONAL PROBABILITY OF SEVERE THUNDERSTORMS IN A 12-H PERIOD

KDCA	ETA		MOS		GUIDANCE		12/05/2003						0000 UTC									
DT	/DEC		5		/DEC		6		/DEC		7		/									
HR	06	09	12	15	18	21	00	03	06	09	12	15	18	21	00	03	06	09	12	18	00	
T12					1/	0			5/	11				3/	1			1/	7		0/	0

The T12 line represents forecasts for the probability of thunderstorms (to the left of the diagonal) and the conditional probability of severe thunderstorms (to the right of the diagonal) occurring during a 12-h period. The 12-h probability forecasts are valid for intervals of 6-18, 18-30, 30-42, 42-54, and 54-66 hours after the initial data times (0000 and 1200 UTC). In the message, the pair of forecast values is displayed under the ending time of the 12-h period. The thunderstorm probability is given to the nearest whole percent. Values range from 0 to 100%. A missing forecast value is indicated by 999. The conditional severe thunderstorm probability is given to the nearest whole percent. Values range from 0 to 98%. A missing forecast value is given by 99. Both the thunderstorm and conditional severe storm probabilities are available year-round for stations in the contiguous U.S. Note that these probabilities represent the likelihood of the event within a box approximately 47 km on a side and containing the station specified. Forecasts are unavailable for stations in Alaska, Hawaii, or Puerto Rico because reports from the National Lightning Detection Network used to define the thunderstorm predictand were unavailable for locations in those areas.

14. POZ - PROBABILITY OF FREEZING PRECIPITATION (CONDITIONAL)

KDCA	ETA		MOS		GUIDANCE		12/05/2003						0000 UTC								
DT	/DEC		5		/DEC		6		/DEC		7		/								
HR	06	09	12	15	18	21	00	03	06	09	12	15	18	21	00	03	06	09	12	18	00
POZ	19	22	24	13	16	19	22	19	14	3	2	0	0	1	7	0	1	0	0	3	3

Conditional probability of freezing precipitation (given that precipitation is occurring) forecasts are available for specific times every 3 hours from 6 to 60 hours and then every 6 hours to 72 hours after 0000 and 1200 UTC. Freezing precipitation is defined as the occurrence of freezing rain or drizzle, ice pellets (sleet), or any mixture of freezing rain, drizzle, or ice pellets with other

19. VIS - VISIBILITY CATEGORICAL FORECASTS

KDCA	ETA		MOS		GUIDANCE		12/05/2003		0000		UTC		
DT	/DEC		5		/DEC		6		/DEC		7		
HR	06	09	12	15	18	21	00	03	06	09	12	18	00
VIS	6	7	5	4	4	4	5	5	5	5	7	5	7

Forecasts of seven categories of visibility (see the following table) are available for specific times valid every 3 hours from 6 to 60 hours and then every 6 hours to 72 hours after 0000 and 1200 UTC. The forecasts are displayed beneath the time of the day for which they are valid. Values of 1 through 7 are allowed for the categorical guidance; a value of 9 denotes a missing forecast. The categories are as follows:

- Visibility Categories
- 1 = visibility of < 1/2 mi;
 - 2 = visibility of 1/2 - < 1 mi;
 - 3 = visibility of 1 to < 2 mi;
 - 4 = visibility of 2 to < 3 mi;
 - 5 = visibility of 3 to 5 mi;
 - 6 = visibility of 6 mi;
 - 7 = visibility of > 6 mi.

The categorical guidance is prepared by using probability forecasts of the same categories.

20. OBV - OBSTRUCTION TO VISION CATEGORICAL FORECASTS

KDCA	ETA		MOS		GUIDANCE		12/05/2003		0000		UTC		
DT	/DEC		5		/DEC		6		/DEC		7		
HR	06	09	12	15	18	21	00	03	06	09	12	18	00
OBV	N	N	BR	BR	BR	BR	BR	BR	BR	BR	N	BR	N

Forecasts of five categories of obstruction to vision (see the following table) are available for specific times valid every 3 hours from 6 to 60 hours and then every 6 hours to 72 hours after 0000 and 1200 UTC. The forecasts are displayed in plain language beneath the time of the day for which they are valid. The categories are denoted by the letters "N", "HZ", "BR", "FG", and "BL"; a value of "X" denotes a missing forecast. The categories are as follows:

- Obstruction to Vision Categories
- N = none of the following;
 - HZ = haze, smoke, dust;
 - BR = mist (fog with visibility $\geq 5/8$ mi);
 - FG = fog or ground fog (visibility < 5/8 mi);
 - BL = blowing dust, sand, snow.

The categorical guidance is prepared by using probability forecasts of the same categories. In the equation development, cases of fog or mist were not stratified by the occurrence of precipitation. Thus, a forecast of fog can be coincidental with a forecast of precipitation. Lower visibilities caused exclusively by precipitation occurrence are not indicated by the obstruction to vision guidance.

21. AVAILABILITY

The 0000 and 1200 UTC Eta MOS guidance will be available at approximately 0315 and 1515 UTC, respectively, in 10 alphanumeric messages transmitted to NWS AWIPS and Family of Services (FOS) circuits: six containing guidance for stations in the contiguous U.S., Puerto Rico, and the Virgin Islands; three containing guidance for Alaskan sites; and one containing guidance for stations in Hawaii. The following two-line WMO headers are used:

WMO Header - Region
FOPA40 KWNO - Pacific Region
METPA0

FOUS44 KWNO - Northeast U.S.
METNE1

FOUS45 KWNO - Southeast U.S.
METSE1

FOUS46 KWNO - North Central U.S.
METNC1

FOUS47 KWNO - South Central U.S.
METSC1

FOUS48 KWNO - Rocky Mountain Region (CONUS)
METRM1

FOUS49 KWNO - West Coast Region (CONUS)
METWC1

FOAK47 KWNO - Southeast Alaska (Juneau)
METAJK

FOAK48 KWNO - Central Alaska (Anchorage)
METAFC

FOAK49 KWNO - Northern Alaska (Fairbanks)
METAFG

22. STATION LIST

The Eta MOS guidance will be available for approximately 1524 stations. The guidance is transmitted in the 10 bulletins described in Section 21.

The user may check the following web page for the station lists and corresponding WMO headers:

<http://www.nws.noaa.gov/mdl/synop/stadrg.html>

Figure 1. Sample 0000 UTC message.

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KDCA   ETA MOS GUIDANCE   12/05/2003   0000 UTC
DT /DEC   5               /DEC   6               /DEC   7               /
HR   06 09 12 15 18 21 00 03 06 09 12 15 18 21 00 03 06 09 12 18 00
X/N                36                32                34                26   44
TMP   34 34 34 35 35 35 35 36 37 36 34 32 32 31 30 30 29 28 27 42 38
DPT   25 27 29 33 35 35 35 36 37 36 32 29 28 26 23 22 20 19 18 23 22
CLD   OV OV OV OV OV OV OV OV OV OV OV OV OV OV OV OV BK BK SC FW CL
WDR   05 04 04 03 02 02 02 01 36 36 35 34 34 33 34 34 33 33 33 32 33
WSP   08 12 16 13 11 13 14 14 13 13 15 15 15 19 20 21 20 19 18 19 14
P06           100           93           63           85           74           55           38           6           4 0 0
P12                100                88                64                15           0
Q06           4           3           3           3           2           1           0           0 0 0
Q12                3                3                1                0           0
T06           1/ 0 1/ 0 1/11 3/ 0 3/ 0 1/ 1 1/ 7 0/ 0 0/ 0 0/13
T12                1/ 0                5/11                3/ 1                1/ 7           0/ 0
POZ   19 22 24 13 16 19 22 19 14 3 2 0 0 1 7 0 1 0 0 3 3
POS   13 16 18 14 13 11 10 12 24 37 47 55 63 61 72 72 75 91 80 87 63
TYP   R R R R R R R R R R R S S S S S S S S S S S S
SNW                2                1
CIG   5 4 4 3 3 2 2 2 3 3 4 4 4 5 6 7 7 7 8 8 8
VIS   6 7 5 4 4 4 5 5 5 5 7 5 7 7 7 7 7 7 7 7 7
OBV   N N BR BR BR BR BR BR BR BR BR N BR N N N N N N N N N

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Figure 2. Sample 1200 UTC message.

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KDCA   ETA MOS GUIDANCE   12/05/2003   1200 UTC
DT /DEC   5/DEC   6               /DEC   7               /DEC   8
HR   18 21 00 03 06 09 12 15 18 21 00 03 06 09 12 15 18 21 00 06 12
N/X                31                33                26                35   26
TMP   36 36 36 35 34 34 33 31 31 30 30 30 29 28 28 31 34 34 32 29 28
DPT   35 35 33 33 33 32 29 27 25 23 21 20 19 18 17 18 18 18 19 19 19
CLD   OV OV OV OV OV OV OV OV OV OV OV OV OV SC SC FW FW CL CL CL CL
WDR   04 02 01 01 36 35 35 34 33 33 33 33 33 33 33 33 32 32 33 33 33
WSP   13 14 15 15 14 14 16 17 18 19 18 19 18 17 17 17 18 16 13 10 08
P06           62           78           87           58           17           3           1           0           0 0 0
P12                87                58                7                0           0
Q06           2           2           3           1           0           0           0           0 0 0
Q12                2                1                0                0           0
T06           3/ 8 2/ 0 2/ 0 0/ 0 1/ 3 1/ 0 0/ 0 0/ 0 0/13 0/ 0
T12                3/ 8                4/ 0                1/ 3                0/ 0           0/13
POZ   10 19 23 22 15 13 7 1 1 2 3 0 4 0 0 0 4 4 9 7 4
POS   0 5 9 13 29 32 48 69 68 72 74 87 75 88 86 91 79 79 59 31 34
TYP   R R R R R R S S S S S S S S S S S S S S R R
SNW                4                0
CIG   3 2 2 2 2 3 3 4 5 6 6 7 7 8 8 8 8 8 8 8 8
VIS   5 5 5 5 4 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
OBV   BR BR BR BR BR BR N N N N N N N N N N N N N N N

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