

CHAPTER 10

RECORDING THE HOURLY OBSERVATION ON FORM 63-2322

10.1 GENERAL. The following instructions deal with entries in the various lines and columns of Form 63-2322, although not necessarily in the order in which the elements are observed or that the entries will be made by the observer, e.g., the type of report is usually determined after all other data have been observed.

10.2 SECTION II – HOURLY OBSERVATIONS “UTC”

10.2.1 Column 23 – Corrected Wet-Bulb: Enter the corrected wet-bulb temperature to the nearest tenth degree Celsius. Leave this column blank when the dew-point is obtained from the AES Dewcel.

10.2.1.1 When the corrected dry-bulb temperature is lower than -37 C enter “M” in Column 23.

10.2.1.2 Add “NV” in this column at each Hourly Observation that the psychrometer motor is unserviceable. If the psychrometer motor is unserviceable for more than a day add “NV” once each day at the time of the first scheduled observation and explain under “Notes and Instrument Defects and Changes”, Column 1. (At those stations not equipped with a sling psychrometer.)

10.2.2 Column 24 – Relative Humidity. Enter the relative humidity as a percentage if there is a regional or local need, otherwise this column may be left blank (see paragraph 6.7).

10.2.3 Column 25 – Total Opacity. Enter, in tenths of the whole sky, the total opacity for all layers. This cannot exceed 10 tenths. If blue sky or stars are visible, the total opacity shall not exceed 9/10.

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10.2.4 Column 26 – Total Amount. Enter, in tenths of the whole sky, the sum of the amounts for all layers. In determining total amount disregard portions of upper layers which are seen through transparencies in lower layers (the total amount cannot exceed 10 tenths).

Note: In determining Total Opacity and Total Amount (25 and 26), any layer whose amount is a trace shall be disregarded. (Ex. Trace of cumulus in each observation):

WEATHER RECORD		AT _____		SECTION NAME AS IN METEOR _____		PROVINCE _____		FROM _____		HOUR (UTC) DAY MONTH _____ 19 _____								
II HOURLY OBSERVATIONS										Temperature °C (tenths)		WIND		at sea		CLOUDS and/or OBSCURING PHENOMENA Type/Opacity		
Corrected Wet-Bulb °C	Relative Humidity %	Total Opacity	Total Amount	Type	Date (UTC)	Hour (UTC)	Sky Condition	Visibility (M)	Weather and Obstructions to Vision	Sea-Level Pressure (hPa)	Dry-Bulb	Dew-Point	Direction	Speed (K)	Character	Altitude Surface Station (m)	Type	Opacity
23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
		0	0				30 FEW										CU1	
		0	4				30 FEW 300 -SCT										CU1CS	
		3	4				10 -SCT 30 -SCT										ST3 CU1	

10.2.5 Column 27 – Type of Report. Enter one of the following to indicate the type of report:

- SA for Regular
- SP for Special
- C for check

Note: Criteria for determining the various types of reports are given in para. 10.3.

10.2.6 Column 28 – DATE (UTC). Using two figures enter the date of each observation, specials and checks included, based on Coordinated Universal Time. For example, if an observation is recorded at 2300 UTC on the 9th of the month, enter 09. For the observation one hour later at 0000 UTC, the date would be entered as 10. The change of date shall take place at 0000 UTC.

10.2.7 Column 29 – HOUR (UTC). Using a four-figure group enter the Coordinated Universal Time of the observation.

10.2.7.1 Time Assigned to Special Observations. The time assigned to a Special Observation shall be the time at which the element necessitating the special was observed (except in the case of end of thunderstorm or precipitation – see paras. 10.3.5.5 and 10.3.5.6). If more than one element has changed sufficiently to cause a special, the time shall be the time of observation of the element considered to be most important to aviation.

10.2.7.2 Time Assigned to Check Observations. The time assigned to a Check Observation shall be the time at which the observation was completed.

10.2.8 Column 30 – SKY condition

10.2.8.1 Sky Cover – Terms and Abbreviations

Term	Symbol or Abbreviation	Symbol is used to Represent
Clear	CLR	The sky condition when no cloud or obscuring phenomenon is present
Partially Obscured	-X	A surface-based layer with a summation opacity of at least 1/10 but less than 10/10.
Obscured	X	A surface-based layer with a summation opacity of 10/10.
*Few	FEW	A layer aloft with a summation amount of 3/10 or less.
*Scattered	SCT	A layer aloft with a summation amount of 4/10 to 5/10 inclusive.
*Broken	BKN	A layer aloft with a summation amount of 6/10 to 9/10 inclusive.
*Overcast	OVC	A layer aloft with a summation amount of 10/10.

*Note: The symbol for “thin” (-) may be prefixed to these symbols. (para. 10.2.8.2).

10.2.8.2 Thin Layers. A layer aloft shall be described as “thin” when both:

- (a) the summation amount of the layer exceeds the summation opacity of the layer by 1/10 or more of the whole sky, and
- (b) the summation opacity of the layer is 5/10 or less of the whole sky.

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10.2.8.3 Order of Sky Cover Symbols and/or Contractions. A sky cover symbol shall be recorded for each layer observed. Multiple layers shall be reported in order of their height, starting with the lowest. When used in combination with other abbreviations, -X (partially obscured) shall be reported first, and X (obscured) shall be reported last.

Note: -X and X may not be used in the same report.

10.2.8.4 Heights of Layers Aloft. A coded numerical value, giving the height of the base of the layer aloft, shall be prefixed (with one space) to FEW, SCT, BKN or OVC. Heights are with reference to the official aerodrome level of the station, or, if this has not been established, with reference to the ground level.

10.2.8.5 Vertical Visibility. A coded numerical value giving the height of the vertical visibility in a surface-based layer shall be prefixed (with one space) to the symbol "X".

10.2.8.6 How to Obtain the Coded Height:

- (a) Heights of bases of layers or height of vertical visibility shall first be determined to the nearest:
 - (i) 30 m from the surface up to 3000 m; i.e., 0, 30 m, 60 m, 90 m, 120 m etc.
 - (ii) 300 m above 3000 m; i.e., 3000 m, 3300 m, 3600 m, 3900 m, etc.
- (b) After the height has been determined to the nearest 30 m, or 300 m (para. 10.2.8.6 (a)) this value shall be divided by 30 to obtain the CODED HEIGHT which will precede with one space the symbol FEW, SCT, BKN, OVC or X; refer para. 10.2.8.6.4.
- (c) If the actual observed height is exactly halfway between any two values which satisfy the increments in 10.2.8.6 (a), the lower value shall be used to obtain the CODED HEIGHT: e.g., the coded height of a layer based at 75 m would be 2, i.e., $60 \div 30$.

10.2.8.6.1 Examples:

Height of Base of Layer	Coded Height	Equivalent Height in Feet*
30 m	1	98
120 m	4	393
1500 m	50	4921
6000 m	200	19686
9000 m	300	29529

*Note: The coded height recorded in col. 30 is a direct reading of height in units of 30 metres and is a close approximation of the height in hundreds of feet.

10.2.8.6.2 One space shall be used between the coded height and the contraction or symbol, and one space shall be used to separate the data which apply to one layer from the data which apply to the next higher layer.
Example:

AT _____ <small>STATION NAME AS IN METSTAT</small>	PROVINCE _____	FROM _____ <small>HOUR (UTC) DAY MONTH</small>	TO _____ <small>HOUR (UTC) DAY MONTH</small>	19 ____	19 ____	LST					
Sky Condition	Visibility (M)	Weather and Obstructions to Vision	Sea-level Pressure (hPa)	Temperature °C (TENTHS)		WIND			Altimeter Setting (hPa)	CLOUDS and/or OBSCURING PHENOMENA Type/Opacity	REMARKS
	31	32	33	Dry-Bulb	Dew-Point	Direction	Speed (kt)	Character	39	40	41
30											
15 -SCT E75 OVC											
-X B25 BKN											

10.2.8.6.3 When heights referring to surface-based layers or to layers aloft are given in the "Remarks" of the Hourly Observation (para 10.2.19.2) the heights shall be expressed as CODED HEIGHTS: refer para. 10.2.8.6. If the observer has confidence in the accuracy of a height available to him, the height reported in "Remarks" should be expressed in feet to the accuracy available. Example: CIG 140 FT.

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10.2.8.6.4

Height in Metres to Coded Height

Metres	Coded Height	Metres	Coded Height
<16	0	1200	40
30	1	1230	41
60	2	1260	42
90	3	1290	43
120	4	1320	44
150	5	1350	45
180	6	1380	46
210	7	1410	47
240	8	1440	48
270	9	1470	49
300	10	1500	50
330	11	1530	51
360	12	1560	52
390	13	1590	53
420	14	1620	54
450	15	1650	55
480	16	1680	56
510	17	1710	57
540	18	1740	58
570	19	1770	59
600	20	1800	60
630	21	1830	61
660	22	1860	62
690	23	1890	63
720	24	1920	64
750	25	1950	65
780	26	1980	66
810	27	2010	67
840	28	2040	68
870	29	2070	69
900	30	2100	70
930	31	2130	71
960	32	2160	72
990	33	2190	73
1020	34	2220	74
1050	35	2250	75
1080	36	2280	76
1110	37	2310	77
1140	38	2340	78
1170	39	2370	79

10 -7
 Height in Metres to Coded Height

Height in Metres to Coded Height

Metres	Coded Height	Metres	Coded Height
2400	80	9 000	300
2430	81	9 300	310
2460	82	9 600	320
2490	83	9 900	330
2520	84	10 200	340
2550	85	10 500	350
2580	86	10 800	360
2610	87	11 100	370
2640	88	11 400	380
2670	89	11 700	390
2700	90	12 000	400
2730	91	12 300	410
2760	92	12 600	420
2790	93	12 900	430
2820	94	13 200	440
2850	95	13 500	450
2880	96	13 800	460
2910	97	14 100	470
2940	98	14 400	480
2970	99	14 700	490
3000	100	15 000	500
3300	110	15 300	510
3600	120	15 600	520
3900	130	15 900	530
4200	140	16 200	540
4500	150	16 500	550
4800	160	16 800	560
5100	170	17 100	570
5400	180	17 400	580
5700	190	17 700	590
6000	200	18 000	600
6300	210	18 300	610
6600	220	18 600	620
6900	230	18 900	630
7200	240	19 200	640
7500	250	19 500	650
7800	260	19 800	660
8100	270	20 100	670
8400	280	20 400	680
8700	290	20 700	690
		21 000	700

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10.2.8.7 Ceiling Definition. The ceiling is the lesser of:

- (a) the height above ground of the base of the lowest layer aloft at which the summation opacity is 6/10 or more of the whole sky;
- (b) the vertical visibility into a surface-based layer which completely obscures the sky.

Note: When the sky condition is such that neither of the above conditions is satisfied, the ceiling is said to be UNLIMITED.

10.2.8.7.1 The summation opacity is the sum of the opacity of a given layer and the opacities of all lower layers. Thus, the layer which constitutes the ceiling may be determined by adding up the opacities of individual layers, until 6/10 or more is reached. However, the second part of the ceiling definition should be noted. If a layer is surface-based and its opacity is less than 10/10 the surface-based layer cannot constitute a ceiling. Thus, surface-based layers must have an opacity, or summation opacity of 10/10 in order to constitute the ceiling layer. For example, if 6/10 of fog were present, it would not constitute the ceiling layer, but if there were 1/10 Altocumulus cloud above the fog, making the summation opacity 7/10 at the level of the Altocumulus, the Altocumulus would constitute the ceiling layer and its height would be reported as the ceiling in Column 30.

10.2.8.8 Measurement of Ceiling. The determination of the ceiling is an extremely important part of the observation. At stations so equipped, the ceilometer shall be used at each observation. At stations not equipped with a ceilometer, or when the ceilometer is inoperative, the following procedures apply:

- (a) During the hours of darkness the ceiling projector shall be used at each observation.
- (b) During daylight hours a ceiling balloon shall be used when the ceiling is estimated to be 300 m or less (coded height 10). Should there be any doubt whether the ceiling is above or below 300 m (coded height 10) a balloon shall be used.
- (c) During daylight hours the ceiling balloon shall be used whenever requested by a forecast office or responsible flight personnel (such as pilots, ATC, FSS).
- (d) During daylight hours when the ceiling is estimated to be more than 300 m (coded height 10) the ceiling balloon may be used on the initiative of the observer.

10.2.8.9 Ceiling Classification. The ceiling is classified according to its nature and the method by which it is determined.

10.2.8.9.1 When the height of a layer aloft is designated as the ceiling, the ceiling classification shall be one of the following: (The listed order also indicates priority when two or more of these classifications apply).

Classification	Abbreviation
Measured	M
Aircraft	A
Balloon	B
Estimated	E

10.2.8.9.2 When the vertical visibility, in a surface-based layer which completely obscures the sky, is designated as the ceiling, the ceiling classification shall be one of the following: (The listed order also indicates priority).

Classification	Abbreviation
Aircraft	A
Precipitation	P
Indefinite	W

10.2.8.9.3 To indicate the ceiling classification, prefix the appropriate abbreviation (without spacing) to the numerical value of the ceiling. Details regarding the requirements of the various classifications are given below:

10.2.8.9.4 Measured is the ceiling classification employed:

- (a) When the height of the base of a layer aloft is determined by use of a ceiling projector or ceilometer, and the projector spot or ceilometer reaction is sharply defined.
- (b) When the height of the base of a layer aloft is determined by observing the disappearance of a radiosonde balloon and the height of disappearance is computed from the radiosonde record.
- (c) When the height of the base of a layer aloft is determined from the known heights of unobscured portions of objects such as buildings, towers, etc., within 1 1/2 miles of the boundary of the field, if the observer believes that the height of the layer at the location of the tall object concerned is representative of the height of the layer at the station.

10.2.8.9.5 Aircraft is the ceiling classification employed:

- (a) When the height of the base of a layer aloft or the vertical visibility in a surface-based layer is determined from information reported by the pilot of an aircraft and the height measurement was obtained by the pilot while over the geographical limits of the aerodrome itself, and the report is not more than 15 minutes old and the conditions reported by the pilot are considered by the observer to be representative of conditions at the time of the observation.
- (b) When a report, not more than 15 minutes old, is received from an aircraft which was not over the aerodrome at the time of the height measurements, but was within 1 1/2 miles of the boundary of the field, and the observer considers the conditions where the observation was made to be representative of conditions over the aerodrome.

10.2.8.9.6 Balloon is the ceiling classification employed when the height of the base of a layer aloft is determined by observation of a ceiling balloon, pilot balloon or radiosonde balloon, and the height of the base of the layer is computed from the assumed rate of ascent and the time interval between the release of the balloon and its entry into the base of the layer.

10.2.8.9.7 Indefinite is the ceiling classification used when, in a surface-based layer not composed of precipitation, the height of vertical visibility constitutes a ceiling and the classification "Aircraft" is not appropriate.

10.2.8.9.8 Precipitation is the ceiling classification used when, in a surface-based layer composed of precipitation, the height of vertical visibility constitutes a ceiling and the classification "Aircraft" is not appropriate.

Note: When appropriate, "Aircraft" (para. 10.2.8.9.5) shall be the classification employed for the value of the vertical visibility into a surface-based layer which completely obscures the sky. When the classification Aircraft is not appropriate, either "Indefinite" or "Precipitation" shall be the classification regardless of the aids, e.g., balloons, ceiling projector etc., which may have been used in estimating the vertical visibility.

10.2.8.9.9 Estimated is the classification employed when the height of the base of a layer aloft is determined by visual estimation or by means other than those that would allow one of the classifications "Measured", "Aircraft" or "Balloon" to be used.

10.2.8.10 Variable Ceiling. Enter the letter V immediately after the numerical value of the ceiling if the ceiling is 900 m or less and is observed to be "variable", i.e., rising and falling from a mean value by 1/4 or more of the mean value (para. 1.6.5).

10.2.8.10.1 Indicate the range of variation of the ceiling in Remarks (41).

STATION NAME AS IN METEOR		() PROVINCE		FROM		19		TO		HOUR (UTC) DAY MONTH	
Sky Condition	30 Visibility (M)	Weather and Obstructions to Vision	32 Sea-level Pressure (hPa)	Temperature °C (tenths)		WIND			39 At sea Altimeter Setting (ft.)	CLOUDS and/or OBSCURING PHENOMENA Type/Opacity	41 REMARKS
				Dry-Bulb	Dew-Point	Direction	Speed (kt)	Character			
M7V OVC	31		33	34	35	36	37	38		ST10	CIG VARBL 5-9
W2V X										F10	CIG VARBL 1-3

10.2.8.11.5

EXAMPLES OF SKY COVER REPORTS

Layers	Opacity	Amount	Summation Opacity	Summation Amount	Sky Condition (Col. 30)	Clouds and/or obscuring phenomena Type, Opacity (Col. 40)
1. Fog, surface	4	4	4	4	-X M10 BKN 50 BKN	F4SF3SC2
SF, 300m	3	3	7	7		
SC, 1500 m	2	2	9	9		
2. CF, 240 m	2	2	2	2	8 FEW E20 BKN 75 OVC	CF2SC4AC4
SC, 600 m	4	4	6	6		
AC, 2250 m	4	4	10	10		
3. SF, 150 m	3	3	3	3	5 FEW P15 X	SF3S7
Snow, 450 m	7	7	10	10		
4. Fog, Surface	6	6	6	6	-X B5 BKN	F6K2
Smoke, 150 m	2	3	8	9		
5. Smoke, 240 m	4	6	4	6	8 -BKN M12 OVC	K4ST4
ST, 360m	4	4	8	10		
6. Smoke, 90 m	1	3	1	3	3 -FEW 35 -BKN	K1SC4
SC, 1050 m	4	5	5	8		
7. Smoke, 90 m	2	3	2	3	3 -FEW E35 OVC	K2SC5
SC, 1050 m	5	7	7	10		
8. ST, 150 m	2	10	2	10	5 -OVC E25 OVC	ST2SC8
SC, 750 m	8	8	10	10		
9. ST, 150 m	2	10	2	10	5 -OVC 85 -OVC	ST2AS3
AS, 2550 m	3	3	5	10		
10. ST, 150 m	9	10	9	10	M5 OVC 70 OVC	ST9AS1
AS, 2100 m	1	1	10	10		
11. CF, 150 m	1	1	1	1	5 FEW E25 BKN	CF1SC5
SC, 750 m	5	5	6	6		

10.2.9 Column 31 – Visibility. Enter the prevailing visibility (para.2.2) to the nearest reportable value (para. 10.2.9.1). If the observed prevailing visibility is exactly half-way between two reportable values, use the “lower” value.

10.2.9.1 Reportable Values of Visibility. The following values (in statute miles) shall be used for reporting visibility:

0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4 (increments of 1/8 mile);

1, 1 1/4, 1 1/2, 1 3/4, 2, 2 1/4, 2 1/2 (increments of 1/4 mile);

3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 (increments of 1 mile);

15+ (if suitable markers beyond 15 miles are lacking);

20, 25, 30, 35, etc., (increments of 5 miles) shall be used only if suitable visibility markers are available.

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10.2.9.2 Variable Visibility. Enter the letter V immediately after the numerical value of the visibility if the prevailing visibility is reported as 2 1/2 miles or less, and the visibility is observed to be variable (para. 2.5); i.e., increasing and decreasing from a mean value by 1/4 or more of the mean value. Indicate the range of variation in Remarks. Example:

STATION NAME AS IN METSTAT		PROVINCE		FROM		19		TO		19		LST = UTC	
Sky Condition	Visibility (M)	Weather and Obstructions to Vision	Sea level Pressure (hPa)	Temperature °C (tenths)		WIND			AT 02	CLOUDS and/or OBSCURING PHENOMENA Type/Opacity	REMARKS	(St. Pres.)	Tendency
				Dry-Bulb	Dew-Point	Direction	Speed (kt)	Character					
30	31	32	33	34	35	36	37	38	39	40	41		
	V	F									VSBY VARL 3/4-1114		
	7										VSBY VARL 5-9		

10.2.9.3 For Different Directions. If the visibility in one or more directions is half or less, or double or more the prevailing visibility, details of the visibility in such directions shall be recorded in Remarks (41). Example:

STATION NAME AS IN METSTAT		PROVINCE		FROM		19		TO		19		LST = UTC	
Sky Condition	Visibility (M)	Weather and Obstructions to Vision	Sea level Pressure (hPa)	Temperature °C (TENTHS)		WIND			AT 02	CLOUDS and/or OBSCURING PHENOMENA Type/Opacity	REMARKS	(St. Pres.)	Tendency
				Dry-Bulb	Dew-Point	Direction	Speed (kt)	Character					
30	31	32	33	34	35	36	37	38	39	40	41		
	12										VSBY SW 6F		

10.2.9.3.1 At aerodromes with an air traffic control facility (Tower) and when the ceiling is 300 m (coded height 10) or more, if the visibility in one or more sectors is 3 miles or better and the prevailing visibility is less than 3 miles, the sector visibility shall be recorded in Remarks (41). Example:

STATION NAME AS IN METSTAT		PROVINCE		FROM		19		TO		19		LST = UTC	
Sky Condition	Visibility (M)	Weather and Obstructions to Vision	Sea level Pressure (hPa)	Temperature °C (TENTHS)		WIND			AT 02	CLOUDS and/or OBSCURING PHENOMENA Type/Opacity	REMARKS	(St. Pres.)	Tendency
				Dry-Bulb	Dew-Point	Direction	Speed (kt)	Character					
30	31	32	33	34	35	36	37	38	39	40	41		
M12 OVC	2	F									VSBY NE 3		

10.2.9.4 Additional instructions. When observing visibility from elevated positions, such as a control tower or roof, if the visibility differs by a reportable value from the prevailing visibility observed on the ground (at eye level) the visibility from the elevated position and the identification of the position shall be reported in Remarks. Example:

STATION NAME AS IN METSTAT		PROVINCE		FROM		19		TO		19		LST = UTC	
Sky Condition	Visibility (M)	Weather and Obstructions to Vision	Sea level Pressure (hPa)	Temperature °C (TENTHS)		WIND			AT 02	CLOUDS and/or OBSCURING PHENOMENA Type/Opacity	REMARKS	(St. Pres.)	Tendency
				Dry-Bulb	Dew-Point	Direction	Speed (kt)	Character					
30	31	32	33	34	35	36	37	38	39	40	41		
R15 OVC	3	BD									ROOF VSBY 10		

10.2.9.4.1 With "blowing snow" conditions, the reporting of roof-top visibility is particularly important. Frequently, visibility is much better a short distance above ground level. Ground-level visibility alone in such circumstances does not give a full description of the visibility that would be experienced by the pilot of an aircraft.

10.2.9.4.2 With low-lying "fog" conditions, the observer should provide an estimate of the depth of the fog as well as the roof-top visibility. Example:

AT _____ () PROVINCE _____ FROM _____ 19 _____ TO _____ 19 _____ LS _____
STATION NAME AS IN METSTAT HOUR (UTC) DAY MONTH HOUR (UTC) DAY MONTH

Sky Condition	Visibility (M)	Weather and Obstructions to Vision	Sea-level Pressure (hPa)	Temperature °C (tenths)		WIND			Altimeter Setting (in.)	CLOUDS and/or OBSCURING PHENOMENA Type/Opacity	REMARKS
				Dry-Bulb	Dew-Point	Direction	Speed (kt)	Character			
30	31	32	33	34	35	36	37	38	39	40	41
-X	1/4	F									ROOF VSBY 10 F 30 FT THK

10.2.9.4.3 Directions in remarks shall be recorded in a clockwise order from true north.

10.2.9.4.4 To avoid confusion between compass points and some weather phenomena (ie. southwest and snow showers), use plain language abbreviations for weather phenomena (ie. SNWSHWRS instead of SW).

10.2.10 Column 32. Weather and Obstructions to Vision

Amendment n° 14 June 1996

10.2.10.1 Symbols for the conditions of weather and obstructions to vision which may be reported in Column 32 are listed below:

WEATHER PHENOMENA AND SYMBOLS

Tornadoes and Thunderstorms	Tornado	Tornado	
	Waterspout	Waterspout	
Precipitation	Funnel Cloud	Funnel Cloud	
	Thunderstorm	T, T+	
	Rain	R-, R, R+	
	Rain Showers	RW-, RW, RW+	
	Drizzle	L-, L, L+	
	Freezing Rain	ZR-, ZR, ZR+	
	Freezing Drizzle	ZL-, ZL, ZL+	
	Snow	S-, S, S+	
	Snow Grains	SG-, SG, SG+	
	Ice Crystals	IC	
	Ice Pellets	IP-, IP, IP+	
	Ice Pellet Showers	IPW-, IPW, IPW+	
	Snow Showers	SW-, SW, SW+	
	Snow Pellets	SP-, SP, SP+	
	Hail	A-, A, A+	
Obstructions to Vision (visibility 6 miles or less)	Fog	F	
	Ice Fog	IF	
	Haze	H	
	Smoke	K	
	Blowing Snow	BS	
	Blowing Sand	BN	
	Sandstorm	SS, +SS	
	Blowing Dust	BD	
	Duststorm	DS, +DS	
	Dust Haze	D	
	Additional Phenomena	Shallow Fog Patches	MIFG
		Fog Patches	BCFG
		Fog Covering Part of Aerodrome	PRFG
		Drifting Dust	DRDU
		Drifting Sand	DRSA
Drifting Snow		DRSN	
Dust Whirls		PO	
Volcanic Ash		VA	
Recent Phenomena		Recent Freezing Drizzle	REFZDZ
		Recent Freezing Rain	REFZRA
	Recent Moderate or Heavy Rain	RERA	
	Recent Moderate or Heavy Drizzle	REDZ	
	Recent Moderate or Heavy Snow	RESN	
	Recent Moderate or Heavy Ice Pellets	REPE	
	Recent Moderate or Heavy Hail	REGR	
	Recent Moderate or Heavy Snow Pellets	REGS	
	Recent Moderate or Heavy Blowing Snow	REBLSN	
	Recent Sandstorm	RESS	
	Recent Duststorm	REDS	
	Recent Thunderstorm	RETS	
	Recent Volcanic Ash	REVA	
	Recent Funnel Cloud, Tornado or Waterspout	REFC	
	In the Vicinity Phenomena	Showers in the Vicinity	VCSH
Duststorm in the Vicinity		VCDS	
Sandstorm in the Vicinity		VCSS	
Fog in the Vicinity		VCFG	
Dust/Sand Whirls in the Vicinity		VCPO	
Blowing Dust in the Vicinity		VCBLDU	
Blowing Sand in the Vicinity		VCBSA	
Blowing Snow in the Vicinity	VCBSN		

10.2.10.2 Intensity of Precipitation. The intensity of precipitation shall be indicated by the symbol "+" to indicate 'heavy', the symbol "-" to indicate 'light' and ; the absence of such a symbol indicates 'moderate' intensity . An exception to the foregoing is Ice Crystals, to which no intensity is ascribed. The criteria for determining the intensity of precipitation are given in Part A, Chapter 3.

10.2.10.3 Two or more entries for a single observation shall be made in the following order:

1. Tornado, Waterspout, Funnel Cloud
2. Thunderstorm
3. Liquid Precipitation, in order of decreasing intensity
4. Freezing Precipitation, in order of decreasing intensity
5. Frozen Precipitation, in order of decreasing intensity
6. Obstructions to vision, in order of decreasing predominance.

10.2.10.4 Record in Column 32 only those phenomena which are occurring at the station , in-the-vicinity of the station , or meet the criteria for recent events, at the time of observation with the following exceptions:

- (a) Tornado, Waterspout or Funnel Cloud shall be recorded if within sight at the time of observation.
- (b) Thunderstorm shall be recorded when:
 - (i) thunder is heard within the past 15 minutes, or
 - (ii) overhead lightning is observed within the past 15 minutes and the local noise level is such as might prevent hearing thunder. In this case, hail may also be an indicator of a thunderstorm in progress.

Note: Additional phenomena, recent phenomena and in the vicinity phenomena shall be recorded in column 41 (remarks) if not enough space in column 32. Also note that newer data entry screens will accept all "weather" codes in the WX section, sites with older screens may have to enter some phenomena in the remarks section of the input screen.

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10.2.10.5 Precipitation of an intermittent or showery character, which has been active at the station within the preceding 15 minutes, is not occurring at the time of observation, but is expected to begin again soon, shall be reported by remarks in Column 41. Example:

AT	STATION NAME AS IN METSTAT	PROVINCE	FROM	HOUR (UTC) DAY MONTH	19	TO	HOUR (UTC) DAY MONTH	19	LST														
	Sky Condition	31	Weather and Obstructions to Vision	32	Sea-level Pressure (hPa)	33	Temperature °C (TENTHS)	34	Dew Point	35	WIND	36	Direction	37	Speed (kt)	38	Character	39	At obs	40	CLOUDS and/or OBSCURING PHENOMENA	41	REMARKS
	30																						
	E40 BKN	10																			TCU B	OCNL RW-	
	E60 OVC	10																			45 10	INTMT R-	

When intermittent precipitation is occurring at the time of observation, the remark is of the form "R-INTMT".

10.2.10.6 Obstructions to vision (para. 10.2.10.1) shall be recorded in Column 32 only when the prevailing visibility is 6 miles or less.

Note: Precipitation of sufficient intensity may account for a considerable reduction in visibility without the presence of any obstruction to vision. However, when rain is occurring with visibilities less than 2 miles some "obstruction to vision" should be reported with the rain, unless there is evidence that only the rain is restricting visibility. Light or moderate rainfall (e.g., R- or RW), without an obstruction to vision, will not be sufficient to reduce visibility to less than 2 miles.

10.2.10.7 When precipitation, or an obstruction to vision within sight but not at the station, restricts the prevailing visibility to 6 miles or less, explanatory remarks clarifying the precipitation or obstruction to vision should be entered in Column 41. Example:

AT	STATION NAME AS IN METSTAT	PROVINCE	FROM	HOUR (UTC) DAY MONTH	19	TO	HOUR (UTC) DAY MONTH	19	LST = L														
	Sky Condition	31	Weather and Obstructions to Vision	32	Sea-level Pressure (hPa)	33	Temperature °C (tenths)	34	Dew Point	35	WIND	36	Direction	37	Speed (kt)	38	Character	39	At obs	40	CLOUDS and/or OBSCURING PHENOMENA	41	REMARKS
	30																						
	E35 BKN	4	VCSH																		TCU 7		
	250 FEW	3	VCFG																		CI 2	VSBY N10 FBK E-S-W	

Note: When the visibility in Col. 31 is 6 or less, an entry is required in either Col. 32 or "Remarks" to explain the reduced visibility.

10.2.10.8 Ice Crystals are a common form of precipitation at very low temperatures. This type of precipitation may continue for several days without interruption and frequently falls from a cloudless sky. The restriction to vision may or may not be severe.

10.2.10.9 Snow and fog shall not be reported together unless there is very good evidence that fog exists. The occurrence of hoar frost or rime constitutes evidence to support a report of fog.

10.2.10.10 Drifting snow, sand or dust shall not be reported in the same observation as blowing conditions of the same phenomena, by definition one excludes the other. For example drifting snow shall not be reported with blowing snow.

10.2.10.11 Liquid precipitation and freezing precipitation shall not be reported in the same observation. By definition one excludes the other.

10.2.11 Column 33 – Sea-Level Pressure. Enter the atmospheric pressure, reduced to sea-level, in hectopascals and tenths with the initial 9 or 10 and the decimal point omitted, e.g., record 1013.2 hPa as 132; record 990.6 hPa as 906.

10.2.11.1 The AES mercurial barometer shall be used for determining atmospheric pressure. A reduction to sea-level shall be computed at the time of each main and intermediate Synoptic report, i.e., at 0000, 0300, 0600, 0900, 1200, 1500, 1800 and 2100 UTC.

Note: At each time that a new mean sea-level reduction is computed and at the time of the first observation on each Form 63-2322, enter the mean sea-level reduction in brackets in "Remarks" for use until the next correction has been determined. Refer also to para. 4.3.3.3.

10.2.12 Column 34 – Dry-Bulb Temperature. Enter the corrected dry-bulb temperature in degrees and tenths Celsius. The temperature transmitted for the Hourly Observation shall be rounded to the nearest whole degree Celsius for transmission.

10.2.12.1 Entries which are below zero Celsius shall be prefixed with a minus (-) sign. Example:

		FROM		HOUR (UTC) DAY MONTH			
Sea-level Pressure (mb)	Temperature °C (TENTHS)		WIND			ATMS	
	Dry-Bulb	Dew-Point	Direction	Speed (kt)	Character		
33	34	35	36	37	38	39	
	-0.4						
	-1.2						

10.2.13 Column 35 – Dew-Point Temperature. Enter the corrected dew-point temperature in degrees and tenths Celsius. The dew-point temperature transmitted for the Hourly Observation shall be rounded to the nearest whole degree Celsius for transmission.

10.2.13.1 Entries which are below zero Celsius shall be prefixed with a minus (-) sign. Example:

		FROM		HOUR (UTC) DAY MONTH			
Sea-level Pressure (mb)	Temperature °C (TENTHS)		WIND			ATMS	
	Dry-Bulb	Dew-Point	Direction	Speed (kt)	Character		
33	34	35	36	37	38	39	
		0.4					
		-0.4					
		-0.6					
	-39.7	M					

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Notes: (1) When the dewcel is unserviceable for any reason, other than low temperature limit, the psychrometric data shall be calculated from dry-bulb and wet-bulb readings obtained from one of the following: motor ventilated psychrometer, sling psychrometer, simple psychrometer.

(2) In no case shall the entry in Column 35 be higher (warmer) than that of Column 34. When such a value is obtained from the AES Dewcel or the psychrometric tables, the value of the dew-point shall be reduced to correspond to the dry-bulb temperature.

(3) Enter "M" in Column 35 whenever:

- (a) the corrected temperature from the dry-bulb thermometer is colder than -37°C
- (b) the corrected temperature from the dry-bulb thermistor is colder than -45°C or the AES Dewcel reading is off the scale.

10.2.14 Column 36 – Wind Direction. Enter the two-minute mean direction from which the surface wind is blowing to the nearest ten degrees (00–36).

For example, 130 degrees shall be reported as 13; 060 degrees shall be reported as 06. When the wind is CALM enter 00. Directions from wind equipment which can be read only in compass points shall be converted to tens of degrees as follows:

N *	36	E *	09	S *	18	W *	27
NNE	02	ESE	11	SSW	20	WNW	29
NE *	05	SE *	14	SW *	23	NW *	32
ENE	07	SSE	16	WSW	25	NNW	34

Note: Estimated wind direction shall be to eight points * of the compass and converted to tens of degrees using the above table.

10.2.15 Column 37 – Wind Speed. Enter the two-minute mean wind speed in "knots". If either the speed or the direction is estimated, enter the letter "E" immediately after the wind speed. This use of the letter "E" does not apply to conditions of very low wind speeds (less than 2 knots) where the observer is required to estimate the wind, taking into consideration the indications of the anemometer. Refer to para. 7.2.5. The wind speed shall always be a 2 or 3 figure group. Enter 00 for calm. For speeds of 1–9 knots, enter 01, 02, etc. For speeds of 100 knots or over, enter 100, 101, 102, etc.