

FOR NEW PROPOSED METAR/SPECI AND TAF TEMPLATES

PREOPERATIONAL

Proposal for modification of B-descriptors for representation of visibility

Newly proposed B-descriptors for prevailing and minimum horizontal visibility with a Note to be added under Class 20:

Table reference		BUFR				CREX		
F X Y	Element name	Unit	Scale	Reference value	Data width	Unit	Scale	Data width
0 20 060	Prevailing horizontal visibility ⁽⁵⁾	m	-1	0	10	m	-1	4
0 20 059	Minimum horizontal visibility	m	-1	0	9	m	-1	3

(5) A prevailing visibility value of 10000 m before scaling (after scaling 1000) shall be used to report prevailing visibility 10 km or more.

Unambiguous conversion from TDCF data to TAC data

Unambiguous conversion from TDCF data to TAC data is requested by ICAO as well as by many end users, it is proposed to add two notes under the BUFR Table D, Category 7:

Notes:

- (x) Within 3 07 045, 3 07 048 and 3 07 053, wind speed shall be reported in the same units as in the original TAC data and:
 - 0 11 083 shall be set to missing, if wind speed is reported in knots or m s^{-1} in TAC data,
 - 0 11 084 shall be set to missing, if wind speed is reported in km h^{-1} or m s^{-1} in TAC data.
- (y) Within 3 07 045, 3 07 048 and 3 07 053, maximum wind speed (gusts) shall be reported in the same units as in the original TAC data and:
 - 0 11 085 shall be set to missing, if maximum wind speed is reported in knots or m s^{-1} in TAC data,
 - 0 11 086 shall be set to missing, if maximum wind speed is reported in km h^{-1} or m s^{-1} in TAC data.

Following the Notes (x) and (y), the wind speed (and the maximum wind speed) will be reported only in meters per second in the BUFR message if these parameters are reported in meters per second in the original TAC data.

Below are the METAR/SPECI/TAF templates and BUFR/CREX B and D descriptors with the proposed modifications, corrections and additions written in blue. It should replace the current file in the WMO Server.

NEW PROPOSED METAR/SPECI AND TAF TEMPLATES

Proposed additions to BUFR Table D

F X Y	Reference	Element/Sequence name	METAR/SPECI/TAF Representation
		<i>(Main part of METAR/SPECI), replacing 3 07 011</i>	
3 07 045	0 01 063	ICAO location indicator	CCCC
	0 08 079	Aviation product status (routine, special, corrected, not available)	METAR SPECI COR
	0 02 001	Type of station	(AUTO)
	3 01 011	Year, month, day	YY
	3 01 012	Hour, minute	GGgg
	3 01 023	Latitude-longitude (coarse accuracy)	
	0 07 030	Height of station ground above mean sea level	
	0 07 031	Height of barometer above mean sea level	
	0 07 032	Height of sensor above local ground = 10m (if the actual value is not available)	
	0 11 001	Wind direction	ddd
	0 11 016	Extreme counterclockwise wind direction of a variable wind	d _n d _n d _n
	0 11 017	Extreme clockwise wind direction of a variable wind	d _x d _x d _x
	0 08 054	Qualifier for wind speed or wind gusts	P
	0 11 083	Wind speed (km/h) (see Note (x))	ff
	0 11 084	Wind speed (knots) (see Note (x))	ff
	0 11 002	Wind speed (m/s) (see Note (x))	ff
	0 08 054	Qualifier for wind speed or wind gusts	P
	0 11 085	Maximum wind speed (gusts) (km/h) (see Note (y))	f _m f _m
	0 11 086	Maximum wind speed (gusts) (knots) (see Note (y))	f _m f _m
	0 11 041	Maximum wind speed (gusts) (m/s) (see Note (y))	f _m f _m
	0 08 054	Qualifier for wind speed or wind gusts = missing (to cancel the previous value)	
	0 07 032	Height of sensor above local ground = 2m (if the actual value is not available)	
	0 12 023	Temperature (Celsius)	T'T'
	0 12 024	Dew point (Celsius)	T' _d T' _d
	0 07 032	Height of sensor above local ground = missing (to cancel the previous value)	
	0 10 052	Altimeter setting (QNH)	QP _H PHPH _H
	0 20 009	General Weather Indicator TAF/METAR	CAVOK
		<i>(METAR/SPECI visibility)</i>	
3 07 046	0 20 060	Prevailing visibility	VVVV or VVVVNDV
	1 02 000	Delayed replication of two descriptors	
	0 31 001	Number of replication (up to 2)	
	0 05 021	Bearing or azimuth (direction of minimum visibility observed)	D _v
	0 20 059	Minimum visibility	V _N V _N V _N V _N
		<i>(METAR/SPECI/TAF clouds), replacing 3 07 015</i>	
3 07 047	1 05 000	Delayed replication of 5 descriptor	
	0 31 001	Number of replications	
	0 08 002	Vertical significance	
	0 20 011	Cloud amount	N _s N _s N _s
	0 20 012	Cloud type	CC
	0 20 013	Height of base of cloud (m)	h _s h _s h _s
	0 20 092	Height of base of cloud (feet)	h _s h _s h _s
	0 20 002	Vertical visibility (m)	VVh _s h _s h _s

F X Y	Reference	Element/Sequence name	METAR/SPECI/TAF Representation
	0 20 091	Vertical visibility (feet)	VVh _s h _s
		<i>(Trend type forecast), replacing 3 07 018</i>	
3 07 048	0 08 016	Change qualifier for trend type forecast	TTTTT NOSIG
	1 02 000	Delayed replication of two descriptors	
	0 31 001	Number of replications (0, 1 or 2)	
	0 08 017	Qualifier for time of forecast change	TT
	3 01 012	Time of change	GGgg
	1 12 000	Delayed replication of twelve descriptors	
	0 31 000	Short delayed replication count (0 or 1)	
	0 07 032	Height of sensor above local ground = 10m (if the actual value is not available)	
	0 11 001	Wind direction	ddd
	0 08 054	Qualifier for wind speed or wind gusts	P
	0 11 083	Wind speed (km/h) <i>(see Note (x))</i>	ff
	0 11 084	Wind speed (knots) <i>(see Note (x))</i>	ff
	0 11 002	Wind speed (m/s) <i>(see Note (x))</i>	ff
	0 08 054	Qualifier for wind speed or wind gusts	P
	0 11 085	Maximum wind speed (gusts) (km/h) <i>(see Note (y))</i>	f _m f _m
	0 11 086	Maximum wind speed (gusts) (knots) <i>(see Note (y))</i>	f _m f _m
	0 11 041	Maximum wind speed (gusts) (m/s) <i>(see Note (y))</i>	f _m f _m
	0 08 054	Qualifier for wind speed or wind gusts = missing (to cancel the previous value)	
	0 07 032	Height of sensor above local ground = missing (to cancel the previous value)	
	0 20 009	General weather indicator	CAVOK NSW NSC SKC
	1 01 000	Delayed replication of one descriptor	
	0 31 000	Short delayed replication count (0 or 1)	
	0 20 060	Prevailing visibility	VVVV
	3 07 014	Weather intensity and phenomena	w'w'
	3 07 047	METAR/SPECI/TAF clouds	N _s N _s N _s h _s h _s h _s
		<i>(Sea conditions WT_sT_s/SS')</i>	
3 07 049	1 02 000	Delayed replication of 2 descriptors	
	0 31 000	Short delayed replication factor (0 or 1)	
	0 22 043	Sea/water temperature	T _s T _s
	0 22 021	Height of waves	S'
		<i>(Runway state R_RR_RE_RE_RC_{RE}R_{ER}B_RB_R)</i>	
3 07 050	1 01 000	Delayed replication of one descriptor	
	0 31 000	Short delayed replication factor (0 or 1)	
	0 20 085	General condition of runway	SNOCLO
	1 02 000	Delayed replication of two descriptors	
	0 31 001	Number of replications	
	0 01 064	Runway designator	R _R R _R
	0 20 085	General condition of runway	CLRD//
	1 05 000	Delayed replication of 5 descriptors	
	0 31 001	Number of replications	
	0 01 064	Runway designator	R _R R _R
	0 20 086	Runway deposits	E _R
	0 20 087	Runway contamination	C _R
	0 20 088	Depth of runway deposits	e _{RE} e _R
	0 20 089	Runway friction coefficient	B _R B _R
		<i>(Full METAR/SPECI), replacing 3 07 021</i>	

F X Y	Reference	Element/Sequence name	METAR/SPECI/TAF Representation
3 07 051	3 07 045	Main part of METAR/SPECI data	
	3 07 046	Visibility	VVVV or VVVVNDV V _N V _N V _N V _N D _v
	3 07 013	Runway visual range	RD _R DRVRVRVRVR
	3 07 014	Weather intensity and phenomena	w'w'
	3 07 047	Clouds	N _s N _s N _s h _s h _s h _s
	3 07 016	Recent weather phenomena	REw'w'
	3 07 017	Runway shear	WS RWYDRDR
	3 07 049	Sea conditions	WT _s T _s /SS'
	3 07 050	Runway state	R _R R _R ER _R CRERERBRBR
	1 01 000	Delayed replication of one descriptor	
	0 31 001	Replication count (0 to 3 normally)	
	3 07 048	Trend type forecast	
		<i>(Aerodrome forecast identification and time interval)</i>	
3 07 052	0 01 063	ICAO location identifier	CCCC
	0 08 039	Time significance = 0 (Issue time of forecast)	
	3 01 011	Year, Month, Day	YY
	3 01 012	Hour, Minute	GGgg
	0 08 079	Aviation product status	COR CNL AMD NIL
	0 08 039	Time significance = 1 (Time of commencement of period of the forecast)	
	3 01 011	Year, Month, Day	Y ₁ Y ₁
	3 01 012	Hour, Minute	G ₁ G ₁
	0 08 039	Time significance = 2 (Time of ending of period of the forecast)	
	3 01 011	Year, Month, Day	Y ₂ Y ₂
	3 01 012	Hour, Minute	G ₂ G ₂
	3 01 023	Latitude-longitude (coarse accuracy)	
	0 07 030	Height of station ground above mean sea level	
	0 07 031	Height of barometer above mean sea level	
		<i>(Forecast weather at an aerodrome)</i>	
3 07 053	0 07 032	Height of sensor above local ground = 10m (if the actual value is not available)	
	0 11 001	Wind direction	ddd
	0 08 054	Qualifier for wind speed or wind gusts	P
	0 11 083	Wind speed (km/h) (see Note (x))	ff
	0 11 084	Wind speed (knots) (see Note (x))	ff
	0 11 002	Wind speed (m/s) (see Note (x))	ff
	0 08 054	Qualifier for wind speed or wind gusts	P
	0 11 085	Maximum wind speed (gusts) (km/h) (see Note (y))	f _m f _m
	0 11 086	Maximum wind speed (gusts) (knots) (see Note (y))	f _m f _m
	0 11 041	Maximum wind speed (gusts) (m/s) (see Note (y))	f _m f _m
	0 08 054	Qualifier for wind speed or wind gusts = missing (to cancel the previous value)	
	0 07 032	Height of sensor above local ground = missing (to cancel the previous value)	
	0 20 009	General weather indicator	CAVOK NSW NSC SKC
	0 20 060	Prevailing visibility	VVVV
	3 07 014	Weather	w'w'
	3 07 047	Cloud layer(s)	N _s N _s N _s h _s h _s h _s

F X Y	Reference	Element/Sequence name	METAR/SPECI/TAF Representation
		<i>(Forecast of extreme temperatures)</i>	
3 07 054	0 07 032	Height of sensor above local ground = 2m (if the actual value is not available)	
	0 08 039	Time significance = 3 (Forecast time of maximum temperature)	
	0 04 003	Day	
	0 04 004	Hour	G _F G _F
	0 08 023	First order statistics = 3 (Minimum)	
	0 12 023	Temperature (Celsius)	T _F T _F
	0 08 039	Time significance = 4 (Forecast time of minimum temperature)	
	0 04 003	Day	
	0 04 004	Hour	G _F G _F
	0 08 023	First order statistics = 2 (Maximum)	
	0 12 023	Temperature (Celsius)	T _F T _F
	0 08 023	First order statistics = missing (to cancel the previous value)	
	0 07 032	Height of sensor above local ground = missing (to cancel the previous value)	
		<i>(Change indicator and forecast changes)</i>	
3 07 055	0 33 045	Probability of following event	C ₂ C ₂
	0 08 016	Change qualifier for an aerodrome forecast	TTTTTT
	0 08 039	Time significance = 5 (Time of beginning of the forecast change)	
	0 04 003	Day	
	3 01 012	Hour, Minute	GGgg
	0 08 039	Time significance = 6 (Time of ending of the forecast change)	
	0 04 003	Day	
	3 01 012	Hour, Minute	G _e G _e
	3 07 053	Forecast conditions during or after change	
		<i>(Aerodrome forecast – full TAF)</i>	
3 07 056	3 07 052	Identification and time interval	
	3 07 053	Forecast	
	3 07 054	Extreme temperatures forecast	
	1 01 000	Delayed replication of one descriptor	
	0 31 001	Replication factor	
	3 07 055	Forecast change	

The following notes are proposed to be included under BUFR Table D, Category 7.

Notes:

- (x) Within 3 07 045, 3 07 048 and 3 07 053, wind speed shall be reported in the same units as in the original TAC data and:
 - 0 11 083 shall be set to missing, if wind speed is reported in knots or m s⁻¹ in TAC data,
 - 0 11 084 shall be set to missing, if wind speed is reported in km h⁻¹ or m s⁻¹ in TAC data.
- (y) Within 3 07 045, 3 07 048 and 3 07 053, maximum wind speed (gusts) shall be reported in the same units as in the original TAC data and:
 - 0 11 085 shall be set to missing, if maximum wind speed is reported in knots or m s⁻¹ in TAC data,
 - 0 11 086 shall be set to missing, if maximum wind speed is reported in km h⁻¹ or m s⁻¹ in TAC data.

Proposed additions to BUFR/CREX table B.

Table reference	Element name	BUFR				CREX		
		Unit	Scale	Reference	Width	Unit	Scale	Width
F X Y								
0 08 039	Time significance (Aviation forecast)	Code table	0	0	6	Code table	0	2
0 08 054	Qualifier for wind speed or wind gusts	Code table	0	0	3	Code table	0	1
0 11 083	Wind speed	km h ⁻¹	0	0	9	km h ⁻¹	0	3
0 11 084	Wind speed	knot	0	0	8	knot	0	3
0 11 085	Maximum wind gust speed	km h ⁻¹	0	0	9	km h ⁻¹	0	3
0 11 086	Maximum wind gust speed	knot	0	0	8	knot	0	3
0 12 023	Temperature	Celsius	0	-99	8	Celsius	0	2
0 12 024	Dew point temperature	Celsius	0	-99	8	Celsius	0	2
0 20 059	Minimum horizontal visibility	m	-1	0	9	m	-1	3
0 20 060	Prevailing horizontal visibility ⁽⁵⁾	m	-1	0	10	m	-1	4
0 20 085	General condition of runway	Code table	0	0	4	Code table	0	1
0 20 086	Runway deposits	Code table	0	0	4	Code table	0	1
0 20 087	Runway contamination	Code table	0	0	4	Code table	0	1
0 20 088	Depth of runway deposits	m	3	0	12	m	0	4
0 20 089	Runway friction coefficient	Code table	0	0	7	Code table	0	2
0 20 092	Height of base of cloud	Feet	-2	0	10	Feet	-2	3
0 20 091	Vertical visibility	Feet	-2	0	10	Feet	-2	3

The following Note (5) is proposed to be included under Class 20:

- (5) A prevailing visibility value of 10000 m before scaling (after scaling 1000) shall be used to report prevailing visibility 10 km or more.

Proposed additions to BUFR Code/Flag tables

0 08 039	
Time significance (Aviation forecast)	
Code figure	
0	Issue time of forecast
1	Time of commencement of period of the forecast
2	Time of ending of period of the forecast
3	Forecast time of maximum temperature
4	Forecast time of minimum temperature
5	Time of beginning of the forecast change
6	Time of ending of the forecast change
7...62	Reserved
63	Missing
0 08 054	
Qualification of wind speed or wind gusts	
0	Wind speed or gust is as reported
1	Wind speed is greater than that reported (P in METAR/TAF/SPECI)
2...6	Reserved
7	Missing
0 20 086	
Runway deposits	
Code figure	
0	Clear and dry
1	Damp
5	Wet snow
6	Slush
7	Ice
8	Compacted or rolled snow
9	Frozen ruts or ridges
10-14	Reserved
15	Missing or not reported

Proposed additions to BUFR Code table 0 08 079

0 08 079	
Aviation product status	
Code figure	
0	Normal issue
1	Correction to a previously issued product (COR)
2	Amendment to a previously issued product (AMD)
3	Correction to a previously issued amended product (COR AMD)
4	Cancellation of a previously issued product (CNL)
5	No product available (NIL)
6	Special report (SPECI)
7	Corrected special report (SPECI COR)
8...14	Reserved
15	Missing or not applicable