

BUFR Table D - *List of common sequences*

F	X	Category of sequences	Status
NONE			

Category 01 - Location and identification sequences

TABLE REFERENCE F X Y	TABLE REFERENCE	ELEMENT NAME	ELEMENT DESCRIPTION	Status
		(Encrypted ship's call sign and encryption method)		Validation
3 01 018	0 01 114	Encrypted ship or mobile land station identifier		
	0 25 185	Encryption method		
	0 25 186	Encryption key version		
		(Sequence for platform identification, type, time and location of the observation report)		Validation
3 01 056	0 01 087	WMO marine observing platform extended identifier	WMO number (extended 7 digit identifier)	
	0 01 011	Ship or mobile land station identifier	Call sign (where allocated)	
	0 01 015	Station or site name	Platform name	
	0 02 008	Type of offshore platform		
	0 02 001	Type of station		
	3 01 011	Year, month, day		
	3 01 012	Hour, minute		
	3 01 021	Latitude/longitude (high accuracy)		
	0 07 030	Height of station ground above mean sea level	Height of station platform above mean sea level	
	0 07 031	Height of barometer above mean sea level		
		(Temperature and humidity instrumentation)		Validation
3 01 130	0 03 002	Generic type of humidity instrument		
	0 03 003	Configuration of sensors		
	0 03 004	Type of shield or screen		
	0 03 005	Horizontal width of screen or shield (x)		
	0 03 006	Horizontal depth of screen or shield (y)		
	0 03 007	Vertical height of screen or shield (z)		
	0 03 008	Artificially ventilated screen or shield		
	0 03 009	Amount of forced ventilation at time of reading		

Category 02 - Meteorological sequences common to surface data

TABLE REFERENCE F X Y	TABLE REFERENCE	ELEMENT NAME	ELEMENT DESCRIPTION	Status
		(Ship "instantaneous" data)		Validation
3 02 062	3 02 001	Pressure and 3-hour pressure change		
	3 02 093	Extended ship temperature and humidity data		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 053	Ship visibility data		
	0 07 033	Height of sensor above water surface	Set to missing (cancel)	
	1 03 000	Delayed replication of 3 descriptors		
	0 31 000	Short delayed descriptor replication factor		
	3 02 004	General cloud information		
	3 02 005	Cloud layer		
	0 08 002	Vertical significance (surface observations)	Set to missing (cancel)	
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 055	Icing and ice		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 056	Sea/water temperature		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 021	Waves		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 024	Wind and swell waves		
		(Ship "period" data)		Validation
3 02 063	3 02 038	Present and past weather		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 040	Precipitation measurement		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 034	Precipitation past 24 hours		
	0 07 032	Height of sensor above local ground (or deck of marine platform)	Set to missing (cancel)	
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 058	Ship extreme temperature data		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 064	Ship wind data		

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TABLE REFERENCE F X Y			ELEMENT NAME	ELEMENT DESCRIPTION	Status
			(Ship wind data)		Validation
3 02 064	0 07 032		Height of sensor above local ground (or deck of marine platform)		
	0 07 033		Height of sensor above water surface		
	0 02 002		Type of instrumentation for wind measurement		
	0 08 021		Time significance	= 2 Time averaged	
	0 04 025		Time period or displacement		
	0 11 001		Wind direction		
	0 11 002		Wind speed		
	0 08 021		Time significance	Set to missing (cancel)	
	1 03 000		Delayed replication of 3 descriptors		
	0 31 000		Short delayed descriptor replication factor		
	0 04 025		Time period or displacement		
	0 11 043		Maximum wind gust direction		
	0 11 041		Maximum wind gust speed		

TABLE REFERENCE F X Y	TABLE REFERENCE	ELEMENT NAME	ELEMENT DESCRIPTION	Status
3 02 067	0 01 023	(Additional synoptical parameters) Observation sequence number <i>Additional "instantaneous" data</i>		Validation
	0 04 025	Time period or displacement	= 0 minutes	
	0 02 177	Method of snow depth measurement	= 0 Manual observation, = 1 Ultrasonic method, = 2 Video camera method, = 3-13 Reserved, = 14 Others, = 15 Missing value	
		<i>Additional present weather</i>		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 001	Delayed descriptor replication factor		
	0 20 003	Present weather	960ww, 961ww	
		<i>Visibility in different directions</i>		
	1 02 000	Delayed replication of 2 descriptors		
	0 31 001	Delayed descriptor replication factor		
	0 05 021	Bearing or azimuth	981VV-988VV	
	0 20 001	Horizontal visibility	VV	
	0 05 021	Bearing or azimuth	Set to missing (cancel)	
		<i>Sea data (observations from a coastal station)</i>		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 056	Sea/water temperature	Sea surface temperature, method of measurement, and depth below sea surface	
	1 03 000	Delayed replication of 3 descriptors		
	0 31 000	Short delayed descriptor replication factor		
	0 33 041	Attribute of following value		
	0 20 058	Visibility seawards from a coastal station	980VsVs	
	0 22 061	State of the sea	924SVs	
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 022	Wind waves		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 001	Delayed descriptor replication factor		
	3 02 023	Swell waves		
		<i>Clouds</i>		
	1 04 000	Delayed replication of 4 descriptors		
	0 31 001	Delayed descriptor replication factor		
	0 20 054	True direction from which a phenomenon or clouds are moving	Da, Dp	
	0 20 137	Evolution of clouds	940Cn3	
	0 20 012	Cloud type	941CDp, 943CLDp	
	0 20 090	Special clouds	993CsDa	
	1 03 000	Delayed replication of 3 descriptors		
	0 31 001	Delayed descriptor replication factor		
	0 20 054	True direction of a phenomenon or clouds		
	0 20 137	Evolution of clouds		
	0 20 136	Supplementary cloud type	948C0Da, 949CaDa, 950Nmn3, 951Nvn4	
		<i>Additional "period" data</i>		
	0 04 025	Time period or displacement	Reference period of fresh fallen snow	
	0 13 012	Depth of fresh snow		
		<i>Additional wind data</i>		
	0 04 025	Time period or displacement	= -60 minutes	
	0 11 042	Maximum wind speed (10-minute mean wind) <i>902tt 912ff .. mandatory ff>=18</i>	912ff	
	1 04 000	Delayed replication of 4 descriptors		
	0 31 001	Delayed descriptor replication factor		
	0 08 021	Time significance	= 30 Time of occurrence, = 17 Start of phenomenon	

TABLE REFERENCE F X Y	TABLE REFERENCE	ELEMENT NAME	ELEMENT DESCRIPTION	Status
	0 04 025	Time period or displacement	= -xx 902tt	
	0 11 042	Maximum wind speed (10-minute mean wind)	912ff	
	0 08 021	Time significance	Set to missing (cancel)	
		<i>Significant change in wind speed and/or direction</i>		
	1 15 000	Delayed replication of 15 descriptors		
	0 31 001	Delayed descriptor replication factor		
	0 08 021	Time significance	= 30 Time of occurrence, = 17 Start of phenomenon	
	0 04 015	Time increment	= -xx1	
	0 08 021	Time significance	= 2 Time averaged	
	0 04 025	Time period or displacement	= -10 minutes, or number of minutes after a significant change of wind	
	0 11 001	Wind direction	915dd	
	0 11 002	Wind speed	913ff	
	0 08 021	Time significance	= 22 Time of occurrence of wind shift	
	0 04 015	Time increment	= +xx2	
	0 08 021	Time significance	= 2 Time averaged	
	0 04 025	Time period or displacement	= -10 minutes, or number of minutes after a significant change of wind	
	0 11 001	Wind direction	915dd	
	0 11 002	Wind speed	913ff	
	0 08 021	Time significance	Set to missing (cancel)	
	0 04 025	Time period or displacement	= 0 minutes	
	0 04 015	Time increment	= +(xx1-xx2) Non negative to reset the time to the actual time	
		<i>Additional weather</i>		
	1 03 000	Delayed replication of 3 descriptors		
	0 31 001	Delayed descriptor replication factor		
	0 04 025	Time period or displacement	= -xx, i.e. from	
	0 04 025	Time period or displacement	= -xx, i.e. to	
	0 20 003	Present weather	962ww, 963w1w1, 964ww, 965w1w1, 966ww, 967w1w1	
		<i>Additional 9SpSpspsp groups</i>		
	1 10 000	Delayed replication of 10 descriptors		
	0 31 001	Delayed descriptor replication factor		
	0 04 025	Time period or displacement	= -xx, i.e. from	
	0 04 025	Time period or displacement	= -xx, i.e. to	
	0 05 021	Bearing or azimuth	Da, Dp	
	0 05 021	Bearing or azimuth	Da, Dp	
	0 20 054	True direction from which a phenomenon or clouds are moving	Da, Dp	
	0 20 024	Intensity of phenomena	= 1 Light, = 2 Moderate, = 3 Heavy, = 4 Violent, = 5 Severe	
	0 20 025	Obscuration		
	0 20 026	Character of obscuration		
	0 20 027	Phenomena occurrence		
	0 20 063	Special phenomena		

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TABLE REFERENCE F X Y			ELEMENT NAME	ELEMENT DESCRIPTION	Status
			(VOSCLim data elements)		Validation
3 02 092	0 01 012		Direction of motion of moving observing platform	Ship's heading	
	0 01 012		Direction of motion of moving observing platform	Ship's course over ground	
	0 01 013		Speed of motion of moving observing platform	Ship's speed over ground	
	0 10 038		Maximum height of deck cargo above summer load line		
	0 10 039		Departure of reference level (summer maximum load line) from actual sea level		
	0 11 007		Relative wind direction (in degrees off bow)		
	0 11 008		Relative wind speed		
			(Extended ship temperature and humidity data)		Validation
3 02 093	0 07 032		Height of sensor above local ground (or deck of marine platform)		
	0 07 033		Height of sensor above water surface		
	0 03 013		Type of marine thermometer		
	0 03 015		Exposure of marine thermometer/hygrometer		
	0 12 101		Temperature/air temperature		
	0 02 039		Method of wet-bulb temperature measurement		
	0 03 014		Type of marine hygrometer		
	0 03 015		Exposure of marine thermometer/hygrometer		
	0 12 102		Wet-bulb temperature		
	0 12 103		Dewpoint temperature		
	0 13 003		Relative humidity		
	0 03 015		Exposure of marine thermometer/hygrometer	Set to missing (cancel)	
	0 03 013		Type of marine thermometer	Set to missing (cancel)	
	0 03 014		Type of marine hygrometer	Set to missing (cancel)	

**Category 06 - Meteorological or oceanographic
sequences common to oceanographic
observations**

TABLE REFERENCE F X Y	TABLE REFERENCE	ELEMENT NAME	ELEMENT DESCRIPTION	Status
		(Sub-surface temperature profile (high accuracy/precision) with quality flags)		Validation
3 06 017	0 02 032	Indicator for digitization	= 0 Fixed sensor depths	
	0 08 034	Type of temperature/salinity measurement		
	1 06 000	Delayed replication of 6 descriptors		
	0 31 001	Delayed descriptor replication factor	Number of depths	
	0 07 065	Water pressure	In Pa	
	0 08 080	Qualifier for GTSP quality flag		
	0 33 050	Global GTSP quality flag		
	0 22 043	Sea/water temperature	In K to 2 decimal places	
	0 08 080	Qualifier for GTSP quality flag		
	0 33 050	Global GTSP quality flag		
	0 08 034	Type of temperature/salinity measurement	Set to missing (cancel)	
		(Sub-surface temperature profile (high accuracy/precision) with quality flags)		Validation
3 06 018	0 02 032	Indicator for digitization	= 0 Fixed sensor depths	
	0 08 034	Type of temperature/salinity measurement		
	1 09 000	Delayed replication of 9 descriptors		
	0 31 001	Delayed descriptor replication factor	Number of depths	
	0 07 065	Water pressure	In Pa	
	0 08 080	Qualifier for GTSP quality flag		
	0 33 050	Global GTSP quality flag		
	0 22 043	Sea/water temperature	In K to 2 decimal places	
	0 08 080	Qualifier for GTSP quality flag		
	0 33 050	Global GTSP quality flag		
	0 22 064	Salinity		
	0 08 080	Qualifier for GTSP quality flag		
	0 33 050	Global GTSP quality flag		
	0 08 034	Type of temperature/salinity measurement	Set to missing (cancel)	
		(Buoy data including directional and non-directional wave data)		Validation
3 06 032	0 02 032	Indicator for digitization		
	0 02 033	Method of salinity/depth measurement		
	1 03 000	Delayed replication of 3 descriptors		
	0 31 001	Delayed descriptor replication factor		
	0 07 062	Depth below sea/water surface		
	0 22 043	Sea/water temperature		
	0 22 062	Salinity		
	0 22 066	Water conductivity		
			(Validation since IPET-DRC-I, 2009)	

Category 07 - Surface report sequences (land)

TABLE REFERENCE F X Y	TABLE REFERENCE	ELEMENT NAME	ELEMENT DESCRIPTION	Status
		(Supplemental daily extreme temperature and precipitation values for monthly climate report)		Validation
3 07 074	3 01 001	WMO block and station numbers		
	0 04 001	Year		
	0 04 002	Month		
	3 01 021	Latitude/longitude (high accuracy)		
	0 07 030	Height of station ground above mean sea level		
	0 07 032	Height of sensor above local ground (or deck of marine platform)		
	1 12 000	Delayed replication of 12 descriptors		
	0 31 001	Delayed descriptor replication factor	Set to the number of days in the particular month for which data are being reported	
	0 04 003	Day		
	0 04 004	Hour		
	0 04 024	Time period or displacement	Typically set to -24 to denote the time period beginning 24 hours prior to and ending at the specified time	
	1 02 003	Replicate 2 descriptors 3 times		
	0 08 023	First-order statistics	= 2 Daily maximum temperature, = 3 Daily minimum temperature, = 4 Daily average temperature	
	0 12 101	Temperature/air temperature		
	0 08 023	First-order statistics	Set to missing (cancel)	
	0 04 004	Hour		
	0 04 024	Time period or displacement		
	0 13 060	Total accumulated precipitation		
	0 13 012	Depth of fresh snow		
	0 13 013	Total snow depth		

TABLE REFERENCE F X Y	TABLE REFERENCE	ELEMENT NAME	ELEMENT DESCRIPTION	Status
		(BUFR template for surface observations from n-minute period with national and WMO station identification)		Validation
3 07 092	3 01 089	National station identification		
	3 01 090	Surface station identification; time, horizontal and vertical coordinates		
	0 08 010	Surface qualifier (for temperature data)		
	3 01 091	Surface station instrumentation		
	0 04 015	Time increment	= -n (minutes)	
	0 04 065	Short time increment	= 1 (minute)	
	1 32 000	Delayed replication of 32 descriptors		
	0 31 001	Delayed descriptor replication factor	= n	
	0 10 004	Pressure		
	1 02 000	Delayed replication of 2 descriptors		
	0 31 001	Delayed descriptor replication factor		
	3 02 070	Wind data		
	3 02 072	Temperature and humidity data		
	1 03 000	Delayed replication of 3 descriptors		
	0 31 001	Delayed descriptor replication factor		
	0 07 032	Height of sensor above local ground (or deck of marine platform)		
	0 08 010	Surface qualifier (for temperature data)		
	0 12 120	Ground temperature		
	0 07 032	Height of sensor above local ground (or deck of marine platform)	Set to missing (cancel)	
	0 08 010	Surface qualifier (for temperature data)	Set to missing (cancel)	
	1 03 000	Delayed replication of 3 descriptors		
	0 31 000	Short delayed descriptor replication factor		
	1 01 005	Replicate 1 descriptor 5 times		
	3 07 063	Depth below land surface and soil temperature		
	0 07 061	Depth below land surface	Set to missing (cancel)	
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 069	Visibility data		
	0 07 032	Height of sensor above local ground (or deck of marine platform)	Set to missing (cancel)	
	0 07 033	Height of sensor above water surface	Set to missing (cancel)	
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 073	Cloud data		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 076	Precipitation, obscuration and other phenomena		
	1 02 000	Delayed replication of 2 descriptors		
	0 31 000	Short delayed descriptor replication factor		
	0 13 155	Intensity of precipitation (high accuracy)		
	0 13 058	Size of precipitating element		
	1 02 000	Delayed replication of 2 descriptors		
	0 31 000	Short delayed descriptor replication factor		
	0 20 031	Ice deposit (thickness)		
	0 20 032	Rate of ice accretion (estimated)		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		

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TABLE REFERENCE F X Y	TABLE REFERENCE	ELEMENT NAME	ELEMENT DESCRIPTION	Status
	3 02 078	State of ground and snow depth measurement		
	1 02 000	Delayed replication of 2 descriptors		
	0 31 000	Short delayed descriptor replication factor		
	3 02 079	Precipitation measurement		
	0 07 032	Height of sensor above local ground (or deck of marine platform)	Set to missing (cancel)	
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 080	Evaporation measurement		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 081	Total sunshine data		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 082	Radiation data		
	1 02 000	Delayed replication of 2 descriptors		
	0 31 000	Short delayed descriptor replication factor		
	0 04 025	Time period or displacement	= -n (minutes)	
	0 13 059	Number of flashes (thunderstorm)		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 000	Short delayed descriptor replication factor		
	3 02 083	First-order statistics of P, W, T, U data		
	0 33 005	Quality information (AWS data)		
	0 33 006	Internal measurement status information (AWS)		
			(Updated at IPET-DRMM-I, 2013)	
		(Nominal values)		Validation
3 07 093	2 23 000	Substituted values operator		
	2 36 000	Define data present bit-map		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 001	Delayed descriptor replication factor	= Number of element descriptors	
	0 31 031	Data present indicator		
	0 01 033	Identification of originating/generating centre		
	0 01 032	Generating application		
	0 08 083	Nominal value indicator		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 001	Delayed descriptor replication factor		
	2 23 255	Substituted values marker operator		
	1 08 000	Delayed replication of 8 descriptors		
	0 31 001	Delayed descriptor replication factor		
	2 23 000	Substituted values operator		
	2 37 000	Use defined data present bit-map		
	0 01 033	Identification of originating/generating centre		
	0 01 032	Generating application		
	0 08 083	Nominal value indicator		
	1 01 000	Delayed replication of 1 descriptor		
	0 31 001	Delayed descriptor replication factor		
	2 23 255	Substituted values marker operator		
			(Validation since IPET-DRC-II, 2010)	

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TABLE REFERENCE F X Y	TABLE REFERENCE	ELEMENT NAME	ELEMENT DESCRIPTION	Status
		(Synoptic data for national use (Canada))		Validation
3 07 100	0 04 024	Time period	= -6 Following values apply to the 6 hour period preceding reference time	
	1 02 000	Delayed replication of 2 descriptors		
	0 31 000	Short delayed descriptor replication factor		
	0 13 057	Time of beginning/end of precipitation	909RtDc	
	0 26 020	Duration of precipitation		
	1 01 000	Depth of newly-fallen snow		
	0 31 000	Short delayed descriptor replication factor		
	0 13 012	Depth of Fresh Snow	931ss	
	3 01 012	Hour, minute		
	0 04 024	Time period	Hours Set to -24 Values apply to the 24 hour period ending at the last T = 06 Z	
	1 03 000	Delayed replication of 3 descriptors	Bright sunshine	
	0 31 000	Delayed descriptor replication factor		
	0 02 006	Data Obtained by	= 1 Obtained by derivation	
	0 14 031	Bright Sunshine	5SSSS	
	0 02 006	Data Obtained by	= 0 Obtained by measurement	
	1 04 000	Delayed replication of 4 descriptors	Snowfall amount/water equivalent	
	0 31 000	Short delayed descriptor replication factor		
	0 02 175	Method of precipitation measurement		
	0 13 119	Snowfall amount	1SSSS	
	0 02 175	Method of precipitation measurement		
	0 13 120	Amount of water equivalent of snow	2SwSwSwSw	
	1 07 000	Delayed replication of 7 descriptors	Max wind	
	0 31 000	Short delayed replication factor		
	0 08 021	Time significance	= 30 Time of occurrence	
	0 04 004	Hour	4FhFTFTFI	
	0 04 005	Minutes	Time of occurrence minutes	
	0 11 001	Wind direction	3dmdm	
	0 08 023	First order statistics	= 2 Max, value	
	0 11 002	Wind Speed	fmfm	
	0 08 021		= 0 Cancel	
	0 04 024	Time period in hours	= 0 Set to initial time value	
	3 01 012	Hour, minute		

TABLE REFERENCE F X Y			ELEMENT NAME	ELEMENT DESCRIPTION	Status
					Formality
3 07 101	3 01 089		(Snow observation) National station identification		
	0 01 019		Long station or site name		
	0 02 001		Type of station		
	3 01 011		Year, month, day		
	3 01 012		Hour, minute		
	3 01 021		Latitude/longitude (high accuracy)		
	0 07 030		Height of station ground above mean sea level		
	0 07 032		Height of sensor above local ground (or deck of marine platform)		
	0 12 101		Temperature/air temperature		
	0 07 032		Height of sensor above local ground (or deck of marine platform)		
	0 02 177		Method of snow depth measurement		
	0 20 062		State of the ground (with or without snow)		
	0 13 013		Total snow depth		

Category 08 - Surface report sequences (sea)

TABLE REFERENCE F X Y			TABLE REFERENCE	ELEMENT NAME	ELEMENT DESCRIPTION	Status
3 08 008	3 01 093			(Report from a buoy observation)		Validation
				Ship identification, movement, date/time, horizontal and vertical coordinates		
				SHIP "instantaneous" data from VOS		
				SHIP "period" data from VOS		
(Defunct? - validation since Joint meeting in Montreal, 2006)						
3 08 014	1 01 000			(Synoptic reports from sea stations suitable for VOS observation data)		Validation
				Delayed replication of 1 descriptor		
				Short delayed descriptor replication factor		
				Encrypted ship's call sign and encryption method		
				Ship identification, movement, date/time, horizontal and vertical coordinates		
				Ship "instantaneous" data		
				Ship "period" data		
				Delayed replication of 1 descriptor		
				Short delayed descriptor replication factor		
				VOSclim data elements		

TABLE REFERENCE F X Y	TABLE REFERENCE	ELEMENT NAME	ELEMENT DESCRIPTION	Status
		(Template for WAVEOB data expressed as frequency (la=0 in FM-65 WAVEOB))		Validation
		<i>Identification</i>		
3 08 015	0 01 003	WMO Region number/geographical area		
	0 01 020	WMO Region sub-area		
	0 01 005	Buoy/platform identifier		
	0 01 011	Ship or mobile land station identifier		
	0 01 007	Satellite identifier		
	0 01 001	WMO block number		
	0 01 002	WMO station number		
	0 02 044	Indicator for method of calculating spectral wave data		
	0 02 045	Indicator for type of platform		
	3 01 011	Year, month, day		
	3 01 012	Hour, minute		
	3 01 021	Latitude/longitude (high accuracy)		
		<i>Basic data (WAVEOB Section 0)</i>		
	0 22 063	Total water depth	m	
	1 05 002	Replicate 5 descriptors 2 times		
	0 02 046	Wave measurement instrumentation		
	0 22 070	Significant wave height	m	
	0 22 071	Spectral peak wave period	s	
	0 22 073	Maximum wave height		
	0 22 074	Average wave period	s	
	0 02 046	Wave measurement instrumentation		
	0 22 076	Direction from which dominant waves are	deg	
	0 22 077	Directional spread of dominant wave	deg	
	0 22 094	Total number of wave bands		
	0 25 043	Wave sampling interval (time)	s	
	0 22 078	Duration of wave record	s	
		<i>Spectral data (WAVEOB Section 1 - 5)</i>		
	1 21 000	Delayed replication of 21 descriptors		
	0 31 001	Delayed descriptor replication factor		
	0 02 046	Wave measurement instrumentation		
	0 22 082	Maximum non-directional spectral wave density	m ² Hz ⁻¹	
	0 22 084	Band containing maximum non-directional spectral wave density		
	1 16 000	Delayed replication of 16 descriptors		
	0 31 001	Delayed descriptor replication factor		
	0 22 080	Waveband central frequency	Hz	
	0 22 085	Spectral wave density ratio		
	0 22 086	Mean direction from which waves are coming	deg	
	0 22 087	Principal direction from which waves are coming	deg	
	0 22 088	First normalized polar coordinate from Fourier coefficients		
	0 22 089	Second normalized polar coordinate from Fourier coefficients		
	1 03 000	Delayed replication of 3 descriptors		
	0 31 001	Delayed descriptor replication factor		
	0 22 090	Non-directional spectral estimate by wave frequency	m ² Hz ⁻¹	
	0 22 186	Direction from which waves are coming	deg	
	0 22 187	Directional spread of wave	deg	
	1 03 000	Delayed replication of 3 descriptors		
	0 31 001	Delayed descriptor replication factor		
	0 22 092	Directional spectral estimate by wave frequency	m ² Hz ⁻¹ rad ⁻¹	
	0 22 186	Direction from which waves are coming	deg	
	0 22 187	Directional spread of wave	deg	
	0 02 046	Wave measurement instrumentation		

TABLE REFERENCE F X Y	TABLE REFERENCE	ELEMENT NAME	ELEMENT DESCRIPTION	Status	
		(Template for WAVEOB data expressed as the wave number (Ia=1 in FM-65 WAVEOB))			
		Identification			
3 08 016	0 01 003	WMO Region number/geographical area		Validation	
	0 01 020	WMO Region sub-area			
	0 01 005	Buoy/platform identifier			
	0 01 011	Ship or mobile land station identifier			
	0 01 007	Satellite identifier			
	0 01 001	WMO block number			
	0 01 002	WMO station number			
	0 02 044	Indicator for method of calculating spectral wave data			
	0 02 045	Indicator for type of platform			
	3 01 011	Year, month, day			
	3 01 012	Hour, minute			
	3 01 021	Latitude/longitude (high accuracy)			
		Basic data (WAVEOB Section 0)			
	0 22 063	Total water depth	m		
	1 05 002	Replicate 5 descriptors 2 times			
	0 02 046	Wave measurement instrumentation			
	0 22 070	Significant wave height	m		
	0 22 072	Spectral peak wave length	m		
	0 22 073	Maximum wave height			
	0 22 075	Average wave length	m		
	0 02 046	Wave measurement instrumentation			
	0 22 076	Direction from which dominant waves are	deg		
	0 22 077	Directional spread of dominant wave	deg		
	0 22 094	Total number of wave bands			
	0 25 044	Wave sampling interval (space)	m		
	0 22 079	Length of wave record	m		
		Spectral data (WAVEOB Section 1 - 5)			
	1 21 000	Delayed replication of 21 descriptors			
	0 31 001	Delayed descriptor replication factor			
	0 02 046	Wave measurement instrumentation			
	0 22 083	Maximum non-directional spectral wave number	m3		
	0 22 084	Band containing maximum non-directional spectral wave density			
	1 16 000	Delayed replication of 16 descriptors			
	0 31 001	Delayed descriptor replication factor			
	0 22 081	Waveband central wave number	1/m		
	0 22 085	Spectral wave density ratio			
	0 22 086	Mean direction from which waves are coming	deg		
	0 22 087	Principal direction from which waves are coming	deg		
	0 22 088	First normalized polar coordinate from Fourier coefficients			
	0 22 089	Second normalized polar coordinate from Fourier coefficients			
	1 03 000	Delayed replication of 3 descriptors			
	0 31 001	Delayed descriptor replication factor			
	0 22 091	Non-directional spectral estimate by wave	m3		
	0 22 186	Direction from which waves are coming	deg		
	0 22 187	Directional spread of wave	deg		
	1 03 000	Delayed replication of 3 descriptors			
	0 31 001	Delayed descriptor replication factor			
	0 22 093	Directional spectral estimate by wave number	m4		
	0 22 186	Direction from which waves are coming	deg		
	0 22 187	Directional spread of wave	deg		
	0 02 046	Wave measurement instrumentation			
		(Sequence for reporting observations from offshore platforms)			
3 08 017	3 01 056	Sequence for platform identification, type, time		Validation	

	and location of the observation report	
3 02 001	Pressure and 3-hour pressure change	
3 02 052	Ship temperature and humidity data	
1 01 000	Delayed replication of 1 descriptor	
0 31 000	Short delayed descriptor replication factor	
3 02 056	Sea/water temperature	Optional
3 02 064	Ship wind data (see Note)	
3 02 053	Ship visibility data	
1 01 000	Delayed replication of 1 descriptor	
0 31 000	Short delayed descriptor replication factor	
3 02 004	General cloud information	Optional
1 01 000	Delayed replication of 1 descriptor	
0 31 000	Short delayed descriptor replication factor	
3 02 005	Cloud layer	Optional
1 01 000	Delayed replication of 1 descriptor	
0 31 000	Short delayed descriptor replication factor	
3 02 038	Present and past weather	Optional
1 01 000	Delayed replication of 1 descriptor	
0 31 000	Short delayed descriptor replication factor	
3 06 039	Sequence for representation of basic wave measurements	Optional

Note: Sequence 3 02 064 has previously been approved for validation and is also used in the sequence for synoptic reports from sea stations suitable for VOS data

Category 09 – Vertical sounding sequences (conventional data)

TABLE REFERENCE F X Y	TABLE REFERENCE	ELEMENT NAME	ELEMENT DESCRIPTION	Status
		(RWP wind data (product data))		Validation
3 09 021	3 01 001	WMO block and station numbers		
	3 01 022	Latitude/longitude (high accuracy), height of station		
	3 01 014	Time period		
	0 02 003	Type of measuring equipment used		
	1 12 000	Delayed replication of 12 descriptors		
	0 31 001	Delayed descriptor replication factor		
	0 07 007	Height		
	3 01 022	Latitude/longitude (high accuracy)		
	0 11 003	u-component		
	0 11 110	Uncertainty in u-component		
	0 11 004	v-component		
	0 11 111	Uncertainty in v-component		
	0 33 002	Quality information		
	0 11 006	w-component		
	0 11 112	Uncertainty in w-component		
	0 33 002	Quality information		
	0 10 071	Vertical resolution		
	0 05 062	Horizontal width of sampled volume		
			(Validation since IPET-DRMM-I, 2013)	
		(RASS virtual temperature (product data))		Validation
3 09 022	3 01 001	WMO block and station numbers		
	3 01 022	Latitude/longitude (high accuracy), height of station		
	3 01 014	Time period		
	0 02 003	Type of measuring equipment used		
	1 10 000	Delayed replication of 10 descriptors		
	0 31 001	Delayed descriptor replication factor		
	0 07 007	Height		
	3 01 022	Latitude/longitude (high accuracy)		
	0 12 007	Virtual temperature		
	0 12 008	Uncertainty in virtual temperature		
	0 33 002	Quality information		
	0 11 006	w-component		
	0 11 112	Uncertainty in w-component		
	0 33 002	Quality information		
	0 10 071	Vertical resolution		
	0 05 062	Horizontal width of sampled volume		
			(Validation since IPET-DRMM-I, 2013)	

Category 10 – Vertical sounding sequences (satellite data)

TABLE REFERENCE F X Y	TABLE REFERENCE	ELEMENT NAME	ELEMENT DESCRIPTION	Status
		(Satellite-derived winds)		Validation
3 10 067	0 01 007	Satellite identifier		
	0 01 033	Identification of originating/generating centre		
	0 01 034	Identification of originating/generating sub-centre		
	0 02 019	Satellite instruments		
	0 02 020	Satellite classification		
	3 01 011	Year, month, day		
	3 01 012	Hour, minute		
	2 07 003	Increase scale, reference value and data width		
	0 04 006	Second		
	2 07 000	Increase scale, reference value and data width	Cancel	
	3 01 021	Latitude/longitude (high accuracy)		
	0 07 024	Satellite zenith angle		
	0 02 153	Satellite channel center frequency		
	0 02 014	Tracking technique/status of system used		
	0 02 023	Satellite derived wind computation method		
	0 08 072	Pixel(s) type	Target type	
	0 02 028	Segment size at nadir in x-direction	Target scene width	
	0 02 029	Segment size at nadir in y-direction	Target scene height	
	0 04 025	Time period or displacement	In minutes	
	0 10 004	Pressure		
	0 12 101	Temperature/air temperature		
	2 07 002	Increase scale, reference value and data width		
	0 11 001	Wind direction		
	2 07 000	Increase scale, reference value and data width	Cancel	
	0 33 007	Per cent confidence	For wind direction	
	2 07 001	Increase scale, reference value and data width		
	0 11 002	Wind speed		
	2 07 000	Increase scale, reference value and data width	Cancel	
	0 33 007	Per cent confidence	For wind speed	
	0 08 041	Data significance	= 14 Expected error	
	0 11 002	Wind speed		
	0 08 041	Data significance	= 15 Representative error	
	0 10 004	Pressure		
	0 12 101	Temperature/air temperature		
	0 08 041	Data significance	Set to missing (cancel)	
	0 08 021	Time significance	= 4 Forecast	
	0 04 004	Hour		
	0 04 005	Minute		
	0 04 006	Second		
	2 07 002	Increase scale, reference value and data width		
	0 11 001	Wind direction		
	2 07 000	Increase scale, reference value and data width	Cancel	
	2 07 001	Increase scale, reference value and data width		
	0 11 002	Wind speed		
	2 07 000	Increase scale, reference value and data width	Cancel	
	0 08 021	Time significance	= 28 Start of scan	
	0 04 004	Hour		
	0 04 005	Minute		
	0 04 006	Second		
	3 01 021	Latitude/longitude (high accuracy)		
	2 07 001	Increase scale, reference value and data width		
	0 11 003	u-component		

0 11 004	v-component	
2 07 000	Increase scale, reference value and data width	Cancel
0 11 113	Tracking correlation of vector	
0 08 023	First order statistics	= 10 Standard deviation
0 11 002	Wind speed	
0 08 023	First order statistics	Set to missing (cancel)
0 25 147	Size of largest cluster	In pixels
0 08 021	Time significance	= 29 End of scan or time of ending
0 04 004	Hour	
0 04 005	Minute	
0 04 006	Second	
3 01 021	Latitude/longitude (high accuracy)	
2 07 001	Increase scale, reference value and data width	
0 11 003	u-component	
0 11 004	v-component	
2 07 000	Increase scale, reference value and data width	Cancel
0 11 113	Tracking correlation of vector	
0 08 023	First order statistics	= 10 Standard deviation
0 11 002	Wind speed	
0 08 023	First order statistics	Set to missing (cancel)
0 25 147	Size of largest cluster	In pixels
0 08 021	Time significance	Set to missing (cancel)
0 04 004	Hour	
0 04 005	Minute	
0 04 006	Second	
0 08 003	Vertical significance (satellite observations)	= 2 Cloud top
0 08 023	First order statistics	= 2 Maximum value
0 10 004	Pressure	Maximum cloud top pressure in target scene
0 12 101	Temperature/air temperature	Maximum cloud top temperature in target scene
0 08 023	First order statistics	= 3 Minimum value
0 10 004	Pressure	Minimum cloud top pressure in target scene
0 12 101	Temperature/air temperature	Minimum cloud top temperature in target scene
0 08 023	First order statistics	= 10 Standard deviation
0 10 004	Pressure	Standard deviation of cloud top pressure in target scene
0 08 023	First order statistics	Set to missing (cancel)
0 08 003	Vertical significance (satellite observations)	Set to missing (cancel)
0 20 056	Cloud phase	Dominant cloud phase of target scene
0 12 133	NWP vertical temperature gradient	+/- 200hpa about pressure assignment of tracer
0 11 111	NWP vertical wind shear	+/- 200hpa about pressure assignment of tracer
0 12 134	Low-level inversion flag	

(Validation since IPET-DRMM-I, 2013)

Category 15 - Oceanographic report sequences

TABLE REFERENCE			ELEMENT NAME	ELEMENT DESCRIPTION	Status
F	X	Y			
3 15 006	0 01	011	(Typically reported underwater sounding without optional fields)		Validation
		011	Ship or mobile land station identifier	Ship's call sign	
		011	Year, month, day		
		012	Hour, minute		
		023	Latitude/longitude (coarse accuracy)		
	3 06	032	Buoy data including directional and non-directional wave data	Depth, temperature, salinity	
(Validation since IPET-DRC-I, 2009)					

Category 40 - Additional satellite report sequences

TABLE REFERENCE F X Y	TABLE REFERENCE	ELEMENT NAME	ELEMENT DESCRIPTION	Status
		(SARAL Altika)		Formality
3 40 011	0 01 007	Satellite identifier		
	0 02 019	Satellite instruments		
	0 01 096	Station acquisition		
	0 25 061	Software identification and version number		
	0 05 044	Satellite cycle number		
	0 05 040	Orbit number		
	0 01 030	Numerical model identifier		
	0 04 001	Year		
	0 04 002	Month		
	0 04 003	Day		
	0 04 004	Hour		
	0 04 005	Minute		
	0 04 007	Seconds within a minute (microsecond accuracy)		
	0 05 001	Latitude (high accuracy)		
	0 06 001	Longitude (high accuracy)		
	0 08 029	Surface type		
	0 08 077	Radiometer sensed surface type		
	0 40 011	Interpolation flag		
	0 25 097	Three-dimensional error estimate of the navigator orbit		
	0 25 112	Band specific altimeter data quality flag		
	0 25 113	Band specific altimeter correction quality flag		
	0 21 148	Trailing edge variation flag		
	0 21 169	Ice presence indicator		
	0 40 024	Meteorological map availability		
	0 40 025	Interpolation flag for mean diurnal tide		
	0 02 153	Satellite channel centre frequency		
	0 22 189	Specific band ocean range		
	0 22 191	RMS of specific band ocean range		
	0 22 192	Number of valid points for specific band		
	0 25 167	Specific band net instrumental correction		
	0 25 166	Sea state bias correction on specific band		
	0 22 190	Specific band significant wave height		
	0 22 193	RMS specific band significant wave height		
	0 22 194	Number of valid points for specific band sign wave height		
	0 22 195	Specific band net instrument correction for significant wave height		
	0 21 183	Specific band corrected ocean backscatter coefficient		
	0 21 184	STD specific band corrected ocean backscatter coefficient		
	0 22 196	Number of valid points for specific band backscatter		
	0 21 185	Specific band net instrumental correction for agc		
	0 21 118	Attenuation correction on sigma-0		
	0 21 186	Specific band automatic gain control		
	0 21 187	RMS specific band automatic gain control		
	0 21 188	Number of valid points for specific band automatic gain control		
	0 02 153	Satellite channel centre frequency		

TABLE REFERENCE	TABLE REFERENCE	ELEMENT NAME	ELEMENT DESCRIPTION	Status
F	X	Y		
	0 12 063	Brightness temperature		
	0 02 153	Satellite channel centre frequency		
	0 12 063	Brightness temperature		
	0 13 090	Radiometer water vapour content		
	0 13 160	Radiometer liquid content for saral		
	0 07 002	Height or altitude		
	0 11 097	Wind speed from altimeter		
	0 07 002	Height or altitude		
	0 11 095	u-component of the model wind vector		
	0 11 096	v-component of the model wind vector		
	0 10 096	Mean dynamic topography		
	0 10 081	Altitude of COG above reference ellipsoid		
	0 10 082	Instantaneous altitude rate		
	0 10 083	Squared off-nadir angle of the satellite from platform data		
	0 10 101	Squared off-nadir angle of the satellite from waveform data		
	0 02 153	Satellite channel centre frequency		
	0 25 165	Ionospheric correction from model on specific band		
	0 25 126	Model dry tropospheric correction		
	0 25 128	Model wet tropospheric correction		
	0 25 164	Radiometer wet tropospheric correction		
	0 10 085	Mean sea-surface height		
	0 10 086	Geoid's height		
	0 10 087	Ocean depth/land elevation		
	0 10 092	Solid Earth tide height		
	0 10 088	Total geocentric ocean tide height (solution 1)		
	0 10 089	Total geocentric ocean tide height (solution 2)		
	0 10 098	Loading tide height geocentric ocean tide solution 1		
	0 10 099	Loading tide height geocentric ocean tide solution 2		
	0 10 090	Long period tide height		
	0 10 100	Non-equilibrium long period tide height		
	0 10 093	Geocentric pole tide height		
	0 25 127	Inverted barometer correction		
	0 40 014	High-frequency fluctuations of the sea-surface topography correction		
	0 10 102	Sea-surface height anomaly		