CODE TABLES AND FLAG TABLES ASSOCIATED WITH BUFR/CREX TABLE B

Notes: In developing code tables associated with BUFR/CREX Table B to specify units of elements, the following principles should be applied:

(a) Code tables specifying the units for an element which is defined, in the Manual on Codes, by a single symbolic letter shall be compatible with the relevant existing WMO code tables;

(b) Code tables combining two or more existing WMO code tables to specify the units for an element which is defined, in the Manual on Codes, by a group of symbolic letters shall be compatible with the combined code figures of the relevant group of symbolic letters;

(c) Code tables combining two or more existing WMO code tables to specify the units for an element which is defined, in the Manual on Codes, by different symbolic letters shall be compatible with the code figures of the relevant symbolic letters, with successive tens or hundreds values added, as appropriate;

(d) Code tables and flag tables should only be used for reporting qualitative information. Quantitative information should be reported as observed using entries in Table B."Data description operators" from Table C should be applied when a "scale change" or "data width change" is required;

(e) Reference to existing specification(s) and code table(s) in the Manual on Codes, with explanation of possible deviations, shall be given in an additional table annexed to the code tables associated with BUFR/CREX Table B.

0 01 003

WMO Region number/geographical area

Code figure	
0	Antarctica
1	Region I
2	Region II
3	Region III
4	Region IV
5	Region V
6	Region VI
7	Missing value

0 01 007

Satellite identifier

(See common Code table C-5 Part C/c.)

0 01 024

Wind Speed source

Code figure	
0	No wind speed data available
1	AMSR-E data
2	TMI data
3	NWP: ECMWF
4	NWP: UK Met Office
5	NWP: NCEP
6	Reference climatology
7	ERS_Scatterometer
8-30	Reserved for future use
31	Missing value

0 01 028

Aerosol optical Depth (AOD) source

Code figure	
0	No AOD data available
1	NESDIS
2	NAVOCEANO
3	NAAPS
4	MERIS
5	AATSR
6-30	Reserved for future use
31	Missing value

0 01 029

SSI Source

Code figure	
0	No SSI data available
1	MSG_SEVIRI
2	GOES East
3	GOES West
4	ECMWF
5	NCEP
6	UK Met Office
7-30	Reserved for future use
31	Missing value

0 01 031

Identification of originating/generating centre

(See common Code table C-1 in Part C/c.)

0 01 033

Identification of originating/generating centre

(See common Code table C-1 in Part C/c.)

0 01 034

Identification of originating/generating sub-centre

(To be defined by centres themselves)
(See common Code table C-12 in Part C/c.)

0 01 036

Agency in charge of operating the observing platform

*(the first 3 digits represent the ISO country code***)**

Code figure	
0-036000	Reserved
036001	Australia, Bureau of Meteorology (BOM)
036002	Australia, Joint Australian Facility for Ocean Observing Systems (JAFOOS)
036003	Australia, the Commonwealth Scientific and Industrial Research Organisation (CSIRO)
036004-124000	Reserved
124001	Canada, Marine Environmental Data Service (MEDS)
124002	Canada, Institute of Ocean Sciences (IOS)
124003-156000	Reserved
156001	China, The State Oceanic Administration
156002	China, Second Institute of Oceanography State Oceanic Administration
156003	China, Institute of Ocean Technology
156004-250000	Reserved
250001	France, Institut de Recherche pour le Développement (IRD)
250002	France, Institut Français de Recherche pour l'Exploitation de la mer (IFREMER)
250003-276000	Reserved
276001	Germany, Bundesamt fuer Seeschiffahrt und Hydrographie (BSH)
276002	Germany, Institut fuer Meereskunde, Kiel
276003-356000	Reserved
356001	India, National Institute of Oceanography (NIO)
356002	India, National Institute for Ocean Technology (NIOT)
356003	India, National Centre for Ocean Information Service
356004-392000	Reserved
392001	Japan, Japan Meteorological Agency (JMA)
392002	Japan, Frontier Observational Research System for Global Change
392003	Japan, Japan Marine Science and Technology Centre (JAMSTEC)
392004-410000	Reserved
410001	Korea Rep., Seoul National University
410002	Korea Rep., Korea Ocean Research and Development Institute (KORDI)
410003	Korea Rep., Meteorological Research Institute
410004-540000	Reserved
540001	New Caledonia, Institut de Recherche pour le Développement (IRD)
540002-554000	Reserved
554001	New Zealand, National Institute of Water and Atmospheric Research (NIWA)
554002-64300	Reserved
643001	Russia, State Oceanographic Institute of Roshydromet
643002	Russia, Federal Service for Hydrometeorology and Environmental Monitoring
643003-724000	Reserved
724001	Spain, Instituto Español de Oceanografia
724002-826000	Reserved
826001	United Kingdom, Hydrographic Office
826002	United Kingdom, Southampton Oceanography Centre (SOC)
826003-840000	Reserved
840001	USA, NOAA Atlantic Oceanographic and Meteorological Laboratories (AOML)
840002	USA, NOAA Pacific Marine Environmental Laboratories (PMEL)
840003	USA, Scripps Institution of Oceanography (SIO)
840004	USA, Woods Hole Oceanographic Institution (WHOI)
840005	USA, University of Washington
840006	USA, Naval Oceanographic Office
840007-1048574	Reserved
1048575	Missing value

0 01 038

Source of Sea Ice Fraction

Code figure	
0	No sea ice set
1	NSIDC SSM/I Cavalieri et al (1992)
2	AMSR-E
3	ECMWF
4	CMS (France) cloud mask used by Medspiration
5	EUMETSAT OSI-SAF
6-30	Reserved for future use
31	Missing value

0 01 090

Technique for making up initial perturbations

Code figure	
0	LAF (Lagged-Average Forecasting)
1	Breeding
2	Singular vectors
3	Multiple analysis cycles
4-191	Reserved
192-254	Reserved for local use
255	Missing value

0 01 092

Type of ensemble forecast

Code figure	
0	Unperturbed high-resolution control forecast
1	Unperturbed low-resolution control forecast
2	Negatively perturbed forecast
3	Positively perturbed forecast
4-191	Reserved
192-254	Reserved for local use
255	Missing value

0 01 101

State identifier

Code figure	
0-99	Reserved
100	Algeria
101	Angola
102	Benin
103	Botswana
104	Burkina Faso
105	Burundi
106	Cameroon
107	Cape Verde
108	Central African Republic

109	Chad
110	Comoros
111	Congo
112	Cote d'Ivoire
113	Democratic Republic of the Congo
114	Djibouti
115	Egypt
116	Eritrea
117	Ethiopia
118	France (RA I)
119	Gabon
120	Gambia
121	Ghana
122	Guinea
123	Guinea-Bissau
124	Kenya
125	Lesotho
126	Liberia
127	Libyan Arab Jamahiriya
128	Madagascar
129	Malawi
130	Mali
131	Mauritania
132	Mauritius
133	Morocco
134	Mozambique
135	Namibia
136	Niger
137	Nigeria
138	Portugal (RA I)
139	Rwanda
140	Sao Tom and Prince
141	Senegal
142	Seychelles
143	Sierra Leone
144	Somalia
145	South Africa
146	Spain
147	Sudan
148	Swaziland
149	Togo
150	Tunisia
151	Uganda
152	United Kingdom of Great Britain and Northern Ireland (RA I)
153	United Republic of Tanzania
154	Zambia
155	Zimbabwe
156-199	Reserved for Region I (Africa)
200	Afghanistan
201	Bahrain
202	Bangladesh
203	Bhutan
204	Cambodia
205	China
206	Democratic People's Republic of Korea
207	Hong Kong, China
208	India
209	Iran, Islamic Republic of
210	Iraq
211	Japan
212	Kazakhstan
213	Kuwait
214	Kyrgyz Republic

215	Lao People's Democratic Republic
216	Macao, China
217	Maldives
218	Mongolia
219	Myanmar
220	Nepal
221	Oman
222	Pakistan
223	Qatar
224	Republic of Korea
225	Republic of Yemen
226	Russian Federation (RA II)
227	Saudi Arabia
228	Sri Lanka
229	Tajikistan
230	Thailand
231	Turkmenistan
232	United Arab Emirates
233	Uzbekistan
234	Viet Nam, Socialist Republic of
235-299	Reserved for Region II (Asia)
300	Argentina
301	Bolivia
302	Brazil
303	Chile
304	Colombia
305	Ecuador
306	France
307	Guyana
308	Paraguay
309	Peru
310	Suriname
311	Uruguay
312	Venezuela
313-399	Reserved for Region III (South America)
400	Antigua and Barbuda
401	Bahamas
402	Barbados
403	Belize
404	British Caribbean Territories
405	Canada
406	Colombia
407	Costa Rica
408	Cuba
409	Dominica
410	Dominican Republic
411	El Salvador
412	France (RA IV)
413	Guatemala
414	Haiti
415	Honduras
416	Jamaica
417	Mexico
418	Netherlands Antilles and Aruba
419	Nicaragua
420	Panama
421	Saint Lucia
422	Trinidad and Tobago
423	United Kingdom of Great Britain and Northern Ireland (RA IV)
424	United States of America (RA IV)
425	Venezuela
426-499	Reserved for Region IV (North America, Central America and the Caribbean)
500	Australia

501	Brunei Darussalam
502	Cook Islands
503	Fiji
504	French Polynesia
505	Indonesia
506	Kiribati
507	Malaysia
508	Micronesia, Federated States of
509	New Caledonia
510	New Zealand
511	Niue
512	Papua New Guinea
513	Philippines
514	Samoa
515	Singapore
516	Solomon Islands
517	Tonga
518	United Kingdom of Great Britain and Northern Ireland (RA V)
519	United States of America (RA V)
520	Vanuatu
521–599	Reserved for Region V (South-West Pacific)
600	Albania
601	Armenia
602	Austria
603	Azerbaijan
604	Belarus
605	Belgium
606	Bosnia and Herzegovina
607	Bulgaria
608	Croatia
609	Cyprus
610	Czech Republic
611	Denmark
612	Estonia
613	Finland
614	France (RA VI)
615	Georgia
616	Germany
617	Greece
618	Hungary
619	Iceland
620	Ireland
621	Israel
622	Italy
623	Jordan
624	Kazakhstan
625	Latvia
626	Lebanon
627	Lithuania
628	Luxembourg
629	Malta
630	Monaco
631	Montenegro
632	Netherlands
633	Norway
634	Poland
635	Portugal (RA VI)
636	Republic of Moldova
637	Romania
638	Russian Federation (RA VI)
639	Serbia
640	Slovakia
641	Slovenia

642	Spain
643	Sweden
644	Switzerland
645	Syrian Arab Republic
646	The Former Yugoslav Republic of Macedonia
647	Turkey
648	Ukraine
649	United Kingdom of Great Britain and Northern Ireland (RA VI)
650-699	Reserved for Region VI (Europe)
700–999	Reserved
1000–1022	Not used
1023	Missing value

0 02 001

Type of station

Code figure	
0	Automatic station
1	Manned station
2	Hybrid: Both Manned and Automatic
3	Missing value

0 02 002

Type of instrumentation for wind measurement

Bit No	Type of Instrumentation and original units for wind measurement
0	(measured in m s^{-1} unless otherwise indicated)
1	Certified Instruments
2	Originally measured in knots
3	Originally measured in kmh^{-1}
All 4	Missing value

0 02 003

Type of measuring equipment used

Code figure	
0	Pressure Instrument associated with wind measuring equipment
1	Optical theodolite
2	Radio theodolite
3	Radar
4	VLF-Omega
5	Loran-C
6	Wind profiler
7	Satellite navigation
8	Radio-Acoustic Sounding System (RASS)
9	Sodar
10-13	Reserved
14	Pressure instrument associated with wind measuring equipment but pressure element failed during ascent
15	Missing value

0 02 004

Type of instrumentation for evaporation measurement or type of crop for which evapotranspiration is reported

Code figure	Instrumentation or crop type	Type of data
0	USA open pan evaporimeter (without cover)	Evaporation
1	USA open pan evaporimeter (mesh covered)	
2	GGI-3000 evaporimeter (sunken)	
3	20 m^2 tank	
4	Others	
5	Rice	Evapotranspiration
6	Wheat	
7	Maize	
8	Sorghum	
9	Other crops	
10-14	Reserved	
15	Missing value	

0 02 011

Radiosonde type

(See common code table C-2 in part C/c.)

0 02 012

Radiosonde computational method

(To be developed)

0 02 013

Solar and Infrared radiation correction

Code figure	
0	No correction
1	CIMO solar corrected and CIMO infrared corrected
2	CIMO solar corrected and infrared corrected
3	CIMO solar corrected only
4	Solar and infrared corrected automatically by radiosonde system
5	Solar corrected automatically by radiosonde system
6	Solar and Infrared corrected as specified by country
7	Solar corrected as specified by country
8-14	Reserved
15	Missing value

0 02 014

Tracking technique/status of system used

(See common Code table C-7 in Part C/c.)

0 02 015

Radiosonde completeness

Code figure	
0	Reserved
1	Pressure only radiosonde
2	Pressure only radiosonde plus transponder
3	Pressure only radiosonde plus radar reflector
4	No-pressure radiosonde plus transponder
5	No-pressure radiosonde plus radar reflector
6-14	Reserved
15	Missing value

0 02 016

Radiosonde configuration

Bit No.	
1	Train regulator
2	Light unit
3	Parachute
4	Rooftop release
All 5	Missing value

0 02 019

Satellite instruments

(See common Code table C-8 in Part C/c.)

0 02 020

Satellite classification

Code figure	
0	Nimbus
1	VTPR
2	Tiros 1 (Tiros, NOAA-6 to NOAA-13)
3	Tiros 2 (NOAA-14 onwards)
10	EOS
31	DMSP
61	EUMETSAT Polar System (EPS)
91	ERS
121	ADEOS
241	GOES
261	JASON
271	GMS
272	MTSAT
301	INSAT
331	METEOSAT Operational Programme (MOP)
332	METEOSAT Transitional Programme (MTP)
333	METEOSAT Second Generation Programme (MSG)
351	GOMS
380	FY-1
381	FY-2
382-400	Reserved
401	GPS
402	GLONASS
403	GALILEO
404-510	Reserved
511	Missing value

0 02 021

Satellite Instrument data used in processing

Bit No	
1	High-resolution Infrared sounder (HIRS)
2	Microwave sounding unit (MSU)
3	Stratospheric sounding unit (SSU)
4	AMI (Advanced microwave instrument) Wind mode
5	AMI (Advanced microwave instrument) Wave mode
6	AMI (Advanced microwave instrument) Image mode
7	RADAR altimeter
8	ATSR (Along Track Scanning Radiometer)
All 9	Missing value

0 02 022

Satellite data-processing technique used

Bit flags denoting the elements Included in processing sounding data.

Bit No.	
1	Processing technique not defined
2	Automated statistical regression
3	Clear path
4	Partly cloudy path
5	Cloudy path
6-7	Reserved
All 8	Missing value

Notes:

(1) Clear path means the sounding has been generated from clear radiances derived from actual clear spot measurements. Tropospheric and stratospheric HIRS data, as well as MSU and SSU data, have been used.

(2) Partly cloudy path means the sounding has been generated from clear radiances which have been calculated from partly cloudy spots. Tropospheric and stratospheric HIRS data, as well as MSU and SSU data, have been used.

(3) Cloudy path means the sounding has been generated only from stratospheric HIRS data, MSU data and SSU data. Tropospheric HIRS data have not been used because of cloudy conditions.

0 02 023

Satellite Derived Wind Computation Method

Code figure	
0	Reserved
1	Wind derived from cloud motion observed in the infrared channel
2	Wind derived from cloud motion observed in the visible channel
3	Wind derived from motion observed in the water vapour channel
4	Wind derived from motion observed in a combination of spectral channels
5	Wind derived from motion observed in the water vapour channel in clear air
6	Wind derived from motion observed in the ozone channel
7	Wind derived from motion observed in water vapour channel (cloud or clear air not specified)
8-12	Reserved
13	Root mean square
14	Reserved
15	Missing value

0 02 024

Integrated mean humidity computational method

Code figure	
0	Reserved
1	Table with full range of humidity variation in layer
2	Regression technique on 2 humidity values in layer
3-14	Reserved
15	Missing value

0 02 025

Satellite channel(s) used in computation

Bit flags denoting the Instrument and/or channels used in obtaining various physical parameters. If, In any grouping of parameters, all bits = 0, then no retrieval was made for that parameter or set of parameters.

Bit No	Instrument (channels)	
1	Reserved	
	Group 1 -	Layer precipitable water for the layers: surface to 700 hPa, 700 to 500 hPa, and 500 to 300 hPa
2	HIRS	
3	MSU	
4-5	Reserved	
	Group 2 -	Tropopause temperature and pressure
6	HIRS	
7	MSU	
8-9	Reserved	
	Group 3 - Total ozone	
10	HIRS (1,2,3,8,9,16,17)	
11	HIRS (1, 2, 3, 9, 17)	
12	MSU	
13-14	Reserved	
	Group 4 -	Mean temperature for the layers: surface to 850 hPa, 850 to 700 hPa, 700 to 500 hPa, 500 to 400 hPa, 400 to 300 hPa, 300 to 200 hPa, and 200 to 100 hPa
15	HIRS	
16	HIRS*	
17	MSU	
18	SKINTK (ocean only)	
19-20	Reserved	
	Group 5 -	Channel combinations used to obtain mean temperatures for the layers 100 to 70 hPa, 70 to 50 hPa, 50 to 30 hPa, 30 to 10 hPa, 10 to 5 hPa, 5 to 2 hPa, 2 to 1 hPa, 1 to 0.4 hPa
21	HIRS*	
22	SSU	
23	MSU (3,4)	
24	Reserved	
All 25	Missing value	

Note: HIRS* is equivalent to: HIRS channel:		
	1	(669 cm^{-1})
	2	(679cm^{-1})
	3	(690cm^{-1})
	4	(2358cm^{-1})

0 02 030

Method of current measurement

Code Figure	
0	Reserved
1*	ADCP (Acoustic Doppler Current Profiler)
2	GEK (Geomagnetic ElectroKinetograph)
3	Ship's set and drift determined by fixes 3-6 hours apart
4	Ship's set and drift determined by fixes more than 6 hours but less than 12 hours apart
5	Drift of buoy
6	ADCP (Acoustic Doppler Current Profiler)
7	Missing value

* Value deprecated. Code figure 6 should be used instead.

0 02 031

Duration and Time of current measurement

Code figure		
0	Reserved	
1	Instantaneous	
2	Averaged over 3 minutes or less	between H-1 and H
3	Averaged over more than 3 minutes, but 6 at the most	between H-1 and H
4	Averaged over more than 6 minutes, but 12 at the most	between H-1 and H
5	Instantaneous	
6	Averaged over 3 minutes or less	between H-2 and H-1
7	Averaged over more than 3 minutes, but 6 at the most	between H-2 and H-1
8	Averaged over more than 6 minutes, but 12 at the most	between H-2 and H-1
9	Vector or Doppler current profiling method not used	
10	Reserved	
11	1 hour or less	
12	More than 1 hour but 2 at the most	
13	More than 2 hours but 4 at the most	
14	More than 4 hours but 8 at the most	
15	More than 8 hours but 12 at the most	
16	More than 12 hours but 18 at the most	
17	More than 18 hours but 24 at the most	
18	Reserved	
19	Drift method not used	
20-30	Reserved	
31	Missing value	

Notes:
(1) Code figures 1-9: Duration and time of current measurement (vector or Doppler current profiling method).
(2) Code figures 11-19: Period of current measurement (drift method).
(3) H = Time of observation.

0 02 032

Indicator for digitization

Code figure	
0	Values at selected depths (data points fixed by the instrument or selected by any other method)
1	Values at selected depths (data points taken from traces at significant depths)
2	Reserved
3	Missing value

0 02 033

Method of salinity/depth measurement

Code figure	
0	No salinity measured
1	*In situ* sensor, accuracy better than 0.02 ‰
2	*In situ* sensor, accuracy less than 0.02 ‰
3	Sample analysis
4-6	Reserved
7	Missing value

0 02 034

Drogue type

Code figure	
0	Unspecified drogue
1	Holey sock
2	TRISTAR
3	Window shade
4	Parachute
5	Non-Lagrangian sea anchor
6-30	Reserved (to be developed)
31	Missing value

0 02 036

Buoy type

Code figure	
0	Drifting buoy
1	Fixed buoy
2	Sub-surface float (moving)
3	Missing value

0 02 037

Method of tidal observation

Code figure	
0	Reserved
1	Manual reading from vertical tide staff
2	Manual reading from single automatic recorder at station
3	Manual reading from multiple automatic recorders at station
4	Automatic reading from single automatic recorder at station without level reference check.
5	Automatic reading from a single automatic recorder at station with level reference check, or from multiple automatic recorders.
6	Reserved
7	Missing value

0 02 038

Method of water temperature and/or salinity measurement

Code figure	
0	Ship intake
1	Bucket
2	Hull contact sensor
3	Reversing Thermometer
4	STD/CTD sensor
5	Mechanical BT
6	Expendable BT
7	Digital BT
8	Thermistor chain
9	Infra-red scanner
10	Micro-wave scanner
11	Infrared radiometer
12	In line thermosalinograph
13	Towed body
14	Other
15	Missing value

0 02 039

Method of wet bulb temperature measurement

Code figure	
0	Measured wet-bulb temperature
1	Iced bulb measured wet-bulb temperature
2	Computed wet-bulb temperature
3	Iced bulb computed wet-bulb temperature
4-6	Reserved
7	Missing value

0 02 040

Method of removing code velocity and motion of platform from current

Code figure		
0	Ships motion removed by averaging	Ship's velocity removed by bottom tracking
1	Ships motion removed by motion compensation	
2	Ships motion not removed	
3	Ships motion removed by averaging	Ship's velocity removed by navigation
4	Ships motion removed by motion compensation	
5	Ships motion not removed	
6	Doppler current profiling method not used	
7-14	Reserved	
15	Missing value	

0 02 041

Method for estimating reports related to synoptic features

Code figure	
0	Information based on manual analysis
1	Information based on computer analysis
2	Information based on data assimilation
3	Information based on computer analysis or data assimilation manually modified
4-9	Reserved
10	Information based on the numerical weather prediction
11-62	Reserved for future use
63	Missing value

0 02 042

Indicator for sea surface current speed

Code figure	
0	Value originally reported in m/s
1	Value originally reported in knots
2	No sea current data available
3	Missing value

0 02 044

Indicator for method of calculation of spectral wave data

Code figure	
0	Reserved for future use
1	Longuet-Higgins (1964)
2	Longuet-Higgins (F3 method)
3	Maximum likelihood method
4	Maximum entropy method
5-14	Reserved
15	Missing value

0 02 045

Indicator for type of platform

Code figure	
0	Sea station
1	Automatic data buoy
2	Aircraft
3	Satellite
4-14	Reserved
15	Missing value

0 02 046

Wave measurement instrumentation

Code figure	
0	Reserved for future use
1	Heave sensor
2	Slope sensor
3-14	Reserved
15	Missing value

0 02 048

Satellite sensor indicator

Code figure	
0	HIRS
1	MSU
2	SSU
3	AMSU-A
4	AMSU-B
5	AVHRR
6	SSMI
7	NSCAT
8	SEAWINDS
9	POSEIDON altimeter
10	JMR (JASON Microwave Radiometer)
11	MHS
12	ASCAT
13-14	Reserved
15	Missing value

0 02 049

Geostationary satellite data-processing technique used

Bit No.	
1	Processing technique not defined
2	Simultaneous physical retrieval
3	Clear sounding
4	Cloudy sounding
5-7	Reserved for future use
All 8	Missing value

Notes:

(1) Clear sounding indicates the sounding has been generated from a set of clear radiances using all available sounder radiances.

(2) Cloudy sounding indicates that sufficient clear radiances could not be identified in the sounding area. The sounding is calculated from the cloud top (cloud pressure greater than or equal to 70 hPa) upwards.

0 02 050

Geostationary sounder satellite channels used

Bit No.	Channel	Central wavelength (micrometers
1	1	14.71
2	2	14.37
3	3	14.06
4	4	13.64
5	5	13.37
6	6	12.66
7	7	12.02
8	8	11.03
9	9	9.71
10	10	7.43
11	11	7.02
12	12	6.51
13	13	4.57
14	14	4.52
15	15	4.45
16	16	4.13
17	17	3.98
18	18	3.74
19	19	0.969
All 20	Missing value	

Note: Beginning with the first bit position (high order bit), if the bit position is set to one, then the channel is used. If the bit position is set to zero, then the channel is not used.

0 02 051

Indicator to specify observing method for extreme temperatures

Code figure	
0	Reserved
1	Maximum/minimum temperatures
2	Automated instruments
3	Thermograph
4-14	Reserved
15	Missing value

0 02 052

Geostationary imager satellite channels used

Bit No.	Channel	Central wavelength (micrometer)
1	1	0.55 - 0.75
2	2	3.9
3	3	6.7
4	4	10.7
5	5	12.0
All 6	Missing value	

Note: Beginning with the first bit position (high order bit), if the bit position is set to one, then the channel is used. If the bit position is set to zero, then the channel is not used.

0 02 053

GOES-I/M brightness temperature characteristics

Code figure	
0	Observed brightness temperature
1	Brightness temperature with bias correction applied
2	Brightness temperature calculated from first guess
3	Brightness temperature calculated from sounding
4-14	Reserved
15	Missing value

0 02 054

IGOES-I/M soundings parameter characteristics

Code figure	
0	Parameter derived using observed sounder brightness temperatures
1	Parameter derived using observed imager brightness temperatures
2	Parameter derived using first guess information
3	Parameter derived NMC analysis information
4	Parameter derived using radiosonde information
5-14	Reserved
15	Missing value

0 02 055

Geostationary soundings statistical parameters

Code figure	
0	Statistics generated comparing retrieval versus radiosonde
1	Statistics generated comparing retrieval versus first guess
2	Statistics generated comparing radiosonde versus first guess
3	Statistics generated comparing observed versus retrieval
4	Statistics generated comparing observed versus first guess
5	Statistics generated comparing radiosonde versus imager
6	Statistics generated comparing radiosonde versus sounder
7	Statistics generated for radiosonde
8	Statistics generated for first guess
9-14	Reserved
15	Missing value

0 02 056

Geostationary soundings accuracy statistics

Code figure	
0	Sums of differences
1	Sums of squared differences
2	Simple size
3	Minimum difference
4	Maximum difference
5-14	Reserved
15	Missing value

0 02 057

Origin of first guess information for GOES-I/M soundings

Code figure	
0	Nested Grid Model (NGM)
1	Aviation Model (AVN)
2	Medium Range Forecast (MRF) Model
3	Global Data Assimilation System (GDAS) Forecast Model
4	Prior soundings (within 3 hours o current time)
5	Climatology
6-14	Reserved
15	Missing value

0 02 058

Valid times of first guess information of GOES-I/M soundings

Code figure	
0	12 hour and 18 hour
1	18 hour and 24 hour
2	6 hour and 12 hour
3	Greater than 24 hours
4-14	Reserved
15	Missing value

0 02 059

Origin of analysis information for GOES-I/M soundings

Code figure	
0	NCEP Nested Grid Model (NGM) Analysis
1	NCEP Aviation Model (AVN) Analysis
2	NCEP Medium Range Forecast (MRF) Model Analysis
3	NCEP Global Data Assimilation System (GDAS) Forecast Model Analysis
4-14	Reserved
15	Missing value

0 02 060

Origin of surface information for GOES-I/M soundings

Code figure	
0	Current surface hourly reports
1	Current ship reports
2	Current buoy reports
3	One hour old surface hourly reports
4	One hour old ship reports
5	One hour old buoy reports
6-14	Reserved
15	Missing value

0 02 061

Aircraft navigational system

Code figure	
0	Inertial navigation system
1	OMEGA
2-6	Reserved
7	Missing value

0 02 062

Type of aircraft data relay system

Code figure	
0	ASDAR
1	ASDAR (ACARS also available but not operative)
2	ASDAR (ACARS also available and operative)
3	ACARS
4	ACARS (ASDAR also available but not operative)
5	ACARS (ASDAR also available and operative)
6-14	Reserved
15	Missing value

0 02 064

Aircraft roll angle quality

Code figure	
0	Good
1	Bad
2	Reserved
3	Missing value

Note: Bad is currently defined as a roll angle >5 degrees from vertical.

0 02 066

Radiosonde ground receiving system

Code figure	
0	TRS 2000
1	IMS 1500C
2-61	Reserved
62	Other
63	Missing value

0 02 070

Original specification of latitude/longitude

Code figure	
0	Actual location in seconds
1	Actual location in minutes
2	Actual location in degrees
3	Actual location in decidegrees
4	Actual location in centidegrees
5	Referenced to checkpoint in seconds
6	Referenced to checkpoint in minutes
7	Referenced to checkpoint in degrees
8	Referenced to checkpoint in decidegrees
9	Referenced to checkpoint in centidegrees
10	Actual Location in tenths of a minute
11	Referenced to checkpoint in tenths of a minute
12-14	Reserved
15	Missing value

0 02 080

Balloon manufacturer

Code figure	
0	Kaysam
1	Totex
2	KKS
3-61	Reserved
62	Other
63	Missing value

0 02 081

Type of balloon

Code figure	
0	GP26
1	GP28
2	GP30
3	HM26
4	HM28
5	HM30
6	SV16
7-29	Reserved
30	Other
31	Missing value

0 02 083

Type of balloon shelter

Code figure	
0	High bay
1	Low bay
2	Balloon Inflation Launch System (BILS)
3	Roof-top BILS
4-13	Reserved
14	Other
15	Missing value

0 02 084

Type of gas used in balloon

Code figure	
0	Hydrogen
1	Helium
2	Natural Gas
3-13	Reserved
14	Other
15	Missing value

0 02 095

Type of pressure sensor

Code figure	
0	Capacitance aneroid
1	Derived from GPS
2	Resistive strain gauge
3-29	Reserved
30	Other
31	Missing value

0 02 096

Type of temperature sensor

Code figure	
0	Rod thermistor
1	Bead thermistor
2	Capacitance bead
3-29	Reserved
30	Other
31	Missing value

0 02 097

Type of humidity sensor

Code figure	
0	VIZ Mark II Carbon Hygristor
1	VIZ B2 Hygristor
2	Vaisala A-Humicap
3	Vaisala H-Humicap
4	Capacitance sensor
5	Vaisala RS90
6	Sippican Mark IIA Carbon Hygristor
7-29	Reserved
30	Other
31	Missing value

0 02 099

Polarisation

Code figure	Meaning
0	HH polarisation
1	VV polarisation
2	HV polarisation real valued component
3	HV polarisation imaginary valued component
4-6	Reserved
7	Missing value

0 02 101

Type of antenna

Code figure	
0	Centre front-fed paraboloid
1	Offset front-fed paraboloid
2	Centre Cassegrain paraboloid
3	Offset Cassegrain paraboloid
4	Planar array
5	Coaxial-collinear array
6	Yagi elements array
7	Microstrip
8-13	Reserved
14	Other
15	Missing value

0 02 103

Radome

Bit No.	
1	Radar antenna is protected by a radome
All 2	Missing value

0 02 104

Antenna polarization

Code figure	
0	Horizontal polarization
1	Vertical polarization
2	Right circular polarization
3	Left circular polarization
4	Horizontal and vertical polarization
5	Right and left circular polarization
6-14	Reserved
15	Missing value

0 02 115

Type of surface observing equipment

Code figure	
0	PDB
1	RSOIS
2	ASOS
3	Psychrometer
4	F420
5-29	Reserved
30	Other
31	Missing value

0 02 119

Instrument operations

Code figure	
0	Intermediate Frequency Calibration Mode (IF CAL)
1	Built-In Test Equipment Digital (BITE DGT)
2	Built-In test Equipment Radio Frequency (BITE RF)
3	Preset tracking (PSET TRK)
4	Preset LOOP OUT
5	ACQUISITION
6	TRACKING
7	Missing value

0 02 131

Sensitivity time control (STC)

Bit No.	
1	STC operational
All 2	Missing values

0 02 143

Ozone instrument type

Code Figure	
0	Reserved
1	Brewer spectrophotometer
2	Caver Teichert
3	Dobson
4	Dobson (Japan)
5	Ehmet
6	Fecker telescope
7	Hoelper
8	Jodmeter
9	Filter Ozonometer M-83
10	Mast
11	Oxford
12	Paetzold
13	Regener
14	Reserved for future use
15	Vassy filter Ozonometer
16	Carbon iodide
17	Surface ozone bubler
18	Filter Ozonometer M-124
19	ECC sonde
20-126	Reserved
127	Missing value

0 02 144

Light source type of Brewer spectrophotometer

Code figure	
0	Direct Sun
1	Direct Sun, attenuator #1
2	Direct Sun, attenuator #2
3	Focussed Moon
4	Focussed Sun
5	Focussed Sun corrected with adjacent sky measurements
6	Zenith Sky
7-14	Reserved
15	Missing value

Note: Entries 1 and 2 should not be used.

0 02 145

Wave length setting for Dobson instruments

Code figure	
0	Wavelengths AD ordinary setting
1	Wavelengths BD ordinary setting
2	Wavelengths CD ordinary setting
3	Wavelengths CC' ordinary setting
4	Wavelengths AD focussed image
5	Wavelengths BD focussed image
6	Wavelengths CD focussed image
7	Wavelengths CC' focussed image
8-14	Reserved
15	Missing value

0 02 146

Source condition for Dobson instruments

Code figure	
0	on direct sun
1	on direct moon
2	on blue zenith sky
3	on zenith cloud (uniform stratified layer of small opacity)
4	on zenith cloud(uniform or moderately variable layer of medium opacity)
5	on zenith cloud (uniform or moderately variable layer of large opacity)
6	on zenith cloud (highly variable opacity, with or without precipitation)
7	on zenith cloud (fog)
8	On zenith haze
9	On direct sun through thin cloud, fog or haze
10-14	reserved
15	Missing value

0.02 148

Data collection and/or location system

Code figure	
0	Reserved
1	Argos
2	GPS
3	GOES DCP
4	METEOSAT DCP
5-30	Reserved
31	Missing value

0 02 149

Type of data buoy

Code figure	
0	Unspecified drifting buoy
1	Standard Lagrangian drifter (Global Drifter Programme)
2	Standard FGGE type drifting buoy (non-Lagrangian meteorological drifting buoy)
3	Wind measuring FGGE type drifting buoy (non-Lagrangian meteorological drifting buoy)
4	Ice float
5-7	Reserved
8	Unspecified sub-surface float
9	SOFAR
10	ALACE
11	MARVOR
12	RAFOS
13-15	Reserved
16	Unspecified moored buoy
17	Nomad
18	3-metre discus
19	10-12-metre discus
20	ODAS 30 series
21	ATLAS (e.g. TAO area)
22	TRITON buoy
23	Reserved
24	Omnidirectional waverider
25	Directional waverider
26	Sub-surface ARGO float
27-62	Reserved
63	Missing value

0 02 150

TOVS/ATOVS/AVHRR instrumentation channel number

code figure		Code figure	
0	Reserved	28	AMSU-A 1
1	HIRS 1	29	AMSU-A 2
2	HIRS 2	30	AMSU-A 3
3	HIRS 3	31	AMSU-A 4
4	HIRS 4	32	AMSU-A 5
5	HIRS 5	33	AMSU-A 6
6	HIRS 6	34	AMSU-A 7
7	HIRS 7	35	AMSU-A 8
8	HIRS 8	36	AMSU-A 9
9	HIRS 9	37	AMSU-A 10
10	HIRS 10	38	AMSU-A 11
11	HIRS 11	39	AMSU-A 12
12	HIRS 12	40	AMSU-A 13
13	HIRS 13	41	AMSU-A 14
14	HIRS 14	42	AMSU-A 15
15	HIRS 15	43	AMSU-B 1 / MHS 1
16	HIRS 16	44	AMSU-B 2 / MHS 2
17	HIRS 17	45	AMSU-B 3 / MHS 3
18	HIRS 18	46	AMSU-B 4 / MHS 4
19	HIRS 19	47	AMSU-B 5 / MHS 5
20	HIRS 20	48	AVHRR 1
21	MSU 1	49	AVHRR 2
22	MSU 2	50	AVHRR 3a
23	MSU 3	51	AVHRR 3b
24	MSU 4	52	AVHRR 4
25	SSU 1	53	AVHRR 5
26	SSU 2	54-62	Reserved
27	SSU 3	63	Missing value

0 02 151

Radiometer identifier

Code figure	
0	HIRS
1	MSU
2	SSU
3	AMSU-A1-1
4	AMSU-A1-2
5	AMSU-A2
6	AMSU-B
7	AVHRR
8	Reserved
9	MHS
10-2046	Reserved
2047	Missing value

0 02 152

Satellite instrument data used in processing

Bit No.	
1	High-resolution infrared sounder(HIRS)
2	Microwave sounding unit (MSU)
3	Stratospheric sounding unit (SSU)
4	AMI wind mode
5	AMI wave mode
6	AMI image mode
7	RADAR altimeter
8	ATSR
9	Geostationary Imager
10	Geostationary Sounder
11	Geostationary Earth radiation (GERB)
12	Multi-channel scanning radiometer
13-30	Reserved
All 31	Missing value

0 02 158

RA – 2 Instruments

Bit No.	
1	Mismatch in RED VEC HPA
2	Mismatch in RED VEC RFSS
3	PTR calibration band 320 MHz (Ku)
4	PTR calibration band 80 MHz (Ku)
5	PTR calibration band 20 MHz (Ku)
6	PTR calibration band 160 MHz (S)
7	Ku flight calibration parameters available
8	S flight calibration parameters available
All 9	Missing value

Note: PTR = Pulse Target Response
HPA = High Power Amplifier
RFSS = Radio Frequency Sub-System
RED = Redundancy

0 02 159

MWR Instruments

Bit No.	
1	Temperature inconsistency
2	Data is missing
3	Redundancy channel
4	Power bus protection
5	Overvoltage/Overload protection
6	Reserved
7	Reserved
All 8	Missing value

Note: MWR - Microwave radiometer

0 02 160

Wave length of the radar

Code figure	
0	Reserved
1	10 to less than 20 mm
2	Reserved
3	20 to less than 40 mm
4	Reserved
5	40 to less than 60 mm
6	Reserved
7	60 to less than 90 mm
8	90 to less than 110 mm
9	110 mm and greater
10-14	Not used
15	Missing value

0 02 163

Height assignment method

Code figure	
0	Auto editor
1	IRW height assignment
2	WV height assignment
3	H2O intercept height assignment
4	CO2 slicing height assignment
5	Low pixel max gradient
6	Higher pixel max gradient
7	Primary height assignment
8	Layer thickness assignment
9	Cumulative contribution function -10 percent height
10	Cumulative contribution function -50 percent height
11	Cumulative contribution function -90 percent height
12	Cumulative contribution function - height of maximum gradient
13	IR / two WV channel ratioing method
14	Composite height assignment
15	Missing value

0 02 164

Tracer correlation method

Code figure	
0	LP - Norms least square minimum
1	EN - Euclidean norm with radiance correlation
2	CC - Cross correlation
3-6	Reserved
7	Missing value

0 02 166

Radiance type

Code figure	
0	Type not defined
1	Automated statistical regression
2	Clear path
3	Partly cloudy path
4	Cloudy path
5-14	Reserved
15	Missing value

0 02 167

Radiance computational method

Code figure	
0	Method not defined
1	1b raw radiance
2	processed radiance
3-14	Reserved
15	Missing value

0 02 169

Anemometer type

Code figure	
0	Cup rotor
1	Propeller rotor
2	Wind Observation Through Ambient Noise (WOTAN)
3	Sonic
4-14	Reserved
15	Missing value

0 02 172

Product type for retrieved atmospheric gases

Code figure	
0	Reserved
1	Retrieval from a nadir sounding
2	Retrieval from a limb sounding
3-254	Reserved
255	Missing value

0 02 175

Method of precipitation measurement

Code figure	
0	Manual measurement
1	Tipping bucket method
2	Weighing method
3	Optical method
4	Pressure method
5	Float method
6	Drop counter method
7-13	Reserved
14	Others
15	Missing value

0 02 176

Method of state of ground measurement

Code figure	
0	Manual observation
1	Video camera method
2	Infra-red method
3	Laser method
4-13	Reserved
14	Others
15	Missing value

0 02 177

Method of snow depth measurement

Code figure	
0	Manual observation
1	Ultrasonic method
2	Video camera method
3-13	Reserved
14	Others
15	Missing value

0 02 178

Method of liquid content measurement of precipitation

Code figure	
0	Manual observation
1	Optical method
2	Capacitive method
3-13	Reserved
14	Others
15	Missing value

0 02 179

Type of sky condition algorithm

Code figure	
0	Manual observation
1	VAISALA algorithm
2	ASOS (FAA) algorithm
3	AWOS (Canada) algorithm
4-13	Reserved
14	Others
15	Missing value

0 02 180

Main present weather detecting system

Code Figure	
0	Manual observation
1	Optical scatter system combined with precipitation occurrence sensing system
2	Forward and/or back-scatter system of visible light
3	Forward and/or back-scatter system of infrared light
4	Infrared light emitting diode (IRED) system
5	Doppler radar system
6-13	Reserved
14	Others
15	Missing value

0 02 181

Supplementary present weather sensor

Bit No.	
1	Rain detector
2	Freezing rain sensor
3	Ice detection sensor
4	Hail and ice pellet sensor
5-19	Reserved
20	Others
All 21	Missing value

0 02 182

Visibility measurement system

Code figure	
0	Manual measurement
1	Transmissometer system (base ≥ 25 m)
2	Transmissometer system (base < 25 m)
3	Forward scatter system
4	Back scatter system
5-13	Reserved
14	Others
15	Missing value

0 02 183

Cloud detection system

Code figure	
0	Manual observation
1	Ceilometer system
2	Infrared camera system
3	Microwave visual camera system
4	Sky imager system
5	Video time lapsed camera system
6	Micro pulse lidar (MPL) system
7-13	Reserved
14	Others
15	Missing value

0 02 184

Type of lightning detection sensor

Code figure	
0	Manual observation
1	Lightning imaging sensor
2	Electrical storm identification sensor
3	Magnetic finder sensor
4	Lightning strike sensor
5	Flash counter
6-13	Reserved
14	Others
15	Missing value

0 02 185

Method of evaporation measurement

Code figure	
0	Manual measurement
1	Balanced floating method
2	Pressure method
3	Ultrasonic method
4	Hydraulic method
5-13	Reserved
14	Others
15	Missing value

0 02 186

Capability to detect precipitation phenomena

Bit No.	
1	Precipitation-unknown type
2	Liquid precipitation not freezing
3	Liquid freezing precipitation
4	Drizzle
5	Rain
6	Solid precipitation
7	Snow
8	Snow grains
9	Snow pellets
10	Ice pellets
11	Ice crystals
12	Diamond dust
13	Small hail
14	Hail
15	Glaze
16	Rime
17	Soft rime
18	Hard rime
19	Clear ice
20	Wet snow
21	Hoar frost
22	Dew
23	White dew
24-29	Reserved
All 30	Missing value

0 02 187

Capability to detect other weather phenomena

Bit No.	
1	Dust/sand whirl
2	Squalls
3	Sand storm
4	Dust storm
5	Lightning - cloud to surface
6	Lightning - cloud to cloud
7	Lightning - distant
8	Thunderstorm
9	Funnel Cloud not touching surface
10	Funnel cloud touching surface
11	Spray
12-17	Reserved
All 18	Missing value

0 02 188

Capability to detect obscuration

Bit No.	
1	Fog
2	Ice fog
3	Steam fog
4-6	Reserved
7	Mist
8	Haze
9	Smoke
10	Volcanic ash
11	Dust
12	Sand
13	Snow
14-20	Reserved
All 21	Missing value

0 02 189

Capability to discriminate lightning strikes

Bit No.	
1	Manual observation
2	All lightning strikes without discrimination
3	Lightning strikes cloud to ground only
4	All lightning strikes with discrimination between cloud to ground and cloud to cloud
5-11	Reserved
All 12	Missing value

0 04 059

Times of observation used to compute the reported mean values

Bit No.	
1	00 UTC
2	06 UTC
3	12 UTC
4	18 UTC
5	Other hours
All 6	Missing value

0 04 080

Averaging period for following value

Code figure	
0	Spot values
1	Less than 15 minutes
2	From 15 to 45 minutes
3	More than 45 minutes
4-8	Reserved
9	Data not available

10-14	Not used
15	Missing value

0 08 001

Vertical sounding significance

Bit No.	
1	Surface
2	Standard level
3	Tropopause level
4	Maximum wind level
5	Significant level, temperature and/or relative humidity
6	Significant level, wind
All 7	Missing value

0 08 002

Vertical significance (surface observations)

Code figure	
0	Observing rules for base of lowest cloud and cloud types of FM 12SYNOP and FM 13 SHIP apply
1	First non - C_b significant layer
2	Second non - C_b significant layer
3	Third non - C_b significant layer
4	Cumulonimbus layer
5	Ceiling
6	Clouds not detected below the following height(s)
7	Low cloud
8	Middle cloud
9	High cloud
10	Cloud layer with base below the station level and top above the station level
11	Cloud layer with base and top below the station level
12-19	Reserved
20	No clouds detected by the cloud detection system
21	First instrument detected cloud layer
22	Second instrument detected cloud layer
23	Third instrument detected cloud layer
24	Fourth instrument detected cloud layer
25-61	Reserved
62	Value not applicable
63	Missing value

0 08 003

Vertical significance (satellite observations)

Code figure	
0	Surface
1	Base of Satellite sounding
2	Cloud top
3	Tropopause
4	Precipitable water
5	Sounding Radiances
6	Mean Temperatures
7	Ozone
8	Low cloud
9	Med Cloud
10	High cloud
11-62	Reserved
63	Missing value

0 08 004

Phase of aircraft flight

Code figure	
0-1	Reserved
2	Unsteady (UNS)
3	Level flight, routine observation (LVR)
4	Level flight, highest wind encountered (LVW)
5	Ascending (ASC)
6	Descending (DES)
7	Missing value

0 08 005

Meteorological attribute significance

Code figure	
0	Reserved
1	Storm center
2	Outer limit or edge of storm
3	Location of maximun wind
4	Location of the storm in the perturbed analysis
5	Location of the storm in the analysis
6-14	Reserved
15	Missing value

0 08 006

Ozone vertical sounding significance

Bit No.	
1	Surface
2	Standard level
3	Tropopause level
4	Prominent maximum level
5	Prominent minimum level
6	Minimum pressure level
7	Reserved
8	Level of undetermined significance
All 9	Missing value

0 08 007

Dimensional significance

Code figure	
0	Point
1	Line
2	Area
3	Volume
4-14	Reserved
15	Missing value

Note: A consecutive sequence of 2 or more of location coordinates, such as latitude and longitude pairs, defines a line or polygon. Points shall be joined in the order given in the message. Any area described will fall left of the drawn boundary in the direction established by the order of the points given in the message. This definition is for simple non-intersecting polygons without holes.

0 08 008

Radiation vertical sounding significance

Bit No.	
1	Surface
2	Standard level
3	Tropopause level
4	Level of beta radiation maximum
5	Level of gamma radiation maximum
6	Minimum pressure level
7	Reserved
8	Level of undetermined significance
All 9	Missing value

0 08 009

Detailed phase of aircraft flight

Code figure	
0	Level flight, routine observation, unsteady
1	Level flight, highest wind encountered, unsteady
2	Unsteady (UNS)
3	Level flight, routine observation (LVR)
4	Level flight, highest wind encountered (LVW)
5	Ascending (ASC)
6	Descending (DES)
7	Ascending, observation intervals selected by time increments
8	Ascending, observation intervals selected by time increments, unsteady
9	Ascending, observation intervals selected by pressure increments
10	Ascending, observation intervals selected by pressure increments, unsteady
11	Descending, observation intervals selected by time increments
12	Descending, observation intervals selected by time increments, unsteady
13	Descending, observation intervals selected by pressure increments
14	Descending, observation intervals selected by pressure increments, unsteady
15	Missing value

0 08 010

Surface qualifier (for temperature data)

Code figure	
0	Reserved
1	Bare soil
2	Bare rock
3	Land grass cover
4	Water (lake, sea)
5	Flood water underneath
6	Snow
7	Ice
8	Runway or road
9	Ship or platform deck in steel
10	Ship or platform deck in wood
11	Ship or platform deck partly covered with rubber mat
12-30	Reserved
31	Missing value

0 08 011

Meteorological Feature

Code figure	
0	Quasi-stationary front at the surface
1	Quasi-stationary front above the surface
2	Warm front at the surface
3	Warm front above the surface
4	Cold front at the surface
5	Cold front above the surface
6	Occlusion
7	Instability line
8	Intertropical front
9	Convergence line
10	Jet stream
11	Cloud clear
12	Cloud
13	Turbulence
14	Storm
15	Airframe icing
16	Phenomenon
17	Volcano
18	Atmospherics
19	Reserved
20	Special clouds
21	Thunderstorm
22	Tropical cyclone
23	Mountain Wave
24	Duststorm
25	Sandstorm
26-62	Reserved
63	Missing value

0 08 012

Land/sea qualifier

Code figure	
0	Land
1	Sea
2	Coastal
3	Missing value

0 08 013

Day/Night qualifier

Code Figure	
0	Night
1	Day
2	Reserved
3	Missing value

0 08 014

Qualifier for runway visual range

Code figures		
0	10-minute mean value	- normal value
1	10-minute mean value	- above the upper limit for assessments of RVR (P)
2	10-minute mean value	- below the lower limit for assessments of RVR (M)
3	one-minute minimum value	- normal value
4	one-minute minimum value	- above the upper limit for assessments of RVR (P)
5	one-minute minimum value	- below the lower limit for assessments of RVR (M)
6	one-minute maximum value	- normal value
7	one-minute maximum value	- above the upper limit for assessments of RVR (P)
8	one-minute maximum value	- below the lower limit for assessments of RVR (M)
9-14	Reserved	
15	Missing value	

0 08 016

Change qualifiers of a trend-type forecast or an aerodrome forecast

Code figures	
0	NOSIG
1	BECMG
2	TEMPO
3	FM
4-6	Reserved
7	Missing value

0 08 017

Qualifier of the time when the forecast change is expected

Code figures	
0	FM
1	TL
2	AT
3	Missing value

0 08 018

SEAWINDS land/ice surface type

Bit No.	
1	Land is present
2	Surface ice map indicates ice is present
3-10	Reserved
11	Ice map data not available
12	Attenuation map data not available
13-16	Reserved
All 17	Missing value

0 08 019

Qualifier for following centre identifier

Code figure	
0	Reserved
1	ATS (Air Traffic Service) unit serving FIR (Flight Information Region)
2	FIR (Flight Information Region)
3	UIR (Upper Information Region)
4	CTA (Control Area)
5	VAAC (Volcanic Ash Advisory Centre)
6	MWO (Meteorological Watch Office) issuing SIGMET
7-14	Reserved
15	Missing value

0 08 021

Time significance

Code figure	
0	Reserved
1	Time series
2	Time averaged (see Note 1)
3	Accumulated
4	Forecast
5	Forecast time series
6	Forecast time averaged
7	Forecast accumulated
8	Ensemble mean (see Note 2)
9	Ensemble mean time series
10	Ensemble mean time averaged
11	Ensemble mean accumulated
12	Ensemble mean forecast
13	Ensemble mean forecast time series
14	Ensemble mean forecast time averaged
15	Ensemble mean forecast accumulated
16	Analysis
17	Start of phenomenon
18	Radiosonde launch time
19	Start of orbit
20	End of orbit
21	Time of ascending node
22	Time of occurrence of wind shift
23	Monitoring period
24	Agreed time limit for report reception
25	Nominal reporting time

26	Time of last known position
27	First guess
28	Start of scan
29	End of scan
30	Reserved
31	Missing value

Notes:
(1) "Time averaged" indicates that values are continuously averaged over a period of time.
(2) "Ensemble mean" indicates that a number of distinct values corresponding to a set of time locations are averaged.
(3) Time significance must be qualified by appropriate time periods being specified.

0 08 023

First Order Statistics

Code Figure	
0	Reserved
1	Reserved
2	Maximum value
3	Minimum value
4	Mean value
5	Median value
6	Modal value
7	Mean absolute error
8	Reserved
9	Best estimate of standard deviation (N-1)
10	Standard deviation (N)
11	Harmonic mean
12	Root-mean-square vector error
13	Root-mean-square
14-31	Reserved
32	Vector mean
33-62	Reserved for local use
63	Missing value

NOTE: All first order statistics are in the units defined by the original data descriptors.

0 08 024

Difference Statistics

Code Figure	
0	Reserved
1	Reserved
2	Observed minus maximum
3	Observed minus minimum
4	Observed minus mean
5	Observed minus median
6	Observed minus mode
7-10	Reserved
11	Observed minus climatology (anomaly)
12	Observed minus analyzed value
13	Observed minus initialized analysed value
14	Observed minus forecast value
15-20	Reserved
21	Observed minus interpolated value
22	Observed minus hydrostatically calculated value
23-31	Reserved
32-62	Reserved for local use
63	Missing value

Notes:

(1) Difference statistics are difference values; they have dimensions the same as the corresponding reported values with respect to units, but assume a range centred on zero (e.g., the difference between reported and analysed values, the difference between reported and forecast values, etc.).

(2) Where observed minus forecast values are represented, the period of the forecast shall be indicated by an appropriate descriptor from class 4.

0 08 025

Time difference qualifier

Code Figure	
0	Universal Time Coordinated (UTC) minus Local Standard Time (LST)
1	Local Standard Time
2	Universal Time Coordinated (UTC) minus Satellite clock
3-4	Reserved
5	Time difference from edge of processing segment
6-14	Reserved
15	Missing value

0 08 026

Matrix significance

Code figure	Meaning
0	Averaging kernel matrix
1	Correlation matrix (C)
2	Lower triangular correlation matrix square root (L from C=LLT)
3	Inverse of lower triangular correlation matrix square root (L-1)
4-42	Reserved
43-62	Reserved for local use
63	Missing or undefined significance

0 08 029

Remotely sensed surface type

Code Figure	
0	Open ocean or semi-enclosed sea
1	Enclosed sea or lake
2	Continental ice
3	Land
4	Low inland (below sea level)
5	Mix of land and water
6	Mix of land and low inland
7-254	Reserved
255	Missing value

0 08 033

Method of derivation of percentage confidence

Code Figure	
0	Reserved
1	Percentage confidence calculated using cloud fraction
2	Percentage confidence calculated using standard deviation of temperature
3	Percentage confidence calculated using probability of cloud contamination
4	Percentage confidence calculated using normality of distribution
5-126	Reserved
127	Missing value

0 08 035

Type of monitoring exercise

Code figure	
0	Global
1	Regional
2	National
3	Special
4	Bilateral
5	Reserved
6	Reserved
7	Missing value

0 08 036

Type of centre or station performing monitoring

Code figure	
0	WMO Secretariat
1	WMO
2	RSMC
3	NMC
4	RTH
5	Observing site
6	Other
7	Missing value

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 value

0 08 040

Flight level significance

Code figure	
0	High resolution data sample
1	Within 20 hPa of surface
2	Pressure less than 10 hPa (i.e., 9, 8, 7, etc.) when no other reason applies
3	Base pressure level for stability index
4	Begin doubtful temperature, height data
5	Begin missing data (all elements)
6	Begin missing RH data
7	Begin missing temperature data
8	Highest level reached before balloon descent because of icing or turbulence
9	End doubtful temperature, height data
10	End missing data (all elements)
11	End missing RH data
12	End missing temperature data
13	Zero degrees C crossing(s) for RADAT
14	Standard pressure level
15	Operator added level
16	Operator deleted level
17	Balloon re-ascended beyond previous highest ascent level
18	Significant RH level
19	RH level selection terminated
20	Surface level
21	Significant temperature level
22	Mandatory temperature level
23	Flight termination level
24	Tropopause(s)
25	Aircraft report
26	Interpolated (generated) level
27	Mandatory wind level
28	Significant wind level
29	Maximum wind level
30	Incremental wind level (fixed regional)
31	Incremental height level (generated)
32	Wind termination level
33	Pressure 100 to 110 hPa, when no other reason applies
34	Freezing level base
35	Freezing level top
36	Flight level base
37	Flight level top
34-39	Reserved
40	Significant thermodynamic level (inversion)
41	Significant RH level (per NCDC criteria)
42	Significant temperature level (per NCDC)
43	Begin missing wind data
44	End missing wind data
45-59	Reserved
60	Level of 80-knot isotach above jet
61	Level of 80-knot isotach below jet
62	Other
63	Missing value

0 08 041

Data significance

Code figure	
0	Parent site
1	Observation site
2	Balloon manufacture date
3	Balloon launch point
4	Surface observation
5	Surface observation displacement from launch point
6	Flight level observation
7	Flight level termination point
8	IFR Ceiling and Visibility
9	Mountain obscuration
10	Strong surface wind
11	Freezing level
12	Multiple freezing level
13-30	Reserved
31	Missing value

0 08 042

Extended vertical sounding significance

Bit No.	
1	Surface
2	Standard level
3	Tropopause level
4	Maximum wind level
5	Significant temperature level
6	Significant humidity level
7	Significant wind level
8	Beginning of missing temperature data
9	End of missing temperature data
10	Beginning of missing humidity data
11	End of missing humidity data
12	Beginning of missing wind data
13	End of missing wind data
14	Top of wind sounding
15	Level determined by regional decision
16	Reserved
17	Pressure level originally indicated by height as the vertical coordinate
All 18	Missing value

0 08 043

Atmospheric chemical or physical constituent type

Note: The last column in the table contains the associated registry number from the Chemical Abstracts Service (CAS) of the American Chemical Society.

Code figure	Name	Meaning Formula	CAS Number (if applicable)
0	Ozone	O_3	10028-15-6

	Meaning		
1	Water vapour	H_2O	7732-18-5
2	Methane	CH_4	74-82-8
3	Carbon dioxide	CO_2	124-38-9
4	Carbon monoxide	CO	630-08-0
5	Nitrogen dioxide	NO_2	10102-44-0
6	Nitrous oxide	N_2O	10024-97-2
7	Formaldehyde	HCHO	50-00-0
8	Sulfur dioxide	SO_2	7446-09-5
09-24	Reserved		
25	Particulate Matter < 1.0 microns		
26	Particulate Matter < 2.5 microns		
27	Particulate Matter < 10 microns		
28	Aerosols (generic)		
29	Smoke (generic)		
30	Crustal Material (generic dust)		
31	Volcanic Ash		
32-200	Reserved		
201-254	Reserved for local use		
255	Missing value		

0 08 050

Qualifier for number of missing values in calculation of statistic

Code figure	
0	Reserved
1	Pressure
2	Temperature
3	Extreme temperature
4	Vapour pressure
5	Precipitation
6	Sunshine duration
7	Maximum temperature
8	Minimum temperature
9	Wind
10-14	Reserved
15	Missing value

0 08 051

Qualifier for number of missing values in calculation of statistic

Code figure	
1	Pressure
2	Temperature
3	Extreme temperature
4	Vapour pressure
5	Precipitation
6	Sunshine duration
7	Missing value

0 08 052

Condition for which number of days of occurrence follows

Code figure	
0	Mean wind speed over a 10-minute period observed or recorded equal to or more than 10 m/s or 20 knots
1	Mean wind speed over a 10-minute period observed or recorded equal to or more than 20 m/s or 40 knots
2	Mean wind speed over a 10-minute period observed or recorded equal to or more than 30 m/s or 60 knots
3	Maximum temperature less than 273.15 K
4	Maximum temperature equal to or more than 298.15 K
5	Maximum temperature equal to or more than 303.15 K
6	Maximum temperature equal to or more than 308.15 K
7	Maximum temperature equal to or more than 313.15 K
8	Minimum temperature less than 273.15 K
9	Maximum temperature equal to or more than 273.15 K
10	Precipitation equal to or more than 1.0 kgm^{-2}
11	Precipitation equal to or more than 5.0 kgm^{-2}
12	Precipitation equal to or more than 10.0 kgm^{-2}
13	Precipitation equal to or more than 50.0 kgm^{-2}
14	Precipitation equal to or more than 100.0 kgm^{-2}
15	Precipitation equal to or more than 150.0 kgm^{-2}
16	Snow depth more than 0.00 m
17	Snow depth more than 0.01 m
18	Snow depth more than 0.10 m
19	Snow depth more than 0.50 m
20	Horizontal visibility less than 50 m
21	Horizontal visibility less than 100 m
22	Horizontal visibility less than 1000 m
23	Hail
24	Thunderstorm
25-30	Reserved
31	Missing value

0 08 053

Day of occurrence qualifier

Code figure	
0	Value occurred on only one day in the month
1	Value occurred on more than one day in the month
2	Reserved
3	Missing value

0 08 054

Qualification of wind speed or wind gusts

Code figure	
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 value

0 08 060

Sample Scanning Mode Significance

Code figure	
0	Reserved
1	Range
2	Azimuth
3	Horizontal
4	Vertical
5	North/South
6	East/West
7-14	Reserved
15	Missing value

0 08 065

Sun-glint indicator

Code figure	
0	No sun-glint
1	Sun-glint
2	Reserved
3	Missing value

0 08 066

Semi-transparency indicator

Code figure	
0	Opaque
1	Semi-transparent
2	Reserved
3	Missing value

0 08 070

TOVS/ATOVS product qualifier

Code figure	
0	Reserved
1	Reserved
2	Earth located instrument counts, calibration coefficients and housekeeping (level 1b)
3	Earth located calibrated radiances (level 1c)
4	Mapped to a common footprint, earth located calibrated radiances (level 1d)
5-14	Reserved
15	Missing value

0 08 072

Pixel(s) type

Code figure	
0	Mixed
1	Clear
2	Cloudy
3-6	Reserved
7	Missing value

0 08 074

Altimeter echo type

Code figure	
0	Open ocean or semi-enclosed sea
1	Non-ocean like
2	Reserved
3	Missing value

0-08-075

Ascending/Descending Orbit Qualifier

Code figure	
0	Ascending orbit
1	Descending orbit
2	Reserved
3	Missing value

0 08 076

Type of band

Code figure	
0	Ku
1	C
2-62	Reserved
63	Missing value

0 08 077

Radiometer sensed surface type

Code figure	
0	Land
1	Sea
2	Coastal
3	Open ocean or semi-enclosed sea
4	Enclosed sea or lake
5	Continental ice
6-126	Reserved
127	Missing value

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

0 08 080

Qualifier for GTSPP quality flag

Code figure	
0	Total water pressure profile
1	Total water temperature profile
2	Total water salinity profile
3	Total water conductivity profile
4-9	Reserved
10	Water pressure at a level
11	Water temperature at a level
12	Salinity at a level
13-19	Reserved
20	Position
21-62	Reserved
63	Missing value

0 08 081

Type of equipment

Code figure	
0	Sensor
1	Transmitter
2	Receiver
3	Observing platform
4-62	Reserved
63	Missing value

0 08 082

Modification of sensor height to another value

Code figure	
0	Sensor height is not modified
1	Sensor height is modified to standard level
2-6	Reserved
7	Missing value

Note: If 0 08 082 = 1, standard level is indicated by the descriptor of class 7, which immediately follows. It is possible to indicate the real height of the sensor by preceding the descriptor by relevant class 7 descriptor.

0 08 083

Nominal value indicator

Bit No.	
1	Adjusted with respect to representative height of sensor above local ground (or Deck of marine platform)
2	Adjusted with respect to representative height of sensor above water surface
3	Adjusted with respect to standard surface roughness
4	Adjusted with respect to wind speed
5	Adjusted with respect to temperature
6	Adjusted with respect to pressure
7	Adjusted with respect to humidity
8	Adjusted with respect to evaporation
9	Adjusted with respect to wetting losses
10-14	Reserved
All 15	Missing value

0 08 085

Beam identifier

Code figure	
0	Fore beam
1	Mid beam
2	Aft beam
3-6	Reserved
7	Missing value

0 10 063

Characteristic of pressure tendency

Code figure		
0	Increasing, then decreasing; atmospheric pressure the same or higher than 3 hours ago	
1	Increasing, then steady; or increasing, then increasing more slowly	Atmospheric pressure now higher than 3 hours ago.
2	Increasing (steadily or unsteadily)	
3	Decreasing or steady, then increasing; or increasing, then increasing more rapidly	
4	Steady; atmospheric pressure the same as 3 hours ago	
5	Decreasing, then increasing; atmospheric pressure the same or lower than 3 hours ago	
6	Decreasing, then steady; or decreasing, then decreasing more slowly	Atmospheric pressure now lower than 3 hours ago.
7	Decreasing (steadily or unsteadily)	
8	Steady or increasing, then decreasing; or decreasing, then decreasing more rapidly	
9-14	Reserved	
15	Missing value	

Notes:

(1) In reports from automatic stations, code figure 2 shall be used when tendency is positive, 7 when negative, and 4 when the pressure is the same as 3 hours before.

(2) In reports from tropical stations reporting 24-hour pressure changes, code figure 2 shall be used when tendency is positive, 7 when negative, and 4 when pressure Is the same as 24 hours before.

0 10 064

SIGMET cruising level

Code figure	
0	Subsonic
1	Transonic
2	Supersonic
3-6	Reserved
7	Missing value

0 11 030

Extended degree of turbulence

Code figure		
0	Nil	In cloud
1	Light	
2	Moderate	
3	Severe	
4	Nil	In clear air
5	Light	
6	Moderate	
7	Severe	
8	Nil	Cloud/clear air not specified
9	Light	
10	Moderate	
11	Severe	
12	Extreme, In clear air	
13	Extreme, In cloud	
14	Extreme, cloud/clear air not specified	
15	Light, isolated moderate	
16	Light, occasional moderate	
17	Light, frequently moderate	
18	Moderate, isolated severe	
19	Moderate, occasional severe	
20	Moderate, frequently severe	
21	Severe, isolated extreme	
22	Severe, occasional extreme	
23	Severe, frequently extreme	
24-62	Reserved	
63	Missing value	

0 11 031

Degree of turbulence

Code figure		
0	Nil	In cloud
1	Light	
2	Moderate	
3	Severe	
4	Nil	In clear air
5	Light	
6	Moderate	
7	Severe	
8	Nil	Cloud/clear air not specified
9	Light	
10	Moderate	
11	Severe	
12	Extreme, In clear air	
13	Extreme, In cloud	
14	Extreme, cloud/clear air not specified	
15	Missing value	

0 11 037

Turbulence index

Code figure	Average Value of Eddy Dissipation Rate (ave) ($m^{2/3}$ s^{-1})	Peak Value of Eddy Dissipation Rate (peak) ($m^{2/3}$ s^{-1})
0	ave <0.1	peak <0.1
1	ave <0.1	0.1 <= peak <0.2
2	0.1 <= ave <0.2	0.1 <= peak <0.2
3	ave <0.1	0.2 <= peak <0.3
4	0.1 <= ave <0.2	0.2 <= peak <0.3
5	0.2 <= ave <0.3	0.2 <= peak <0.3
6	ave <0.1	0.3 <= peak <0.4
7	0.1 <= ave <0.2	0.3 <= peak <0.4
8	0.2 <= ave <0.3	0.3 <= peak <0.4
9	0.3 <= ave <0.4	0.3 <= peak <0.4
10	ave <0.1	0.4 <= peak <0.5
11	0.1 <= ave <0.2	0.4 <= peak <0.5
12	0.2 <= ave <0.3	0.4 <= peak <0.5
13	0.3 <= ave <0.4	0.4 <= peak <0.5
14	0.4 <= ave <0.5	0.4 <= peak <0.5
15	ave <0.1	0.5 <= peak <0.8
16	0.1 <= ave <0.2	0.5 <= peak <0.8
17	0.2 <= ave <0.3	0.5 <= peak <0.8
18	0.3 <= ave <0.4	0.5 <= peak <0.8
19	0.4 <= ave <0.5	0.5 <= peak <0.8
20	0.5 <= ave <0.8	0.5 <= peak <0.8
21	ave <0.1	0.8 <= peak
22	0.1 <= ave <0.2	0.8 <= peak
23	0.2 <= ave <0.3	0.8 <= peak
24	0.3 <= ave <0.4	0.8 <= peak
25	0.4 <= ave <0.5	0.8 <= peak
26	0.5 <= ave <0.8	0.8 <= peak
27	0.8 <= ave	0.8 <= peak
28	Nil	Nil
29-62	Reserved	Reserved
63	Missing value	Missing value

0 11 038

Time of Occurrence of Peak Eddy Dissipation Rate

Code figure	Minutes prior to observation time (min)
0	min < 1
1	1 <= min < 2
2	2 <= min < 3
3	3 <= min < 4
4	4 <= min < 5
5	5 <= min < 6
6	6 <= min < 7
7	7 <= min < 8
8	8 <= min < 9
9	9 <= min < 10
10	10 <= min < 11
11	11 <= min < 12
12	12 <= min < 13
13	13 <= min < 14
14	14 <= min < 15
15	No timing information available
16-30	Reserved
31	Missing value

0 11 039

Extended Time of Occurrence of Peak Eddy Dissipation Rate

Code figure	Minutes prior to observation time (min)
0	min < 1
1	1 <= min < 2
2	2 <= min < 3
3	3 <= min < 4
4	4 <= min < 5
5	5 <= min < 6
6	6 <= min < 7
7	7 <= min < 8
8	8 <= min < 9
9	9 <= min < 10
10	10 <= min < 11
11	11 <= min < 12
12	12 <= min < 13
13	13 <= min < 14
14	14 <= min < 15
15-59	As above to 59 <=min < 60
60	No timing information available
61-62	Reserved
63	Missing value

0 13 038

Superadabiatic indicator

Code figure	
0	Not superadiabatic
1	Superadiabatic
2	Reserved
3	Missing value

0 13 039

Terrain type (ice/snow)

Code figure	
0	Sea ice
1	Snow on land
2-6	Reserved
7	Missing value

0 13 040

Surface flag

Code figure	
0	Land
1	Reserved
2	Near coast
3	Ice
4	Possible ice
5	Ocean
6	Coast
7-14	Reserved
7	Missing value

0 13 041

Pasquill-Gifford stability category

Code figure	
1	A
2	A-B
3	B
4	B-C
5	C
6	D
7	E
8	F
9	G
10-14	Reserved
15	Missing value

0 13 051

Frequency group, precipitation

Code figure	
0	Smaller than any value in the 30-year period
1	In the first quintile
2	In the second quintile
3	In the third quintile
4	In the fourth quintile
5	In the fifth quintile
6	Greater than any value in the 30-year period
7-14	Reserved
15	Missing value

0 13 056

Character and intensity of precipitation

Code figure	
0	No precipitation
1	Light intermittent
2	Moderate intermittent
3	Heavy intermittent
4	Very heavy intermittent
5	Light continuous
6	Moderate continuous
7	Heavy continuous
8	Very heavy continuous
9	Variable – alternatively light and heavy
10-14	Reserved
15	Missing value

0 13 057

Time of beginning or end of precipitation

Code figure	
0	No precipitation
1	Within the last hour
2	1 to 2 hours ago
3	2 to 3 hours ago
4	3 to 4 hours ago
5	4 to 5 hours ago
6	5 to 6 hours ago
7	6 to 8 hours ago
8	8 to 10 hours ago
9	More than 10 hours ago
10-14	Reserved
15	Missing value

0 15 025

Type of pollutant

Code figure	
0	Ozone
1-10	Reserved
11	Fine particulate matter (diameter < 2.5 microns)
12	Fine particulate matter (diameter < 10 microns)
13-14	Reserved
15	Missing value

0 19 001

Type of synoptic feature

Code figure	
0	Depression or low (extratroplcal)
1	Tropical depression
2	Tropical storm
3	Severe tropical storm
4	Typhoon
5-9	Reserved
10	Dust/sandstorm
11-62	Reserved
63	Missing value

Note: New local names for storm of various strengths shall be added as necessary.

0 19 008

Vertical extent of circulation

Code figure	
0	Reserved
1	Shallow (top of circulation below 700 hPa level)
2	Medium (top between 700 hPa and 400 hPa level)
3	Deep (top above 400 hPa level)
4-6	Reserved
7	Missing value

0 19 010

Method for tracking the centre of synoptic feature

Code figure	
1	Minimum value of sea level pressure
2	Maximum value of 850 hPa relative vorticity
3-14	Reserved
15	Missing value

0 19 100

Time interval to calculate the movement of the tropical cyclone

Code figure

0-2	Not used
3	During the preceding 15 minutes
4	During the preceding 30 minutes
5	During the preceding 1 hour
6	During the preceding 2 hours
7	During the preceding 3 hours
8	During the preceding 6 hours
9	During a period of more than 6 hours
10	Undetermined
11-14	Not used
15	Missing value

0 19 101

Accuracy of the position of the centre of the tropical cyclone

Code figure	
0	Reserved
1	Eye visible on radar scope, accuracy good (within 10 km)
2	Eye visible on radar scope, accuracy fair (within 30 km)
3	Eye visible on radar scope, accuracy poor (within 50 km)
4	Position of the centre within the area covered by the radar scope, determination by means of the spiral-band overlay, accuracy good (within 10 km)
5	Position of the centre within the area covered by the radar scope, determination by means of the spiral-band overlay, accuracy fair (within 30 km)
6	Position of the centre within the area covered by the radar scope, determination by means of the spiral-band overlay, accuracy poor (within 50 km)
7	Position of the centre outside the area covered by the radar scope, extrapolation by means of the spiral-band overlay
8-9	Reserved
10	Accuracy undetermined
11-14	Not used
15	Missing value

0 19 102

Shape and definition of the eye of the tropical cyclone

Code figure		
0	Circular	
1	Elliptical — the minor axis is at least 3/4 the length of the major axis	*well defined*
2	Elliptical — the minor axis is less than 3/4 the length of the major axis	
3	Apparent double eye	
4	Other shape	
5	Ill defined	
6	Undetermined	
7	Missing	

0 19 103

Diameter of major axis of the eye of the tropical cyclone

Code figure

0	Less than 5 km
1	5 to less than 10 km
2	10 to less than 15 km
3	15 to less than 20 km
4	20 to less than 25 km
5	25 to less than 30 km
6	30 to less than 35 km
7	35 to less than 40 km
8	40 to less than 50 km
9	50 km and greater
10	Undetermined
11-14	Not used
15	Missing value

0 19 104

Change in character of the eye during the 30 minutes

Code figure

0	Eye has first become visible during the past 30 minutes
1	No significant change in the characteristics or size of the eye
2	Eye has become smaller with no other significant change in characteristics
3	Eye has become larger with no other significant change in characteristics
4	Eye has become less distinct with no significant change in size
5	Eye has become less distinct and decreased in size
6	Eye has become less distinct and increased in size
7	Eye has become more distinct with no significant change in size
8	Eye has become more distinct and decreased in size
9	Eye has become more distinct and increased in size
10	Change in character and size of eye cannot be determined
11-14	Not used
15	Missing value

0 19 105

Distance between the end of spiral band and the centre

Code figure

0	0 to less than 100 km
1	100 to less than 200 km
2	200 to less than 300 km
3	300 to less than 400 km
4	400 to less than 500 km
5	500 to less than 600 km
6	600 to less than 800 km
7	800 km or more
8-9	Reserved
10	Doubtful or undetermined
11-14	Not used
15	Missing value

0 19 107

Time interval of the tropical cyclone analysis

Code figure	
0	Less than 1 hour
1	1 to less than 2 hours
2	2 to less than 3 hours
3	3 to less than 6 hours
4	6 to less than 9 hours
5	9 to less than 12 hours
6	12 to less than 15 hours
7	15 to less than 18 hours
8	18 to less than 21 hours
9	21 to less than 30 hours
10-14	Not used
15	Missing value

0 19 108

Accuracy of geographical position of the tropical cyclone

Code figure	
0	Cyclone centre within 10 km of the transmitted position
1	Cyclone centre within 20 km of the transmitted position
2	Cyclone centre within 50 km of the transmitted position
3	Cyclone centre within 100 km of the transmitted position
4	Cyclone centre within 200 km of the transmitted position
5	Cyclone centre within 300 km of the transmitted position
6	Cyclone centre undetermined
7	Missing value

0 19 109

Mean diameter of the overcast cloud of the tropical cyclone

Code figure	
0	Less than 1° of latitude
1	1° to less than 2° of latitude
2	2° to less than 3° of latitude
3	3° to less than 4° of latitude
4	4° to less than 5° of latitude
5	5° to less than 6° of latitude
6	6° to less than 7° of latitude
7	7° to less than 8° of latitude
8	8° to less than 9° of latitude
9	9° of latitude or more
10	Undetermined
11-14	Not used
15	Missing value

0 19 110

Apparent 24-hour change in intensity of the tropical cyclone

Code figure	
0	Much weakening
1	Weakening
2	No change
3	Intensification
4	Strong Intensification
5-8	Reserved
9	Not observed previously
10	Undetermined
11-14	Not used
15	Missing value

0 19 113

Cloud pattern type of the DT-number

Code figure	Type
1	Curved Band
2	Shear
3	Eye
4	Banding Eye
5	Central Dense Overcast (CDO)
6	Embedded Center
7	Center Cold Cover (CCC)
8-14	Reserved
15	Missing value

0 19 117

Cloud picture type of the PT-number

Code figure	Type
1	A (Curved Band)
2	B (CDO)
3	C (Shear)
4-6	Reserved
7	Missing value

0 19 119

Type of the final T-number

Code figure	Type
1	DT-number

2	PT-number
3	MET-number
4-6	Reserved
7	Missing value

0 20 003

Present weather

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

00-19 No precipitation, fog, ice fog (except for 11 and 12), duststorm, sandstorm, drifting or blowing snow at the station* at the time of observation or, except for 09 and 17, during the preceding hour

Code figure		
No Meteors except photometeors		
Haze, dust, sand or smoke	00	Cloud development not observed or not observable — Characteristic change of the state of sky during the past hour
	01	Clouds generally dissolving or becoming less developed.
	02	State of sky on the whole unchanged.
	03	Clouds generally forming or developing
	04	Visibility reduced by smoke, e.g. veldt or forest fires, Industrial smoke or volcanic ashes
	05	Haze
	06	Widespread dust in suspension in the air, not raised by wind at or near the station at the time of observation
	07	Dust or sand raised by wind at or near the station at the time of observation, but no well-developed dust whirl(s) or sand whirl(s), and no duststorm or sandstorm seen; or, In the case of sea stations and coastal stations, blowing spray at the station
	08	Well-developed dust whirl(s) or sand whirl(s) seen at or near the station during the preceding hour or at the same time of observation, but no duststorm or sandstorm
	09	Duststorm or sandstorm within sight at the time of observation, or at the station during the preceding hour
	10	Mist
	11	Patches — Shallow fog or Ice fog at the station, whether on land or sea, not deeper than about 2 metres on land or 10 metres at sea
	12	More or less continuous
	13	Lightning visible, no thunder heard
	14	Precipitation within sight, not reaching the ground or the surface of the sea
	15	Precipitation within sight, reaching the ground or the surface of the sea, but distant, i.e. estimated to be more than 5 km from the station
	16	Precipitation within sight, reaching the ground or the surface of the sea, near to, but not at the station
	17	Thunderstorm, but no precipitation at the time of observation
	18	Squalls — At or within sight of the station during the preceding hour or at the time of observation
	19	Funnel cloud(s)**
	20-29	Precipitation, fog, Ice fog or thunderstorm at the station during the preceding hour but not at the time of observation

* The expression "at the station" refers to a land station or a ship.
** Tornado cloud or waterspout.

Code figure		
20	Drizzle (not freezing) or snow grains	not falling as shower(s)
21	Rain (not freezing)	
22	Snow	
23	Rain and snow or ice pellets	
24	Freezing drizzle or freezing rain	
25	Shower(s) of rain	
26	Shower(s) of snow, or of rain and snow	
27	Shower(s) of hail*, or of rain and hail*	
28	Fog or Ice fog	
29	Thunderstorm (with or without precipitation)	
30-39	Duststorm, sandstorm, drifting or blowing snow	
30	Slight or moderate duststorm or sandstorm	- has decreased during the preceding hour
31		- no appreciable change during the preceding hour
32		- has begun or has increased during the preceding hour
33	Severe duststorm or sandstorm	- has decreased during the preceding hour
34		- no appreciable change during the preceding hour
35		- has begun or has increased during the preceding hour
36	Slight or moderate drifting snow	generally low (below eye level)
37	Heavy drifting snow	
38	Slight or moderate blowing snow	generally high(above eye level)
39	Heavy blowing snow	
40-49	Fog or ice fog at the time of observation	
40	Fog or ice fog at a distance at the time of observation, but not at the station during the preceding hour, the fog or ice fog extending to a level above that of the observer	
41	Fog or ice fog in patches	
42	Fog or ice fog, sky visible	has become thinner during the preceding hour
43	Fog or ice fog, sky invisible	
44	Fog or ice fog, sky visible	no appreciable change during the preceding hour
45	Fog or ice fog, sky invisible	
46	Fog or ice fog, sky visible	has begun or has become thicker during the preceding hour
47	Fog or ice fog, sky invisible	
48	Fog, depositing rime, sky visible	
49	Fog, depositing rime, sky invisible	
50-99	Precipitation at the station at the time of observation	
50-59	Drizzle	
50	Drizzle, not freezing, intermittent	slight at time of observation
51	Drizzle, not freezing, continuous	
52	Drizzle, not freezing, intermittent	moderate at time of observation
53	Drizzle, not freezing, continuous	
54	Drizzle, not freezing, intermittent	heavy (dense) at time of observation
55	Drizzle, not freezing, continuous	
56	Drizzle, freezing, slight	
57	Drizzle, freezing, moderate or heavy (dense)	
58	Drizzle and rain, slight	
59	Drizzle and rain, moderate or heavy	

* Hail, small hail, snow pellets

Code figure		
60-69	Rain	
60	Rain, not freezing, intermittent	slight at time of observation
61	Rain, not freezing, continuous	
62	Rain, not freezing, intermittent	moderate at time observation
63	Rain, not freezing, continuous	
64	Rain, not freezing, intermittent	heavy at time of observation
65	Rain, not freezing, continuous	
66	Rain, freezing, slight	
67	Rain, freezing, moderate or heavy	
68	Rain or drizzle and snow, light	
69	Rain or drizzle and snow, moderate or heavy	
70-79	Solid precipitation not in showers	
70	Intermittent fall of snowflakes	slight at time of observation
71	Continuous fall of snowflakes	
72	Intermittent fall of snowflakes	moderate at time of observation
73	Continuous fall of snowflakes	
74	Intermittent fall of snowflakes	heavy at time of observation
75	Continuous fall of snowflakes	
76	Diamond dust (with or without fog)	
77	Snow grains (with or without fog)	
78	Isolated star-like snow crystals (with or without fog)	
79	Ice pellets	
80-99	Showery precipitation, or precipitation with current or recent thunderstorm	
80	Rain shower(s), slight	
81	Rain shower(s), moderate or heavy	
82	Rain shower(s), violent	
83	Shower(s) of rain and snow mixed, slight	
84	Shower(s) of rain and snow mixed, moderate or heavy	
85	Snow shower(s), slight	
86	Snow shower(s), moderate or heavy	
87	Shower(s) of snow pellets or small hail, with or without rain	- slight
88	or rain and snow mixed	- moderate or heavy
89	Shower(s) of hail, with or without rain or rain and snow	- slight
90	mixed, not associated with thunder	- moderate or heavy
91	Slight rain at time of observation	Thunderstorm during the preceding hour but not at time of observation
92	Moderate or heavy rain at time of observation.	
93	Slight snow, or rain and snow mixed or hail* at time of observation.	
94	Moderate or heavy snow, or rain and snow mixed or hail* at time of observation.	
95	Thunderstorm, slight or moderate, without hail*, but with rain and/or snow at time of observation	Thunderstorm at time of observation.
96	Thunderstorm, slight or moderate, with hail* at time of observation.	
97	Thunderstorm, heavy, without hail*, but with rain and/or snow at time of observation.	
98	Thunderstorm combined with duststorm or sandstorm at time of observation.	
99	Thunderstorm, heavy, with hail* at time of observation.	

* Hail, small hail, snow pellets.

Present weather reported from an automatic weather station

Code figure	
100	No significant weather observed
101	Clouds generally dissolving or becoming less developed during the past hour
102	State of sky on the whole unchanged during the past hour
103	Clouds generally forming or developing during the past hour
104	Haze or smoke, or dust in suspension in the air, visibility equal to, or greater than, 1km
105	Haze or smoke, or dust In suspension in the air, visibility less than 1 km
106-109	Reserved
110	Mist
111	Diamond dust
112	Distant lightning
113-117	Reserved
118	Squalls
119	Reserved
	Code figures 120-126 are used to report precipitation, fog (or ice fog) or thunderstorm at the station during the preceding hour but not at the time of observation
120	Fog
121	PRECIPITATION
122	Drizzle (not freezing) or snow grains
123	Rain (not freezing)
124	Snow
125	Freezing drizzle or freezing rain
126	Thunderstorm (with or without precipitation)
127	Blowing OR DRIFTING SNOW OR SAND
128	Blowing or drifting snow or sand, visibility equal to, or greater than, 1 km
129	Blowing or drifting snow or sand, visibility less than 1 km
130	FOG
131	Fog or ice fog In patches
132	Fog or ice fog, has become thinner during the past hour
133	Fog or ice fog, no appreciable change during the past hour
134	Fog or ice fog, has begun or become thicker during the past hour
135	Fog, depositing rime
136-139	Reserved
140	PRECIPITATION
141	Precipitation, slight or moderate
142	Precipitation, heavy
143	Liquid precipitation, slight or moderate
144	Liquid precipitation, heavy
145	Solid precipitation, slight or moderate
146	Solid precipitation, heavy
147	Freezing precipitation, slight or moderate
148	Freezing precipitation, heavy
149	Reserved
150	DRIZZLE
151	Drizzle, not freezing, slight
152	Drizzle, not freezing, moderate
153	Drizzle, not freezing, heavy
154	Drizzle, freezing, slight
155	Drizzle, freezing, moderate
156	Drizzle, freezing, heavy
157	Drizzle and rain, slight
158	Drizzle and rain, moderate or heavy

Code figure	
159	Reserved
160	RAIN
161	Rain, not freezing, slight
162	Rain, not freezing, moderate
163	Rain, not freezing, heavy
164	Rain, freezing, slight
165	Rain, freezing, moderate
166	Rain, freezing, heavy
167	Rain (or drizzle) and snow, slight
168	Rain (or drizzle) and snow, moderate or heavy
169	Reserved
170	SNOW
171	Snow, slight
172	Snow, moderate
173	Snow, heavy
174	Ice pellets, slight
175	Ice pellets, moderate
176	Ice pellets, heavy
177	Snow grains
178	Ice crystals
179	Reserved
180	SHOWER(S) or intermittent PRECIPITATION
181	Rain shower(s) or intermittent rain, slight
182	Rain shower(s) or intermittent rain, moderate
183	Rain shower(s) or intermittent rain, heavy
184	Rain shower(s) or intermittent rain, violent
185	Snow shower(s) or intermittent snow, slight
186	Snow shower(s) or intermittent snow, moderate
187	Snow shower(s) or intermittent snow, heavy
188	Reserved
189	Hail
190	THUNDERSTORM
191	Thunderstorm, slight or moderate, with no precipitation
192	Thunderstorm, slight or moderate, with rain showers and/or snow showers
193	Thunderstorm, slight or moderate, with hail
194	Thunderstorm, heavy, with no precipitation
195	Thunderstorm, heavy, With rain showers and/or snow showers
196	Thunderstorm, heavy, with hail
197-198	Reserved
199	Tornado
	Present weather (In addition to present weather report from either a manned or an automatic station)
Decile 200-209	
200	Not used
201	Not used
202	Not used
203	Not used
204	Volcanic ash suspended In the air aloft
205	Not used
206	Thick dust haze, visibility less than 1 km
207	Blowing spray at the station
208	Drifting dust (sand)
209	Wall of dust or sand in distance (like haboob)

Code figure	
Decile 210-219	
210	Snow haze
211	Whiteout
212	Not used
213	Lightning, cloud to surface
214-216	Not used
217	Dry thunderstorm
218	Not used
219	Tornado cloud (destructive) at or within sight of the station during preceding hour or at the time of observation
Decile 220-229	
220	Deposition of volcanic ash
221	Deposition of dust or sand
222	Deposition of dew
223	Deposition of wet snow
224	Deposition of soft rime
225	Deposition of hard rime
226	Deposition of hoarfrost
227	Deposition of glaze
228	Deposition of ice crust (ice slick)
229	Not used
Decile 230-239	
230	Duststorm or sandstorm with temperature below 0^0C
231-238	Not used
239	Blowing snow, impossible to determine whether snow is falling or not
Decile 240-249	
240	Not used
241	Fog on sea
242	Fog in valleys
243	Arctic or Antarctic sea smoke
244	Steam fog (sea, lake or river)
245	Steam log (land)
246	Fog over ice or snow cover
247	Dense fog, visibility 60-90 m
248	Dense fog, visibility 30-60 m
249	Dense fog, visibility less than 30 m
Decile 250-259	
250	Drizzle, rate of fall: less than 0.10 mm h^{-1}
251	0.10-0.19 mm h^{-1}
252	0.20-0.39 mm h^{-1}
253	O.40-0.79 mm h^{-1}
254	O.80-1.59 mm h^{-1}
255	l.60-3.19 mm h^{-1}
256	3.20-6.39 mm h^{-1}
257	6.4 mm h^{-1} or more
258	Not used
259	Drizzle and snow

Code figure		
Decile 260-269		
260	Rain, rate of fall	less than 1.0 mm h^{-1}
261		1.- 1.9 mm h^{-1}
262		2.- 3.9 mm h^{-1}
263		4.- 7.9 mm h^{-1}
264		8.-15.9 mm h^{-1}
265		16.0-31.9 mm h^{-1}
266		32.0-63.9 mm h^{-1}
267		64.0 mm h^{-1} or more
268-269	Not used	
Decile 270-279		
270	Snow, rate of fall	less than 1.0 cm h^{-1}
271		1.0-1.9 cm h^{-1}
272		2.0-3.9 cm h^{-1}
273		4.0-7.9 cm h^{-1}
274		8.0-15.9 cm h^{-1}
275		16.0-31.9 cm h^{-1}
276		32.0-63.9 cm h^{-1}
277		64.0 cm h^{-1} or more
278	Snow or Ice crystal precipitation from a clear sky	
279	Wet snow, freezing on contact	
Decile 280-299		
280	Precipitation of rain	
281	Precipitation of rain, freezing	
282	Precipitation of rain and snow mixed.	
283	Precipitation of snow	
284	Precipitation of snow pellets or small hall	
285	Precipitation of snow pellets or small hail, with rain	
286	Precipitation of snow pellets or small hail, with rain and snow mixed	
287	Precipitation of snow pellets or small hail, with snow	
288	Precipitation of hail	
289	Precipitation of hail, with rain	
290	Precipitation of hall, with rain and snow mixed	
291	Precipitation of hail, with snow	
292	Shower(s) or thunderstorm over sea	
293	Shower(s) or thunderstorm over mountains	
294-299	Not used	
300-507	Reserved	
508	No significant phenomenon to report, present and past weather omitted	
509	No observation, data not available, present and past weather omitted	
510	Present and past weather missing, but expected	
511	Missing value	

Notes:

(1) The middle portion of this code table (code figures 100-199) includes terms on several levels to cover simple and increasingly complex automatic stations.

(2) Generic terms for weather (e.g. fog, drizzle) are intended for use at automatic stations capable of determining types of weather but no other information.Generic terms are included in the code table using all capital letters.

(3) Code figures for generic precipitation (code figures 140-148) are arranged in order of increasing complexity. For example, a very simple station that can sense only the presence or absence of precipitation would use code figure 140 (precipitation). At the next level, an automatic station capable of sensing amount but not type would use code figure 141 or 142. An automatic station capable of sensing gross type (liquid, solid, freezing) and amount would use code figures 143-148. An automatic station capable of reporting actual types of precipitation (e.g. drizzle rain), but not the amount, would use the appropriate whole decile number (e.g. 150 for generic drizzle, 160 for generic rain).

0 20 004/0 20 005

Past weather (l) and (2)

Code figure	
0	Cloud covering 1/2 or less of the sky throughout the appropriate period
1	Cloud coverIng more than 1/2 of the sky during part of the appropriate period and covering 1/2 or less during part of the period
2	Cloud covering more than 1/2 of the sky throughout the appropriate period
3	Sandstorm, duststorm or blowing snow
4	Fog or ice fog or thick haze
5	Drizzle
6	Rain
7	Snow, or rain and snow mixed
8	Shower(s)
9	Thunderstorm(s) with or without precipitation
10	No significant weather observed
11	VISIBILITY REDUCED (see Note)
12	Blowing phenomena, visibility reduced
13	FOG (see Note)
14	PRECIPITATION (see Note)
15	Drizzle
16	Rain
17	Snow or ice pellets
18	Showers or intermittent precipitation
19	Thunderstorm
20-30	Reserved
31	Missing value

Note: The weather descriptions in code figures 10 to 19 are progressively complex, to accommodate the different levels of weather discrimination capability of various automatic stations. Stations having only basic sensing capability may use the lower code figures and basic generic descriptions (shown in capital letters). Stations with progressively higher discrimination capability shall use the more detailed descriptions (higher codes).

0 20 006

Flight Rules

Code Figure	
0	Low Instrument Flight Rules - Ceiling < 500 feet and/or Visibility < 1 mile
1	Instrument Flight Rules - Ceiling < 1000 feet and/or Visibility < 3 miles
2	Marginal Visual Flight Rules – 1000 feet <= Ceiling < 3000 feet and/or 3 miles <= Visibility < 5 miles
3	Visual Flight Rules - Ceiling >= 3000 feet and/or Visibility >= 5 miles
4-6	Reserved
7	Missing value

0 20 008

Cloud Distribution for Aviation

code figure		
0	Sky Clear	
1	Few	
2	Scattered	
3	Broken	
4	Overcast	
5	Reserved	
6	Scattered/Broken	(Many forecasts use Scattered/Broken or
7	Broken/Overcast	(Broken/Overcast followed by cloud type(s))
8	Isolated	(Used on aviation charts to describe the cloud type Cb)
9	Isolated embedded	(Used on aviation charts to describe the cloud type Cb)
10	Occasional	(Used on aviation charts to describe the cloud type Cb)
11	Occasional embedded	(Used on aviation charts to describe the cloud type Cb)
12	Frequent	(Used on aviation charts to describe the cloud type Cb)
13	Dense	(Used on aviation charts to describe cloud that would cause sudden changes in visibility (less than 1000m))
14	Layers	
15	Obscured (OBSC)	
16	Embedded (EMBD)	
17	Frequent embedded	
18-30	Reserved	
31	Missing value	

0 20 009

General Weather Indicator (TAF/METAR)

Code figure	
0	Reserved
1	NSC Nil Significant Cloud
2	CAVOK
3	SKC Sky Clear
4	NSW Nil Significant Weather
5-14	Reserved
15	Missing value

0 20 011

Cloud amount

Code figure		
0	0	0
1	1 okta or less, but not zero	1/10 or less, but not zero
2	2 oktas	2/10 - 3/10
3	3 oktas	4/10
4	4 oktas	5/10
5	5 oktas	6/10
6	6 oktas	7/10 - 8/10
7	7 oktas or more, but not 8 oktas	9/10 or more, but not 10/10
8	8 oktas	10/10
9	Sky obscured by fog and/or other meteorological phenomena	
10	Sky partially obscured by fog and/or other meteorological phenomena	
11	Scattered	
12	Broken	
13	Few	
14	Reserved	
15	Cloud cover is Indiscernible for reasons other than fog or other meteorological phenomena, or observation is not made	

Notes:
(1) For use of code figure 15, see Regulation 12.1.4.
(2) `Clear' and `overcast' are coded by 0 and 8 respectively.

0 20 012

Cloud type

Code figure	
0	Cirrus (Ci)
1	Cirrocumulus (Cc)
2	Cirrostratus (Cs)
3	Altocumulus (Ac)
4	Altostratus (As)
5	Nimbostratus (Ns)
6	Stratocumulus (Sc)
7	Stratus(St)
8	Cumulus (Cu)
9	Cumulonimbus (Cb)
10	No C_H clouds
11	Cirrus fibratus, sometimes uncinus, not progressively invading the sky
12	Cirrus spissatus, in patches or entangled sheaves, which usually do not increase and sometimes seem to be the remains of the upper part of a Cumulonimbus; or Cirrus castellanus or floccus
13	Cirrus spissatus cumulonimbogenitus
14	Cirrus uncinus or fibratus, or both, progressively invading the sky; they generally thicken as a whole
15	Cirrus (often in bands) and Cirrostratus, or Cirrostratus alone, progressively invading the sky; they generally thicken as a whole, but the continuous veil does not reach 45 degrees above the horizon
16	Cirrus (often In bands) and Cirrostratus, or Cirrostratus alone, progressively Invading the sky; they generally thicken as a whole; the continuous veil extends more than 45 degrees above the horizon, without the sky being totally covered
17	Cirrostratus covering the whole sky
18	Cirrostratus not progressively invading the sky and not entirely covering It
19	Cirrocumulus alone, or Cirrocumulus predominant among the C_H clouds
20	No C_M clouds
21	Altostratus translucidus
22	Altostratus opacus or Nimbostratus
23	Altocumulus translucidus at a single level
24	Patches (often Lenticular) of Altocumulus translucidus, continually changing and occurring at one or more levels
25	Altocumulus translucidus in bands, or one or more layers of Altocumulus translucidus or opacus, progressively Invading the sky;these Altocumulus clouds generally thicken as a whole
26	Altocumulus cumulogenitus (or cumulonimbogenitus)
27	Altocumulus translucidus or opacus In two or more layers, or Altocumulus opacus In a single layer, not progressively Invading the sky, or Altocumulus with Altostratus or Nimbostratus
28	Altocumulus castellanus or floccus
29	Altocumulus of a chaotic sky, generally at several levels
30	No C_L clouds
31	Cumulus humilis or Cumulus fractus other than of bad weather,* or both
32	Cumulus mediocris or congestus, Towering cumulus (TCU), with or without Cumulus of species fractus or humilis or Stratocumulus, all having their bases at the same level
33	Cumulonimbus calvus, with or without Cumulus, Stratocumulus or Stratus
34	Stratocumulus cumulogenitus
35	Stratocumulus other than Stratocumulus cumulogenitus
36	Stratus nebulosus or Stratus fractus other than of bad weather*, or both
37	Stratus fractus or Cumulus fractus of bad weather*, or both (pannus),usually below Altostratus or Nimbostratus
38	Cumulus and Stratocumulus other than Stratocumulus cumulogenitus, with bases at different levels
39	Cumulonimbus capillatus (often with an anvil), with or without Cumulonimbus calvus, Cumulus, Stratocumulus, Stratus or pannus
40	C_H
41	C_M
42	C_L
43-58	Reserved

Code figure	
59	Cloud not visible owing to darkness, fog, duststorm, sandstorm, or other analogous phenomena
60	C_H clouds Invisible owing to darkness, fog, blowing dust or sand, or other similar phenomena, or because of a continuous layer of lower clouds
61	C_M clouds Invisible owing to darkness, fog, blowing dust or sand, or other similar phenomena, or because of continuous layer of lower clouds
62	C_L clouds invisible owing to darkness, fog, blowing dust or sand, or other similar phenomena
63	Missing value

* "Bad weather" denotes the conditions which generally exist during precipitation and a short time before and after.

0 20 017

Cloud top description

Code figure		
0	Isolated cloud fragments of clouds	
1	Continuous cloud	flat tops
2	Broken cloud - small breaks	
3	Broken cloud - large breaks	
4	Continuous cloud	undulating tops
5	Broken cloud - small breaks	
6	Broken cloud - large breaks	
7	Continuous or almost continuous waves with towering clouds above the top of the layer	
8	Groups of waves with towering clouds above the top of the layer	
9	Two or more layers at different levels	
10-14	reserved	
15	Missing value	

0 20 018

Tendency of runway visual range

Code figure	
0	Increasing (U)
1	Decreasing (D)
2	No distinct change (N)
3	Missing value

0 20 021

Type of precipitation

Bit No.	
1	Precipitation-unknown type
2	Liquid precipitation not freezing
3	Liquid freezing precipitation
4	Drizzle
5	Rain
6	Solid precipitation
7	Snow
8	Snow grains
9	Snow pellets
10	Ice pellets
11	Ice crystals
12	Diamond dust
13	Small hail
14	Hail
15	Glaze
16	Rime
17	Soft rime
18	Hard rime
19	Clear ice
20	Wet snow
21	Hoar frost
22	Dew
23	White dew
24-29	Reserved
All 30	Missing value

Note: Mixed precipitation is indicated by setting to one the bits of all the observed single types of precipitation

0 20 022

Character of precipitation

Code figure	
0	No precipitation
1	Continuous
2	Intermittent
3	Shower
4	Not reaching ground
5	Deposition
6-14	Reserved
15	Missing value

0 20 023

Other weather phenomena

Bit No.	
1	Dust/sand whirl
2	Squalls
3	Sand storm
4	Dust storm
5	Lightning - cloud to surface
6	Lightning - cloud to cloud
7	Lightning - distant
8	Thunderstorm
9	Funnel Cloud not touching surface
10	Funnel cloud touching surface
11	Spray
12	Water-spout
13	Wind shear
14-17	Reserved
All 18	Missing value

0 20 024

Intensity of phenomena

Code figure	
0	No phenomena
1	Light
2	Moderate
3	Heavy
4	Violent
5	Severe
6	Reserved
7	Missing value

0 20 025

Obscuration

Bit No.	
1	Fog
2	Ice fog
3	Steam fog
4-6	Reserved
7	Mist
8	Haze
9	Smoke
10	Volcanic ash
11	Dust
12	Sand
13	Snow
14	Cloud
15	Precipitation
14-20	Reserved
All 21	Missing value

0 20 026

Character of obscuration

Code figure	
0	No change
1	Shallow
2	Patches
3	Partial
4	Freezing
5	Low drifting
6	Blowing
7	Increasing
8	Decreasing
9	In suspension in the air
10	Wall
11	Dense
12	Whiteout
13-14	Reserved
15	Missing value

0 20 027

Phenomena occurrence

Bit No.	
1	At time of observation
2	In past hour
3	In time period for past weather W_1W_2
4	In time period specified
5	Reserved
6	Below station level
7	At the station
8	In the vicinity
All 9	Missing value

Note : Phenomenon in 0 20 027 means any phenomenon, including precipitation and obscuration.

0 20 028

Expected change in intensity

Code figure	
0	No change (NC)
1	Forecast to weaken (WKN)
2	Forecast to intensify (INTSF)
3-6	Reserved
7	Missing value

0 20 029

Rain flag

Code figure	
0	No rain
1	Rain
2	Reserved
3	Missing value

0 20 032

Rate of ice accretion

Code figure	
0	Ice not building up
1	Ice building up slowly
2	Ice building up rapidly
3	Ice melting or breaking up slowly
4	Ice melting or breaking up rapidly
5-6	Reserved
7	Missing value

0 20 033

Cause of ice accretion

Bit No.	
1	Icing from ocean spray
2	Icing from fog
3	Icing from rain
All 4	Missing value

0 20 034

Sea Ice concentration

Code figure			
0	No sea ice In sight		
1	Ship in open lead more than 1.0 nautical mile wide, or ship in fast ice with boundary beyond limit of visibility		
2	Sea ice present In concentrations less than 3/10 (3/8) open water or very open pack ice	Sea ice concentration is uniform in the observation area	Ship in ice or within 0.5 nautical mile of ice edge
3	4/10 to 6/10 (3/8 to less than 6/8), open pack ice		
4	7/10 to 8/10 (6/8 to less 7/8), close pack ice		
5	9/10 or more, but not 10/10 (7/8 to less than 8/8), very close pack ice		
6	Strips and patches of pack ice with open water between	Sea ice concentration is not uniform in the observation area	
7	Strips and patches of close or very close pack ice with areas of lesser concentration between		
8	Fast ice with open water, very open or open pack Ice to seaward of the ice boundary		
9	Fast ice with close or very close pack ice to seaward of the boundary		
10-13	Reserved		
14	Unable to report, because of darkness, lack of visibility, or because ship is more than 0.5 nautical mile away from ice edge		
15-30	Reserved		
31	Missing value		

0 20 035

Amount and type of Ice

Code figure	
0	No ice of land origin
1	1-5 icebergs, no growlers or bergy bits
2	6-10 icebergs, no growlers or bergy bits
3	11-20 Icebergs, no growlers or bergy bits
4	Up to and Including 10 growlers and bergy bits - no icebergs
5	More than 10 growlers and bergy bits - no Icebergs
6	1-5 icebergs, with growlers and bergy bits
7	6-10 icebergs, with growlers and bergy bits
8	11-20 icebergs, with growlers and bergy bits
9	More than 20 Icebergs, with growlers and bergy bits - a major hazard to navigation
10-13	Reserved
14	Unable to report, because of darkness, lack of visibility or because only sea ice is visible
15	Missing value

0 20 036

Ice situation

Code figure	
0	Ship in open water with floating ice in sight
1	Ship In easily penetrable ice; conditions improving
2	Ship In easily penetrable ice; conditions not changing
3	Ship in easily penetrable ice; conditions worsening
4	Ship in ice difficult to penetrate; conditions improving
5	Ship in ice difficult to penetrate; conditions not changing
6	Ship in ice difficult to penetrate and conditions worsening. Ice forming and floe freezing together
7	Ship in ice difficult to penetrate and conditions worsening. Ice under slight pressure
8	Ship in ice difficult to penetrate and conditions worsening. Ice under moderate or severe pressure
9	Ship in ice difficult to penetrate and conditions worsening. Ship beset
10-29	Reserved
30	Unable to report, because of darkness or lack of visibility
31	Missing value

0 20 037

Ice development

Code figure	
0	New ice only (frazil ice, grease ice, slush, shuga)
1	Nilas or ice rind, less than 10 cm thick
2	Young ice (grey ice, grey-white ice), 10-30 cm thick
3	Predominantly new and/or young ice with some first-year ice
4	Predominantly thin first-year ice with some new and/or young ice
5	All thin first-year ice (30-70 cm thick)
6	Predominantly medium first-year ice (70-120 cm thick) and thick first-year ice (>120 cm thick) with some thinner (younger) first-year ice
7	All medium and thick first-year ice
8	Predominantly medium and thick first-year ice with some old ice (usually more than 2 metres thick)
9	Predominantly old ice
11-29	Reserved
30	Unable to report, because of darkness, lack of visibility or because only ice of land origin is visible or because ship is more than 0.5 nautical mile away from ice edge
31	Missing value

0 20 040

Evolution of drift of snow

Code figure	
0	Drift snow ended before the hour of observation
1	Intensity diminishing
2	No change
3	Intensity increasing
4	Continues, apart from interruption lasting less than 30 minutes
5	General drift snow has become drift snow near the ground
6	Drift snow near the ground has become general drift snow
7	Drift snow has started again after an interruption of more than 30 minutes
8 -14	Reserved
15	Missing value

0 20 041

Airframe Icing

Code figure	
0	No icing
1	Light icing
2	Light icing In cloud
3	Light icing In precipitation
4	Moderate icing
5	Moderate icing in cloud
6	Moderate icing in precipitation
7	Severe icing
8	Severe icing in cloud
9	Severe icing in precipitation
10	Trace of icing
11	Trace of icing in cloud
12	Trace of icing in precipitation
13-14	Reserved
15	Missing value

0 20 042

Airframe Icing present

Code figure	
0	No icing
1	Icing present
2	Reserved
3	Missing value

0 20 045

Supercooled large droplet (SLD) conditions

Code figure	
0	No SLD conditions present
1	SLD conditions present
2	Reserved
3	Missing value

0 20 048

Evolution of feature

Code figure	
0	Stability
1	Diminution
2	Intensification
3	Unknown
4-14	Reserved
15	Missing value

0 20 050

Cloud index

Code figure	
0	Reserved
1	1st low cloud
2	2nd low cloud
3	3rd low cloud
4	1st medium cloud
5	2nd medium cloud
6	3rd medium cloud
7	1st high cloud
8	2nd high cloud
9-254	Reserved
255	Missing value

0 20 055

State of sky in tropics

Code figure	
0	Cumulus, if any, are quite small; generally less than 2/8 coverage, except on windward slopes of elevated terrain; average width of cloud is at least as great as its vertical thickness
1	Cumulus of intermediate size with cloud cover less than 5/8; average cloud width is more than its vertical thickness; towers are vertical with little or no evidence of precipitation, except along slopes of elevated terrain; a general absence of middle and upper clouds
2	Swelling Cumulus with rapidly growing tall turrets which decrease in size with height and whose tops tend to separate from the longer cloud body and evaporate within minutes of the separation
3	Swelling Cumulus with towers having a pronounced tilt in a downwind direction; vertical cloud thickness is more than 11/2 times that of its average width
4	Swelling Cumulus with towers having a pronounced tilt in an upwind direction; vertical cloud thickness is more than 11/2 times that of its average width
5	Tall Cumulus congestus with vertical thickness more than twice the average width; not organized in clusters or lines; one or more layers of clouds extend out from the cloud towers, although no continuous cloud layers exist
6	Isolated Cumulonimbus or large clusters of Cumulus turrets separated by wide areas in which clouds are absent; cloud bases are generally dark with showers observed in most cells; some scattered middle and upper clouds may be present; individual Cumulus cells are one to two times higher than they are wide
7	Numerous Cumulus extending through the middle troposphere with broken to overcast sheets of middle clouds and/or Cirrostratus; Cumulus towers do not decrease generally in size with height; ragged dark cloud bases with some showers present
8	Continuous dense middle clouds and/or Cirrostratus cloud sheets with some large isolated Cumulonimbus or Cumulus congestus clouds penetrating these sheets; light rain occasionally observed from the Altostratus; Cumulonimbus bases ragged and dark with showers visible
9	Continuous sheets of middle clouds and/or Cirrostratus with Cumulonimbus and Cumulus congestus in organized lines or cloud bands; rain is generally observed from Altostratus sheets and heavy showers from Cumulonimbus; wind has a squally character
10	State of sky unknown or not described by any of the above
11-14	Reserved
15	Missing value

Note : In the event of obscuration of clouds due to heavy rain, the observer should use code 5 or 8. Code 5 should be used if the rain is localized or is brief in duration; Code 8 should be used if the rain is widespread or lasts for longer periods of time

0 20 056

Cloud phase

Code figure	
0	Unknown
1	Water
2	Ice
3	Mixed
4-6	Reserved
7	Missing value

0 20 062

State of the ground

Code figure		
0	Surface of ground dry (without cracks and no appreciable amount of dust or loose sand)	without snow or measurable ice cover
1	Surface of ground moist	
2	Surface of ground wet (standing water in small or large pools on surface)	
3	Flooded	
4	Surface of ground frozen	
5	Glaze on ground	
6	Loose dry dust or sand not covering ground completely	
7	Thin cover of loose dry dust or sand covering ground completely	
8	Moderate or thick cover of loose dry dust or sand covering ground completely	
9	Extremely dry with cracks	
10	Ground predominantly covered by ice	with snow or measurable ice cover
11	Compact or wet snow (with or without ice) covering less than one-half of the ground	
12	Compact or wet snow (with or without ice) covering at least one-half of the ground but ground not completely covered	
13	Even layer of compact or wet snow covering ground completely	
14	Uneven layer of compact or wet snow covering ground completely	
15	Loose dry snow covering less than one-half of the ground	
16	Loose dry snow covering at least one-half of the ground (but not completely)	
17	Even layer of loose dry snow covering ground completely	
18	Uneven layer of loose dry snow covering ground completely	
19	Snow covering ground completely; deep drifts	
20-30	Reserved	
31	Missing value	

Notes:

(1) The definitions in code numbers 0 to 2 and 4 apply to representative bare ground and numbers 3, 5 to 9 and 10 to 19 to an open representative area.

(2) In all instances the highest code figures applicable are to be reported.

(3) In the above code table, whenever reference is made to ice, it also includes solid precipitation other than snow.

0 20 063

Special phenomena

(To be developed)

0 20 071

Accuracy of fix and rate of atmospherics

Code figure	Accuracy of fix (estimated error)	Repetition rate
0	No assessment	No assessment
1	Less than 50 km	Less than 1 per second
2	Between 50 and 200 km	Less than 1 per second
3	More than 200 km	Less than 1 per second
4	Less than 50 km	1 or more per second
5	Between 50 and 200 km	1 or more per second
6	More than 200 km	1 or more per second
7	Less thank 50 km	Rate so rapid number cannot be counted
8	Between 50 and 200 km	Rate so rapid number cannot be counted
9	More than 200 km	Rate so rapid number cannot be counted
10-14	Reserved	
15	Missing value	

0 20 085

General condition of runway

Code figure	
0	Cleared (**CLRD**//)
1	All runways closed (**SNOCLO**)
2-14	Reserved
15	Missing value

0 20 086

Runway deposits

Code figure	
0	Clear and dry
1	Damp
2	Wet with water patches
3	Rime and frost covered (depth normally less than 1 mm)
4	Dry snow
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 (e.g. due to runway clearance in progress)

0 20 087

Runway contamination

Code figure	
0	Reserved
1	Less than 10% of runway covered
2	11% to 25% of runway covered
3-4	Reserved
5	25% to 50% of runway covered
6-8	Reserved
9	51% to 100% of runway covered
10-14	Reserved
15	Missing or not reported (e.g. due to runway clearance in progress)

0 20 089

Runway friction coefficient

Code figure	
0	0.00
1	0.01
2-88	0.02…0.88
89	0.89
90	0.90
91	Braking action poor
92	Braking action medium to poor
93	Braking action medium
94	Braking action medium to good
95	Braking action good
96-98	Reserved
99	Unreliable
100-126	Reserved
127	Missing, not reported and/or runway not operational.

0 20 090

Special clouds

Code figure	
0	Reserved
1	Nacreous clouds
2	Noctilucent clouds
3	Clouds from waterfalls
4	Clouds from fires
5	Clouds from volcanic eruptions
6-14	Reserved
15	Missing value

0 20 101

Locust (acridian) name

Code figure	
0	Reserved
1	Schistocerca gregaria
2	Locusta migratoria
3	Nomadacris septemfasciata
4	Oedaleus senegalensis
5	Anracridium spp
6	Other locusts
7	Other grasshoppers
8	Other crickets
9	Spodoptera exempt
10-14	Reserved
15	Missing value

0 20 102

Locust (maturity) color

Code figure	
0	Green
1	Green or black
2	Black
3	Yellow and black
4	Straw/grey
5	Pink
6	Dark red/brown
7	Mixed red and yellow
8	Yellow
9	Other
10-14	Reserved
15	Missing value

0 20 103

Stage of development of locusts

Code figure	
0	Hoppers (nymphs, larvae), stage 1
1	Hoppers (nymphs, larvae), stage 2 or mixed 1, 2 instars (stages)
2	Hoppers (nymphs, larvae), stage 3 or mixed 2, 3 instars
3	Hoppers (nymphs, larvae), stage 4 or mixed 3, 4 instars
4	Hoppers (nymphs, larvae), stage 5 or mixed 4, 5 instars
5	Hoppers (nymphs, larvae), stage mixed, all or many instars
6	Fledglings (wings too soft for sustained flight)
7	Immature adults
8	Mixed maturity adults
9	Mature adults
10-14	Reserved
15	Missing value

0 20 104

Organizational state of swarm or band of locusts

Code figure	
0	Hoppers only, mainly in bands or clusters
1	Winged adults in the vicinity more than 10 kilometres from point of observation
2	Locusts in flight, a few seen at the station
3	Locusts at the station, most of them on the ground
4	Locusts, some on ground and others in flight at a height less than 10 metres
5	Locusts, some on ground and others in flight at a height greater than10 metres
6	Locusts, most in flight at a height less than 10 metres
7	Locusts, most in flight at a height greater than 10 metres
8	Locusts, all over inflicting severe damage to vegetation, no extermination operation
9	Locusts, all over inflicting severe damage to vegetation, extermination operation in progress
10-14	Reserved
15	Missing value

0 20 105

Size of swarm or band of locusts and duration of passage of swarm

Code figure	
When 0 20 104 (Organizational state of swarm or band of locusts) = 0	
0	Reserved
1	Area covered by isolated bands < 10 m2
2	Area covered by isolated bands 10 – 100 m2
3	Area covered by isolated bands 100 – 1000 m2
4	Area covered by isolated bands 1 000 – 10000 m2
5	Area covered by isolated bands 1 – 10 ha
6	Area covered by isolated bands > 10 ha
7	Area covered by dispersed bands < 100 km2
8	Area covered by dispersed bands 100 – 1000 km2
9	Area covered by dispersed bands > 1000 km2
10-14	Reserved
15	Missing value
When 0 20 104 (Organizational state of swarm or band of locusts) = 1 to 9	
0	Small swarm less than 1 km2 or adults in ground, tens or hundreds of individuals visible simultaneously, duration of passage less than 1 hour ago
1	Small swarm less than 1 km2 or adults in ground, tens or hundreds of individuals visible simultaneously, duration of passage 1 to 6 hours ago
2	Small swarm less than 1 km2 or adults in ground, tens or hundreds of individuals visible simultaneously, duration of passage over 6 hours ago
3	Medium swarm or scattered adults, several visible simultaneously, duration of passage less than 1 hour ago
4	Medium swarm or scattered adults, several visible simultaneously, duration of passage 1 to 6 hours ago
5	Medium swarm or scattered adults, several visible simultaneously, duration of passage over 6 hours ago
6	Large swarm or isolated adults, seen singly, duration of passage less than 1 hour ago
7	Large swarm or isolated adults, seen singly, duration of passage 1 to 6 hours ago
8	Large swarm or isolated adults, seen singly, duration of passage over 6 hours ago
9	More than one swarm of locusts
10	Size of swarm and/or duration of passage not determined owing to darkness or similar phenomena
11-14	Reserved
15	Missing value

0 20 106

Locust population density

Code figure	
0	Reserved
1	Thin density swarm (swarm visible only when near enough for individual locusts to be discerned)
2	Medium density swarm
3	Dense swarm (obscuring nearby features, e.g. trees)
4	Isolated hoppers seen singly
5	Scattered hoppers, several visible simultaneously
6-14	Reserved
15	Missing value

0 20 107

Direction of movement of locust swarm

Code figure	
0	Reserved
1	Generally in the direction NE
2	Generally in the direction E
3	Generally in the direction SE
4	Generally in the direction S
5	Generally in the direction SW
6	Generally in the direction W
7	Generally in the direction NW
8	Generally in the direction N
9	Specific direction indeterminable
10-14	Reserved
15	Missing value

0 20 108

Extent of vegetation

Code figure	
0	Bare ground
1	Dry, presence of few and isolated shrubs
2	Sparse vegetation (sprouting)
3	Dense vegetation (sprouting)
4	Sparse vegetation (growing)
5	Dense vegetation (growing)
6	Sparse vegetation in flower
7	Dense vegetation in flower
8-14	Reserved
15	Missing value

0 21 066

Wave Scatterometer Product Confidence

Bit No.	
1	Process equipment not working
2	Equipment failed
3	PRF code changed during image generation
4	Sampling window changed during image generation
5	Gain changed during image generation
6	Chirp replica exceeds specified values
7	Input data mean & standard deviation of in-phase & quadrature out of range
8	Doppler centroid confidence > MMCC value
9	Doppler centroid absolute value > PRF/2
10	Doppler ambiguity confidence < MMCC value
11	Output data mean and standard deviation =< MMCC value
All 12	Missing value

Notes:
(1) MMCC is Mission Management Control Centre
(2) PRF is Pulse Repitition Frequency

0 21 067

Wind Scatterometer Product Confidence Data

Bit No.	
1	No forebeam calculation
2	No midbeam calculation
3	No aftbeam calculation
4	Forebeam arcing detected
5	Midbeam arcing detected
6	Aftbeam arcing detected
7	Any beam noise content above or equal to threshold
8	Land (any land in cell footprint)
9	Autonomous ambiguity removal not used
10	Meteorological background not used
11	Minimum residual exceeded threshold
12	Frame checksum error detected
All 13	Missing Value

0 21 068

Radar Altimeter Product Confidence Data

Bit No.	
1	Standard deviation wind speed outside MMCC limit
2	Standard deviation Significant wave height outside MMCC limit
3	Standard deviation altitude outside MMCC limit
4	Mean peakiness outside MMCC limit
5	Frame checksum error detected
6	Height-time loop time constant correction not performed
7	Not enough measurements (N<10)
All 8	Missing Value

Note: MMCC is Mission Management Control Centre.

0 21 069

SST product confidence data

Bit No.	
1	12.0 :m channel present in source data
2	11.0 :m channel present in source data
3	3.7 :m channel present in source data
4	1.6 :m channel present in source data
5	Cloud-identification used 1.6 um histogram reflectance cloud test
6	1.6 :m histogram reflectance cloud test used dynamic threshold
7	Sun glint detected by 1.6 um reflectance cloud test
8	3.7 :m channel used in sea-surface temperature retrieval
9	Sea-surface temperature derivation used day-time data (night-time if zero)
All 10	Missing value

0 21 070

SST product confidence data (SADIST-2)

Bit No.	Meaning when set
1-9	*Nadir-only view SST retrieval used 3.7 micron channel (one bit per 10-arcmin cell)* 1 Cell 1:nadir-only view SST used 3.7 micron channel 2 Cell 2:nadir-only view SST used 3.7 micron channel 3 Cell 3:nadir-only view SST used 3.7 micron channel 4 Cell 4:nadir-only view SST used 3.7 micron channel 5 Cell 5:nadir-only view SST used 3.7 micron channel 6 Cell 6:nadir-only view SST used 3.7 micron channel 7 Cell 7:nadir-only view SST used 3.7 micron channel 8 Cell 8:nadir-only view SST used 3.7 micron channel 9 Cell 9:nadir-only view SST used 3.7 micron channel
10-18	*Dual view SST retrieval used 3.7 micron channel (one bit per 10-arcmin cell)* 10 Cell 1:nadir-only view SST used 3.7 micron channel 11 Cell 2:nadir-only view SST used 3.7 micron channel 12 Cell 3:nadir-only view SST used 3.7 micron channel 13 Cell 4:nadir-only view SST used 3.7 micron channel 14 Cell 5:nadir-only view SST used 3.7 micron channel 15 Cell 6:nadir-only view SST used 3.7 micron channel 16 Cell 7:nadir-only view SST used 3.7 micron channel 17 Cell 8:nadir-only view SST used 3.7 micron channel 18 Cell 9:nadir-only view SST used 3.7 micron channel
19	Nadir view contains day-time data (night if zero)
20	Forward view contains day-time data (night if zero)
21	Record contains contributions from instrument scans acquired when ERS platform not in yaw-steering mode
22	Record contains contributions from instrument scans for which Product Confidence Data show quality is poor or unknown
All 23	Missing value

Cell numbering

NW NE
7 8 9
4 5 6
1 2 3
SW SE

Cell numbering

NW NE
7 8 9
4 5 6
1 2 3
SW SE

0 21 072

Altimeter Calibration Status

Bit No.	
1	Height error correction applied instead of open loop calibration
2	Microwave sounder used for troposphere correction
3	AGC output correction applied instead of open loop calibration
All 4	Missing value

0 21 073

Altimeter Instrument Mode

Bit No.	
1	Blank data record
2	Test
3	Calibration (closed loop)
4	BITE
5	Acquisition on ice
6	Acquisition on ocean
7	Tracking on ice
8	Tracking on ocean
All 9	Missing value

0 21 076

Representation of intensities

Code figure	
1	Linear
2	Logarithmic (base e)
3	Logarithmic (base 10)
3-6	Reserved
7	Missing value

0 21 109

SEAWINDS wind vector cell quality

Bit No.	
1	Not enough good sigma-0 available for wind retrieval
2	Poor azimuth diversity among sigma-0 for wind retrieval
3-7	Reserved
8	Some portion of wind vector cell is over land
9	Some portion of wind vector cell is over ice
10	Wind retrieval not performed for wind vector cell
11	Reported wind speed is greater than 30 m s^{-1}
12	Reported wind speed is less than or equal to 3 m s^{-1}
13-16	Reserved
All 17	Missing value

0 21 115

SEAWINDS sigma-0 quality

Bit No.	
1	Sigma-0 measurement is not usable
2	Signal to noise ratio is low
3	Sigma-0 is negative
4	Sigma-0 is outside of acceptable range
5	Scattermeter pulse quality is not acceptable
6	Sigma-0 cell location algorithm does not converge
7	Frequency shift lies beyond the range of the x factor table
8	Spacecraft temperature is beyond calibration coefficient range
9	No applicable altitude records were found for this sigma-0
10	Interpolated ephemeris data are not acceptable for this sigma-0
11-16	Reserved
All 17	Missing value

0 21 116

SEAWINDS sigma-0 mode

Bit No.	
1	Calibration/measurement pulse flag (1)
2	Calibration/measurement pulse flag (2)
3	Outer antenna beam
4	Sigma-0 cell is aft of spacecraft
5	Current mode (1)
6	Current mode (2)
7	Effective gate width - slice resolution (1)
8	Effective gate width - slice resolution (2)
9	Effective gate width - slice resolution (3)
10	Low resolution mode - whole pulse data
11	Scatterometer electronic subsystem B
12	Alternate spin rate - 19.8 rpm
13	Receiver protection on
14	Slices per composite flag (1)
15	Slices per composite flag (2)
16	Slices per composite flag (3)
All 17	Missing value

0 21 119

Wind scatterometer geophysical model function

Code figure	
0	Reserved
1	SASS
2	SASS2
3	NSCAT0
4	NSCAT1
5	NSCAT2
6	QSCAT0
7	QSCAT1
8-30	Reserved
31	CMOD1
32	CMOD2
33	CMOD3
34	CMOD4
35	CMOD5
36-62	Reserved
63	Missing value

0 21 144

Altimeter rain flag

Bit number	
1	Rain
All 2	Missing value

0 21 150

Beam co-location

Code figure	
0	Data from single ground station (no co-location)
1	Data from multiple ground station (co-located data)
2	Reserved
3	Missing value

0 21 155

Wind vector cell quality

Bit No.	
1	Not enough good sigma-0 available for wind retrieval
2	Poor azimuth diversity among sigma-0 for wind retrieval
3	Any beam noise content above threshold
4	Product monitoring not used
5	Product monitoring flag
6	KNMI quality control fails
7	Variational quality control fails
8	Some portion of wind vector cell is over land
9	Some portion of wind vector cell is over ice
10	Wind retrieval not performed for wind vector cell
11	Reported wind speed is greater than 30 m/s
12	Reported wind speed is less than or equal to 3 m/s
13	Rain flag for the wind vector cell is not usable
14	Rain flag algorithm detects rain
15	No meteorological background used
16	Data are redundant
17-23	Reserved
All 24	Missing value

0 21 158

ASCAT KP quality estimate

Code figure	
0	Acceptable
1	Not acceptable
2	Reserved
3	Missing value

0 21 159

ASCAT sigma-0 usability

Code figure	
0	Good
1	Usable
2	Bad
3	Missing value

0 21 169

Ice presence indicator

Code figure	
0	No ice present
1	Ice present
2	Reserved
3	Missing value

0 22 056

Direction of profile

Code figure	
0	Upwards profile
1	Downwards profile
2	Horizontal
3	Missing value

0 22 060

Lagrangian drifter drogue status

Code figure	
0	Drogue is detached
1	Drogue is attached
2	Drogue status unknown
3-6	Reserved
7	Missing value

0 22 061

State of the sea

Code figure	Descriptive terms	Height in metres
0	Calm (glassy)	0
1	Calm (rippled)	0-0.1
2	Smooth (wavelets)	0.1-0.5
3	Slight	0.5-1.25
4	Moderate	1.25-2.5
5	Rough	2.5-4
6	Very rough	4-6
7	High	6-9
8	Very high	9-14
9	Phenomenal	Over 14
10-14	Reserved	
15	Missing value	

Notes:

(1) These values refer to well-developed wind waves of the open sea. While priority shall be given to the descriptive terms, these height values may be used for guidance by the observer when reporting the total state of agitation of the sea resulting from various factors such as wind, swell, currents, angle between swell and wind, etc.

(2) The exact bounding height shall be assigned for the lower code figure; e.g., a height of 4 m is coded as 5.

0 22 067

Instrument type for water temperature profile measurement

(See common Code Table C-3)

0 22 068

Water temperature profile recorder types

(See common Code Table C-4)

0 22 120

Tide station automated water level check

Code figure	
0	Good data
1	Maximum (high) water level limit exceeded
2	Minimum (low) water level limit exceeded
3	Rate of change limit for water level exceeded
4	Flat limit for water level exceeded
5	Observed minus predicted water level value limit exceeded
6	Observed value from primary water level sensor minus backup water level sensor
7	Value exceeded specified tolerance from expected value
8	Water level QA parameter (sigmas and/or outliers) limits exceeded
9	Sea temperature outside of expected range
10	Multiple QC checks (above) failed
11	No automated water level checks performed
12-30	Reserved
31	Missing value

0 22 121

Tide station manual water level check

Code figure	
0	Operational
1	Possible clogging problem or otherwise degraded water level data
2	Possible datum shift
3	Unknown status of water level sensor
4	Suspected or known sea temperature sensor problem
5	Multiple possible problems (above)
6	Bad data - DO NOT DISSEMINATE!
7	No manual water level checks performed
8-30	Reserved
31	Missing value

0 22 122

Tide station automated meteorological data check

Code figure	
0	Good data from all sensors
1	Wind direction outside of allowable range
2	Wind speed outside of expected range
3	Barometric pressure outside of expected range
4	Air temperature outside of expected range
5	Multiple sensors failed QC checks
6	No automated meteorological data checks performed
7-30	Reserved
31	Missing value

0 22 123

Tide station manual meteorological data check

Code figure	
0	Operational
1	Suspected or known problem with wind sensor
2	Suspected or known problem with barometric pressure sensor
3	Suspected or known problem with air temperature sensor
4	Unknown status of all sensors
5	Suspected or known problems with multiple sensors
6	Bad data - DO NOT DISSEMINATE!
7	No manual meteorological data checks performed
8-30	Reserved
31	Missing value

0 23 001

Accident early notification - article applicable

Code figure	
0	Reserved
1	Articles 1 and 2
2	Article 3
3	Article 5.2
4-6	Reserved
7	Missing value

0 23 002

Activity or facility involved In Incident

Code figure	
0	Reserved
1	Nuclear reactor on ground
2	Nuclear reactor at sea
3	Nuclear reactor In space
4	Nuclear fuel facility
5	Radioactive waste management facility
6	Transport of nuclear fuel or radioactive waste
7	Storage of nuclear fuel or radioactive waste
8	Manufacture of radio-isotopes
9	Use of radio-isotopes
10	Storage of radio-isotopes
11	Disposal of radio-isotopes
12	Transport of radio-isotopes
13	Use of radio-isotopes for power generation
14-29	Reserved
30	Other
31	Missing value

0 23 003

Type of release

Code figure	
0	No release
1	Release to atmosphere
2	Release to water
3	Release to both atmosphere and water
4	Expected release to atmosphere
5	Expected release to water
6	Expected release to both atmosphere and water
7	Missing value

0 23 004

Countermeasures taken near border

Code figure	
0	No countermeasures
1	Evacuation
2	Sheltering
3	Prophylaxis
4	Water
5-6	Reserved
7	Missing value

0 23 005

Cause of incident

Code figure	
0	Incident State does not understand what happened
1	Incident State knows the cause of the incident
2	Reserved
3	Missing value

0 23 006

Incident situation

Code figure	
0	No improvement
1	Unstable
2	No deterioration
3	Improving
4	Stable
5	Deteriorating
6	Reserved
7	Missing value

0 23 007

Characteristics of release

Code figure	
0	No release
1	Release has stopped
2	Release
3	Release is continuing
4-6	Reserved
7	Missing value

0 23 008 / 0 23 009

State of current or expected release

Code figure	
0	Gaseous
1	Particulate
2	Mixture of gaseous and particulate
3	Missing value

0 23 016

Possibility of significant chemical toxic health effect

Code figure	
0	No significant chemical toxic health effect
1	Significant chemical toxic health effect possible
2	Reserved
3	Missing value

0 23 018

Release behaviour over time

Code figure	
0	Release no longer occurring
1	Release still occurring
2	Release expected to increase in next 6 hours
3	Release expected to remain constant in next 6 hours
4	Release expected to decrease in next 6 hours
5-6	Reserved
7	Missing value

0 23 031

Possibility that plume will encounter precipitation in State in which incident occurred

Code figure	
0	Plume will not encounter rain in incident State
1	Plume will encounter rain in incident State
2	Reserved
3	Missing value

0 23 032

Plume will encounter change in wind direction and/or speed flag

Code figure	
0	No significant change expected within the next 6 hours
1	Anticipated significant change expected within the next 6 hours
2	Reserved
3	Missing value

0 24 003

Composition of release

Code figure	
0	Noble gases
1	Iodides
2	Caesiums
3	Transuranics
4-30	Reserved
31	Missing value

0 25 004

Echo processing

Code figure	
0	Incoherent
1	Coherent (Doppler)
2	Reserved
3	Missing value

0 25 005

Echo Integration

Code figure	
0	Logarithm - 2.5dB
1	Linear
2	Special
3	Missing value

0 25 006

Z to R conversion

Code figure	
0	ZH to R conversion
1	(ZH, ZDR) to (NO, DO) to R
2	(Z (Fl), Z (F2)) to attenuation to R
3-5	Reserved
6	Other
7	Missing value

0 25 009

Calibration method

Bit No.	
1	None
2	Calibration target or signal
3	Against rain gauges
4	Against other Instruments (distrometer - attenuation)
All 4	Missing value

0 25 010

Clutter treatment

Code figure	
0	None
1	Map
2	Insertion of higher elevation data and map
3	Analysis of the fluctuating Logarithm signal (clutter detection)
4	Extraction of the fluctuating part of linear signal (clutter suppression)
5	Clutter suppression - Doppler
6	Multi-parameter analysis
7-14	Reserved
15	Missing value

0 25 011

Ground occultation correction (screening)

Code figure	
0	None
1	Map of correction factors
2	Interpolation (azimuth or elevation)
3	Missing value

0 25 012

Range Attenuation Correction

Code figure	
0	Hardware
1	Software
2	Hardware and software
3	Missing value

0 25 013

Bright-band correction

Bit No.	
1	Brightband correction
all 2	Missing value

0 25 015

Radome Attenuation Correction

Bit No.	
1	Radome Attenuation Correction
All 2	Missing value

0 25 017

Precipitation attenuation correction

Bit No.	
1	Precipitation attenuation correction
All 2	Missing value

0 25 020

Mean-speed estimation

Code figure	
0	FFT (fast Fourier transform)
1	PP (pulse-pair processing)
2	VPC (vector-phase change)
3	Missing value

0 25 021

Wind computation enhancement

Bit No.	
1	Simple average
2	Consensus average
3	Median check
4	Vertical consistency check
5	Other
6-7	Reserved
All 8	Missing value

0 25 022

GHRSST Rejection Flag

Bit No.	
1	Unprocessed
2	Land suspected.
3	Wind speed too large
4	Ice detected.
5	Rain detected (Microwave retrievals only)
6	Cloudy detected (Infra-red retrievals only)
7	Cosmetic value
8	SST out of range
All 9	Missing value

0 25 023

GHRSST Confidence Flag

Bit No.	
1	Default confidence value has been used
2	Default bias and standard deviation has been used
3	Sun glint suspected
4	Sea ice retrieval for microwave data
5	High wind speed retrieval
6	Inaccurate SST due to low SST (< 285K) (Only applies to the TMI instrument)
7	Relaxed rain contamination suspected
8	Potential side lobe contamination
All 9	Missing value

0 25 024

GHRSST proximity confidence

Code figure	
0	Unprocessed infrared retrieval
1	Cloudy retrievals
2	Bad: Data that are probably contaminated by cloud
3	Suspect data
4	Acceptable data
5	Excellent data
6	Cool skin suspected
7-9	Reserved
10	Unprocessed microwave retrieval
11	Questionable microwave retrieval that may be contaminated
12	Acceptable microwave retrieval
13	High probability of diurnal variability
14	Reserved
15	Missing value

0 25 029

Calibration method

Bit No.	
1	Reserved

2	Calibration target or signal
3	Against raingauges
4	Against other instruments (distrometer – atenuation)
5	Reserved
All 6	Missing value

0 25 030

Running mean sea-surface temperature usage

Code figure	
0	Running mean sea-surface temperature not used because usage criteria not met
1	Running mean sea-surface temperature not used because data not available
2	Running mean sea-surface temperature used as predictor
3	Missing value

0 25 032

NOAA wind profiler mode information

Code figure	
0	Reserved
1	Data from low mode
2	Data from high mode
3	Missing value

0 25 033

NOAA wind profiler submode information

Code figure	
0	Wind Profiler operating in Submode A
1	Wind Profiler operating in Submode B
2	Reserved
3	Missing value

0 25 034

NOAA wind profiler quality control test results

Bit No.	Meaning (1=true, 0=false)
1	Test A performed and failed
2	Test B performed and failed
3	Test results inconclusive
All 4	Missing value

0 25 036

Atmospherics location method

Code figure	
0	Network of several direction-finders operating on the same individual atmospherics
1	Network of several arrival-time stations operating on the same individual atmospherics
2-5	Reserved
6	Single station range bearing technique
7-14	Reserved
15	Missing value

0 25 040

CO_2 Wind Product Derivation

Code figure	
0	Non-specific mode
1	First guess data
2	Cloud data
3	Average vector data
4	Primary data
5	Guess data
6	Vector data
7	Tracer data;this image
8	Tracer data to next image
9-14	Reserved
15	Missing value

0 25 041

Moving platform direction reporting method

Code figure	
0	Direction originally reported in true degrees
1	Direction originally reported using Code Table 0700, FM13
2	Reserved
3	Missing value

NOTE: Where the original reporting method is as indicated by code figure 1, the following conversion is recommended to obtain a suitable data value corresponding to descriptor 0 01 012:

Reported value	Data value
0	0
1	45
2	90
3	135
4	180
5	225
6	270
7	315
8	360
9	511

0 25 042

Moving platform speed reporting method

Code figure	
0	Speed originally reported in metres per second
1	Speed originally reported using Code Table 4451, FM13
2	Reserved
3	Missing value

NOTE: Where the original reporting method is as indicated by code figure 1, the following conversion is recommended to obtain a suitable data value corresponding to descriptor 0 01 013:

Reported value	Data value
0	0
1	1
2	4
3	7
4	9
5	12
6	14
7	17
8	19
9	21
/	1023

0 25 045

HIRS channel combination

Bit No.	
1-20	Beginning with first bit position (high order bit), if bit position is set to 1, then channel is present, if bit position is set to 0, then channel is not present
All 21	Missing value

0 25 046

MSU channel combination

Bit No.	
1-4	Beginning with first bit position (high order bit), if bit position is set to 1, then channel is present, if bit position is set to 0, then channel is not present
All 5	Missing value

0 25 047

SSU channel combination

Bit No.	
1-3	Beginning with first bit position (high order bit); if bit position is set to 1, then channel is present; if bit position is set to 0, then channel is not present
All 4	Missing value

0 25 048

AMSU-A channel combination

Bit No.	
1-15	Beginning with first bit position (high order bit), if bit position is set to 1, then channel is present, if bit position is set to 0, then channel is not present
All 16	Missing value

0 25 049

AMSU-B channel combination

Bit No.	
1-5	Beginning with first bit position (high order bit), if bit position is set to 1, then channel is present, if bit position is set to 0, then channel is not present
All 6	Missing value

0 25 051

AVHRR channel combination

Bit No.	
1-6	Beginning with first bit position (high order bit), if bit position is set to 1, then channel is present, if bit position is set to 0, then channel is not present
All 7	Missing value

0 25 053

Observation quality

Bit No.	
1	Good
2	Redundant
3	Questionable
4	Bad
5	Experimental
6	Precipitating
7-11	Reserved
All 12	Missing value

0 25 069

Flight Level Pressure Corrections

Bit No.	
1	Smoothed
2	Baseline adjusted
3	Normalized time interval
4	Outlier checked
5	Plausibility checked
6	Consistency checked
7	Interpolated
All 8	Missing value

0 25 086

Depth correction indicator

Code figure	
0	Depths are not corrected
1	Depths are corrected
2	Reserved
3	Missing value

0 25 090

Orbit state flag

Code figure	
0	Orbit computed during a manoeuvre
1	Adjusted mission operations orbit
2	Extrapolated mission operations orbit
3	Adjusted (preliminary/precise) orbit
4	(preliminary/precise) orbit is estimated during a manoeuvre period
5	(preliminary/precise) orbit is interpolated over a tracking data gap
6	(preliminary/precise) orbit is extrapolated for a duration less than 1 day
7	(preliminary/precise) orbit is extrapolated for a duration that ranges from 1 day to 2 days
8	(preliminary/precise) orbit is extrapolated for a duration larger than 2 days, or that the orbit is extrapolated just after a manoeuvre
9	DORIS† DIODE‡ navigator orbit
10-14	Reserved
15	Missing value

† DORIS stands for “Doppler Orbitography and Radio-positioning Integrated by Satellite”.

‡ DIODE means "Détermination Immédiate d'Orbite par Doris Embarqué" or immediate onboard orbit determination by DORIS. It is part of the DORIS instrument, which calculates the satellite's position and velocity.

0 25 093

RASS computation correction

Bit No.	
1	No correction
2	Vertical velocity correction
3-6	Reserved
7	All corrections
All 8	Missing value

0 25 095

Altimeter state flag

Bit No.	
1	Altimeter operating (set to 0 if nominal, set to 1 if backup)
All 2	Missing value

0 25 096

Radiometer state flag

Bit No.	
1	Mode indicator (0 if Mode 2, 1 if Mode 1)
2	Mode 1 Calibration sequence indicator (0 if normal data taking either Mode 1 or 2, 1 if Mode 1 Calibration sequence)
	Bits 3 and 4 indicate active 23.8 GHz channel
3	Channel 2 (0 if on, 1 if off)
4	Channel 3 (0 if on, 1 if off)
All 5	Missing value

0 25 097

Three-dimensional error estimate of the navigator orbit

Code figure	
0	Ranges between 0 and 30 cm
1	Ranges between 30 and 60 cm
2	Ranges between 60 and 90 cm
3	Ranges between 90 and 120 cm
4	Ranges between 120 and 150 cm
5	Ranges between 150 and 180 cm
6	Ranges between 180 and 210 cm
7	Ranges between 210 and 240 cm
8	Ranges between 240 and 270 cm
9	Ranges larger than 270 cm
10-14	Reserved
15	Missing value

0 25 097

Three dimensional error estimate of the navigator orbit

Code figure	
0	Ranges between 0 and 30 cm
1	Ranges between 30 and 60 cm
2	Ranges between 60 and 90 cm
3	Ranges between 90 and 120 cm
4	Ranges between 120 and 150 cm
5	Ranges between 150 and 180 cm
6	Ranges between 180 and 210 cm
7	Ranges between 210 and 240 cm
8	Ranges between 240 and 270 cm
9	Ranges larger than 270 cm
10-14	Reserved
15	Missing value

0 25 098

Altimeter data quality flag

Bit No.	(0 is good, 1 is bad)

1	Ku band range
2	C band range
3	Ku band SWH*
4	C band SWH*
5	Ku band backscatter coefficient
6	C band backscatter coefficient
7	Off nadir angle from Ku band waveform parameters
8	Off nadir angle from platform
All 9 bits	Missing value

* SWH stands for “Significant wave height”

0 25 099

Altimeter correction quality flag

Bit No.	(0 is good, 1 is bad)
1	Ku band range instrumental correction
2	C band range instrumental correction
3	Ku band SWH* instrumental correction
4	C band SWH* instrumental correction
5	Ku band backscatter coefficient instrumental correction
6	C band backscatter coefficient instrumental correction
7-8	Reserved
All 9 bits	Missing value

* SWH stands for “Significant wave height”

0 25 110

Image processing summary

Bit No.	
1	Raw data analysis used for raw data correction. Correction done using default parameters
2	Raw data analysis used for raw data correction. Correction done using raw data analysis results
3	Antenna elevation pattern correction applied
4	Nominal chirp replica used
5	Reconstructed chirp used
6	Slant range to ground range conversion applied
7-9	Reserved
All 10	Missing value

0 25 120

RA2_l2_processing flag

Code figure

0	Percentage of DSRs free of processing errors during Level 2 processing is greater than the acceptable threshold
1	Percentage of DSRs free of processing errors during Level 2 processing is less than the acceptable threshold
2	Reserved
3	Missing value

Note: DSR = Data Set Record

0 25 122

Hardware configuration for RF

Code figure

0	Hardware configuration for RF is A
1	Hardware configuration for RF is B
2	Reserved
3	Missing value

Note: RF = Radio Frequency

0 25 123

Hardware configuration for HPA

Code figure

0	Hardware configuration for HPA is A
1	Hardware configuration for HPA is B
2	Reserved
3	Missing value

Note: HPA = High Power Amplifier

0 25 124

MWR l2 processing flag

Code figure

0	Percentage of DSRs free of processing errors during Level 2 processing is greater than the acceptable threshold
1	Percentage of DSRs free of processing errors during Level 2 processing is less than the acceptable threshold
2	Reserved
3	Missing value

Note: DSR = Data Set Record
MWR = Microwave radiometer

0 25 150

Code figure	
1	The Dvorak's VIS (VISual imagery) intensity analysis
2	The Dvorak's EIR (Enhanced InfraRed imagery) intensity analysis
3-14	Reserved
15	Missing value

0 25 174

SMOS information flag

Bit No.	Meaning
1	Pixel is affected by RFI effects
2	Pixel is located in the hexagonal Alias direction centred on Sun alias
3	Pixel is close to the border delimiting the extended Alias free zone
4	Pixel is inside the extended Alias free zone
5	Pixel is inside the exclusive of Alias free zone
6	Pixel is located in a zone where a Moon Alias was reconstructed
7	Pixel is located in a zone where Sun reflection has been detected
8	Pixel is located in a zone where Sun Alias was reconstructed
9	Flat target transformation has been performed during image reconstruction of this pixel
10	Scene has been combined with an adjustment scene in opposite polarisation during image reconstruction to account for cross-polarisation leakage
11	Direct Moon correction has been performed during image reconstruction of this pixel
12	Reflected Sun correction has been performed during image reconstruction of this pixel
13	Direct Sun correction has been performed during image reconstruction of this image
All 14	Missing value

0 26 010

Hours included

Bit No.	
1	0100 included
2	0200 included
3	0300 included
4	0400 included
5	0500 included
6	0600 included
7	0700 included
8	0800 included
9	0900 included
10	1000 included
11	1100 included
12	1200 included
13	1300 included
14	1400 included
15	1500 included
16	1600 included
17	1700 included
18	1800 included
19	1900 included
20	2000 included
21	2100 included
22	2200 included
23	2300 included
24	2400 included
25	Unknown mixture of hours
All 26	Missing value

0 29 001

Projection type

Code figure	
0	Gnomonic projection
1	Polar stereographic projection
2	Lambert's conformal conic projection
3	Mercator's projection
4	Scanning Cone (radar)*
5-6	Reserved
7	Missing value

* Note: Projection type 4 indicates a Cartesian grid placed directly on the scanning cone defined by the azimuthal sweep of the radar.

0 29 002

Co-ordinate grid type

Code figure	
0	Cartesian
1	Polar
2	Other
3-6	Reserved
7	Missing value

0 30 031

Picture type

Code figure	
0	PPI
1	Composite
2	CAPPl
3	Vertical section
4	Alphanumeric data
5	Map of subject clutter
6	Map
7	Test picture
8	Comments
9	Map of ground occultation
10	Map of radar beam height
11-13	Reserved
14	Other
15	Missing value

0 30 032

Combination with other data

Bit No.	
1	Map
2	Satellite IR
3	Satellite VIS
4	Satellite WV
5	Satellite multispectral
6	Synoptic observations
7	Forecast parameters
8	Lightning data
9-14	Reserved
15	Other data
All 16	Missing value

0 31 021

Associated field significance

Code figure		
0	Reserved	
1	1-bit indicator of quality	0 = good 1 = suspect or bad
2	2-bit indicator of quality	0 = good 1 = slightly suspect 2 = highly suspect 3 = bad
3-5	Reserved	
6	4-bit indicator of quality control class according to GTSPP	0 = Unqualified 1 = Correct value (all checks passed) 2 = Probably good but value inconsistent with statistics (differ from climatology) 3 = Probably bad (spike, gradient, … if other tests passed) 4 = Bad value, Impossible value (out of scale, vertical instability, constant profile) 5 = Value modified during quality control 6-7 = Not used (reserved) 8 = Interpolated value 9 = Missing value
7	Percentage confidence	
8-20	Reserved	
21	1-bit indicator of correction (see Note (2))	0 = original value 1 = substituted/corrected value
22-62	Reserved for local use	
63	Missing value	

N o t e s
(1) Associated field significance shall be used initially in conjunction with the quality of observed data.
(2) The code figure 21 may be used within corrected messages with the corrected/ substituted values identified.
(3) Further applications may be developed.

0 31 031

Data Present Indicator

Bit No.	Value	Meaning
1	0	Data present
	1	Data not present

0 33 002

Quality Information

Code figure	
0	Data not suspect
1	Data suspect
2	Reserved
3	Quality information not given

0 33 003

Quality Information

Code figure	
0	Data not suspect
1	Data slightly suspect
2	Data highly suspect
3	Data considered unfit for use
4-6	Reserved
7	Quality information not given

0 33 005

Quality Information (AWS data)

Bit No.	
1	No automated meteorological data checks performed
2	Pressure data suspect
3	Wind data suspect
4	Dry-bulb temperature data suspect
5	Wet-bulb temperature data suspect
6	Humidity data suspect
7	Ground temperature data suspect
8	Soil temperature (depth 1) data suspect
9	Soil temperature (depth 2) data suspect
10	Soil temperature (depth 3) data suspect
11	Soil temperature (depth 4) data suspect
12	Soil temperature (depth 5) data suspect
13	Cloud data suspect
14	Visibility data suspect
15	Present weather data suspect
16	Lightning data suspect
17	Ice deposit data suspect
18	Precipitation data suspect
19	State of ground data suspect
20	Snow data suspect
21	Water content data suspect
22	Evaporation/evapotranspiration data suspect
23	Sunshine data suspect
24-29	Reserved
All 30	Missing value

0 33 006

Internal measurement status information (AWS)

Code figure	
0	Self-check OK
1	At least one Warning active, no Alarms
2	At least one Alarm active
3	Sensor failure
4-6	Reserved
7	Missing value

0 33 015

Data Quality Check Indicator

Code figure	
0	Passed all checks
1	Missing-data check
2	Descending/reascending balloon check
3	Data plausibility check (above limits)
4	Data plausibility check (below limits)
5	Superadiabatic lapse rate check
6	Limiting angles check
7	Ascension rate check
8	Excessive change from previous flight
9	Balloon overhead check
10	Wind speed check
11	Wind direction check
12	Dependency check
13	Data valid but modified
14	Data outlier check
15-62	Reserved
63	Missing value

0 33 020

Quality control indication of following value

Code figure	
0	Good
1	Inconsistent
2	Doubtful
3	Wrong
4	Not checked
5	Has been changed
6	Estimated
7	Missing value

0 33 021

Quality of following value

Code figure	
0	Within limits
1	Outside limits
2	Reserved
3	Missing value

0 33 022

Quality of buoy satellite transmission

Code figure	
0	Good (several identical reports have been received)
1	Dubious (no identical reports have been received)
2	Reserved
3	Missing value

0 33 023

Quality of buoy location

Code figure	
0	Reliable (location was made over two satellite passes)
1	Latest known (no location over the corresponding pass)
2	Dubious (location made over one pass only; a second solution is possible in 5 per cent of the cases)
3	Missing value

0 33 024

Station elevation quality mark (for mobile stations)

Code figure	
0	Reserved
1	Excellent - within 3 meters
2	Good - within 10 meters
3	Fair - within 20 meters
4	Poor - more than 20 meters
5	Excellent - within 10 feet
6	Good - within 30 feet
7	Fair - within 60 feet
8	Poor - more than 60 feet
9-14	Reserved
15	Missing value

0 33 025

ACARS interpolated values

Code figure	
0	Time interpolated, latitude and longitude reported
1	Time reported, latitude and longitude interpolated
2	Time, latitude, and longitude interpolated
3	Time, latitude, and longitude reported
4-6	Reserved
7	Missing value

0 33 026

Moisture quality

Code figure	
0	Normal operations - measurement mode
1	Normal operations - non-measurement mode
2	Small RH
3	Humidity element is wet
4	Humidity element contaminated
5	Heater fail
6	Heater fail and wet/contaminated humidity element
7	At least one of the input parameters used in the calculation of mixing ratio is invalid
8	Numeric error
9	Sensor not installed
10-62	Reserved
63	Missing value

0 33 027

Location quality class (range of radius of 66% confidence)

Code figure	
0	Radius $\geq$ 1500 m
1	500 m $\leq$ Radius <1500 m
2	250 m $\leq$ Radius < 500 m
3	Radius < 250 m
4-6	Reserved
7	Missing value

0 33 028

Snapshot overall quality

Code figure	Meaning
1	Nominal
2	Degraded by SW error; any error reported by the algorithms
3	Degraded by instrument error
4	Degraded by corrupted /missing ADF
5-6	Reserved
7	Missing value

0 33 030

Scan line status flags for ATOVS

Bit No.	
1	Do not use scan for product generation
2	Time sequence error detected with this scan
3	Data gap precedes this scan
4	No calibration
5	No earth location
6	First good time following a clock update
7	Instrument status changed with this scan
8-23	Reserved
All 24	Missing value

Notes: If bit is set to 1 then statement is true.

0 33 031

Scan line quality flags for ATOVS

Bit No.	
1	Time field is bad but can probably be inferred from the previous good time
2	Time field is bad and can't be inferred from the previous good time
3	This record starts a sequence that is inconsistent with previous times (i.e. there is a time discontinuity). This may or may not be associated with a spacecraft clock update (see scan line status flags for ATOVS)
4	Start of a sequence that apparently repeats scan times that have been previously accepted
5	Scan line was not calibrated because of bad time
6	Scan line was calibrated using fewer than the preferred number of scan lines because of proximaty to start or end of data or to a data gap
7	Scan line was not calibrated because of bad or insufficient PRT data
8	Scan line was calibrated but with marginal PRT data
9	Some uncalibrated channels on this scan
10	Uncalibrated due to instrument mode
11	Questionable calibration because of antenna position error of space view
12	Questionable calibration because of antenna position error of black body
13	Not earth located because of bad time
14	Earth location questionable because of questionable time code (see time problem code bits)
15	Earth location questionable - only marginal agreement with reasonableness check
16	Earth location questionable - fails reasonableness check
17	Earth location questionable because of antenna position check
18	Scan line calibration cold black body
19	Scan line calibration warm black body
20	Scan line calibration space view
21	Earth view
22-23	Reserved
All 24	Missing value

Notes:
(1) If bit is set to 1 then statement is true.
(2) Bits 1-4 represent time problem code. All bits off implies the scan time is as expected.
(3) Bits 5-10 represent calibration problem code. All bits set to zero indicates normal calibration. Where any of bits 5,7,10 are set, secondary calibration coefficients have been used.
(4) Bits 11-17 represent Earth location problem code. All bits set to zero implies the earth location was normal.

0 33 032

Channel quality flags for ATOVS

Bit No.	
1	No good blackbody counts for scan line
2	No good space view counts for this line
3	No good PRTs for this line
4	Some bad blackbody view counts for this line
5	Some bad space view counts for this line
6	Some bad PRT temps on this line
7-23	Reserved (bits set to zero)
All 24	Missing value

Notes: All bits off implies a good calibration

0 33 033

Field of view quality flags for ATOVS

Bit No.	
1	Set if secondary calibration used
2-21	Bit n set to 1 if brightness temperature in channel n-1 is physically unreasonable or has not been calculated due to calibration problems
22	Set if all the channels are missing
23	Suspect
All 24	Missing value

Notes:
(1) All bits off implies a good calibration
(2) Bits 2-21 used for HIRS, but only bits 2-16 used for AMSU-A and only bits 2-6 used for AMSU-B

0 33 035

Manual/automatic quality control

Code figure	
0	Automatic quality control passed and not manually checked
1	Automatic quality control passed and manually checked and passed
2	Automatic quality control passed and manually checked and deleted
3	Automatic quality control failed and manually not checked
4	Automatic quality control failed and manually checked and failed
5	Automatic quality control failed and manually checked and re-inserted
6	Automatic quality control flagged data as questionable and not manually checked
7	Automatic quality control flagged data as questionable and manually checked and failed
8	Manually checked and failed
9-14	Reserved
15	Missing value

0 33 037

Wind correlation error

Bit No.	
1	U departure from guess
2	V departure from guess
3	U & V departure from guess
4	U acceleration
5	V acceleration
6	U & V acceleration
7	Possible land feature
8	U acceleration and possible land feature
9	V acceleration and possible land feature
10	U & V acceleration and possible land feature
11	Bad wind guess
12	Correlation failure
13	Search box off edge of area
14	Target box off edge of area
15	Pixel brightness out of bounds (noisy line)
16	Target outside of lat/long box
17	Target outside of pressure min/max
18	Autoeditor flagged slow vector
19	Autoeditor flagged vectors
All 20	Missing value

0 33 038

Quality Flags for ground-based GNSS data

Bit No.	
1	Total Zenith Delay quality is considered poor
2	GALILEO satellites used
3	GLONASS satellites used
4	GPS satellites used
5	Meteorological data applied
6	Atmospheric loading correction applied
7	Ocean tide loading applied
8	Climate quality data processing
9	Near-real time data processing
All 10	Missing value

0 33 039

Quality flags for Radio Occultation data

Bit No.	
1	Non-nominal quality
2	Offline product
3	Ascending occultation flag
4	Excess Phase processing non-nominal
5	Bending Angle processing non-nominal
6	Refractivity processing non-nominal
7	Meteorological processing non-nominal
8-13	Reserved
14	Background profile non-nominal
15	Background (i.e. not retrieved) profile present
All 16	Missing value

0 33 041

Attribute of following value

Code figure	
0	The following value is the true value
1	The following value is higher than the true value (the measurement hit the lower limit of the instrument)
2	The following value is lower than the true value (the measurement hit the higher limit of the instrument)
3	Missing value

Note: This descriptor will be associated with visibility data or height of clouds data to specify if the value is bounded. If the reported data is the true value, the code figure is 0. However, the measurement can hit the limit of the instrument measurement capability. If the reported value is higher than the true value, the code figure is 1, if the reported value is lower than the true value, the code figure is 2.

0 33 042

Type of limit represented by following value

Code figure

0	Exclusive lower limit (>)
1	Inclusive lower limit (>=)
2	Exclusive upper limit (<)
3	Inclusive upper limit (=<)
4-6	Reserved
7	Missing value

0 33 043

Flag table AST confidence

Bit No.	
1	Sea MDS. Nadir only SST retrieval used 3.7 Micron channel. Land MDS reserved
2	Sea MDS. Dual view SST retrieval used 3.7 Micron channel. Land MDS reserved.
3	Nadir view contains day time data
4	Forward view contains day time data
5-7	Reserved
All 8	Missing value

0 33 044

ASAR quality information

Bit No.	
1	Input data mean outside nominal range flag
2	Input data standard deviation outside nominal range flag
3	Number of input data gaps > threshold value
4	Percentage of missing lines > threshold value
5	Doppler centroid uncertain. Confidence measure < specific value
6	Doppler ambiguity estimate uncertain. Confidence measure < specific value
7	Output data mean outside nominal range flag
8	Output data standard deviation outside nominal range flag
9	Chirp reconstruction failed or is of low quality flag
10	Data set missing
11	Invalid downlink parameters
12	Azimuth cut-off iteration count. The azimuth cut-off fit did not converge within a minimum number of iterations
13	Azimuth cut-off fit did not converge within a minimum number of iterations
14	Phase information confidence measure. The imaginary spectral peak is less than a minimum threshold, or the zero lag shift is greater than a minimum threshold
All 15	Missing value

0 33 047

Measurement confidence data

Bit No.	
1	Error detected and attempts to recover made
2	Anomaly in on-board data handling (OBDH) value detected
3	Anomaly in Ultra Stable Oscillator Processing (USOP) value detected
4	Errors detected by on-board computer
5	Automatic gain control (AGC) out of range
6	Rx delay fault. Rx distance out of range
7	Wave form samples fault identifier. Error
8	S-band anomaly error detected
9-11	Reserved
12	Brightness temperature (channel 1) out of range

13	Brightness temperature (channel 2) out of range
14	Reserved
15	Ku Ocean retracking error
16	S Ocean retracking error
17	Ku Ice 1 retracking error
18	S Ice 1 retracking error
19	Ku Ice 2 retracking error
20	S Ice 2 retracking error
21	Ku Sea Ice retracking error
22	Arithmetic fault error
23	Meteo data state. No map
24	Meteo data state. 1 map
25	Meteo data state 2 maps degraded
26	Meteo data state 2 maps nominal
27	Orbit propagator status for propagation mode, several errors
28	Orbit propagator status for propagation mode, warning detected
29	Orbit propagator status for initialisation mode, several errors
30	Orbit propagator status for initialisation mode, warning detected
All 31	Missing value

0 33 048

Confidence measure of SAR inversion

Code figure	
0	Inversion successful
1	Inversion not successful
2	Reserved
3	Missing value

0 33 049

Confidence measure of wind retrieval

Code figure	
0	External wind direction used during inversion
1	External wind direction not used during inversion
2	Reserved
3	Missing value

0 33 050

Global GTSPP quality flag

Code figure	
0	Unqualified
1	Correct value (all checks passed)
2	Probably good but value inconsistent with statistics (differ from climatology)
3	Probably bad (spike, gradient, … if other tests passed)
4	Bad value, Impossible value (out of scale, vertical instability, constant profile)
5	Value modified during quality control
6-7	Reserved
8	Interpolated value
9-14	Reserved
15	Missing value

0 33 052

S band ocean retracking quality

Bit No.	
1-20	First 20 least significant bits correspond to the 20 values (one per data block containing: 0=valid measurement, 1=invalid). Bit 1 applies to the 20th data block.
All 21	Missing value

0 33 053

Ku band ocean retracking quality

Bit No.	
1-20	First 20 least significant bits correspond to the 20 values (one per data block containing: 0=valid measurement, 1=invalid). Bit 1 applies to the 20th data block.
All 21	Missing value

0 33 060

GQisFlagQual - individual IASI-System quality flag

Code figure	
0	Good
1	Bad
2	Reserved
3	Missing value

0 33 070

Total ozone quality

Code figure	
0	Good retrieval
1	Bad aerosol information flag or NOAA-16 radiance anomaly
2	Solar zenith angle greater than 84 degrees
3	380nm residue greater than limit
4	Ozone inconsistency
5	Difference between profile ozone and step 3 total ozone exceeds threshold (set to 25 DU)
6	Step 1 ozone iteration did not converge
7	Any channel residue greater than 16 or bad radiance
8-14	Reserved
15	Missing value

0 33 071

Profile ozone quality

Code figure	
0	Good retrieval
1	Solar zenith angle greater than 84 degrees
2	Difference between step 3 and profile total ozone greater than limit (25 DU)
3	Average final residue for wavelengths used in retrieval greater than threshold
4	Final residue greater than 3 times a priori error

5	Difference between retrieved and a priori greater than 3 times a priori error
6	Non-convergent solution
7	Upper level profile anomaly or stray light anomaly
8	Initial residue greater than 18.0 N-value units
9-14	Reserved
15	Missing value

0 33 072

Ozone error

Code figure

0	Good retrieval
1	Reflectivity out of range
2	Larger Pixels (Number of cross-track pixels less than 32) or backward scans Error
3	Solar zenith angle greater than 88
4	Latitude/longitude out of range
5	Viewing zenith angle or solar zenith angle out of range
6	Step-one process failed in general
7	First guess ozone out of range
8	Too many iterations (exceed 8)
9	Step-one residue calculation failed
10	Step-two process failed in general
11	First guess ozone profile out of range
12	Step-two ozone value out of range
13	Step-two residue calculation failed
14	Step-three process failed in general
15	Polarization Correction Accuracy Alert
16	Radiance or irradiance less or equal to zero
17-30	Reserved
31	Missing value

0 35 000

FM and Regional Code number

Code figure

000-099	International FM Codes
100-199	RA I Codes
200-299	RA II Codes
300-399	RA III Codes
400-499	RA IV Codes
500-599	RA V Codes
600-699	RA VI Codes
700-799	Antarctic Codes
800-999	Reserved
1000-1022	Not used
1023	Missing value

0 35 001

Time-frame for monitoring

Code figure	
0	Real time
1	Near-real time
2	Non-real time
3	Reserved
4	Reserved
5	Reserved
6	Reserved
7	Missing value

0 35 030

Discrepancies in the availability of expected data

Code figure	
0	No discrepancies
1	Non-compliance with standard and recommended practices and procedures including those of monitoring
2	Catalogues of meteorological bulletins not updated in a timely manner
3	Incorrect routeing directories
4	Lack of flexibility in the routeing arrangements
5	Deficiencies in the operation of GTS centres and circuits
6	Loss of data or delays in relaying data on the GTS
7	Routeing of data different from the routeing provided in the plan
8	Various malpractices
9-14	Reserved
15	Missing value

0 35 031

Qualifier on monitoring results

Code figure	
1	Sufficient and all of acceptable quality
2	Sufficient but partly of acceptable quality
3	Insufficient but all of acceptable quality
4	Insufficient and of unacceptable quality
5	Some messages not complete
6	Suspect or wrongly coded groups could not be interpreted confidently
7	Gross coding errors
8	Transmission sequential order not observed
9	Report completely garbled and thus discarded
10	Deficiencies identified and rectified
11	Deficiencies identified but not rectified
12	Deficiencies not identified
13	Measuring errors
14	Mutual inconsistency
15	Temporal inconsistency
16	Forecast error
17	Bias
18	Improve system of quality control
19	Expand training programmes
20-98	Reserved
99-122	Not used
123	Missing value

0 35 032

Cause of missing data

Code figure	
1	Data groups missing due to radio fading
2	Data groups missing due to outage of centre
3	Data groups missing due to outage of circuit
4	Non-implementation or maintenance of required RBSN density
5	Shortage of qualified staff to man stations
6	Lack of consumables
7	Instrument failure
8	Non-adherence to telecommunication procedures
9	Some observing programmes ceased
10-14	Not used
15	Missing value

0 35 033

Observation and collection deficiency

Code figure	
1	No deficiency
2	Observations not made regularly
3	Observations not made at right time
4	Observations made but not disseminated
5	Observations made and sent to incorrect users
6	Collection not received
7	Collection transmitted late
8	Collection not transmitted
9	Difficulties in HF propagation and selection of suitable frequency
10	Difficulties in maintenance of communication equipment at remote stations
11	No alternative arrangement for routeing meteorological observation
12-99	Reserved
100-122	Not used
123	Missing value

0 35 034

Statistical trends for availability of data (during the survey period(s))

Code figure	
1	Slight improvement
2	Significant improvement
3	Most significant improvement
4	Steady
5	Decreasing
6	Efforts required to improve night-time observations
7	Missing value

0 35 035

Reason for termination

Code figure	
0	Reserved
1	Balloon burst
2	Balloon forced down by icing
3	Leaking or floating balloon
4	Weak or fading signal
5	Battery failure
6	Ground equipment failure
7	Signal interference
8	Radiosonde failure
9	Excessive missing data frames
10	Reserved
11	Excessive missing temperature
12	Excessive missing pressure
13	User terminated
14-29	Reserved
30	Other
31	Missing value

0 40 005

Soil moisture correction flags

Bit No.	
1	Soil moisture between -20% and 0%
2	Soil moisture between 100% and 120%
3	Correction of wet backscatter reference
4	Correction of dry backscatter reference
5	Correction of volume scattering in sand
6-7	Reserved
All 8	Missing value

NOTE: The nominal range for the surface soil moisture is 0% - 100%. In extreme cases, the extrapolated backscatter at 40 degrees incidence angle may exceed the dry or the wet backscatter reference. In these cases, the value provided by the measurement process of surface soil moisture is, respectively, less than 0% or more than 100%.

0 40 006

Soil moisture processing flags

Bit No.	
1	Not soil
2	Sensitivity to soil moisture below limit
3	Azimuthal noise above limit
4	Backscatter Fore-Aft beam out of range
5	Slope Mid-Fore beam out of range
6	Slope Mid-Aft beam out of range
7	Soil moisture below -20%
8	Soil moisture above 120%
9-15	Reserved
All 16	Missing value

NOTE: See Note under Flag table 0 40 005.

0 40 011

Interpolation flag

Bit No.	
1	Mean sea surface (MSS) interpolation flag
2	Ocean tide solution 1 interpolation flag (0=4 points over ocean, 1=less than 4 points)
3	Ocean tide solution 2 interpolation flag (0=4 points over ocean, 1=less than 4 points)
4	Meteorological data interpolation flag (0=4 points over ocean, 1=less than 4 points)
5-7	Reserved
All 8	Missing value

0 40 012

Radiometer data quality flag

Bit No.	(0 is good, 1 is bad)
1	18.7 GHz brightness temperature

2	23.8 GHz brightness temperature
3	34 GHz brightness temperature
4-7	Reserved
All 8	Missing value

0 40 013

Radiometer brightness temperature interpretation flag

Code figure	
0	Interpolation with no gap between JMR* data
1	Interpolation with gaps between JMR* data
2	Extrapolation of JMR* data
3	Failure of extrapolation and interpolation
4-6	Reserved
7	Missing value

* JMR stands for “JASON-1 Microwave Radiometer”