CODE TABLE USED IN SECTION 0

Code table 0.0 - Discipline of processed data in the GRIB message, number of GRIB Master table

Code figure	Meaning	Status
3	Space products	Operational
3	*Satellite remote sensing products*	*Validation*
4-9	Reserved	Operational
4	*Space weather products*	*Validation*
5-9	*Reserved*	*Validation*

CODE TABLES USED IN SECTION 1

Code table 1.5 - Identification template number

Code figure	Meaning	Status
0	Calendar definition	Validation
1	Paleontological offset	Validation
2-32767	Reserved	Validation
32768-65534	Reserved for local use	Validation
65535	Missing	Validation

Code table 1.6 - Type of calendar

Code figure	Meaning	Status
0	Gregorian	Validation
1	360-day	Validation
2-254	Reserved	Validation
255	Missing (assume Gregorian)	Validation

CODE TABLES USED IN SECTION 3

Code table 3.1 - Grid definition template number

Code figure	Meaning	Comments	Status
11-19	Reserved		Operational
11	*Rotated Mercator projection*		*Validation*
12-19	*Reserved*		*Validation*
101-109	Reserved		Operational
101	*General unstructured grid*		*Validation*
102-109	*Reserved*		*Validation*

Code table 3.2 - Shape of the Earth *

Code figure	Meaning	Status
10-191	Reserved	Operational
10	*Earth model assumed WGS84 with corrected geomagnetic coordinates (latitude and longitude) defined by Gustafsson et al.,*	*Validation*
11	*Sun assumed spherical with radius = 695,990,000 m (Allen, C.W., 1976 Astrophysical Quantities (3rd Ed.; London: Athlone)) and Stonyhurst latitude and longitude system with origin at the intersection of the solar central meridian (as seen from Earth) and the solar equator (Thompson, W, Coordinate systems for solar image data, A&A 449, 791-803 (2006)).*	*Validation*
12	*Sun assumed spherical with radius = 695,990,000 m (Allen, C.W., 1976 Astrophysical Quantities (3rd Ed.; London: Athlone)) and Carrington latitude and longitude system that rotates with a sidereal period of 25.38 days (Thompson, W, Coordinate systems for solar image data, A&A 449, 791-803 (2006)).*	*Validation*
13-191	*Reserved*	*Validation*

[Validation] Modify the title to "Shape of the reference system".

Flag table 3.4 - Scanning mode

Bit No.	Value	Meaning	Status
5	*0*	*Points within adjacent rows are not staggered*	*Validation*
	1	*Points within adjacent rows are staggered according to bit 6*	*Validation*
6	*0*	*Points within even rows are offset by +0.5 in i (x) direction*	*Validation*
	1	*Points within even rows are offset by -0.5 in i (x) direction*	*Validation*
7	*0*	*All rows have same number of data points*	*Validation*
	1	*Adjacent rows have different numbers of data points according to bit*	*Validation*
8	*0*	*Odd rows contain Ni-1 data points*	*Validation*
	1	*Even rows contain Ni-1 data points*	*Validation*

Notes:

[Validation] (x) *Bits 5-8 may be used with template 3.1 to define an Arakawa grid with an “E” stagger.*

[Validation] (x+1) *The value of bit 6 only has meaning when bit 5 is set.*

[Validation] (x+2) *The value of bit 8 only has meaning when bit 7 is set.*

CODE TABLES USED IN SECTION 4

Code table 4.0 - Product definition template number

Code figure	Meaning	Status
49-50	Reserved	Operational
49	*Reserved*	*Validation*
50	*Analysis or forecast of a multi component parameter or matrix element at a point in time*	*Validation*

Code table 4.1 - Parameter category by product discipline

Product discipline 3 - Space products *

Category	Description	Status
0	Image format products (see Note 1)	Operational
1	Quantitative products (see Note 2)	Operational
2-191	Reserved	Operational
192-254	Reserved for local use	Operational
255	Missing	Operational

*[Validation] * Modify the title to "Satellite remote sensing products".*

Product discipline 4 - Space weather products

Category	*Description*	*Status*
0	*Temperature*	*Validation*
1	*Momentum*	*Validation*
2	*Charged particle mass and number*	*Validation*
3	*Electric and magnetic fields*	*Validation*
4	*Energetic particles*	*Validation*
5	*Waves*	*Validation*
6	*Solar electromagnetic emissions*	*Validation*
7	*Terrestrial electromagnetic emissions*	*Validation*
8	*Imagery*	*Validation*
9	*Ion-neutral coupling*	*Validation*
10-191	*Reserved*	*Validation*
192-254	*Reserved for local use*	*Validation*
255	*Missing*	*Validation*

Code table 4.2 - Parameter number by product discipline and parameter category

Product discipline 3 - Satellite products *, parameter category 0: image format products

Number	Parameter	Units	Status

*[Validation] * Modify the title to "Satellite remote sensing products".*

Product discipline 3 - Satellite products *, parameter category 1: quantitative products

Number	Parameter	Units	Status

*[Validation] * Modify the title to "Satellite remote sensing products".*

Product discipline 4 - Space weather products, parameter category 0: temperature

Number	Parameter	Units	Status
0	Temperature	K	Validation
1	Electron temperature	K	Validation
2	Proton temperature	K	Validation
3	Ion temperature	K	Validation
4	Parallel temperature	K	Validation
5	Perpendicular temperature	K	Validation
6-191	Reserved		Validation
192-254	Reserved for local use		Validation
255	Missing		Validation

Product discipline 4 - Space weather products, parameter category 1: momentum

Number	Parameter	Units	Status
0	Velocity magnitude (speed)	m s-1	Validation
1	1st vector component of velocity (coordinate system dependent)	m s-1	Validation
2	2nd vector component of velocity (coordinate system dependent)	m s-1	Validation
3	3rd vector component of velocity (coordinate system dependent)	m s-1	Validation
4-191	Reserved		Validation
192-254	Reserved for local use		Validation
255	Missing		Validation

Product discipline 4 - Space weather products, parameter category 2: charged particle mass and number

Number	Parameter	Units	Status
0	Particle number density	m-3	Validation
1	Electron density	m-3	Validation
2	Proton density	m-3	Validation
3	Ion density	m-3	Validation
4	Vertical electron content	m-2	Validation
5	HF absorption frequency	Hz	Validation
6	HF absorption	dB	Validation
7	Spread F	m	Validation
8	h'F	m	Validation
9	Critical frequency	Hz	Validation
10	Scintillation	Numeric	Validation
11-191	Reserved		Validation
192-254	Reserved for local use		Validation
255	Missing		Validation

Product discipline 4 - Space weather products, parameter category 3: electric and magnetic fields

Number	Parameter	Units	Status
0	Magnetic field magnitude	T	Validation
1	1st vector component of magnetic field	T	Validation
2	2nd vector component of magnetic field	T	Validation
3	3rd vector component of magnetic field	T	Validation
4	Electric field magnitude	V m-1	Validation

5	1st vector component of electric field	V m-1	Validation
6	2nd vector component of electric field	V m-1	Validation
7	3rd vector component of electric field	V m-1	Validation
8-191	Reserved		Validation
192-254	Reserved for local use		Validation
255	Missing		Validation

Product discipline 4 - Space weather products, parameter category 4: energetic particles

Number	Parameter	Units	Status
0	Proton flux (differential)	(m2 s sr eV)-1	Validation
1	Proton flux (integral)	(m2 s sr)-1	Validation
2	Electron flux (differential)	(m2 s sr eV)-1	Validation
3	Electron flux (integral)	(m2 s sr)-1	Validation
4	Heavy ion flux (differential)	(m2 s sr eV/nuc)-1	Validation
5	Heavy ion flux (integral)	(m2 s sr)-1	Validation
6	Cosmic ray neutron flux	h-1	Validation
7-191	Reserved		Validation
192-254	Reserved for local use		Validation
255	Missing		Validation

Product discipline 4 - Space weather products, parameter category 5: waves

Number	Parameter	Units	Status
0-191	Reserved		Validation
192-254	Reserved for local use		Validation
255	Missing		Validation

Product discipline 4 - Space weather products, parameter category 6: solar electromagnetic emissions

Number	Parameter	Units	Status
0	Integrated solar irradiance	W m-2	Validation
1	Solar x-ray flux (XRS long)	W m-2	Validation
2	Solar x-ray flux (XRS short)	W m-2	Validation
3	Solar EUV irradiance	W m-2	Validation
4	Solar spectral irradiance	W m-2 nm-1	Validation
5	F10.7	W m-2 Hz-1	Validation
6	Solar radio emissions	W m-2 Hz-1	Validation
7-191	Reserved		Validation
192-254	Reserved for local use		Validation
255	Missing		Validation

Product discipline 4 - Space weather products, parameter category 7: terrestrial electromagnetic emissions

Number	Parameter	Units	Status
0	Limb intensity	m-2 s-1	Validation
1	Disk intensity	m-2 s-1	Validation
2	Disk intensity day	m-2 s-1	Validation
3	Disk intensity night	m-2 s-1	Validation
4-191	Reserved		Validation
192-254	Reserved for local use		Validation

255	*Missing*		*Validation*

Product discipline 4 - Space weather products, parameter category 8: imagery

Number	*Parameter*	*Units*	*Status*
0	*X-ray radiance*	*W sr-1 m-2*	*Validation*
1	*EUV radiance*	*W sr-1 m-2*	*Validation*
2	*H-alpha radiance*	*W sr-1 m-2*	*Validation*
3	*White light radiance*	*W sr-1 m-2*	*Validation*
4	*CaII-K radiance*	*W sr-1 m-2*	*Validation*
5	*White light coronagraph radiance*	*W sr-1 m-2*	*Validation*
6	*Heliospheric radiance*	*W sr-1 m-2*	*Validation*
7	*Thematic mask*	*Numeric*	*Validation*
8-191	*Reserved*		*Validation*
192-254	*Reserved for local use*		*Validation*
255	*Missing*		*Validation*

Product discipline 4 - Space weather products, parameter category 9: ion-neutral coupling

Number	*Parameter*	*Units*	*Status*
0	*Pedersen conductivity*	*S m-1*	*Validation*
1	*Hall conductivity*	*S m-1*	*Validation*
2	*Parallel conductivity*	*S m-1*	*Validation*
3-191	*Reserved*		*Validation*
192-254	*Reserved for local use*		*Validation*
255	*Missing*		*Validation*

Product discipline 10 - Oceanographic products, parameter category 0: waves

46-191	Reserved		Operational
46	*2-dim spectral energy density E (f, θ)*	*m2 s*	*Validation*
47	*Frequency spectral energy density E (f) = ∫ E (f,θ) dθ*	*m2 s*	*Validation*
48	*Directional spectral energy density E (θ)= ∫ E (f,θ) df / m0*	*-*	*Validation*
49-191	*Reserved*		*Validation*

Code table 4.5 - Fixed surface types and units

Code figure	Meaning	Unit	Status
167-191	Reserved		Operational
167-169	*Reserved*		*Validation*
170	*Ionospheric D-region level*		*Validation*
171	*Ionospheric E-region level*		*Validation*
172	*Ionospheric F1-region level*		*Validation*
173	*Ionospheric F2-region level*		*Validation*
174-191	*Reserved*		*Validation*

[Validation] (x) Hybrid log-pressure level (Code figure 113) can be defined as:
log (pi) = ai x log (Psfc) + bi
(i = 1, …, Nlevels); Psfc = surface pressure ; log (pi) = natural logarithm of pressure at level i)

Code table 4.10 - Type of statistical processing

none

Code table 4.213 - Soil type

Code figure	Meaning	Status
12-191	Reserved	Operational
12	*Loam*	*Validation*
13	*Peat*	*Validation*
14	*Rock*	*Validation*
15	*Ice*	*Validation*
16	*Water*	*Validation*
17-191	*Reserved*	*Validation*

CODE TABLES USED IN SECTION 5

Code table 5.0 - Data representation template number

Code figure	Meaning	Status
42-49	Reserved	Operational
42	*Grid point and spectral data - CCSDS szip*	*Validation*
43-49	*Reserved*	*Validation*

CODE TABLES USED IN SECTION 6

None