

**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	Satellite remote sensing products	Validation
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	to Operational
1	Paleontological offset	to Operational
2	Calendar definition and paleontological offset	to Operational
3–32767	Reserved	to Operational
32768–65534	Reserved for local use	to Operational
65535	Missing	to Operational

**Code table 1.6 – Type of calendar**

Code figure	Meaning	Status
0	Gregorian	to Operational
1	360-day	to Operational
2	365-day	to Operational
3	Proleptic Gregorian Extends the Gregorian calendar indefinitely in the past	to Operational
4–254	Reserved	to Operational
255	Missing (assume Gregorian)	to Operational

**CODE TABLES USED IN SECTION 3****Code table 3.1 – Grid definition template number**

Code figure	Meaning	Comments	Status
11	Rotated Mercator projection		Validation
12–19	Reserved		Validation
101	General unstructured grid		Validation
102–109	Reserved		Validation
121–139	Reserved		to Operational
140	Lambert azimuthal equal area projection		to Operational
141–999	Reserved		to Operational

**Code table 3.2 – Shape of the reference system**

Code figure	Meaning	Status
10	Earth model assumed WGS84 with corrected geomagnetic coordinates (latitude and longitude) defined by Gustafsson et al., 1992	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

**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 8	Validation
8	0	Odd rows contain Ni–1 data points	Validation
	1	Even rows contain Ni–1 data points	Validation

**CODE TABLES USED IN SECTION 4****Code table 4.0 – Product definition template number**

Code figure	Meaning	Status
33	Individual ensemble forecast, control and perturbed, at a horizontal level or in a horizontal layer at a point in time I for simulated (synthetic) satellite data	to Operational
34	Individual ensemble forecast, control and perturbed, at a horizontal level or in a horizontal layer, in a continuous or non-continuous interval for simulated (synthetic) satellite data	to Operational
35–39	Reserved	to Operational
49	Reserved	Validation
50	Analysis or forecast of a multi component parameter or matrix element at a point in time	Validation
52	Reserved	to Operational
53	Partitioned parameters at a horizontal level or horizontal layer at a point in time	to Operational
54	Individual ensemble forecast, control and perturbed, at a horizontal level or in a horizontal layer at a point in time for partitioned parameters	to Operational
55–90	Reserved	to Operational

**Code table 4.1 – Parameter category by product discipline**

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 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

**Code table 4.2 – Parameter number by product discipline and parameter category**

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

Number	Parameter	Units	Status
0	Velocity magnitude (speed)	m s <sup>-1</sup>	Validation
1	1st vector component of velocity (coordinate system dependent)	m s <sup>-1</sup>	Validation
2	2nd vector component of velocity (coordinate system dependent)	m s <sup>-1</sup>	Validation
3	3rd vector component of velocity (coordinate system dependent)	m s <sup>-1</sup>	Validation
4–191	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 4 – Space weather products, parameter category 2: charged particle mass and number

Number	Parameter	Units	Status
0	Particle number density	m <sup>-3</sup>	Validation
1	Electron density	m <sup>-3</sup>	Validation
2	Proton density	m <sup>-3</sup>	Validation
3	Ion density	m <sup>-3</sup>	Validation
4	Vertical electron content	m <sup>-2</sup>	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

**Code table 4.2 – Parameter number by product discipline and parameter category**

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 <sup>-1</sup>	Validation
5	1st vector component of electric field	V m <sup>-1</sup>	Validation
6	2nd vector component of electric field	V m <sup>-1</sup>	Validation
7	3rd vector component of electric field	V m <sup>-1</sup>	Validation
8–191	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 4 – Space weather products, parameter category 4: energetic particles

Number	Parameter	Units	Status
0	Proton flux (differential)	(m <sup>2</sup> s sr eV) <sup>-1</sup>	Validation
1	Proton flux (integral)	(m <sup>2</sup> s sr) <sup>-1</sup>	Validation
2	Electron flux (differential)	(m <sup>2</sup> s sr eV) <sup>-1</sup>	Validation
3	Electron flux (integral)	(m <sup>2</sup> s sr) <sup>-1</sup>	Validation
4	Heavy ion flux (differential)	(m <sup>2</sup> s sr eV/nuc) <sup>-1</sup>	Validation
5	Heavy ion flux (integral)	(m <sup>2</sup> s sr) <sup>-1</sup>	Validation

Number	Parameter	Units	Status
6	Cosmic ray neutron flux	h <sup>-1</sup>	Validation
7–191	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 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

**Code table 4.2 – Parameter number by product discipline and parameter category**

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

Number	Parameter	Units	Status
0	Integrated solar irradiance	W m <sup>-2</sup>	Validation
1	Solar x-ray flux (XRS long)	W m <sup>-2</sup>	Validation
2	Solar x-ray flux (XRS short)	W m <sup>-2</sup>	Validation
3	Solar EUV irradiance	W m <sup>-2</sup>	Validation
4	Solar spectral irradiance	W m <sup>-2</sup> nm <sup>-1</sup>	Validation
5	F10.7	W m <sup>-2</sup> Hz <sup>-1</sup>	Validation
6	Solar radio emissions	W m <sup>-2</sup> Hz <sup>-1</sup>	Validation
7–191	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 4 – Space weather products, parameter category 7: terrestrial electromagnetic emissions

Number	Parameter	Units	Status
0	Limb intensity	m <sup>-2</sup> s <sup>-1</sup>	Validation
1	Disk intensity	m <sup>-2</sup> s <sup>-1</sup>	Validation
2	Disk intensity day	m <sup>-2</sup> s <sup>-1</sup>	Validation
3	Disk intensity night	m <sup>-2</sup> s <sup>-1</sup>	Validation
4–191	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 4 – Space weather products, parameter category 8: imagery

Number	Parameter	Units	Status
0	X-ray radiance	W sr <sup>-1</sup> m <sup>-2</sup>	Validation
1	EUV radiance	W sr <sup>-1</sup> m <sup>-2</sup>	Validation
2	H-alpha radiance	W sr <sup>-1</sup> m <sup>-2</sup>	Validation
3	White light radiance	W sr <sup>-1</sup> m <sup>-2</sup>	Validation
4	CaII-K radiance	W sr <sup>-1</sup> m <sup>-2</sup>	Validation
5	White light coronagraph radiance	W sr <sup>-1</sup> m <sup>-2</sup>	Validation
6	Heliospheric radiance	W sr <sup>-1</sup> m <sup>-2</sup>	Validation
7	Thematic mask	Numeric	Validation
8–191	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 4 – Space weather products, parameter category 9: ion-neutral coupling

Number	Parameter	Units	Status
0	Pedersen conductivity	S m <sup>-1</sup>	Validation
1	Hall conductivity	S m <sup>-1</sup>	Validation
2	Parallel conductivity	S m <sup>-1</sup>	Validation
3–191	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 10 – Oceanographic products, parameter category 0: waves

Number	Parameter	Units	Status
46	2-dim spectral energy density $E(f, \theta)$	m <sup>2</sup> s	Validation
47	Frequency spectral energy density $E(f) = \int E(f, \theta) d\theta$	m <sup>2</sup> s	Validation
48	Directional spectral energy density $E(\theta) = \int E(f, \theta) df / m_0$	–	Validation
49–191	Reserved		Validation

**Code table 4.5 – Fixed surface types and units**

Code figure	Meaning	Unit	Status
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

**Code table 4.213 – Soil type**

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

**Code table 4.234 – Canopy cover fraction (to be used as partitioned parameter in PDT 4.53 or 4.54)**

Code figure	Meaning	Status
1	Crops, mixed farming	to Operational
2	Short grass	to Operational
3	Evergreen needleleaf trees	to Operational
4	Deciduous needleleaf trees	to Operational
5	Deciduous broadleaf trees	to Operational
6	Evergreen broadleaf trees	to Operational
7	Tall grass	to Operational
8	Desert	to Operational
9	Tundra	to Operational
10	Irrigated crops	to Operational
11	Semidesert	to Operational

Code figure	Meaning	Status
12	Ice caps and glaciers	to Operational
13	Bogs and marshes	to Operational
14	Inland water	to Operational
15	Ocean	to Operational
16	Evergreen shrubs	to Operational
17	Deciduous shrubs	to Operational
18	Mixed forest	to Operational
19	Interrupted forest	to Operational
20	Water and land mixtures	to Operational

**Code table 4.236 – Soil texture fraction (to be used as partitioned parameter in PDT 4.53 or 4.54)**

Code figure	Meaning	Status
1	Coarse	to Operational
2	Medium	to Operational
3	Medium-fine	to Operational
4	Fine	to Operational
5	Very-fine	to Operational
6	Organic	to Operational
7	Tropical-organic	to Operational

**CODE TABLES USED IN SECTION 5**

**Code table 5.0 – Data representation template number**

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