

BUFR TABLES RELATIVE TO SECTION 3

BUFR Table B - *Classification of elements*

| F | X | Class | Comments | Status |
|---|----|-----------------------------|----------|------------|
| 0 | 41 | Marine bio-geochemical data | | Validation |

Class 01 - Identification

| TABLE REFERENCE F X Y | ELEMENT NAME | UNIT | SCALE | BUFR | DATA WIDTH (Bits) | UNIT | CREX | DATA WIDTH (Characters) | Status |
|-----------------------------|--|------------|-------|--------------------|-------------------------|------------|-------|-------------------------------|------------|
| | | | | REFERENCE VALUE | | | SCALE | | |
| 0 01 097 | Star catalog number | Numeric | 0 | 0 | 13 | Numeric | 0 | 4 | Validation |
| 0 01 098 | Type of product | Code table | 0 | 0 | 12 | Code table | 0 | 4 | Validation |
| 0 01 114 | Encrypted ship or mobile land station identifier (see Note 15) | CCITT IA5 | 0 | 0 | 352 | CCITT IA5 | 0 | 44 | Validation |

Notes:

(15) Encrypted value is encoded in RFC 4648 Base 64.

Class 02 - Instrumentation

| TABLE REFERENCE F X Y | ELEMENT NAME | UNIT | SCALE | BUFR REFERENCE VALUE | DATA WIDTH (Bits) | UNIT | SCALE | DATA WIDTH (Characters) | Status |
|-----------------------------|---------------------------|------------|-------|----------------------------|-------------------------|------------|-------|-------------------------------|------------|
| 0 02 006 | Data obtained by | Code table | 0 | 0 | 3 | Code table | 0 | 1 | Validation |
| 0 02 008 | Type of offshore platform | Code table | 0 | 0 | 4 | Code table | 0 | 2 | Validation |
| 0 02 098 | Type of wave sensor | Code table | 0 | 0 | 4 | Code table | 0 | 2 | Validation |

Class 03 - Instrumentation

| TABLE REFERENCE F X Y | ELEMENT NAME | UNIT | SCALE | BUFR | | DATA WIDTH (Bits) | UNIT | CREX | | Status |
|-----------------------------|---|------------|-------|--------------------|--|-------------------------|------------|-------|-------------------------------|------------|
| | | | | REFERENCE VALUE | | | | SCALE | DATA WIDTH (Characters) | |
| 0 03 001 | Surface station type | Code table | 0 | 0 | | 4 | Code table | 0 | 2 | Validation |
| 0 03 002 | Generic type of humidity instrument | Code table | 0 | 0 | | 4 | Code table | 0 | 2 | Validation |
| 0 03 003 | Configuration of sensors | Code table | 0 | 0 | | 3 | Code table | 0 | 1 | Validation |
| 0 03 004 | Type of shield or screen | Code table | 0 | 0 | | 5 | Code table | 0 | 2 | Validation |
| 0 03 005 | Horizontal width of screen or shield (x) | m | 2 | | | | m | 2 | | Validation |
| 0 03 006 | Horizontal depth of screen or shield (y) | m | 2 | | | | m | 2 | | Validation |
| 0 03 007 | Vertical height of screen or shield (z) | m | 2 | | | | m | 2 | | Validation |
| 0 03 008 | Artificially ventilated screen or shield | Code table | 0 | 0 | | 3 | Code table | 0 | 1 | Validation |
| 0 03 009 | Amount of forced ventilation at time of reading | m-3 s-1 | 1 | | | | m-3 s-1 | 1 | | Validation |
| 0 03 013 | Type of marine thermometer | Code table | 0 | 0 | | 3 | Code table | 0 | 1 | Validation |
| 0 03 014 | Type of marine hygrometer | Code table | 0 | 0 | | 4 | Code table | 0 | 2 | Validation |
| 0 03 015 | Exposure of marine thermometer/hygrometer | Code table | 0 | 0 | | 4 | Code table | 0 | 2 | Validation |

Class 04 - Location (time)

| TABLE REFERENCE | | | ELEMENT NAME | UNIT | SCALE | BUFR | | DATA WIDTH (Bits) | UNIT | CREX | | Status |
|--------------------|----|-----|---|------|-------|--------------------|-------|-------------------------|------|-------------------------------|--|------------|
| F | X | Y | | | | REFERENCE VALUE | SCALE | | | DATA WIDTH (Characters) | | |
| 0 | 04 | 008 | Seconds within a minute (high accuracy) | s | 7 | 0 | | 30 | | | | Validation |

Class 05 – BUFR/CREX Location (horizontal – 1)

| TABLE REFERENCE F X Y | ELEMENT NAME | UNIT | SCALE | BUFR REFERENCE VALUE | DATA WIDTH (Bits) | UNIT | CREX SCALE | DATA WIDTH (Characters) | Status |
|-----------------------------|--------------|------|-------|----------------------------|-------------------------|------|---------------|-------------------------------|--------|
|-----------------------------|--------------|------|-------|----------------------------|-------------------------|------|---------------|-------------------------------|--------|

Class 06 – BUFR/CREX Location (horizontal – 2)

| TABLE REFERENCE F X Y | ELEMENT NAME | UNIT | SCALE | BUFR REFERENCE VALUE | DATA WIDTH (Bits) | UNIT | CREX SCALE | DATA WIDTH (Characters) | Status |
|-----------------------------|--------------|------|-------|----------------------------|-------------------------|------|---------------|-------------------------------|--------|
|-----------------------------|--------------|------|-------|----------------------------|-------------------------|------|---------------|-------------------------------|--------|

Class 07 - Location (vertical)

| TABLE REFERENCE F X Y | ELEMENT NAME | UNIT | SCALE | BUFR | | DATA WIDTH (Bits) | UNIT | CREX | | Status |
|-----------------------------|---|------|-------|--------------------|--|-------------------------|------|-------|-------------------------------|------------|
| | | | | REFERENCE VALUE | | | | SCALE | DATA WIDTH (Characters) | |
| 0 07 011 | Pressure (high precision) | Pa | 0 | 0 | | 30 | Pa | 0 | 10 | Validation |
| 0 07 038 | Maximum height of deck cargo above summer load line | m | 0 | 0 | | 6 | m | 0 | 2 | Validation |
| 0 07 039 | Departure of reference level (summer maximum load line) from actual sea level | m | 0 | -32 | | 6 | m | 0 | 3 | Validation |

Class 08 - Significance qualifiers

| TABLE REFERENCE F X Y | ELEMENT NAME | UNIT | SCALE | BUFR REFERENCE VALUE | DATA WIDTH (Bits) | UNIT | SCALE | DATA WIDTH (Characters) | Status |
|-----------------------------|--|------------|-------|----------------------------|-------------------------|------------|-------|-------------------------------|------------|
| 0 08 027 | Matrix geometry | Code table | 0 | 0 | 6 | Code table | 0 | 2 | Validation |
| 0 08 034 | Type of temperature/salinity measurement | Code table | 0 | 0 | 4 | Code table | 0 | 2 | Validation |
| 0 08 045 | Particulate matter characterization | Code table | 0 | 0 | 8 | Code table | 0 | 3 | Validation |
| 0 08 087 | Corner position of observation | Code table | 0 | 0 | 3 | Code table | 0 | 1 | Formality |

Class 10 – BUFR/CREX Non-coordinate location (vertical)

| TABLE REFERENCE | ELEMENT NAME | UNIT | SCALE | BUFR REFERENCE VALUE | DATA WIDTH (Bits) | UNIT | CREX SCALE | DATA WIDTH (Characters) | Status |
|--------------------|---|------|-------|----------------------------|-------------------------|------|---------------|-------------------------------|------------|
| F X Y | | | | | | | | | |
| 0 10 015 | Maximum height of deck cargo above summer load line | m | 0 | 0 | 6 | m | 0 | 2 | Validation |
| 0 10 016 | Departure of reference level (summer maximum load line) from actual sea level | m | 0 | -32 | 6 | m | 0 | 3 | Validation |
| 0 10 071 | Vertical resolution | m | 0 | 0 | 14 | m | 0 | 5 | Validation |

Class 11 - Wind and turbulence

| TABLE REFERENCE | ELEMENT NAME | UNIT | SCALE | BUFR REFERENCE VALUE | DATA WIDTH (Bits) | UNIT | SCALE | DATA WIDTH (Characters) | Status |
|--------------------|--|---------|-------|----------------------------|-------------------------|---------|-------|-------------------------------|------------|
| F X Y | | | | | | | | | |
| 0 11 007 | Relative wind direction (in degrees off bow) | ° | 0 | 0 | 9 | ° | 0 | 3 | Validation |
| 0 11 008 | Relative wind speed | m s-1 | 1 | 0 | 12 | m s-1 | 1 | 4 | Validation |
| 0 11 110 | Uncertainty in u-component | m s-1 | -1 | 0 | 10 | m s-1 | -1 | 4 | Validation |
| 0 11 111 | Uncertainty in v-component | m s-1 | -1 | 0 | 10 | m s-1 | -1 | 4 | Validation |
| 0 11 112 | Uncertainty in w-component | m s-1 | -2 | 0 | 10 | m s-1 | -2 | 4 | Validation |
| 0 11 113 | Tracking correlation of vector | Numeric | 3 | -1000 | 12 | Numeric | 3 | 4 | Validation |
| 0 11 114 | NWP vertical wind shear | m s-1 | 2 | -8192 | 14 | m s-1 | 2 | 5 | Validation |

Class 12 – BUFR/CREX Temperature

| TABLE REFERENCE F X Y | ELEMENT NAME | BUFR | | | DATA WIDTH (Bits) | UNIT | CREX | | DATA WIDTH (Characters) | Status |
|-----------------------------|------------------------------------|------------|-------|--------------------|-------------------------|------------|-------|--|-------------------------------|------------|
| | | UNIT | SCALE | REFERENCE VALUE | | | SCALE | | | |
| 0 12 008 | Uncertainty in virtual temperature | K | -1 | 0 | 10 | K | -1 | | 4 | Validation |
| 0 12 133 | NWP vertical temperature gradient | K | 2 | 0 | 16 | °C | 2 | | 4 | Validation |
| 0 12 134 | Low-level inversion flag | Code table | 0 | 0 | 2 | Code table | 0 | | 1 | Validation |

Class 13 - Hydrographic and hydrological elements

| TABLE REFERENCE F X Y | ELEMENT NAME | UNIT | SCALE | BUFR | | DATA WIDTH (Bits) | UNIT | CREX | | Status |
|-----------------------------|-------------------------------------|--------|-------|--------------------|--|-------------------------|--------|-------|-------------------------------|------------|
| | | | | REFERENCE VALUE | | | | SCALE | DATA WIDTH (Characters) | |
| 0 13 119 | Snowfall amount | m | 3 | -10 | | 14 | m | 3 | 5 | Validation |
| 0 13 120 | Snow amount, water equivalent | kg m-2 | 1 | -10 | | 14 | kg m-2 | 1 | 5 | Validation |
| 0 13 160 | Radiometer liquid content for saral | kg m-2 | 2 | -350 | | 10 | kg m-2 | | | Formality |

Class 14 - Radiation and radiance

| TABLE REFERENCE F X Y | ELEMENT NAME | UNIT | SCALE | BUFR | | DATA WIDTH (Bits) | UNIT | CREX | | Status |
|-----------------------------|---|------------|-------|--------------------|--|-------------------------|------------|-------|-------------------------------|------------|
| | | | | REFERENCE VALUE | | | | SCALE | DATA WIDTH (Characters) | |
| 0 14 071 | Global UV spectral irradiance (see Note x) | W m-2 nm-1 | 6 | -1048576 | | 21 | W m-2 nm-1 | 6 | 7 | Validation |
| 0 14 073 | Global erythemal irradiation (see Note x+1) | J m-2 | -3 | -32 | | 6 | J m-2 | -3 | 2 | Validation |

Class 15 - Physical/chemical constituents

| TABLE REFERENCE F X Y | ELEMENT NAME | UNIT | SCALE | BUFR | | DATA WIDTH (Bits) | UNIT | CREX | | Status |
|-----------------------------|-----------------------------------|---------|-------|--------------------|--|-------------------------|---------|-------|-------------------------------|------------|
| | | | | REFERENCE VALUE | | | | SCALE | DATA WIDTH (Characters) | |
| 0 15 007 | Molecular mass | u | 2 | 0 | | 15 | u | 2 | 5 | Validation |
| 0 15 009 | Integrated number density | m-2 | 0 | 0 | | 10 | m-2 | 0 | 4 | Validation |
| 0 15 010 | Partial pressure | Pa | 0 | 0 | | 10 | Pa | 0 | 4 | Validation |
| 0 15 022 | Integrated number density | m-3 | 0 | 0 | | 10 | m-3 | 0 | 4 | Validation |
| 0 15 023 | Mass density | kg m-3 | 0 | 0 | | 10 | kg m-3 | 0 | 4 | Validation |
| 0 15 028 | Photo dissociation rate | s-1 | 0 | 0 | | 10 | s-1 | 0 | 4 | Validation |
| 0 15 040 | Particulate matter diameter | m | 8 | 0 | | 9 | m | 8 | 3 | Validation |
| 0 15 043 | Number of averaging kernel layers | Numeric | 0 | 0 | | 10 | Numeric | 0 | 4 | Validation |
| 0 15 044 | Averaging kernel value | Numeric | 6 | -5000000 | | 24 | Numeric | 6 | 8 | Validation |

Class 20 - Observed phenomena

| TABLE REFERENCE F X Y | ELEMENT NAME | BUFR | | | DATA WIDTH (Bits) | CREX | | | Status |
|-----------------------------|----------------------------------|------------|-------|--------------------|-------------------------|------------|-------|-------------------------------|------------|
| | | UNIT | SCALE | REFERENCE VALUE | | UNIT | SCALE | DATA WIDTH (Characters) | |
| 0 20 079 | Snow/Ice crystals indicator | Flag table | 0 | 0 | 2 | Flag table | 0 | 1 | Validation |
| 0 20 080 | Cloud amount percentage interval | Code table | 0 | 0 | 3 | Code table | 0 | 1 | Validation |

Class 21 - Radar data

| TABLE REFERENCE F X Y | ELEMENT NAME | UNIT | SCALE | BUFR REFERENCE VALUE | DATA WIDTH (Bits) | UNIT | CREX SCALE | DATA WIDTH (Characters) | Status |
|-----------------------------|---|------------|-------|----------------------------|-------------------------|------------|---------------|-------------------------------|------------|
| 0 21 028 | Specific differential phase | deg m-1 | 5 | -200 | 11 | deg m-1 | 2 | 4 | Validation |
| 0 21 148 | Trailing edge variation flag | Flag table | 0 | 0 | 2 | Flag table | | | Formality |
| 0 21 183 | Specific band corrected ocean backscatter coefficient | dB | 2 | -32768 | 16 | dB | | | Formality |
| 0 21 184 | STD specific band corrected ocean backscatter coefficient | dB | 2 | -32768 | 16 | dB | | | Formality |
| 0 21 185 | Specific band net instrumental correction for agc | dB | 2 | -2048 | 12 | dB | | | Formality |
| 0 21 186 | Specific band automatic gain control | dB | 2 | 0 | 13 | dB | | | Formality |
| 0 21 187 | RMS specific band automatic gain control | dB | 2 | 0 | 8 | dB | | | Formality |
| 0 21 188 | Number of valid points for specific band automatic gain control | Numeric | 0 | 0 | 7 | Numeric | | | Formality |

Class 22 - Oceanographic elements

| TABLE REFERENCE F X Y | ELEMENT NAME | UNIT | SCALE | BUFR | | DATA WIDTH (Bits) | UNIT | CREX | | Status |
|-----------------------------|---|-------------|-------|--------------------|--|-------------------------|-------------|-------|-------------------------------|------------|
| | | | | REFERENCE VALUE | | | | SCALE | DATA WIDTH (Characters) | |
| 0 22 179 | Software version of profile recorder | CCITT IA5 | 0 | 0 | | 256 | Character | 0 | 256 | Validation |
| 0 22 180 | Auto launcher software version number | CCITT IA5 | 0 | 0 | | 256 | Character | 0 | 256 | Validation |
| 0 22 181 | Instrument manufacturer's serial number | CCITT IA5 | 0 | 0 | | 32 | Character | 0 | 32 | Validation |
| 0 22 186 | Direction from which waves are coming | degree true | 0 | 0 | | 9 | degree true | 0 | 3 | Validation |
| 0 22 187 | Directional spread of wave | ° | 0 | 0 | | 9 | ° | 0 | 3 | Validation |
| 0 22 189 | Specific band ocean range | m | 3 | 0 | | 31 | m | | | Formality |
| 0 22 190 | Specific band significant wave height | m | 3 | 0 | | 16 | m | | | Formality |
| 0 22 191 | RMS of specific band ocean range | m | 4 | 0 | | 16 | m | | | Formality |
| 0 22 192 | Number of valid points for specific band | Numeric | 0 | 0 | | 10 | Numeric | | | Formality |
| 0 22 193 | RMS specific band significant wave height | m | 3 | 0 | | 16 | m | | | Formality |
| 0 22 194 | Number of valid points for specific band sign wave height | Numeric | 0 | 0 | | 10 | Numeric | | | Formality |
| 0 22 195 | Specific band net instrument correction for significant wave height | m | 3 | -1000 | | 11 | m | | | Formality |
| 0 22 196 | Number of valid points for specific band backscatter | Numeric | 0 | 0 | | 10 | Numeric | | | Formality |

Class 25 - Processing information

| TABLE REFERENCE F X Y | ELEMENT NAME | UNIT | SCALE | BUFR | | DATA WIDTH (Bits) | UNIT | CREX | | Status |
|-----------------------------|--|------------|-------|--------------------|--|-------------------------|------------|-------|-------------------------------|------------|
| | | | | REFERENCE VALUE | | | | SCALE | DATA WIDTH (Characters) | |
| 0 25 112 | Band specific altimeter data quality flag | Flag table | 0 | 0 | | 9 | Flag table | | | Formality |
| 0 25 113 | Band specific altimeter correction quality flag | Flag table | 0 | 0 | | 9 | Flag table | | | Formality |
| 0 25 144 | Matrix dimension (i-axis) | Numeric | 0 | 0 | | 9 | Numeric | 0 | 3 | Validation |
| 0 25 145 | Matrix dimension (j-axis) | Numeric | 0 | 0 | | 9 | Numeric | 0 | 3 | Validation |
| 0 25 147 | Size of largest cluster | Numeric | 0 | 0 | | 10 | Numeric | 0 | 4 | Validation |
| 0 25 151 | Star relative magnitude | Numeric | 3 | -20000 | | 14 | Numeric | 3 | 5 | Validation |
| 0 25 152 | Star brightness temperature | K | 0 | 0 | | 17 | K | 0 | 6 | Validation |
| 0 25 153 | Limb | Code table | 0 | 0 | | 2 | Code table | 0 | 1 | Validation |
| 0 25 165 | Ionospheric correction from model on specific band | m | 4 | -32768 | | 16 | m | | | Formality |
| 0 25 166 | Sea state bias correction on specific band | m | 4 | -32768 | | 16 | m | | | Formality |
| 0 25 167 | Specific band net instrumental correction | m | 4 | -32768 | | 16 | m | | | Formality |
| 0 25 185 | Encryption method | Code table | 0 | 0 | | 8 | Code table | 0 | 3 | Validation |
| 0 25 186 | Encryption key version | CCITT IA5 | 0 | 0 | | 96 | CCITT IA5 | 0 | 12 | Validation |

Class 33 - Quality information

| TABLE REFERENCE F X Y | ELEMENT NAME | BUFR | | | DATA WIDTH (Bits) | UNIT | CREX | | DATA WIDTH (Characters) | Status |
|-----------------------------|-------------------------|---------|-------|--------------------|-------------------------|---------|-------|--|-------------------------------|------------|
| | | UNIT | SCALE | REFERENCE VALUE | | | SCALE | | | |
| 0 33 009 | Relative error | % | 2 | 0 | 14 | % | 2 | | 5 | Validation |
| 0 33 029 | Correlation coefficient | Numeric | 2 | -100 | 8 | Numeric | 2 | | 3 | Validation |

Class 40 – BUFR/CREX Satellite data

| TABLE REFERENCE F X Y | ELEMENT NAME | BUFR | | | DATA WIDTH (Bits) | UNIT | CREX | | Status |
|-----------------------------|--------------|------|-------|--------------------|-------------------------|------|-------|-------------------------------|--------|
| | | UNIT | SCALE | REFERENCE VALUE | | | SCALE | DATA WIDTH (Characters) | |