PPS BUFR file release notes

The GPM GMI/TRMM TMI common calibrated level 1C data in the WMO Binary Universal Form for the Representation of meteorological data (BUFR) format, and the GPM/TRMM Goddard Profiling Algorithm (GPROF) level 2 products in BUFR format are available at NASA PPS. All the GPM/TRMM constellation satellites level 1C data in BUFR format and GPROF level 2 products in BUFR format can also be ordered from NASA PPS.

For **GPM/TRMM constellation satellites level 1C BUFR files**, the BUFR table is published in WMO BUFR table version 27.0.0 or later. Here is the BUFR table D entry 3-40-012 from the WMO web site.

TABLE REFERENCE F X Y	TABLE REFERENCES	ELEMENT NAME	ELEMENT DESCRIPTION
		(GPM Microwave Imager (GMI))	
3 40 012	0 01 007	Satellite identifier	
	0 02 019	Satellite instruments	
	0 08 091	Coordinates significance	= 0 Satellite coordinates
	0 05 001	Latitude (high accuracy)	
	0 06 001	Longitude (high accuracy)	
	0 07 002	Height or altitude	
	0 05 063	Spacecraft roll	
	0 05 064	Spacecraft pitch	
	0 05 066	Spacecraft yaw	
	0 05 041	Scan line number	
	0 05 067	Number of scan lines	
	3 01 011	Year, moth, day	
	3 01 012	Hour, minute	
	0 04 007	Seconds within a minute (microsecond accuracy)	
	0 08 091	Coordinates significance	= 1 Observation coordinates
	0 05 001	Latitude (high accuracy)	
	0 06 001	Longitude (high accuracy)	
	1 07 000	Delayed replication of 7 descriptors	
	0 31 001	Delayed descriptor replication factor	
	0 05 042	Channel number	
	0 02 153	Satellite channel centre frequency	
	0 02 104	Antenna polarization	
	0 40 028	GMI quality flag	
	0 07 024	Satellite zenith angle	
	0 40 027	Sun glint angle	
	0 12 063	Brightness temperature	

For **GPM/TRMM constellation satellites GPROF level 2 product BUFR files**, the BUFR table is published in WMO BUFR table version 29.0.0 or later. Here is the BUFR table D entry 3-40-015 from the WMO web site.

TABLE	TABLE	ELEMENT NAME	ELEMENT

REFERENCE F X Y	REFERENCES		DESCRIPTION
		(Global Precipitation Measurement (GPM) precipitation data)	
3 40 015	0 01 007	Satellite identifier	
	0 02 019	Satellite instruments	
	3 01 011	Year, Month, Day	
	3 01 012	Hour, Minute	
	0 04 007	Seconds within a minute (microsecond accuracy)	
	2 01 133	Increase bit width	
	0 05 041	Scan line number	
	2 01 000	Cancel increase bit width	
	2 01 130	Increase bit width	
	0 05 043	Field of view number	
	2 01 000	Cancel increase bit width	
	2 07 001	Increase scale, reference value and data width	
	0 05 002	Latitude (coarse accuracy)	
	0 06 002	Longitude (coarse accuracy)	
	2 07 000	Cancel increase scale, reference value and data width	
	0 40 027	Sun glint angle	
	0 13 040	Surface flag	
	0 21 120	Probability of rain	
	2 07 003	Increase scale, reference value and data width	
	1 02 003	Replicate 2 descriptors 3 times	
	0 02 186	Capability to detect precipitation phenomena Set bit 1 = unknown/unspecified (total precipitation) in the first replication, Set bit 6 = solid precipitation in the second replication, Set bit 24 = convective precipitation in the third replication	see left column
	0 13 155	Intensity of precipitation (high accuracy)	
	2 07 000	Cancel increase scale, reference value and data width	
	0 33 003	Quality information	

The available 1C BUFR data and GPROF level 2 products in BUFR format are listed here.

Data Type	Start of Data	End of Data
TRMM TMI Level 1C and GPROF	1997-12-07 23:57:17	2015-04-08 15:25:02
GPM GMI Level 1C and GPROF	2014-03-04 17:59:32	Present
Aqua AMSRE Level 1C and GPROF	2002-06-01 15:48:29	2011-10-04 07:44:29
F08 SSMI Level 1C	1987-07-09 12:55:14	1991-12-31 19:54:12
F10 SSMI Level 1C	1990-12-08 14:49:37	1997-11-14 19:51:59
*F11 SSMI Level 1C and GPROF	1991-12-03 18:06:01	2000-05-16 16:57:56
*F13 SSMI Level 1C and GPROF	1995-05-03 15:09:53	2009-11-20 01:08:59
*F14 SSMI Level 1C and GPROF	1997-05-07 17:25:06	2008-08-24 00:48:17
F15 SSMI Level 1C and GPROF	2000-02-23 09:49:02	2006-08-14 01:23:04
F16 SSMI Level 1C and GPROF	2005-11-20 02:35:27	Present
F17 SSMI Level 1C and GPROF	2008-03-19 10:14:53	Present
F18 SSMI Level 1C and GPROF	2010-03-08 00:32:16	Present
GCOM AMSR2 Level 1C and GPROF	2012-07-02 22:31:17	Present

Metop-A MHS Level 1C and GPROF	2006-12-04 23:27:59	Present
Metop-B MHS Level 1C and GPROF	2013-04-23 21:51:52	Present
MT1 SAPHIR Level 1C and GPROF	2011-10-13 04:12:29	Present
NOAA 15 AMSU-B Level 1C and GPROF	2000-01-01 01:16:38	2010-09-15 02:12:20
NOAA 16 AMSU-B Level 1C and GPROF	2000-10-04 12:12:03	2010-05-01 02:31:07
NOAA 17 AMSU-B Level 1C and GPROF	2002-06-28 19:13:47	2009-12-18 01:33:07
NOAA 18 MHS Level 1C and GPROF	2005-05-25 16:54:59	Present
NOAA 19 MHS Level 1C and GPROF	2009-02-25 00:52:34	Present
NOAA 20 ATMS Level 1C and GPROF	2017-11-29 04:46:18	Present
NPP ATMS Level 1C and GPROF	2011-12-09 23:39:12	Present
GPM GMI Remapped Level 1C and GPROF	2014-03-04 17:59:32	Present

*Note: No GPROF product available with data date prior to December 1997.

The samples of the decoded GPM 1C BUFR file and GPROF level 2 BUFR file are listed at the Appendix A and Appendix B respectively.

PPS team is doing its best to support the user community. If there is any question on the GPM/TRMM common calibrated level 1C BUFR data and GPROF level 2 products in BUFR format, or any requests on other PPS products in BUFR format, please contact the PPS Help Desk at helpdesk@mail.pps.eosdis.nasa.gov.

References:

http://www.wmo.int/pages/prog/www/WMOCodes/WMO306_vI2/LatestVERSION/LatestVERSION.html
https://www.wmo.int/pages/prog/www/WDM/Guides/Guide-binary-1A.html
http://www.nco.ncep.noaa.gov/sib/jeff/bufrtab_tableb.html
http://www.nco.ncep.noaa.gov/sib/jeff/bufrtab_tabled.html
http://www.nco.ncep.noaa.gov/sib/decoders/BUFRLIB/
https://confluence.ecmwf.int/display/ECC
https://software.ecmwf.int/wiki/download/attachments/35752427/bufr_user_guide.pdf

Appendix A: part of the decoded GPM GMI 1C BUFR file with ECMWF BUFR library

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                    ECMWF

      BUFR DECODING SOFTWARE VERSION -  409

 Your path for bufr tables is :
 /PANFS/user/home/sciteam/data/ysong/bufrdc_000409/bufrt
BUFR TABLES TO BE LOADED  B0000000000000027000.TXT,D0000000000000027000.TXT
1
          BUFR SECTION 0

 LENGTH OF SECTION 0 (BYTES)                 8
 TOTAL LENGTH OF BUFR MESSAGE (BYTES)      7975
 BUFR EDITION NUMBER                          4
1
         BUFR SECTION 1

 LENGTH OF SECTION 1 (BYTES)          22
 BUFR MASTER TABLE                     0
 ORIGINATING CENTRE                  173
 ORIGINATING SUB-CENTRE                4
 UPDATE SEQUENCE NUMBER                0
 FLAG (PRESENCE OF SECTION 2)          0
 DATA CATEGORY                        21
 DATA SUB-CATEGORY                     6
 LOCAL DATA SUB-CATEGORY             206
 VERSION NUMBER OF MASTER TABLE       27
 VERSION NUMBER OF LOCAL TABLE         0
 YEAR                               2017
 MONTH                                 1
 DAY                                   1
 HOUR                                 20
 MINUTE                               39
 SECOND                               50

 BUUKEY : KEY DEFINITION NOT KNOWN

 PRTKEY : RDB KEY NOT DEFINED IN SECTION 2.
1
          BUFR SECTION 3

 LENGTH OF SECTION 3 (BYTES)             9
 RESERVED                                0
 NUMBER OF DATA SUBSETS                221
 FLAG (DATA TYPE/DATA COMPRESSION)     192

        DATA DESCRIPTORS (UNEXPANDED)

    1  340012

      1 SATELLITE IDENTIFIER              0.28800000000000E+003 CODE TABLE 1007
      2 SATELLITE INSTRUMENTS             0.51900000000000E+003 CODE TABLE 2019
      3 COORDINATES SIGNIFICANCE          0.00000000000000E+000 CODE TABLE 8091
      4 LATITUDE (HIGH ACCURACY)         -0.65130690000000E+002 DEG
      5 LONGITUDE (HIGH ACCURACY)        -0.16100830000000E+002 DEG
      6 HEIGHT OR ALTITUDE                0.41703000000000E+006 M
      7 SPACECRAFT ROLL                                 MISSING DEG
      8 SPACECRAFT PITCH                                MISSING DEG
      9 SPACECRAFT YAW                                  MISSING DEG
     10 SCAN LINE NUMBER                  0.10000000000000E+001 NUMERIC
     11 NUMBER OF SCAN LINES                            MISSING NUMERIC
     12 YEAR                              0.20170000000000E+004 A
     13 MONTH                             0.10000000000000E+001 MON
     14 DAY                               0.10000000000000E+001 D
     15 HOUR                              0.20000000000000E+002 H
     16 MINUTE                            0.39000000000000E+002 MIN
     17 SECONDS WITHIN A MINUTE (MICROSE  0.50000000000000E+002 S
     18 COORDINATES SIGNIFICANCE          0.10000000000000E+001 CODE TABLE 8091
```

19	LATITUDE (HIGH ACCURACY)	-0.60818500000000E+002	DEG
20	LONGITUDE (HIGH ACCURACY)	-0.18354060000000E+002	DEG
21	DELAYED DESCRIPTOR REPLICATION F	0.90000000000000E+001	NUMERIC
22	CHANNEL NUMBER	0.10000000000000E+001	NUMERIC
23	SATELLITE CHANNEL CENTRE FREQUEN	0.10700000000000E+011	HZ
24	ANTENNA POLARIZATION	0.10000000000000E+001	CODE TABLE 2104
25	GMI QUALITY FLAG	0.00000000000000E+000	CODE TABLE 40028
26	SATELLITE ZENITH ANGLE	0.52920000000000E+002	DEG
27	SUN GLINT ANGLE	0.97000000000000E+002	DEG
28	BRIGHTNESS TEMPERATURE	0.15880000000000E+003	K
29	CHANNEL NUMBER	0.20000000000000E+001	NUMERIC
30	SATELLITE CHANNEL CENTRE FREQUEN	0.10700000000000E+011	HZ
31	ANTENNA POLARIZATION	0.00000000000000E+000	CODE TABLE 2104
32	GMI QUALITY FLAG	0.00000000000000E+000	CODE TABLE 40028
33	SATELLITE ZENITH ANGLE	0.52920000000000E+002	DEG
34	SUN GLINT ANGLE	0.97000000000000E+002	DEG
35	BRIGHTNESS TEMPERATURE	0.82900000000000E+002	K
36	CHANNEL NUMBER	0.30000000000000E+001	NUMERIC
37	SATELLITE CHANNEL CENTRE FREQUEN	0.18700000000000E+011	HZ
38	ANTENNA POLARIZATION	0.10000000000000E+001	CODE TABLE 2104
39	GMI QUALITY FLAG	0.00000000000000E+000	CODE TABLE 40028
40	SATELLITE ZENITH ANGLE	0.52920000000000E+002	DEG
41	SUN GLINT ANGLE	0.97000000000000E+002	DEG
42	BRIGHTNESS TEMPERATURE	0.17570000000000E+003	K
43	CHANNEL NUMBER	0.40000000000000E+001	NUMERIC
44	SATELLITE CHANNEL CENTRE FREQUEN	0.18700000000000E+011	HZ
45	ANTENNA POLARIZATION	0.00000000000000E+000	CODE TABLE 2104
46	GMI QUALITY FLAG	0.00000000000000E+000	CODE TABLE 40028
47	SATELLITE ZENITH ANGLE	0.52920000000000E+002	DEG
48	SUN GLINT ANGLE	0.97000000000000E+002	DEG
49	BRIGHTNESS TEMPERATURE	0.10130000000000E+003	K
50	CHANNEL NUMBER	0.50000000000000E+001	NUMERIC
51	SATELLITE CHANNEL CENTRE FREQUEN	0.23800000000000E+011	HZ
52	ANTENNA POLARIZATION	0.10000000000000E+001	CODE TABLE 2104
53	GMI QUALITY FLAG	0.00000000000000E+000	CODE TABLE 40028
54	SATELLITE ZENITH ANGLE	0.52920000000000E+002	DEG
55	SUN GLINT ANGLE	0.97000000000000E+002	DEG
56	BRIGHTNESS TEMPERATURE	0.19190000000000E+003	K
57	CHANNEL NUMBER	0.60000000000000E+001	NUMERIC
58	SATELLITE CHANNEL CENTRE FREQUEN	0.36500000000000E+011	HZ
59	ANTENNA POLARIZATION	0.10000000000000E+001	CODE TABLE 2104
60	GMI QUALITY FLAG	0.00000000000000E+000	CODE TABLE 40028
61	SATELLITE ZENITH ANGLE	0.52920000000000E+002	DEG
62	SUN GLINT ANGLE	0.97000000000000E+002	DEG
63	BRIGHTNESS TEMPERATURE	0.20620000000000E+003	K
64	CHANNEL NUMBER	0.70000000000000E+001	NUMERIC
65	SATELLITE CHANNEL CENTRE FREQUEN	0.36500000000000E+011	HZ
66	ANTENNA POLARIZATION	0.00000000000000E+000	CODE TABLE 2104
67	GMI QUALITY FLAG	0.00000000000000E+000	CODE TABLE 40028
68	SATELLITE ZENITH ANGLE	0.52920000000000E+002	DEG
69	SUN GLINT ANGLE	0.97000000000000E+002	DEG
70	BRIGHTNESS TEMPERATURE	0.13700000000000E+003	K
71	CHANNEL NUMBER	0.80000000000000E+001	NUMERIC
72	SATELLITE CHANNEL CENTRE FREQUEN	0.89000000000000E+011	HZ
73	ANTENNA POLARIZATION	0.10000000000000E+001	CODE TABLE 2104
74	GMI QUALITY FLAG	0.00000000000000E+000	CODE TABLE 40028
75	SATELLITE ZENITH ANGLE	0.52920000000000E+002	DEG
76	SUN GLINT ANGLE	0.97000000000000E+002	DEG
77	BRIGHTNESS TEMPERATURE	0.24010000000000E+003	K
78	CHANNEL NUMBER	0.90000000000000E+001	NUMERIC
79	SATELLITE CHANNEL CENTRE FREQUEN	0.89000000000000E+011	HZ
80	ANTENNA POLARIZATION	0.00000000000000E+000	CODE TABLE 2104
81	GMI QUALITY FLAG	0.00000000000000E+000	CODE TABLE 40028
82	SATELLITE ZENITH ANGLE	0.52920000000000E+002	DEG
83	SUN GLINT ANGLE	0.97000000000000E+002	DEG
84	BRIGHTNESS TEMPERATURE	0.18700000000000E+003	K

Appendix B: part of the decoded NOAA20 ATMS GPROF level 2 BUFR file with ECMWF BUFR library

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                    ECMWF

      BUFR DECODING SOFTWARE VERSION -  409


 Your path for bufr tables is :
 /PANFS/user/home/sciteam/data/ysong/bufrdc_000409/bufrt
BUFR TABLES TO BE LOADED  B0000000000000029000.TXT,D0000000000000029000.TXT
1
          BUFR SECTION 0

 LENGTH OF SECTION 0 (BYTES)                 8
 TOTAL LENGTH OF BUFR MESSAGE (BYTES)     48783
 BUFR EDITION NUMBER                          4
1
         BUFR SECTION 1

 LENGTH OF SECTION 1 (BYTES)          22
 BUFR MASTER TABLE                     0
 ORIGINATING CENTRE                  173
 ORIGINATING SUB-CENTRE                4
 UPDATE SEQUENCE NUMBER                0
 FLAG (PRESENCE OF SECTION 2)          0
 DATA CATEGORY                        12
 DATA SUB-CATEGORY                    13
 LOCAL DATA SUB-CATEGORY             192
 VERSION NUMBER OF MASTER TABLE       29
 VERSION NUMBER OF LOCAL TABLE         0
 YEAR                               2018
 MONTH                                11
 DAY                                   1
 HOUR                                 15
 MINUTE                               32
 SECOND                                2

 BUUKEY : KEY DEFINITION NOT KNOWN

 PRTKEY : RDB KEY NOT DEFINED IN SECTION 2.
1
          BUFR SECTION 3

 LENGTH OF SECTION 3 (BYTES)             9
 RESERVED                                0
 NUMBER OF DATA SUBSETS               3540
 FLAG (DATA TYPE/DATA COMPRESSION)     192



        DATA DESCRIPTORS (UNEXPANDED)

    1  340015


        DATA DESCRIPTORS (EXPANDED)

     1  001007  SATELLITE IDENTIFIER
     2  002019  SATELLITE INSTRUMENTS
     3  004001  YEAR
     4  004002  MONTH
     5  004003  DAY
     6  004004  HOUR
     7  004005  MINUTE
     8  004007  SECONDS WITHIN A MINUTE (MICROSECOND ACCURACY)
     9  005041  SCAN LINE NUMBER
    10  005043  FIELD OF VIEW NUMBER
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11  005002  LATITUDE (COARSE ACCURACY)
12  006002  LONGITUDE (COARSE ACCURACY)
13  040027  SUN GLINT ANGLE
14  013040  SURFACE FLAG
15  021120  PROBABILITY OF RAIN
16  002186  CAPABILITY TO DETECT PRECIPITATION PHENOMENA
17  013155  INTENSITY OF PRECIPITATION (HIGH ACCURACY)
18  002186  CAPABILITY TO DETECT PRECIPITATION PHENOMENA
19  013155  INTENSITY OF PRECIPITATION (HIGH ACCURACY)
20  002186  CAPABILITY TO DETECT PRECIPITATION PHENOMENA
21  013155  INTENSITY OF PRECIPITATION (HIGH ACCURACY)
22  033003  QUALITY INFORMATION


  1 SATELLITE IDENTIFIER               0.22500000000000E+003 CODE TABLE 1007
  2 SATELLITE INSTRUMENTS              0.62100000000000E+003 CODE TABLE 2019
  3 YEAR                               0.20180000000000E+004 A
  4 MONTH                              0.11000000000000E+002 MON
  5 DAY                                0.10000000000000E+001 D
  6 HOUR                               0.15000000000000E+002 H
  7 MINUTE                             0.30000000000000E+002 MIN
  8 SECONDS WITHIN A MINUTE (MICROSE   0.00000000000000E+000 S
  9 SCAN LINE NUMBER                   0.10000000000000E+001 NUMERIC
 10 FIELD OF VIEW NUMBER               0.64000000000000E+002 NUMERIC
 11 LATITUDE (COARSE ACCURACY)        -0.78909000000000E+002 DEG
 12 LONGITUDE (COARSE ACCURACY)        0.58060000000000E+002 DEG
 13 SUN GLINT ANGLE                    0.90000000000000E+002 DEG
 14 SURFACE FLAG                       0.11000000000000E+002 CODE TABLE 13040
 15 PROBABILITY OF RAIN                0.00000000000000E+000 NUMERIC
 16 CAPABILITY TO DETECT PRECIPITATI   0.53687091200000E+009 FLAG TABLE 2186
 17 INTENSITY OF PRECIPITATION (HIGH   0.70000000000000E-007 KG M-2 S-1
 18 CAPABILITY TO DETECT PRECIPITATI   0.16777216000000E+008 FLAG TABLE 2186
 19 INTENSITY OF PRECIPITATION (HIGH   0.70000000000000E-007 KG M-2 S-1
 20 CAPABILITY TO DETECT PRECIPITATI   0.64000000000000E+002 FLAG TABLE 2186
 21 INTENSITY OF PRECIPITATION (HIGH   0.00000000000000E+000 KG M-2 S-1
 22 QUALITY INFORMATION                0.10000000000000E+001 CODE TABLE 33003

  1 SATELLITE IDENTIFIER               0.22500000000000E+003 CODE TABLE 1007
  2 SATELLITE INSTRUMENTS              0.62100000000000E+003 CODE TABLE 2019
  3 YEAR                               0.20180000000000E+004 A
  4 MONTH                              0.11000000000000E+002 MON
  5 DAY                                0.10000000000000E+001 D
  6 HOUR                               0.15000000000000E+002 H
  7 MINUTE                             0.30000000000000E+002 MIN
  8 SECONDS WITHIN A MINUTE (MICROSE   0.00000000000000E+000 S
  9 SCAN LINE NUMBER                   0.10000000000000E+001 NUMERIC
 10 FIELD OF VIEW NUMBER               0.65000000000000E+002 NUMERIC
 11 LATITUDE (COARSE ACCURACY)        -0.78742000000000E+002 DEG
 12 LONGITUDE (COARSE ACCURACY)        0.58064000000000E+002 DEG
 13 SUN GLINT ANGLE                    0.90000000000000E+002 DEG
 14 SURFACE FLAG                       0.11000000000000E+002 CODE TABLE 13040
 15 PROBABILITY OF RAIN                0.00000000000000E+000 NUMERIC
 16 CAPABILITY TO DETECT PRECIPITATI   0.53687091200000E+009 FLAG TABLE 2186
 17 INTENSITY OF PRECIPITATION (HIGH   0.90000000000000E-007 KG M-2 S-1
 18 CAPABILITY TO DETECT PRECIPITATI   0.16777216000000E+008 FLAG TABLE 2186
 19 INTENSITY OF PRECIPITATION (HIGH   0.90000000000000E-007 KG M-2 S-1
 20 CAPABILITY TO DETECT PRECIPITATI   0.64000000000000E+002 FLAG TABLE 2186
 21 INTENSITY OF PRECIPITATION (HIGH   0.00000000000000E+000 KG M-2 S-1
 22 QUALITY INFORMATION                0.10000000000000E+001 CODE TABLE 33003

  1 SATELLITE IDENTIFIER               0.22500000000000E+003 CODE TABLE 1007
  2 SATELLITE INSTRUMENTS              0.62100000000000E+003 CODE TABLE 2019
  3 YEAR                               0.20180000000000E+004 A
  4 MONTH                              0.11000000000000E+002 MON
  5 DAY                                0.10000000000000E+001 D
  6 HOUR                               0.15000000000000E+002 H
  7 MINUTE                             0.30000000000000E+002 MIN
  8 SECONDS WITHIN A MINUTE (MICROSE   0.00000000000000E+000 S
  9 SCAN LINE NUMBER                   0.10000000000000E+001 NUMERIC
 10 FIELD OF VIEW NUMBER               0.66000000000000E+002 NUMERIC
 11 LATITUDE (COARSE ACCURACY)        -0.78573000000000E+002 DEG
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12 LONGITUDE (COARSE ACCURACY)        0.58068000000000E+002 DEG
13 SUN GLINT ANGLE                    0.91000000000000E+002 DEG
14 SURFACE FLAG                       0.11000000000000E+002 CODE TABLE 13040
15 PROBABILITY OF RAIN                0.00000000000000E+000 NUMERIC
16 CAPABILITY TO DETECT PRECIPITATI   0.53687091200000E+009 FLAG TABLE 2186
17 INTENSITY OF PRECIPITATION (HIGH   0.37000000000000E-006 KG M-2 S-1
18 CAPABILITY TO DETECT PRECIPITATI   0.16777216000000E+008 FLAG TABLE 2186
19 INTENSITY OF PRECIPITATION (HIGH   0.37000000000000E-006 KG M-2 S-1
20 CAPABILITY TO DETECT PRECIPITATI   0.64000000000000E+002 FLAG TABLE 2186
21 INTENSITY OF PRECIPITATION (HIGH   0.00000000000000E+000 KG M-2 S-1
22 QUALITY INFORMATION                0.10000000000000E+001 CODE TABLE 33003
```