BIPM, Sèvres, October 10, 2018.

In order to fulfill Recommendation CCTF 4 (2017) to collect and make available meteo data, the WG on GNSS and the WG on TWSTFT have defined a meteo format named CCTF V1.0 (see description here after). A single daily file should report all available meteo measurements at the time laboratory: interior and exterior measurements of temperature, humidity, atmospheric pressure. The data sampling is left to the laboratory appreciation and ability, but as minimum hourly measurements are recommended. The data accuracy depends on each station sensor, and is also left to the laboratory appreciation and ability.

The format proposed is compatible with what is already provided if the ITU-format TW files; a script can be used to transfer the ITU data in the more complete meteo file covering both GNSS and TW, interior and exterior measurements.

The BIPM Time department has set-up a directory structure:
* to collect the meteo files in the BIPM ftp server in /data/UTC/LABO/meteo
* to make them available in yearly directories e.g. ftp://ftp2.bipm.org/pub/tai/data/2018/meteo/

The FileName to be used for the daily meteo files is
metLLMJ.DAY with
LL = 2-character BIPM code of the LAB
MJ = 2 first characters of the mjd
DAY = 3 last characters of the mjd

Meteo file : FORMAT DESCRIPTION

File Content : simplified version of the RINEX 2.11 format for meteorological data

METEOROLOGICAL DATA FILE - HEADER SECTION DESCRIPTION			
HEADER LABEL (Columns 61-80)	DESCRIPTION	FORMAT	
DATA TYPE	METEOROLOGICAL DATA CCTF V1.0	A30	
PGM / RUN BY / DATE	- Name of program creating current file	A20,	
	- Name of agency creating current file	A20,	
	- Date of file creation	A20	
*|COMMENT	Comment line(s)		*
	Mention if observation types TE, PR, HE	A60	
	are *generated from* TWSTFT files		
LAB NAME	BIPM Acronym of the Time Laboratory	A60	
# / TYPES OF OBSERV	- Number of different observation types	I6,	
	stored in the file		
	- Observation types	9(2X,A4)	
	PR : Pressure (mbar)		
	TE : External Dry temperature (°C)		

	TI : Internal Dry temperature (°C) HE : External Relative humidity (%) HI : Internal Relative humidity (%) TI_T : Internal Dry temperature (°C) for sensor of TW (see note 2) TI_G : Internal Dry temperature (°C) for sensor of GNSS (see note 2) HI_T : Internal Relative humidity (%) for sensor of TW (see note 2) HI_G : Internal Relative humidity (%) for sensor of GNSS (see note 2)		
	The sequence of the types in this record must correspond to the sequence of the measurements in the data records		6X,9(2X,A4)
*|SENSOR MOD/TYPE/ACC	Description of the met sensor - Model (manufacturer) - Type - Accuracy (same units as obs values) - Observation type If available, one record per observation type found in # / TYPES OF OBSERV record		A20, A20,6X, F7.1,2X, A4,1X
END OF HEADER	Last record in the header section.		60X

METEOROLOGICAL DATA FILE - DATA RECORD DESCRIPTION		
OBS. RECORD	DESCRIPTION	FORMAT
EPOCH / MET	- Epoch in UTC (not local time!) year (2 digits, padded with 0 if necessary) month,day,hour,min,sec The 2-digit years in RINEX Version 1 and 2.xx files are understood to represent 80-99: 1980-1999 and 00-79: 2000-2079 - Met data in the same sequence as given in the header	1X,I2.2, 5(1X,I2), mF7.1

Notes:

1. Records marked with * are optional
2. If two series exist for one observation type (e.g. internal temperature for TW and for GNSS equipment) they should be distinguished in the code of the observation type e.g. as TI_T for TW and TI_G for GNSS. If only one series exists for two equipment, the generic observation type (TI, HI) should be used. If more than one GNSS or TW are available and located in different rooms, these should be given in COMMENT with numbers and distinguished as TI1G, TI2G, … (see second example)
3. When a null data exists, the space should be filled by 9999.9

METEOROLOGICAL DATA FILE – EXAMPLE 1

```
METEOROLOGICAL DATA  CCTF V1.0                                  DATA TYPE
GETMETEO             ORB                3-APR-17 00:10      PGM / RUN BY / DATE
EXAMPLE OF A MET DATA FILE                                   COMMENT
ORB                                                          LAB NAME
     5    TE    HE    PR    TI_T  TI_G                      # / TYPES OF OBSERV
HAENNI                                          0.1  TE     SENSOR MOD/TYPE/ACC
ROTRONIC            I-240W                      5.0  HE     SENSOR MOD/TYPE/ACC
UNKNOWN                                         0.0  PR     SENSOR MOD/TYPE/ACC
UNKNOWN                                         0.0  TI_T   SENSOR MOD/TYPE/ACC
UNKNOWN                                         0.0  TI_G   SENSOR MOD/TYPE/ACC
                                                             END OF HEADER
 17  4  1  0 15  0   10.6   89.5 1013.2   22.5 9999.9
 17  4  1  0 30  0   10.9   90.0 1014.1   22.5   21.5
 17  4  1  0 45  0   11.6   89.0 1015.1   22.5   21.5
```

METEOROLOGICAL DATA FILE - EXAMPLE 2

```
METEOROLOGICAL DATA  CCTF V1.0                                  DATA TYPE
METEO                A. Amazing         3-APR-17 00:10      PGM / RUN BY / DATE
NUMBER 1 for GNSS = AO_4                                     COMMENT
NUMBER 2 for GNSS = AO_6                                     COMMENT
AOS                                                          LAB NAME
     4    TE    PR    TI1G    TI2G                          # / TYPES OF OBSERV
                                                             END OF HEADER
 17  4  1  0  0  0   10.6 1013.2   22.5   21.5
 17  4  1  0 30  0   10.9 1014.1 9999.9   21.5
 17  4  1  1  0  0   11.6 1015.1   22.5   21.5
```