



Réseau
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RTE "Consumption Forecast" Challenge

Supply of weather data

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RTE "Consumption Forecast" Challenge - Supply of weather data

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1. Introduction

This document describes the weather records provided by Météo-France (French national meteorological service) to RTE for its operational consumption forecasting.

These same files are made available to participants in the "Consumption Forecast" challenge organized by RTE.

We remind you that Météo-France has given its consent for the use of this data, provided that the participants respect the commitment of use and non redistribution included in the conditions for participation in the challenge.

2. Product mad available

The weather product made available includes historical data of temperatures and clouds from 35 weather stations in France. This file is generated once per hour.

In each file, the data are at hourly increments and extend from H-5 to H+72, where H is the UTC time of data availability.

The data in the file are referenced under the following acronyms:

Product:	All sets
P4503501	T2M: temperatures in tenths of degrees Celsius NT: Cloud cover in okta ¹

Product Code:	Forecasts Observations	Cloud Temp	Station	Period covered	Number of data Points	Origin Météo France	Scenario No.	Frequency of availability
P4503501	Forecast and Obs	Temp	35	H-5 to H+72	78	TEDF	1	One product per time
	Forecast and Obs	Clouds	35	H-5 to H+72	78	TEDF	1	

1 Okta: Unit for evaluating cloud cover. For a celestial vault limited by a plane horizon line, 1 okta of cloud cover corresponds to a cloud zone between two half-planes originating from the vertical of a point of the space and forming between them a dihedral angle equal to $\pi/4$.

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3. File format

The file consists of three parts:

- Part 1: File creation date,
- Part 2: Unit relating to temperatures,
- Part 3: Unit relating to cloud cover.

Part 1: File creation date

The file creation date is given on one line and 14 characters in the format `YYYYMMDDHHmmSS`.

Example
20080704142054

HHmmSS is in UTC time.

Part 2: Unit relating to temperatures

This unit consists of three parts:

- A heading,
- The list of pairs of basic dates and validity,
- The station-by-station temperature data for the pairs of dates referenced in the preceding list and in the order of the latter.

Heading

One heading is listed per line:

T2M TEDF 78 35 1

This line corresponds to the following information:

- T2M type of data set (`CLTYPE`, 4 characters),
- TEDF model generating the file (`CLMOD`, 5 characters),
- 78 number of date pairs (`IE`, integers of 3 character),
- 35 number of stations (`IS`, integers of 4 character),
- 1 number of units (`IB`, integers of 2 character),

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List of pairs of basic dates and validity dates

There are IE (IE=78) pairs of dates. They correspond to (H,H-5),(H,H-4), ...(H,H-1),(H,H),(H,H+1), ..., (H,H+72).

Each pair (basic date, validity date) is listed on one line in the format YYYYMMDDHHYYYYMMDDHH.

Example

```
20070704012007070406
20070704012007070506
20070704012007070606
20070704012007070706
20070704012007070806
20070704012007070906
```

HH is in UTC time.

The station-by-station temperature data

This data contains IS (IS=35) lists of data, each list corresponding to the data from one station.

The format for a list of data for a station is as follows:

- the abbreviated international meteorological code of the station (I_{OMM} , 3 numeric characters; cf. table of contact persons in appendix 2),
- the temperature data for each pair of dates.

Each temperature data is composed of four attributes: value, precision, origin and quality (see appendix 1).

The values are coded as integers in 4 characters (blank or " - " mark followed by 3 numeric characters). The precisions are coded in the same way. The origins and qualities are integers of 1 character. Temperatures are expressed in tenths of degrees Celsius

The temperature data is listed on several lines. The first line contains the station's meteorological code and 7 data; The next 8 lines contain 8 data and the last line contains 7 data.

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Example of temperature data

015	120	1371	130	1271	133	1621	136	1721	138	1621	147	1521
027	110	1471	130	1771	123	1821	119	2121	125	2021	124	2121
...												
690	200	1371	170	1471	173	1321	189	1421	200	1421	208	1521
747	180	1471	150	1571	174	1521	189	1521	199	1521	202	1621

Details

015 120 1371 130 1271 133 1621 136 1721 138 1621 147 1521

Station code
Lille (015)

Value
13.3 ° C

Precision
16

Origin
2

Quality
1

For the 3rd pair
basic date /
validity date

Part 3: Unit relating to cloud cover

As with the temperatures, this unit consists of three parts:

- A heading,
- The list of pairs of basic dates and validity,
- The station-by-station cloud-cover data for the pairs of dates referenced in the preceding list and in the order of the latter.

Heading

One heading is listed per line:

NT	TEDF	78	35	1
----	------	----	----	---

It follows the same logic as the temperatures.

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List of pairs of basic dates and validity dates

This list is identical to that of the temperatures.

The station-by-station cloud-cover data

This data contains IS (IS=35) lists of data, each list corresponding to the data from one station.

The format for a list of data for a station is as follows:

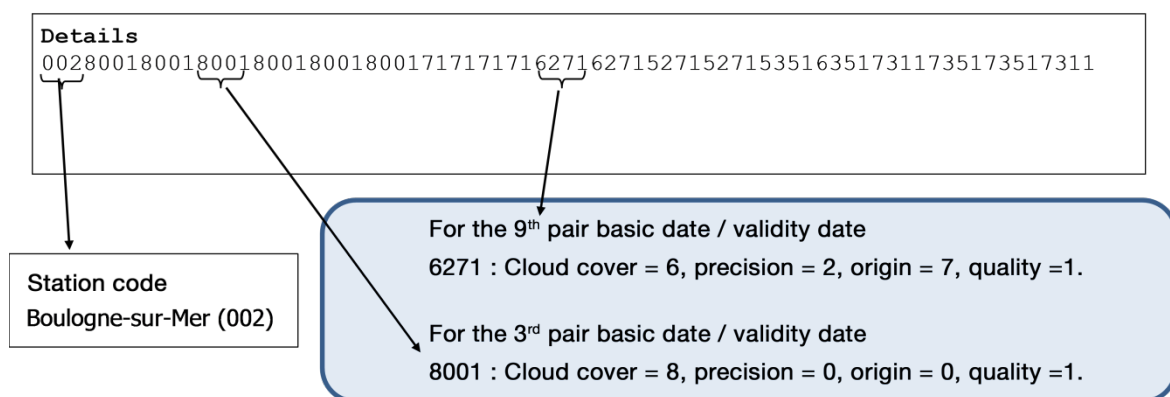
- the abbreviated international meteorological code of the station (IOMM, 3 numeric characters; cf. table of contact persons in appendix 2),
- the cloud-cover data for each pair of dates.

Each cloud-cover data is composed of four attributes: value, precision, origin and quality (see appendix 1).

The values are coded as integers in 1 character. Also, the precisions are coded as integers in 1 character. Cloud cover is expressed in okta.

The cloud-cover data is listed on several lines. The first line contains the station's meteorological code and 18 data. The next 3 lines contain 20 data.

Example of cloud-cover data



Missing values

Any missing values or precisions are replaced by a "missing value indicator". In this case, the corresponding origin and quality take on the arbitrary value of 9. The missing value indicator is "-999" for temperatures and "9" for cloud cover.

4. Appendix 1: extra functional features

Precision Code

The precision of the value is an estimate of the mean square error according to the process of elaboration of this value and depends on the forecast horizon.

The precision (or error) is null for one observation. For temperature forecasts, the precision is generally between 1.0 and 3.5 °C; For cloud cover the precision rises rapidly to 3 oktas at the horizon of 3 or 4 days.

Origin Code

It indicates the processing at the origin of the data according to the following convention:

Value	Meaning
0	Observation.
1	Météo France model.
2	CEPMET European model
3	Spatial interpolation
4	Climatology (normal)
5	Temporal interpolation.
6	Smoothing between two trains of different origin.
7	Updated forecast.

Quality Code

This code is in principal always equal to 1 (OK).

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5. Appendix 2: list of the 35 weather stations

IOMM	Station
002	BOULOGNE-SUR-MER
005	ABBEVILLE
015	LILLE
027	CAEN
070	REIMS
110	BREST-GUIPAVAS
120	ST-BRIEUX
130	RENNES
145	TRAPPES
149	PARIS-ORLY
156	PARIS-MONTSOURIS
168	TROYES
180	NANCY-ESSEY
190	STRASBOURG
222	NANTES
240	TOURS
255	BOURGES
260	NEVERS
280	DIJON
299	BALE-MULHOUSE
434	LIMOGES-BELLEGARDE
460	CLERMONT-FERRAND
481	LYON-SATOLAS
497	BOURG-ST-MAURICE
510	BORDEAUX
579	ORANGE
588	ST-AUBAN
621	TARBES-OSSUNS
630	TOULOUSE-BLAGNAC
643	MONTPELLIER
645	NIMES-COURBESSAC
650	MARSEILLE-MARIGNANE
675	LE-LUC
690	NICE
747	PERPIGNAN

6. Appendix 3: example of file

P4503501.201701312300

(See file attached)

END OF DOCUMENT