

Data format

Ordinarily the data are distributed either in a text format suitable for further automated processing, or in a CSV format. Based on individual agreement, it is possible to deliver the data in a binary NetCDF format, or possibly in other kind of format according to type of the data and the requested application.

Delivery method

For simplicity from customer's point of view, it is usually more suitable to use the "pull" method: customer's computer regularly downloads data from the provider using a secure HTTPS protocol. Furthermore, a customer can get automatically notified of new data availability by email or a HTTP request if desired. A detailed description of the method of downloading data is available further in this text.

Should the customer be unable to use the "pull" method from any reason, it is possible to arrange a "push" method delivery: the provider stores the data to customer's FTP (possibly FTPS, SFTP or other) server regularly at arranged times.

Authentication

Authentication of the customer is done via the usual user name & password combination. User name and the initial password are handed over to the customer at the time of signing the agreement.

For security purposes, the customer may change the password at any time using the web interface at www.meteo-data.eu. After the password has been changed, it is impossible to recover it; in case of forgotten password a new one is generated for the customer.

Detailed description of the available data formats

Based on customer's choice, the data are delivered in a single file or multiple files. Typical configurations include:

- all data in a single file
- a separate file for each variable, each file containing all of the locations
- a separate file for each location, each file containing all of the variables
- other combinations in case the customer requires different variables for each location

The text format

These files contain data in the form of a table; rows of the table correspond to time steps (typically hours) and columns correspond to combinations of variables and locations. The first row is a header, the first column contains UTC date and time in "YYYY-MM-DD HH:MM:SS" format. The remaining cells of the table are occupied by the numerical values of the meteorological variables (written as decimal numbers).

The columns are separated by the tab sign (0x09), the rows are terminated by UNIX line end character (0x0A). The file extension is ".txt".

Archive data might contain missing values; in that case the rows with corresponding times are not present in the file. A separate file "missings.txt" containing overview of the missing values is generated along.

The CSV format

This is a standard format that can be opened with a spreadsheet program (e.g. Excel, OpenOffice Calc), imported into a database or further processed by other programs. Again, the data are in the form of a table and the layout of the table is similar to the already described text format.

The NetCDF format

A detailed description of this format can be found at <http://www.unidata.ucar.edu/software/netcdf/>.

It is a format used commonly for storing weather and other scientific data. Its advantages include small size and a possibility of random access; it is therefore suitable for archiving as well. A suitable library or viewer has to be installed first to access the data.

HTTPS data retrieval help

For single data retrieval, a usual web browser and the knowledge of user name and password is sufficient. After logging in at www.meteo-data.eu/auth a customer can access his account settings as well as download any data that is available for them at the moment.

To download the data automatically in a script, we recommend using the *wget* program. At UNIX computers it is usually pre-installed, Windows users have to install it. One of the open-source versions of the program can be found at <http://gnuwin32.sourceforge.net/packages/wget.htm>.

Usually it is enough to run the program with these arguments:

```
wget --user=<user_name> --password=<password> <url> [<url> ...]
```

To find out the exact URL location of data file(s), please log in at www.meteo-data.eu. In case of security concerns it is possible to store the URL locations list in the form

```
https://<user_name>:<password>@www.meteodata.cz/ ... /<file_1>  
https://<user_name>:<password>@www.meteodata.cz/ ... /<file_2>  
...
```

in a file accessible only by the authorized users and run the wget program with an argument

```
wget -i <file_name>
```

A more detailed help for wget program may be obtained by running `wget --help`.