

BUFR

BUFR data files are used extensively in the meteorological and oceanographic community to exchange all manner of data, but most importantly satellite images. More information: <http://www.knmi.nl/opera> and <http://wmobufr.sourceforge.net/>.

Satellite images (meteorological data)

The BUFR files are assumed to contain the image for one parameter and one time. The name of the parameter is encoding as the "X" and "Y" fields of the corresponding record, in particular: 1000X+Y. The reason for this is that the names as reported by BUFR utilities are contained in external configuration files. It is easier to use the X and Y fields (see the documentation for this type of files) than to distill the names from the configuration files.

The name of the import type is "BUFR".

Timeseries data (oceanographic data)

BUFR files containing timeseries data can be read using the "WMOBUFR" import type. The import functions use the following conventions:

- The name of the location is the string associated with the data item with "fxy" code 0/01/019. Usually this is the human readable name.
- The parameter name is constructed from the "fxy" code as: f-xx-yyy, for instance "0-11-011" is the wind direction at 10 m above sea or ground level. The reason for using this encoding is that it is contained in the file itself, whereas the description "Wind direction (10 m)" is found in an external file.

Note:

Some BUFR files, one example being files produced by the Wavenet measurement system in the UK, contain extra information rendering them useless for the library that implements the WMOBUFR import type. Instead use the BUFR type. The files may contain only a single time, though multiple parameters. (If the WMOBUFR library can not properly handle them, then parameters that you know to be present will be missing.)

The names of the parameters are slightly different then: they are formed as an integer number from the "fxy" code - so that fxy = 0 22 70 (significant wave height) becomes "22070" instead of "0-22-070".

Background: BUFR Tables

When using BUFR files, you should at least have a basic understanding of the philosophy of the file format. A BUFR file consists of one or more messages, each containing data and a complete description of these data.

However, the description is encoded: each part is identified by the so-called fxy code, a code consisting of three numbers, f, x and y, that are used to retrieve information from several tables. These tables (see the subdirectory "bufr" under the directory "bin" of the Delft-FEWS installation) contain the descriptive strings:

- The name of the institute that did the measurements
- Description of the instruments or measurement methods
- Description of the parameter that is stored and in what unit the data are expressed

The Delft-FEWS import module uses but a few pieces of the available information, notably the location ID, the parameter ID and the unit of the values.

If you need to define the external ID for the parameters, then consult these tables, as they contain all the information you need.

Since FEWS 2017.01 the bufr tables are no longer allowed in the bin directory. They should be put in the `$REGION_HOME$/Modules/bufr` directory of FEWS. The BUFR files can be downloaded from <http://eumetnet.eu/wp-content/uploads/2017/04/tables-OPERA-20121119.zip>

If required the bufr tables directory can be overruled by a global property: `BUFR_TABLES`.