Training dr2xml: news in version 3.0

May 19, 2022

Dr2xml V3.0

Height over
orography field

Changing default
project

Changing default
data request

Allow multiple
variables in a
single file

Change in the
behaviour of
"max_split_freq"
key

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Output a field at a designated height level
over orography (1)

Method 1 (perso or dev variables):

- Home data request

```
perso; zg50!zg; atmos; day; CNRM_day; time—mean; XY—HG;
    ANY; ANY
```

- Simulation settings

```
'perso_sdims_description':{
    'zg50':{
        'HG50':{
            'value':'50',
            'axis':"Z",
            'positive':'true',
            'out_name':'HG50'
        }
    }
}
```

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Output a field at a designated height level over orography (2)

Method 2 (extra variables):

- Home data request

```
extra; ua50m!ua; atmos; 6hr; CNRM_HOMZ6hr; time-point;
    XY-HG; ANY; ANY
```

- Extra table CNRM_HOMZ6hr.json

```
"ua50m": {
    "frequency": "6hr",
    "modeling_realm": "atmos",
    "standard_name": "eastward_wind",
    "units": "m s-1",
    "cell_methods": "area: time: point",
    "cell_measures": "area: areacella",
    "long_name": "Eastward Wind at 50m",
    "comment": "Zonal wind at 50m height",
    "dimensions": "longitude latitude time height50m",
    "out_name": "ua50m",
    "type": "real",
    "positive": "",
        "valid_min": "",
    "valid_max": "",
    "ok_min_mean_abs": "",
    "ok_max_mean_abs": "",
    "cnrm_priority": "1"
}
```

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Method 2 (extra variables):

- Extra table coordinates.json

```json
"height50m": {
    "standard_name": "height",
    "units": "m",
    "axis": "Z",
    "long_name": "height",
    "climatology": "",
    "formula": "",
    "must_have_bounds": "no",
    "out_name": "height",
    "positive": "up",
    "requested": "",
    "requested_bounds": "",
    "stored_direction": "increasing",
    "tolerance": "",
    "type": "double",
    "valid_max": "120.0",
    "valid_min": "80.0",
    "value": "50.",
    "z_bounds_factors": "",
    "z_factors": "",
    "bounds_values": "",
    "generic_level_name": ""
}
```

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Use of a specific project to define the characteristics of output files (1)

The following keys can be specified in the lab_and_model settings:

- *project_settings*:
  - description: name of the project used to define output characteristics
  - allowed values:
    - name of a standard project defined in dr2xml (see repository dr2xml/projects, except dr2xml.py and basics.py), without ".py" suffix
    - path to a file defining a project setting
  - default value: value of the key *project*
- *project*:
  - description: name of the project
  - allowed values: name of the project
  - default value: "CMIP6"
- *save_project_settings* (not yet implemented):
  - description: file where an aggregate version of the settings will be saved if specified
  - allowed values: path to the file
  - default value: None

Use of a specific project to define the characteristics of output files (2)

Additional information:

- The file dr2xml/projects/dr2xml.py contains all the variables required to run dr2xml.

- The file dr2xml/projects/basics.py is built other the former and add the main variables used in standard projects (non specific variables). It also defined a basic list of attributes, variables and comments that will be added to the different xios objects.

- All the configuration files must derive from dr2xml/projects/dr2xml.py and it is advisable to make them derive from dr2xml/projects/basics.py.

Use of a specific Data Request

The following key can be specified in the lab_and_model settings:

- *data_request_used*:
    - description: name of the Data Request to be used
    - allowed values:
        - "CMIP6": default CMIP6 Data Request
        - "no": no data request
    - default value: "CMIP6"

Additional information:

- If no data request is used:
    - cmor variables can not be used
    - additional coordinates must be added in the extra table
      coordinates.json (for instance "latitude" and "longitude")

- not yet tested with perso variables but should work provided that
  they are welle defined in xml files

- some elements linked to the data request still remain in the code for
  now...

Allow multiple variables in a single file

The following key can be specified in the lab_and_model settings:

- *grouped_vars_per_file*:
  - description: list of list of variables that should be grouped together
  - allowed values: list of list of strings
  - default value: void list

Additional information:

- To be putted together in a single file, the following caracteristics of the variables must be the same : frequency, table, grid_label, split_freq, split_freq_format, split_last_date, split_start_offset, split_end_offset, grid_descriptin, grid_resolution, target_hgrid_id, zgrid_id, source_grid

- Only a few tests have been made with this functionality, bugfixes are likely to be needed

Change in the behaviour of "max_split_freq" key

The "max_split_freq" key (defined in simulation or lab_and_model settings) is used as the upper limit for split frequency of output files if provided.
Up to version 2.2*, it was used only for files which split frequencies was expressed in year.
From version 3.0, it will be used in all cases.

Any question?