Prise en compte d' EXTRA-Tables par dr2xml

- 1 extra-Table = 1 table non CMIP6, i.e. contenant des variables élaborées* non incluses dans la DR CMIP6
- La prise en compte d' extra-Tables dans dr2xml passe par le mécanisme de liste maison : 1 nouveau type 'extra' (en plus de 'perso', 'cmor')
- 1 extra-Table contient des variables éligibles à la publication ESG (sous résèrve que les extra-Tables soit approuvées par CMOR)
- Possibilité de changer de 'mip_era' équivalent au projet (ex. 'CMIP6' -> 'PRIMAVERA')
- Les ping-files tiennent compte de ces extra-variables
- Pas d'analyse de redondance avec la DR CMIP6 (on estime que si l'on a fait l'effort de construire des tables additionnelles, c'est que les tables CMIP6 ne couvraient pas le besoin)

**variable élaborée = variable physique décliné par realm, fréquence, dimensions spatiales et temporelles ('CMORvar' en jargon DR)*

Format des extra-Tables:

- fichiers Json (format CMOR3)
- 1 entrée de dictionnaire par variable
- nomenclature: <prefixe>_<table>.json
- Le préfixe correspond au 'mip_era'
- ex. PRIMAVERA_primMon.json


```
{
    "Header": {
        "data_specs_version": "01.beta.45",
        "table_id": "Table primMon",
        "realm": "atmos",
        "frequency": "mon",
        "cmor_version": "3.2",
        "table_date": "19 December 2016",
        "missing_value": "1e20",
        "product": "output",
        "approx_interval": "30.00000",
        "generic_levels": "",
        "mip_era": "PRIMAVERA",
        "Conventions": "CF-1.6 CMIP-6.0"
    },
    "variable_entry": {
        "reffclwc": {
            "modeling_realm": "atmos",
            "standard_name": "effective_radius_of_convective_cloud_liquid_water_particle",
            "units": "m",
            "cell_methods": "time: mean",
            "cell_measures": "area: areacella",
            "long_name": "Hydrometeor Effective Radius of Convective Cloud Liquid Water",
            "comment": "This is defined as the in-cloud ratio of the third moment over the se
e grid cell).",
            "dimensions": "longitude latitude alevel time",
            "out_name": "reffclwc",
            "type": "real",
            "positive": "",
            "valid_min": "",
            "valid_max": "",
            "ok_min_mean_abs": "",
            "ok_max_mean_abs": "",
            "primavera_priority": "1"
        },
        "cdnc": {
            "modeling_realm": "atmos",
            "standard_name": "number_concentration_of_cloud_liquid_water_particles_in_air",
            "units": "m-3",
            "cell_methods": "time: mean",
            "cell_measures": "area: areacella",
            "long_name": "Cloud droplet number concentrations",
            "comment": "",
            "dimensions": "longitude latitude time",
            "out_name": "cdnc",
            "type": "real",
            "positive": "",
            "valid_min": "",
            "valid_max": "",
            "ok_min_mean_abs": "",
            "ok_max_mean_abs": "",
            "primavera_priority": "1"
        },
```

Convention dans le fichier texte de diags « maison »:

- Mot-clé ‘extra’ pour le TYPE
- Nom de l’extra-Table préfixé du ‘mip_era’ (en majuscules)
- ‘ANY’ dans le champ VARNAME pour dire qu’on prend toutes les variables de cette table

TYPE;	VARNAME;	REALM;	FREQUENCY;	TABLE;	TEMPORAL_SHP;	SPATIAL_SHP;	EXPNAME;	MIP
perso;	hmv1;	seaIce;	mon;	NONE;	time-mean;	XY-na;	ANY;	ANY
perso;	hmv2;	atmos;	day;	NONE;	time-mean;	XY-na;	Coupled;	HighResMIP
perso;	hmv3;	ocean;	mon;	NONE;	time-point;	XY-na;	ANY;	DCPP
perso;	hmv4;	atmos;	6hr;	NONE;	time-point;	XY-na;	Forced-Atmos-Land;	HighResMIP
perso;	hmv5;	landIce;	mon;	NONE;	time-mean;	XY-na;	ANY;	ANY
perso;	hmv6;	ocean;	day;	NONE;	time-mean;	XY-na;	DCPP-C13;	DCPP
cmor;	tos;	ocean;	day;	CMIP6_Oday;	time-mean;	XY-na;	Coupled;	HighResMIP
cmor;	zos;	ocean;	mon;	CMIP6_Omon;	time-mean;	XY-na;	ANY;	DCPP
cmor;	tas;	atmos;	6hr;	CMIP6_6hrPlevPt;	time-point;	XY-na;	ANY;	HighResMIP
cmor;	mlotst;	ocean;	mon;	CMIP6_Omon;	time-mean;	XY-na;	DCPP-C13;	DCPP
cmor;	hfls;	atmos;	mon;	CMIP6_Amon;	time-mean;	XY-na;	ANY;	ANY
perso;	hmv7;	ocean;	mon;	NONE;	time-mean;	XY-na;	ANY;	HighResMIP
cmor;	sithick;	seaIce;	day;	CMIP6_SIday;	time-mean;	XY-na;	Coupled;	HighResMIP
cmor;	siconc;	seaIce;	day;	CMIP6_SIday;	time-mean;	XY-na;	Coupled;	HighResMIP
cmor;	omldamax;	ocean;	day;	CMIP6_day;	time-mean;	XY-na;	Coupled;	HighResMIP
perso;	sst;	ocean;	3hr;	CMIP6_3hr;	time-mean;	XY-na;	ANY;	HighResMIP
extra;	ANY;	ANY;	ANY;	PRIMAVERA_prim1hrpt;	ANY;	ANY;	ANY;	HighResMIP
extra;	ANY;	ANY;	ANY;	PRIMAVERA_prim3hrpt;	ANY;	ANY;	ANY;	HighResMIP
extra;	ANY;	ANY;	ANY;	PRIMAVERA_prim6hr;	ANY;	ANY;	ANY;	HighResMIP
extra;	ANY;	ANY;	ANY;	PRIMAVERA_prim6hrpt;	ANY;	ANY;	ANY;	HighResMIP
extra;	ANY;	ANY;	ANY;	PRIMAVERA_primDay;	ANY;	ANY;	ANY;	HighResMIP
extra;	ANY;	ANY;	ANY;	PRIMAVERA_primMon;	ANY;	ANY;	ANY;	HighResMIP
extra;	ANY;	ANY;	ANY;	PRIMAVERA_primO6hr;	ANY;	ANY;	ANY;	HighResMIP
extra;	ANY;	ANY;	ANY;	PRIMAVERA_primOday;	ANY;	ANY;	ANY;	HighResMIP
extra;	ANY;	ANY;	ANY;	PRIMAVERA_primOmon;	ANY;	ANY;	ANY;	HighResMIP
extra;	ANY;	ANY;	ANY;	PRIMAVERA_primSIday;	ANY;	ANY;	ANY;	HighResMIP

”Settings” de dr2xml:

- Seulement le path vers le répertoire contenant les extra-Tables à préciser

```
    # We account for a list of variables which the lab wants to produce in some cases
    "listof_home_vars":"./inputs/my_listof_home_vars.txt",
    #"listof_home_vars":"./config_utest/utest020_listof_home_vars.txt",
    "path_extra_tables":"./inputs/extra_Tables",
```

Génération du file-def pour Arpsfx…

```
Variables per table :
           E1hr 02 ----> pr prc
     prim6hrpt 08 ----> ua100m va100m va50m hus1000 thetapv2 ua50m va1000 ua1000
            3hr 22 ----> prsn hfls rsdsdiff clt tas rsdscs vas huss hfss rlds prc rsds rlus rsuscs ps rldscs pr uas r
sus tslsi mrsos_land mrro
     prim3hrpt 14 ----> vortmean ua100m va100m va50m ua100 zg7h sfcWind hus1000 hus100 ta100 ua50m va100 va1000 ua10
00
           Amon 71 ----> tauv rtmt co2massClim rsdscs hfls rlutcs psl cli ta clwvi rsus pr tasmax hus rlut zg co2mass
 phalf mc rlds cl vas co2Clim ccb rsut tauu tas sfcWind huss sbl clt ci hfss rsdt rldscs fco2nat fco2antt sci rlus rs
ds hur clw tasmin va fco2fos cct rsutcs wap prc hurs uas ps ts co2 evspsbl pfull rsuscs clivi prw prsn ua n2o n2oClim
 ch4 n2oglobalClim n2oglobal ch4globalClim ch4global o3 ch4Clim o3Clim
         CFmon 46 ----> rlutcs4co2 rsut4co2 rsutcs4co2 rlut4co2 tnhusscpbl rsucs tntscpbl rldcs ta evu tnhusd rsd tn
tc hur rld tnt tnhusmp rlucs hus tntr edt rsdcs tnhusc rlu tnhusa tntmp rsu tnhus tnta rld4co2 rsd4co2 rldcs4co2 rsuc
s4co2 rlucs4co2 rsu4co2 rlu4co2 rsdcs4co2 clmcalipso cllcalipso cltcalipso clisccp pctisccp clhcalipso albisccp clcal
ipso cltisccp
           Emon 03 ----> cSoil nep fLuc
     prim6hr 12 ----> pr wsgsmax tntscp tntc sfcWindmax tntpbl ps tntrl rsds clt tntrs rsdsdiff
           NONE 02 ----> hmv2 hmv5
        6hrPlev 01 ----> wap4
           Eday 06 ----> va tauu ua tauv mrro snw_land
     primMon 06 ----> reffclwc clwvic lwp reffclws cod cdnc
          CFday 36 ----> rsdscs rsutcs cllcalipso rsdt clmcalipso cltcalipso pctisccp wap500 ta700 ps rldscs rlutcs r
suscs cct clivi rsut clwvi ccb albisccp cltisccp clhcalipso va clisccp pfull clw zg cl wap phalf hus clcalipso hur cl
i ua ta mc
           Lmon 32 ----> evspsblsoi fVegLitter evspsblveg cProduct cVeg shrubFrac cropFrac pastureFrac ra lai fGrazin
g tran mrlsl_land fHarvest mrro fFire mrros treeFrac burntArea residualFrac nbp rh fLitterSoil fVegSoil npp gpp grass
Frac mrsos_land cLitter baresoilFrac mrso mrfso
     prim1hrpt 09 ----> rsds uas rsdsdiff va50m vas va100m psl ua100m ua50m
          LImon 08 ----> snw_land hfdsn agesno_land snm_land tsn_land snc sbl snd
     primDay 08 ----> uneutrals vneutrals ts evspsbl prmin prmax mrso mrlsl
    6hrPlevPt 14 ----> va psl ta ua wbptemp7h ta7h ua7h va7h vortmean uas hus7h zg7h vas tas
           day 33 ----> sfcWindmax uas vas hfss hursmax prc rlds ua rsds ta wap hus rlus clt prsn rsus hur hfls rlut
```

Génération du file-def pour Arpsfx…

```
  <file name="pr_prim6hr_CNRM-CM6-1_Coupled_r1i1p1f1_gr_%start_date%_%end_date%" output_freq="6h"  append="true" split_freq="10y"  time_units="days"
time_format= %Y-%m-%dT%H:%M:%SZ  uuid_name= tracking_id  uuid_format= hdl:21.14100/%uuid%  >
    <variable name="project_id"  type="string" > CMIP6/CMIP   </variable>
    <variable name="activity_id"  type="string" > CMIP   </variable>
    <variable name="contact"  type="string" > contact.cmip@cnrm.fr   </variable>
    <variable name="Conventions"  type="string" > CF-1.7 CMIP-6.0   </variable>
    <variable name="data_specs_version"  type="string" > 01.00.02   </variable>
    <variable name="experiment"  type="string" > NOT-SET   </variable>
    <variable name="experiment_id"  type="string" > Coupled   </variable>
    <variable name="external_variables"  type="string" > areacella   </variable>
    <variable name="forcing_index"  type="string" > 1   </variable>
    <variable name="frequency"  type="string" > 6hr   </variable>
    <variable name="further_info_url"  type="string" > http://furtherinfo.es-doc.org/PRIMAVERA.CNRM-CERFACS.CNRM-CM6-1.Coupled.none.r1i1p1f1   </varia
    <variable name="grid"  type="string" > data regridded to a T127 gaussian grid (128x256 latlon) from a native atmosphere T127l reduced gaussian gri
    <variable name="grid_label"  type="string" > gr   </variable>
    <variable name="nominal_resolution"  type="string" > 250 km   </variable>
    <variable name="history"  type="string" > none   </variable>
    <variable name="initialization_index"  type="string" > 1   </variable>
    <variable name="institution_id"  type="string" > CNRM-CERFACS   </variable>
    <variable name="institution"  type="string" > CNRM (Centre National de Recherches Meteorologiques, Toulouse 31057, France), CERFACS (Centre Europe
oulouse 31100, France)   </variable>
    <variable name="license"  type="string" > CMIP6 model data produced by CNRM (Centre National de Recherches Meteorologiques, Toulouse 31057, France
en Calcul Scientifique, Toulouse 31100, France) is licensed under a Creative Commons Attribution-[NonCommercial-]ShareAlike 4.0 International Licens
.llnl.gov/CMIP6/TermsOfUse for terms of use governing CMIP6 output, including citation requirements and proper acknowledgment.  Further information
 further_info_url (recorded as a global attribute in this file)[ and at http://www.umr-cnrm.fr/cmip6/]. The data producers and data providers make n
 to, warranties of merchantability and fitness for a particular purpose. All liabilities arising from the supply of the information (including any l
t permitted by law    </variable>
    <variable name="mip_era"  type="string" > PRIMAVERA   </variable>
    <variable name="parent_activity_id"  type="string" > CMIP   </variable>
    <variable name="parent_experiment_id"  type="string" > piControl   </variable>
    <variable name="parent_mip_era"  type="string" > CMIP6   </variable>
    <variable name="parent_source_id"  type="string" > CNRM-CM6-1   </variable>
    <variable name="parent_time_units"  type="string" > days since 1850-01-01 00:00:00   </variable>
    <variable name="parent_variant_label"  type="string" > r1i1p1f1   </variable>
    <variable name="branch_method"  type="string" > standard   </variable>
    <variable name="branch_time_in_child"  type="string" > 0.0D0   </variable>
    <variable name="branch_time_in_parent"  type="string" > 365.0D0   </variable>
    <variable name="physics_index"  type="string" > 1   </variable>
    <variable name="product"  type="string" > output   </variable>
    <variable name="realization_index"  type="string" > 1   </variable>
    <variable name="realm"  type="string" > atmos   </variable>
    <variable name="references"  type="string" > A character string containing a list of published or web-based references that describe the data or t
references describing the modelformulation here   </variable>
    <variable name="source"  type="string" > CNRM-CM6-1   </variable>
    <variable name="source_id"  type="string" > CNRM-CM6-1   </variable>
    <variable name="source_type"  type="string" > AOGCM   </variable>
    <variable name="sub_experiment_id"  type="string" > none   </variable>
    <variable name="sub_experiment"  type="string" > none   </variable>
    <variable name="table_id"  type="string" > prim6hr   </variable>
    <variable name="title"  type="string" > CNRM-CM6-1 model output prepared for CMIP6 / CMIP Coupled   </variable>
    <variable name="variable_id"  type="string" > pr   </variable>
    <variable name="variant_info"  type="string" > Start date chosen so that variant r1i1p1f1 has the better fit with Krakatoa impact on tos   </varia
    <variable name="variant_label"  type="string" > r1i1p1f1   </variable>
<field_group domain_ref="complete" expr="@this" >
  <field field_ref="CMIP6_pr" name="pr" ts_enabled="true"  operation="average" detect_missing_value="False" default_value="1.e+20" cell_methods="tim
     <variable name="standard_name" type="string" > precipitation_flux </variable>
     <variable name="description" type="string" > None </variable>
     <variable name="long_name" type="string" > Precipitation </variable>
     <variable name="history" type="string" > none </variable>
     <variable name="units" type="string" > kg m-2 s-1 </variable>
     <variable name="missing_values" type="string" > 1e+20 </variable>
     <variable name="cell_measures" type="string" > area: areacella </variable>
     </field>
</field_group >
</file>
```