Meeting 4th July 2023: Agenda

1. Comment on WRF updates - github for WRF and WPS with all bug fixes available for the group.
2. Results of performance with the selected domain and the data prepared by Josipa
3. Summary on what we have agreed so far:
   - What will be our default land use dataset?
   - What is crucial that we miss in our setting (e.g. urban parameters, vertical discretization, etc)?
   - Can we define at least the CTRL setting at this stage?
4. Comment on availability during summer break

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WRF and WPS updates

- GIThub repository WRFcoordination with all documentation
- GIThub repository WRF with all fixes applied

  Noah-MP bug fixes: bug fix for FVEG scaling of canopy heat storage; Fix FVEG scaling of max canopy capacity of rain & snow intercept

  Bug fix for the revised MM5 surface layer scheme option = 1

  To use the fixed version:

  ```
  git clone --recurse-submodules -b release-v4.5-FPS-URB-RCC-
  mods  https://github.com/FPS-URB-RCC/WRF.git
  ```

  NOTE: Use io_form_restart=102 with BEP+BEM urban scheme

- GIThub repository WPS with all fixes applied

  Fix of SST interpolation and masking

  To use the fixed version:

  ```
  git clone --recurse-submodules -b release-v4.5-FPS-URB-RCC-
  mods  https://github.com/FPS-URB-RCC/WPS.git
  ```

Experiment test performance

All the information on the experiments are organized in the google spreadsheet:

WRF-FPS-URB-RCC googlespreadsheet

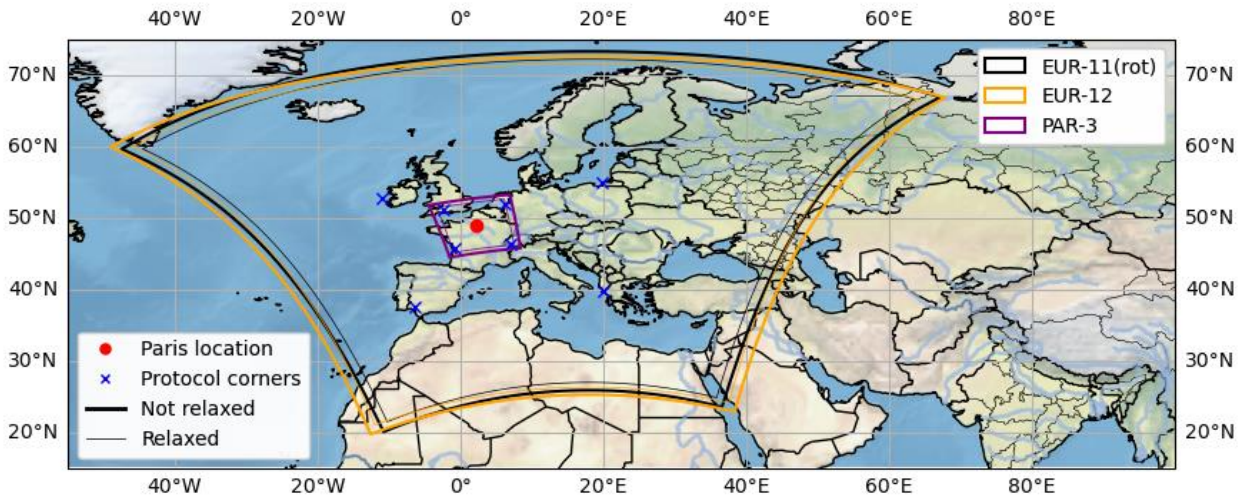
List of the WRF groups participating, with results:

CIMA	**failed**
IEDE	
AUTH	
IPSL	
UMU	
CYI	**success**
IDL	
Fudan	
UCAN	**success**
CUNI	**success**

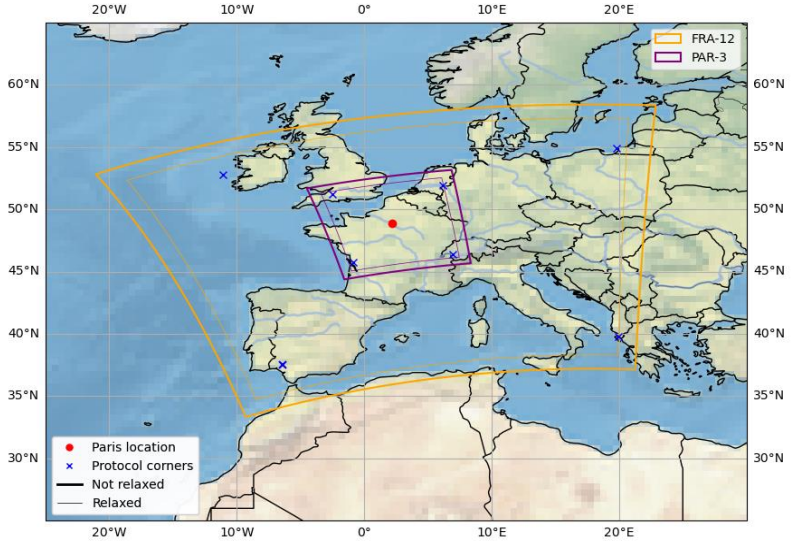
Summary:

- Agreed:
- WRF version 4.5.0 with bug fixed
- Domains:

Common domain EUR-12/PAR-3



Alternative FRA-12/PAR-3:



Summary:

1. To be agreed: Default LU data, and which one to test

COMMENTS:

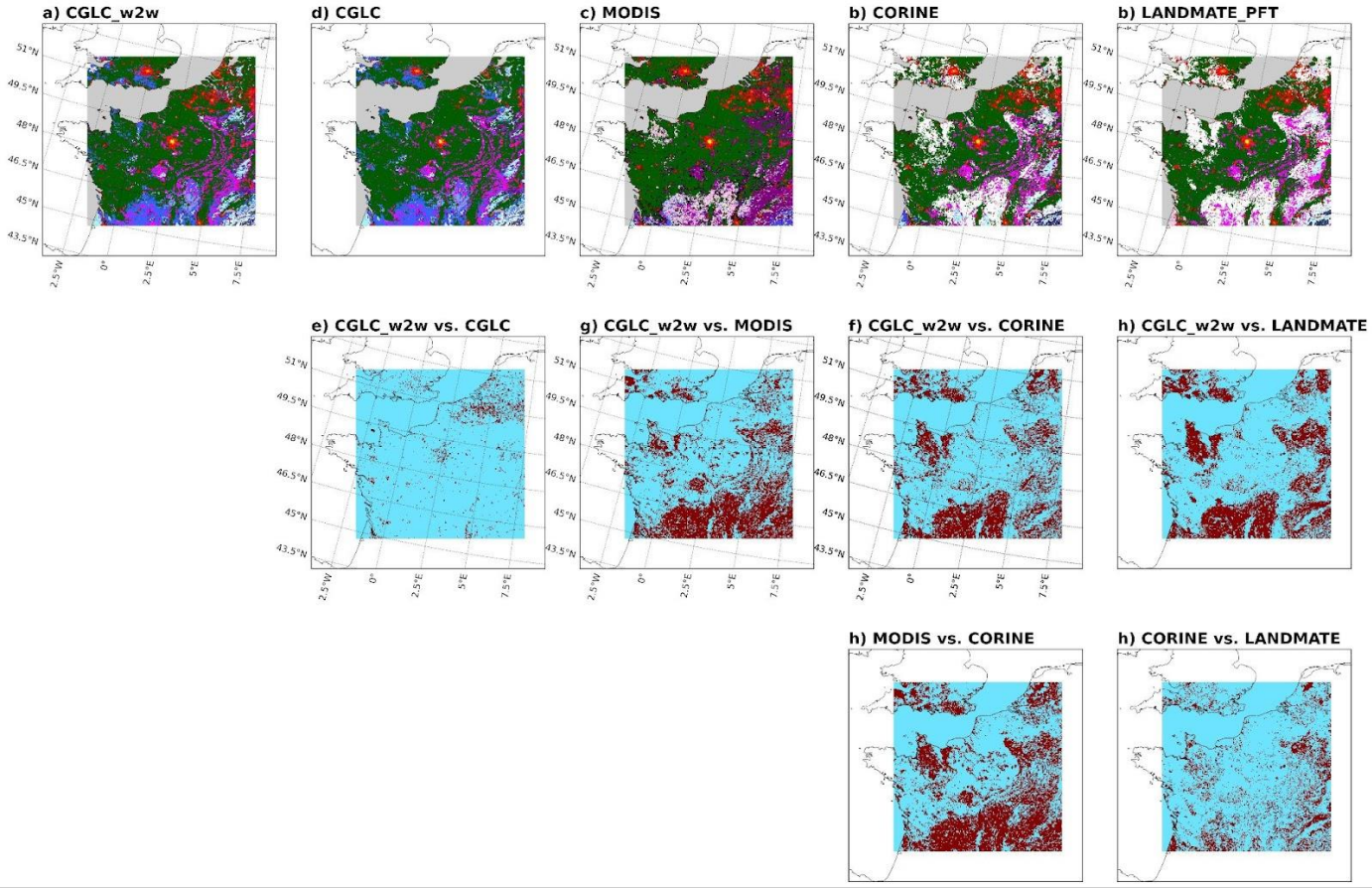
- CLGC maps, direct output from WPS have some issues with the interpolation.
- Differences in the categories seems to be related to the conversion table used for the reclassification. For that reason CORINE and LANDMATE_PFT seem to differ much less than the other combinations of the data.

NOTES:

Alberto suggests to use w2w tool over CLGC data

Tomas suggests to use CORINE as it is already tested and showed to be one of the best datasets.

Noah-MP uses so called semitile approach for the grid. It divides a land grid into two sub-grid tiles, namely vegetated and non-vegetated grounds, based on vegetation cover fraction. Processes are treated separately for the vegetated and bare grounds It is not like typical sub-tiling (mosaic) available in NOAH - that allows fractional areas of different land-use categories within a grid cell.



Summary:

2. To be agreed: Urban parameters

- Comments from the last general FPS-URBAN meeting 26 June 2023:
  - If Aude Lemonsu (Météo-France / CNRS / Université de Toulouse) will simulate the same domain with the French model and TEB, it would be interesting to use the same morphological parameters. If she can provide them on the grid I can guide you on the best way to incorporate them in WRF.
  - Alberto can provide guidance about the best way to set-up URBPARM.TBL for the simulations if needed.
- Question:
  - Does it make sense to run the CTRL simulations with the default parameters, or we reject this option already in the start?

Summary:

3. To be agreed: Spinup

- Comments
  - How should we proceed for the spin-up? Are urban simulations strongly sensitive to the ‘state’ of the land? Could we share the spin-up previously performed by 1 institution? Noah-MP off-line run? Use a run from EURO-CORDEX. Maybe S. Bastin could make 2 long simulations (Noah/NoahMP) to provide data for the spin-up.

- Question:
  - Do we need the spinup for the stage-0 test run?

Summary:

4. To be agreed: Output data

- Comments
  - FPS URB-RCC minimum required variable output list: here.
  - ***Recommended:*** FPS URB-RCC output variables as indicated here **and** standard output variables according to CORDEX output variable list and Data Request (DR), here.

- To do:
  - Update the Registry file before compiling WRF in order to add new variables in the output related to the urban parametrizations – can be updated within our WRF github repository

Summary:

5. To be agreed: Vertical discretization

- Comments
  - Should we be more conscious of the vertical discretization? Larger amount of vertical layers to make sure that there are levels within the urban canopy? Related to the urban scheme.
  - Oscar Brousse: We could define vertical layers that are consistent between SLUCM and BEP(-BEM) by fixing the same top urban canopy layer height and simply add some lower layers for BEP(-BEM). Costs in resources would be different of course but at least we would have a consistent atmospheric model layer between the two models above the urban area.

- Question:
  - What will be the CTLR bottom lowest layer with BEP(-BEM)? Is 35 m is too high?
  - Do you agree to apply removal of the first few layers as defined for BEP(-BEM) to adjust the run for SLUCM scheme? (Josipa tested SLCUM with lowest layer at 60m, crashed after 6 days. Not yet sure if the reason is related to the vertical discretization).

Summary: final questions

- Is there any way to define at least the CTRL setting in order to start the simulations before the summer break?

- Most interesting sensitivity runs:
  - Urban parametrizations?
  - Vertical discretization?
  - Urban parameters?
  - land-use data?

Summer break?

Do we continue to have our meetings, or we make a summer break and reconvene in September?

- Fill the google table: