

AGRIF WG

2020 WP

# IMMERSE WP

1. Adapt AGRIF to RK3 time stepping and prepare possible coupling at barotropic level
  - Redesign split-explicit free surface module by extracting a single barotropic step into a “step2d” routine
  - Change update (2 way) flowchart to remove what is specific to LFRA, e.g. Asselin filter corrections
  - Deal with “intermediate” RK3 steps
  - Action shared with [KERNEL-03\\_Storkey\\_Coward\\_RK3\\_stage2](#)
2. Further changes to enable vertical refinement:
  - The bulk of the corrections have been implemented in 2019.
  - Add external Piecewise Polynomial Reconstruction Library in the trunk ?
  - Provide tool to match grids with different coordinate systems. Should be done in what will be the new Nesting tool, e.g. *DOMAINcfg* tool.
  - Implement test cases to demonstrate functionality (with non flat bottom).
3. More MPP flexibility
  - Load balancing between nested grids

# CMEMS AGRIF project (INRIA, CNRS)

1. Provide new *Nesting tool* based on *DOMAINcfg* tool (deals with the whole nesting grid hierarchy in a row).
2. Enable nested grids crossing East-West cyclic domains or North Fold.
3. Update AGRIF external library. That's mainly to ingest cyclic grids but it will also enable the coupling of overlapping grids.

# Dependencies

Kernel-03\_Storkey\_Coward\_RK3\_stage2

Kernel-04\_Storkey\_Coward\_RK3\_stage3

New flowchart

AGRIF-04\_jchanut\_tstepping

AGRIF-05\_rblod\_CMEMS

New nesting tools  
External Library update

AGRIF-03\_jchanut\_vert\_coord\_interp

AGRIF-01\_mathiot\_multigrid\_load\_balancing

AGRIF-02\_girrmann\_HPC\_performances



# Summary

- WP is inline with NDS
- 2020 WP is (maybe a bit too) ambitious:
  - Need for sequential developments, hence coordination
  - Having RK3 and AGRIF working late 2020 is probably unrealistic