

Update on the physical processes sub-groups

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Reminder from the previous DevCom (Sept. 2019)

What are we talking about

- Physical processes (or classes of motions) that should be accounted for in OGCMs, either *explicitly* or through *parameterisations*
- Processes in the OSBL are *a priori* discussed in NEMO air-sea interactions WG
- “**Parameterized**” processes :
 - mixing in the ocean interior and BBL (inc. overflows)
 - closures for balanced turbulence (meso, submeso, u/v, t/s)
 - ...
- “**Resolved**” processes :
 - (quasi-) balanced turbulence (+ topography)
 - IGW and internal tides (propagation, dissipation)
 - barotropic motions (inc. tides) (propagation, dissipation)
 - ...

Discussion during the previous DevCom (Sept. 2019)

- **NEMO working groups should be aligned** with the different chapters of NEMO Development Strategy (NDS) 2018-2022
- NEMO working groups should play a **increasing role in scoping** what should be the priorities for development
- **NDS chapter 5 on “Ocean Dynamics”** is not associated with a NEMO WG, so that we don't have a clear discussion and decision process
- **Reasons for this situation** have been discussed in Sept. 2019 (open science questions, config dependance, link with other WG)
- Discussion on how to foster small, **short lived groups** on specific topics of interest

Conclusions from the previous DevCom (Sept. 2019)

quoting the minutes :

- *It was agreed that this is a tricky issue and to try out Julien's proposal.*
- **Action:** *NDCSG to propose a short-list of topics to be discussed and the expected outcomes and to initiate one or two groups "tasked" with evaluating the options and priorities for NEMO on these topics.*

Update and proposition

Proposition discussed within NDS-SG (1/2)

- Identification of two areas where progress/coordination seems possible over the next years : “*tides / fast barotropic motions*” and “*eddy closures for non eddying configurations*”
- ▶ **Tides and fast barotropic motions :**
 - Participants : A list of names has been discussed, possible participants have not been contacted yet. Need to appoint a group leader.
 - ToR :
 - establish a list of ongoing activities/configurations/projects related to the representation of tides in NEMO configurations (for both regional and global scale)
 - establish an objective description of NEMO v4.0 status wrt the representation of tides incl. a list of known and documented issues/needs.
 - define a strategy for quantifying to what extent the new NEMO kernel in v4.2 improves the representation of tides in NEMO, possibly including dedicated test cases and larger simulations.
 - Timeline : report at the Next DevCom (mid 2020)

Proposition discussed within NDS-SG (2/2)

- Identification of two areas where progress/coordination seems possible over the next years : “*tides / fast barotropic motions*” and “*eddy closures for non eddying configurations*”
- ▶ **Eddy closures for non eddying configurations**
 - Participants : A list of names has been discussed, possible participants have not been contacted yet. Need to appoint a group leader.
 - NB : A collaboration group has already worked a lot on these aspects with connections to NEMO (GEOMETRIC)
 - ToR :
 - steps and priorities towards a full integration of GEOMETRIC within NEMO
 - identify possible test cases that may be used for continuous integration
 - identify dependencies / needs with respect to other NEMO WPs (incl. kernel)
 - Timeline : report at the Next DevCom (mid 2020)