

## Minutes of the NEMO Developers' Committee Meetings

14<sup>th</sup> Sept 2020

**Present:** Mario Acosta (BSC), Mike Bell (Met Office, chair), Rachid Benshila (CNRS, Consortium expert), Romain Bourdallé Badié (MOI), Laurent Brodeau (Ocean Next), Diego Bruciaferri (Met Office), Momme Butenschön (CMCC, Consortium expert), Miguel Castrillo (BSC), Jerome Chanut (MOI, as MOI NEMO officer in place of Guillaume Samson), Stefania Ciliberti (CMCC), Andrew Coward (NOC, NEMO Officer), Emmanuel Clementi (CMCC), Massimiliano Drudi (CMCC), Frederic Dupont (EC, External expert), Italo Epicoco (CMCC), Malcon Faria (BSC), Pier Giuseppe Fogli (CMCC, Consortium expert), Wayne Gaudin (NVIDIA), Helene Hewitt (Met Office, Consortium expert), Dorotea Iovino (CMCC, NEMO officer), Claire Levy (CNRS, NEMO Project Manager), Tomas Lovato (CMCC), Gurvan Madec (CNRS), Sebastien Masson (CNRS, NEMO Officer), Francesca Mele (CMCC), Silvia Mocavero (CMCC), Jean Marc Molines (CNRS), Stella Paronuzzi (BSC), Renaud Person (IRD), Clement Rousset (CNRS), Julien Le Sommer (CNRS, IMMERSE PI and NEMO coordinator for France), Joanna Staneva (HZG, External expert), Laura Stefanizzi (CMCC), Sybille Techene (CNRS), Oriol Tinto (BSC), Martin Vancopenolle (CNRS), Amy Young (Met Office, NEMO Officer)

**Apologies:** David Marshall (Uni Oxford), Guillaume Samson (MOI)

### 1. Reflections on the 2020 Workplan

See overview presentation from Claire and presentations from each of the NEMO officers.

2020 has been a very busy year with a lot of new developments, many related to IMMERSE, and disruption due to Covid-19. The NEMO officers gave clear and informative presentations on the actions in the work plan (both the ones produced by experts of their institutions and the ones produced by developers they have « sponsored » to join the team of NEMO developers).

Issues that were discussed are:

Seb and Clement plan to transfer the sea-ice functionality developed for the Met Office coupled model at vn4.0.3 to the trunk for the end of year merge. The complexities arising from this development are a concern for the efficiency of the NST.

**Action 1:** Mike, Seb, Clement, Ed and Claire to meet to attempt to clarify issues related to the sea-ice functionality developed at vn 4.0.3.

Jerome noted that z-tilde code at vn4.0.1 also needs to be “rescued” and the IMMERSE work on z-tilde needs to be clarified.

Andrew and Seb noted that further work will be needed on the haloes; all the DO loops will need to be checked to guard against uninitialised values and that this will affect next year’s work plan. Seb suggested the tiling code should be merged next year rather than this year.

Amy noted that the Met Office and others could seek to provide more timely validation of functionality in new releases. Andrew suggested that distinguishing changes in the interface

from internal changes to the code might assist earlier validation of new releases. Claire emphasised the need to include validation of the candidate release in next year's work-plan.

The long-term home for the CMEMS/NEMO interface to coastal and near-shore models being developed by CMCC will need to be decided.

Seb noted that some code from the BSC/ECMWF mixed-precision work was successfully included in the mid-year merge and more code may be prepared for the end of year merge.

## **2. Organisation of merges in 2020**

Claire noted that there are a large number of development branches that are candidates for the merge and that they must be based on a version of the trunk post the mid-year merge that the NST will shortly determine. There is a lot of work to be done by many of the PIs for each action to prepare for the merge.

The NEMO System Team will need to look at the candidates for the merge. The priorities for IMMERSE should be taken into account but IMMERSE should serve NEMO (not vice versa) and reasonable delays can be explained to the IMMERSE evaluators. The new NEMO version must be reliable. An option is that the Merge Party in December will generate a 4.2 RC (Release Candidate version) that will need to be evaluated over the following 3-6 months.

**Action 2:** Claire to ensure that timely discussions and decisions on the Merge take place within the regular NST meetings (with all 2020 developers) within the coming weeks.

## **3. Set up of NEMO Scientific Advisory Committee**

Mike recalled how the NEMO System Team, Developers Committee and Working Groups fit together and the need for an Advisory Committee focused on the 3-5 year horizon. The NEMO Steering Committee (NSC) has agreed that a SAC be set up and are considering the criteria for its chair and a suggested chairperson. Suggestions for SAC members covering HPC and software engineering issues would be particularly welcome.

## **4. Preparation of the next NEMO Development Strategy**

Mike outlined why the Strategy is important and the role of the WGLs in developing it.

The HPC, kernel and TOP WGs expect to be better placed to write new strategies in 2022 than in 2021. The sea-ice chapter covers ice shelves so is wider than the sea-ice WG (?). The sea-ice WG can develop its strategy to its own time-table.

It was agreed to aim to write the next NDS in 2022.

## **5. AoB**

### **5.1.SASIP** (Scale-aware sea-ice project) .

Martin drew attention to this major new project led by Pierre Rampal (now at Grenoble). The project includes work on the impact of ice on waves and ocean mixing. The ocean model chosen for the project is NEMO. Specific developments in 2021 (or 2022?) on the

modularisation of thermodynamics and dynamics in SI3 will be needed for NEMO to articulate well with SASIP.

**Action 3:** Martin to circulate the project description to the devcom mailing list (done immediately after the meeting).

### **5.2. Development of the 2021 NEMO Work Plan**

It was agreed to hold the next NDC meeting to discuss the 2021 WP in the period 14-23 December and that the NEMO officers and WGLs should submit proposals for work plan items by 20 November. The second half of this NDC meeting will take place in the first half of November.

**Action 4:** Claire to organise doodle polls for NDC meetings in the first half of November and the period 14-23 December.