



Objective 2: Models, Tools and HPC

WP4/NA3:

Networking on Models, Tools and efficient use of HPC

Mick Carter (Met Office) and Mario Acosta (BSC)

Partners:

CNRS-IPSL (20PM), CMCC (17PM), BSC (13PM), Met Office
(13m),

CERFACS (11PM), UNIMAN (7PM),
MF-CNRM(6PM), UREAD-NCAS (6PM),
NCSR-D (3PM), UKRI (1m)

“This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 824084”.



WP Objectives

■ Main Objectives

Models and tools should:

- Be developed for **sustainability**
- Benefit a wide group of **users**

Use networking (**NA**) activities **to complement** development activities (**JRA**)

■ Specific Objectives

- Build or strengthen **communities** & networks
- Improve **adoption** and **community working**
- Exploit **emerging opportunities**
- Foster **innovation**



WP Tasks

1. New QA approach for the NEMO consortium:

- **Sebastien Masson (IPSL) - 12PM to IPSL**
- **Improved unit and regression test framework (Trusting Tools)**
- **Modular and well documented system with extended test cases**
- **Community adoption leading to a lasting legacy of improved development**

2. New community for European Platform for Sea Ice modelling in NEMO: SI3

- **Ed Blockley (Met Office) & Martin Vancoppenolle (IPSL) - 33PM across Met Office, IPSL, CMCC, MF-CNRM & UREAD-NCAS**
- **Establish NEMO Sea Ice Working group**
- **Intensive community engagement with end users & external experts**
- **Need: Development strategy; Design principles; Quality standards; Agreed science priorities; Training materials; Adoption support; Mentoring.**



WP Tasks

3. HPC performance evaluation for Complex Coupled Systems

- **Mario Acosta (BSC)** – 24PM across BSC, CERFACS & CMCC
- Computational and energy performance analysis from **CPMIP**
- Database of component and coupled system metrics
- Using **LUCIA** (Load-balancing Utility and Coupling Implementation Appraisal)
- Cutting edge Load-balancing study using tools integrated with OASIS-MCT

4. Data Analytics & Technology Tracking

- **Graham Riley (UNIMAN) & Giovanni Aloisio (CMCC)** – 12PM across UNIMAN, CMCC, NCSR-D, Met Office
- Techniques, Platforms, Solutions around Machine Learning, AI and big data
- Explore opportunities share experiences around things like ...
 - Cheaper physics and metrics to drive model development



WP Tasks

5. Community Workshops:

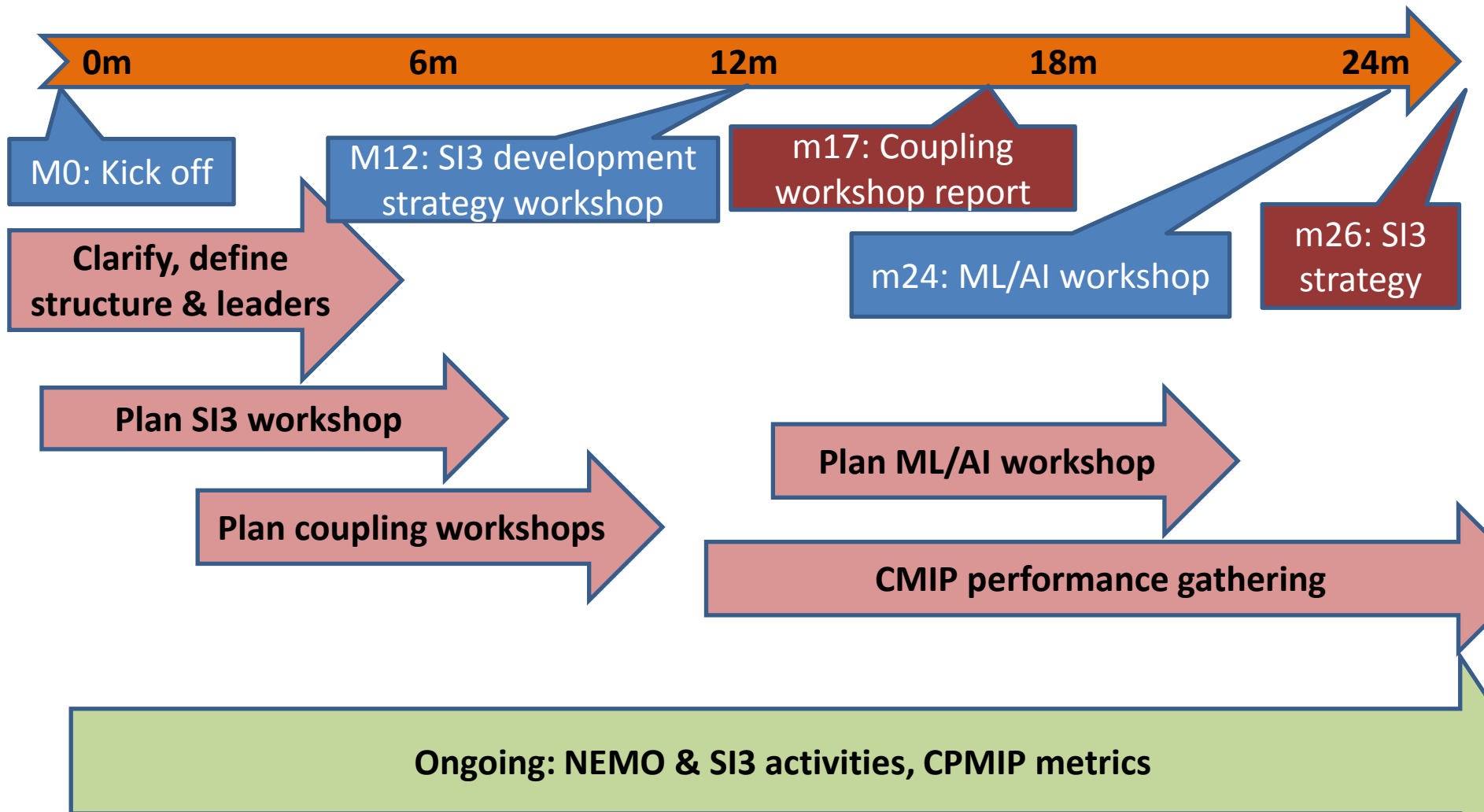
- **Sophie Valcke (CERFACS), Mario Acosta (BSC)- 4PM across CERFACS + BSC**
- **CERFACS will organize 5th workshop on coupling technologies**
 - Interfaces, performance, convergence of solutions
- **BSC will organize 7th ENES HPC workshop supported by ENES HPC taskforce**
 - **Community links to Vendors, PRACE, CoEs, Projects**

6. Innovation with Software and HPC industries

- **Graham Riley- 8PM across UNIMAN, Met Office, BSC, CERFACS, CNRS-IPSL & UKRI**
- **Links vendors to:**
 - Performance, Data analytics and workshops
 - WP8/JRA1 on development of models and tools
 - Leading to industry exploitation of results and experiences



WP First actions planned





WP Issues to be addressed

- Leadership and communications:
 - Role of the WP leads and task leads
 - Activity initiation and tracking
 - Problems and escalation
 - Interaction with relevant JRA activities
- Innovation:
 - How to make this effective (Day 2 discussion). **Risk issue.**