



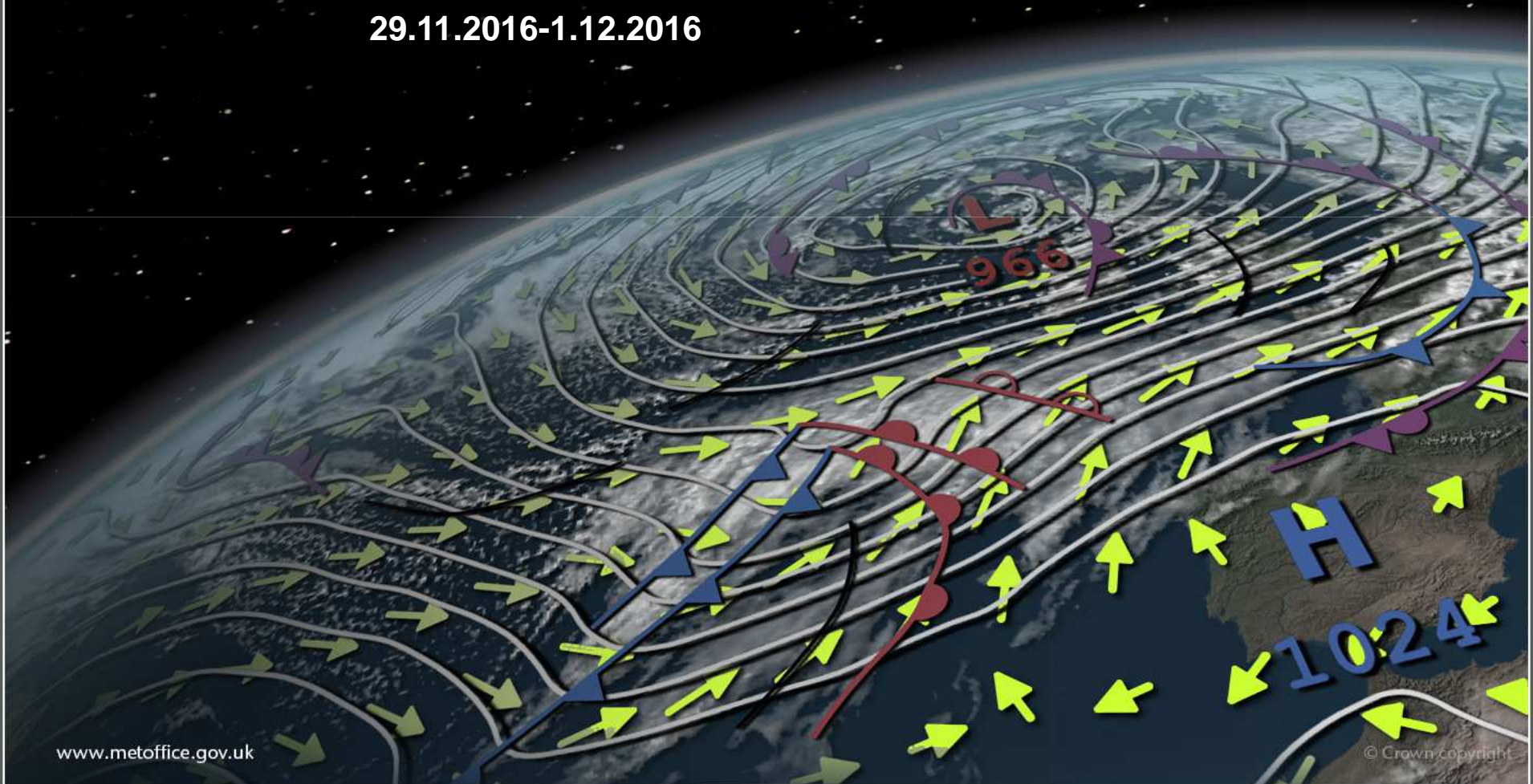
Met Office
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Primavera WP9 update

General Assembly 2, KNMI

29.11.2016-1.12.2016



- Data transfer:
 - Data generated on different HPC facilities (Marenostrum, ECMWF,...) will be retrieved to BSC local storage through rsync. Then the simulations will be uploaded to Jasmin with IRODS with data transfers rate of 15MB/s (1.3TB/day).
- Tools for data conversion to CMOR format:
 - Collaboration between KNMI, SMHI and BSC
 - Development of ece2cmor3 (Python) to post-process and cmorize EC-Earth outputs.
 - Uses the CMOR3 python package for the output rewrite and metadata inclusion.
 - Not PRIMAVERA-specific, it is flexible enough to handle any CMIP6 data production and will be part of the EC-Earth main development line.

WP9

CNR 

National Research Council of Italy



We have been:

- * Testing CMOR package

- * Calculating the size of the data

- * Preparing the workflow to transfer data to JASMIN

HPC plan

- Coordination of the EC-Earth contribution to the HiPRACE (HighResMIP on PRACE) proposal
- Further performance testing of EC-Earth/highres on MareNostrum3

Data management plan

- Tested bbcp and rsync tools on JASMIN for data transfer . Transfer rates of about 12MB/s have been achieved
- Testwise coupled local workspace to iRODS instance at NSC for potential deployment in PRIMAVERA

Model output and post-processing

- Responded to the CMIP6 and PRIMAVERA data request, provided input as to what variables can be saved in EC-EARTH simulations
- Contributed to the development of the ece2cmor3 tool that will be used to convert the EC-EARTH model output to a CMOR3 compatible format



WP9: Output MPI-ESM1.2

PRIMAVERA GA 2016

Output

Atmosphere/land:

- Multiple output streams with different output frequency successfully implemented
- Problem: accumulated variables highest output frequency, substantial slowdown of model performance → for entire period 1950-2050, highest output frequency 6-hourly
- 3-hourly and higher output frequency for WP10/11 variables (in addition to 6-hourly) can be provided for 10-year time slice (period?)

Ocean/sea ice:

- CMIP6 ocean and sea ice diagnostics still to be done

Post-processing

- So far only atmosphere/land
- Post-processing tested successfully
- First test of CMORization (using CMIP5 tables) successful





AWI-CM approach to output, post processing, JASMIN storage, HPC

- FESOM has been modified to output most CMOR datasets directly
- additional CMOR datasets via postprocessing of FESOM output (e.g. ocean_meridional_overturning_mass_streamfunction)
- ECHAM CMOR output as developed at MPI

Remark: last output parameter wish list circulated only a few weeks ago

- 1) FESOM meshes will be uploaded to JASMIN
- 2) datasets will be uploaded to JASMIN without mesh information to save bandwidth
- 3) mesh information will be applied to the datasets directly on JASMIN

HPC plan:

flagship simulations: DKRZ mistral

frontier simulations: PRACE: Curie

(Revisited) data workflow & CMORisation: (D9.3)

- XIOS, IPSL I/O server in each of the model components
- **dr2xml**, a python interface to automatically configure model outputs (generates XIOS xml files) using the CMIP6 DataRequest API (*dr2xml currently under devel. by CNRM/CERFACS/IPSL: <https://github.com/senesis/dr2pub>*)
- Enables to handle the DRQ complexity/variability + to ensure the **CMIP6-compliance** (i.e. CMOR-like)
- In case of development delay, use CMOR3-based post-processing tools

Output variable list: (MS21)

- 2 rounds of review (15-april, 04-august) ; a third one ongoing with inputs from CNRM scientific experts (one for each realm)
- We plan to produce **XX%** of the requested output
- We plan to produce the requested **3-hourly diags** requested by **WP10/WP11** (apart from thetapv2, wgsm); some (e.g. ua50m, sfcWindMax) still need XIOS operations to be coded)

Still to be clarified: for the whole duration of the simulations, all members ?

HPC plan for WP6-stream1 simulations: (MS22)

- HPC Platform : Meteo-France BullX
- 3.5M Core hours
- 163 TB of data (P1 only) for HR runs
- +20 TB of data (P1 only) for LR runs

- Only WP6 stream1 (HighResMIP) taken into account, not WP5 (DCPP-C like)
- Volumes estimated thanks to M. Juckes' tool => does not take into account Primavera additional variables



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Met Office activity



Matthew Mizielinski led WP9 until this month (Nov 2016) supported by Ag Stephens (STFC). Jon Seddon joined in (July 2016). During the first year we have:

- Arranged the provision of storage space on JASMIN, the wiki, mailing lists and the public web site [Matt, Ag]
- Written the Data Management Plan [Ag, Matt] and constructed a Data Management Tool to handle the data arriving to and being processed on JASMIN [Jon, Ag]
- Created extensive documentation about run lengths and resources needed (HPC plan) for Stream 1 simulations [Matt]
- Integrated requests for data with the CMIP6 data request for HighResMIP, the massive data/variable document, and interfaced with other WPs (especially WP10/WP11) [Matt]
- Provided documentation (and training videos) on how to use JASMIN [Matt, Ag, STFC people]
- Investigated updates to the conversion tools already in place at the Met Office (to CMIP6 standard)[Jon]