WW3 Developer Call

Wednesday 22 Jan 2020 2:30pm ET

Quasi-Bi-Monthly Call to discuss the development of WAVEWATCH III

During this first 2020 meeting we will have a presentation by Dr Tom Durrant from Oceanum (Ocean Numeric) focusing on advanced applications of WAVEWATCH III in the MetOcean consultancy industry.

We will also present a summary of recent developments included in our GitHub repository. The meeting will end with an open forum where all developers can express their ideas and suggestions as well as ask any questions relevant to the development community.

This meeting will be hosted by NCEP.

Join Hangouts Meet
meet.google.com/pwq-vnuq-ady

Meeting ID
meet.google.com/pwq-vnuq-ady

Phone Numbers
(US)
+1 669-220-6039
PIN: 938 966#

Agenda

1. Review of recent changes (5 min)
2. Upcoming changes (5 min)
3. Presentation
    - Tom Durrant (20-30min)
      An introduction to Docker and how it might be used by the WAVEWATCH III community
4. Open discussion (10-20 min)

- Review of recent changes,
    - This applies to the **develop** branch. The **master** branch has been unchanged since the public release v6.07 and **should not be used** for development.
    - NCEP GFSv16/GEFSv12 #140
        - Added option to write single output (gridded and point) files at individual specified output time steps (#141), to allow inline post-processing;
        - Added option to write second stream of restart files (#1) with write stride different to first (default) restart file,
        - Updated ww3_grib for grib2 encoding following recent additions/changes in WMO tables,
        - Several bugfixes to new output and restart options, including alignment of MPI calls and resources, backwards compatibility with multiple output configurations specified in regtests.
    - Ifremer B4b reproducibility #134
        - WW3 was failing several regression tests representing multi-grid application as results were not bit reproducible (b4b),
        - Added initialization of several arrays in the grid data structures module and in other parts of the code that were to resolve the issue,
    - UKMO Develop - gencomp and ww3_uprstrt updates #132
        - Updates to ww3_uprstst: adds Lionello/Toba based spectral updates and stores wind inputs alongside Hs and spectra (WRST switch), issue #30.
        - Updates generic compilation scripts to allow correct handling of OMP switches, grepping of compiler output warning/errors (issues #130, #124).

➔ **upcoming changes:**

- *Ifremer:* B4B reproducibility (Mostly Done).
- *NCEP/ERDC: Source term for Dissipation by* Vegetation, Scalability, Localization for Domain Decomposition, A more robust and accurate dispersion relation.
- CMAKE capability.
- Restart files with time tag for operational purposes.
- Generalization of comp/link scripts
    - Specific comp/link scripts for machines or compilers will be eliminated, and encapsulated in scripts cmplr.env, comp.tmpl and link.tmpl

- ◆ Bit reproducibility was resolved for MPI runs, but hybrid MPI/OMP runs using multiple grids remain not bit reproducible,
  - Investigations are under way centered on array initialization, OMP loop structure, compilation and runtime options.
- ➔ Please consider that developers should be forking and creating all development branches from the **develop** branch, not the master.

- Presentation

An introduction to Docker and how it might be used by the WAVEWATCH III community

Tom Durrant, Ocean Numerics

Docker is lightweight, easy to use virtualization environment to deliver software in packages called containers. Containers are isolated from one another as well as the host OS and bundle their own software, libraries and configuration files. Containers offer some compelling features in the context of both development environments and operational deployment. Tom will give a brief overview of how Ocean Numerical currently uses Docker, and how it might be used in the context of WAVEWATCH III development. Ocean Numerical have also developed an open-source python wave spectral processing library that may be of interest to this group. Tom will give a brief overview of its features and current development plans.

Full presentation link:
https://noaa-emc.github.io/WW3/files_devmeet/TomDurrantOceaNum_WW3DevMeeting_20200122.pdf

- Open discussion

Please contact Ali and Henrique if you are interested in showing your work at next WW3 Development calls.