The 4th public release of WAVEWATCH III ®

Alpha: now

Beta: end of 2013

Public: early 2014

Hendrik L. Tolman
Chief, Marine Modeling and Analysis Branch
NOAA / NWS / NCEP / EMC

Hendrik.Tolman@NOAA.gov

Motivation

Why do I care ?

Need for accurate model guidance for forecasters

+

A need for good research tools

+

A community modeling approach

=

Leveraging research and experience

+

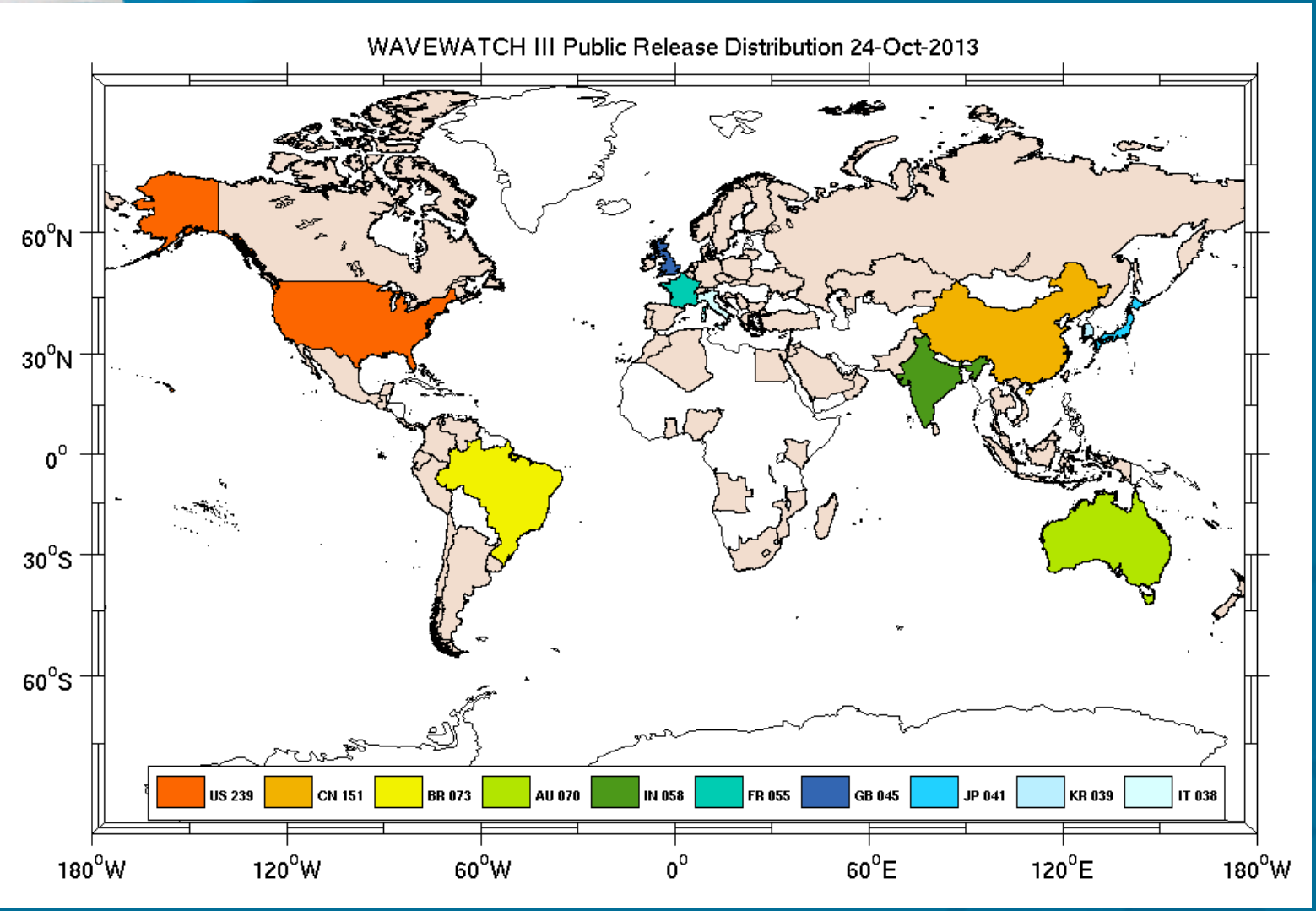
A good deal for the public

Community modeling:

- Using version control software (svn).
- Developing best practices.
- Developing a team:
  - NOPP projects.
  - Funding opportunities.
  - Training:
    - 2010 Hyderabad workshop.
    - 2013 University of Maryland winter school.
    - 2013/2014 Brest WAVEWATCH training.
    - 2014 University of Maryland summer school.
      - Standing summer course at UMD?

Conclusions

It works!
1260 users of 3.14
In 81 countries



Current Active Development Teams

- Main teams, working throughout code:
  - Marine Modeling Branch, EMC/NCEP/NOAA, USA: Development Team Lead.
  - Naval Research Lab - Stennis, USA.
  - Ifremer, France.
- Development collaborators (NOPP)
  - Univ New South Wales, Australia: Sin + Sds.
  - Swinburne Univ, Australia: Sin + Sds.
  - TU Delft + … , Netherlands: Snl + shallow water.
  - BIO, Canada: Snl.
  - USACE, validation, wave system tracking.
  - Other NOPP groups …

Current Active Development Teams

- Development collaborators (other)
  - UK Met Office: numerics + SMC grid.
  - University of Rhode Island, USA: air-sea coupling.
  - ….
- Operational partners
  - FNMOC + NAVOCEANO.
  - UK MetOffice.
  - “Ifremer.”
  - BoM Australia.
  - INCOIS India.
  - KMO Kenya + Tanzania (Lake Victoria).
  - …. many other operational users ….

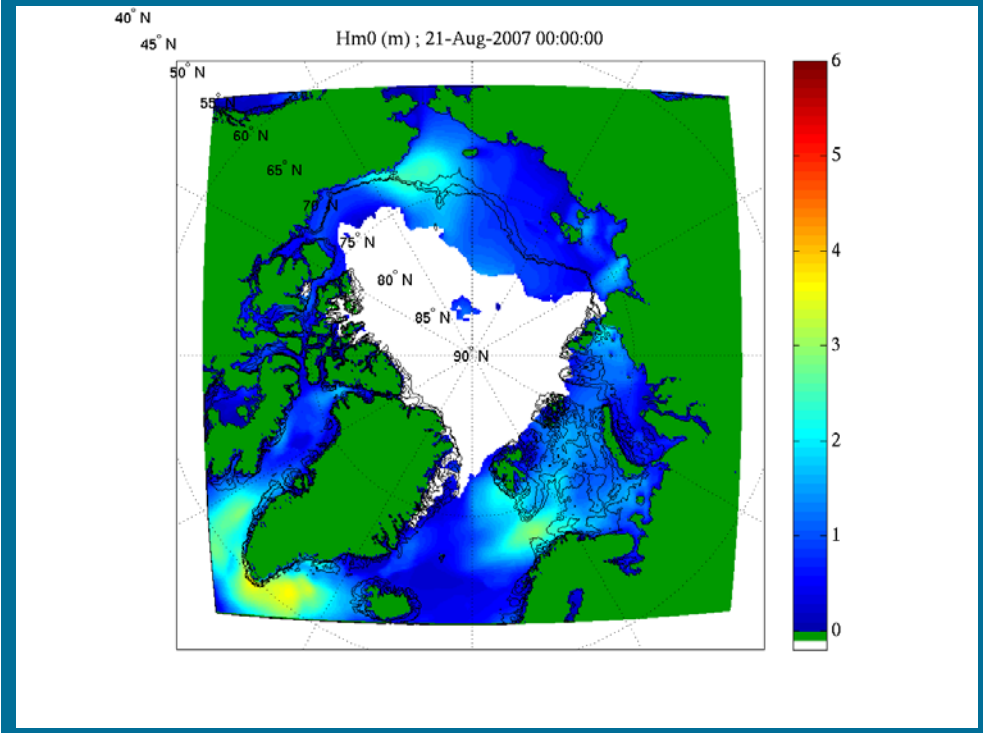
Public Release

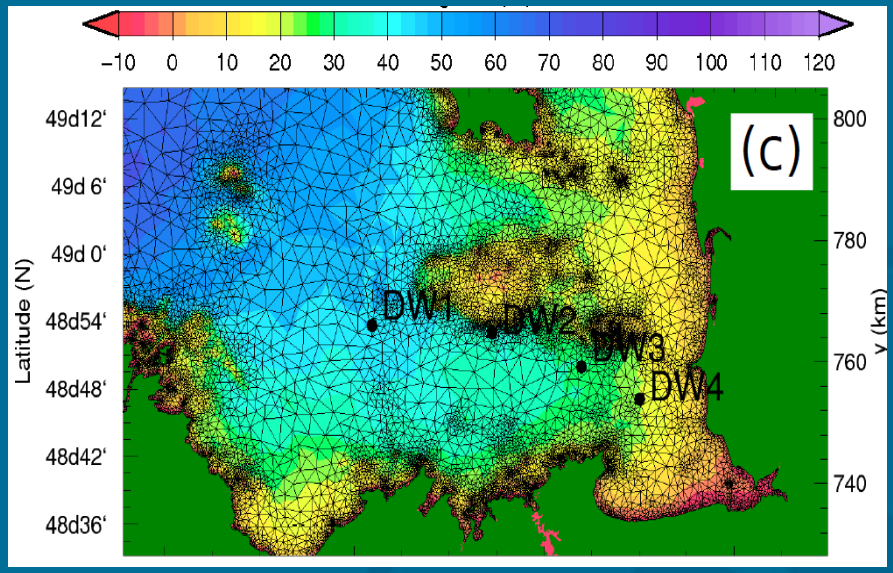
- All features reintegrated to the trunk fully available to people who have access to the NCEP svn server for testing
  - We encourage people to run regression tests in different platforms.
- Alpha versions of 4.12 now available, based on present svn trunk version.
- Beta versions expected around end of year.
- Full public release early 2014.

Upgrades by model version

Grids, version 4.00 – 4.02, 4.13 , 4.18

- Adding curvilinear and unstructured grids.
- Mostly integrated in two-way nesting approach.
- SMC grids from MetOffice (J.-G. Li presentation).
- Implicit + domain decomposition for unstructured grids.



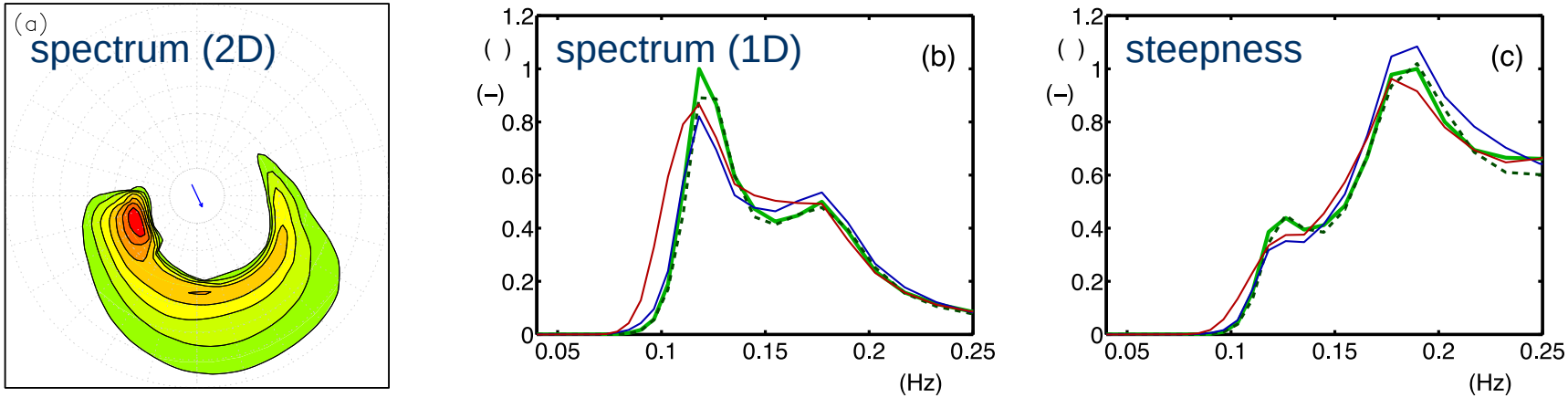


Upgrades by model version

Source term packages:

- 4.04: SHOWEX moveable bed bottom friction.
- 4.08: Generalized Multiple DIA and DIA-based nonlinear filter.
  - GMD genetic optimization package.
- 4.14: Swinburne physics package.
- 4.17: Triad interactions module (Ifremer)

Spectral parameters 100km behind hurricane eye

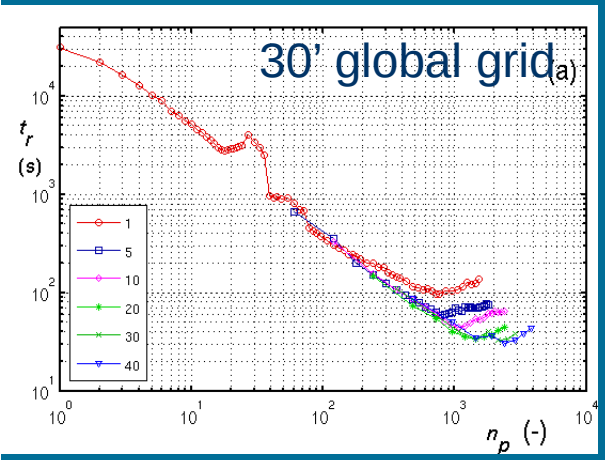


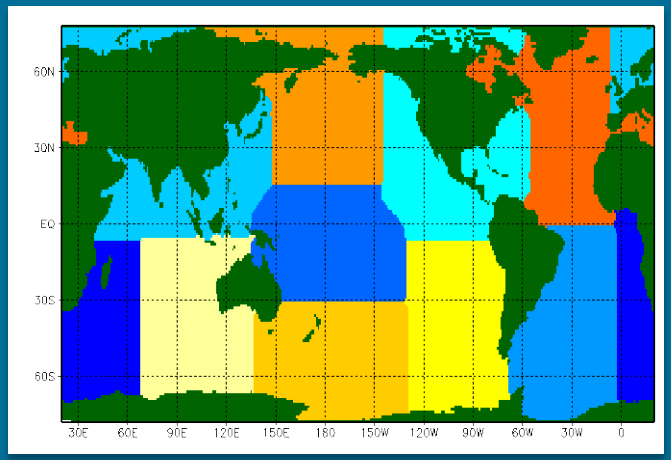
green: WRT dashed green: G35d blue: G13d red G11d

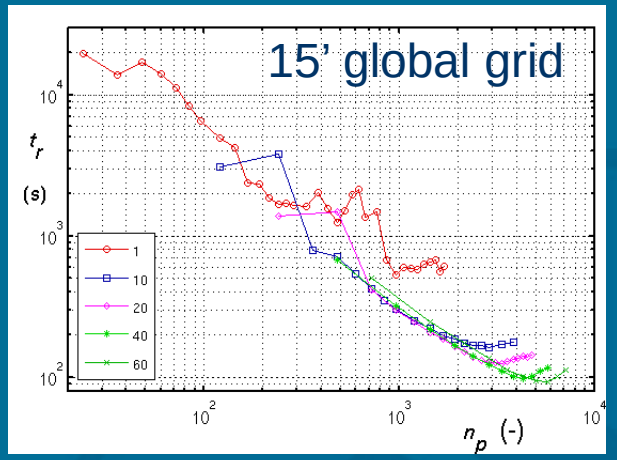
Upgrades by model version

Tools:

- 4.06: NetCDF output postprocessing.
- 4.07: Formal regression testing tools.
  - Matrix of several 100s of regression tests.
- 4.09: Tracking of wave systems in space and time based on spectral partitioning.
- 4.10: Grid splitting and hybrid parallel scaling.







Upgrades by model version

Other:

- 4.05: Fabrice's iceberg blocking.
- 4.12: Second order UNO scheme for regualr and curvilinear grids (MetOffice).
- 4.15: Mud-ice package from NLR.
- 4.16: Infra-gravity wave package from Ifremer.
- Upgrade of gridgen package, including version for curvilinear grids.

In development but not likely in next release:

- UNSW physics package.
- Two more bottom friction packages.
- ESMF wrapper for coupling.

Conclusions

It works!
1260 users of 3.14
In 81 countries