NEMS FV3GFS Community Modeling System Training and Tutorial: Planning and Preparation Meeting

19-20 July @GFDL Rm 217

**Scope and Expectations:**

Under the auspices of NGGPS, and Strategic Implementation Plan (SIP) for evolution of NGGPS to a National Unified Modeling System for operations and research, NOAA is forging ahead in creating a “community modeling system” based on FV3 dynamic core within the NEMS framework. The initial capability for this modeling system is FV3GFS that will replace the spectral model based GFS in operations by 2019.

Core model developers from EMC and GFDL who are actively working on NEMS FV3GFS project will be meeting at GFDL, Princeton, NJ on 19th and 20th July 2017 to brainstorm on various aspects of the modeling system, and plan for developing comprehensive material for training and tutorials associated with FV3GFS public release version with adequate support for the community. Details on advanced scientific features of FV3GFS modeling system including cycled data assimilation capability; newer physics options; Interoperable Physics Driver (IPD); workflow elements; pre- and post-processing tools; diagnostic tools; verification and validation strategies; and future developments based on FV3 will be discussed to aid the planning and preparation for the training and tutorial sessions.

Expected outcome from this meeting:

* strategies for releasing NEMS/FV3GFS to the collaborators and community;
* defining scope of the capabilities included in the next release of NEMS/FV3GFS (tentatively end of September);
* developing scientific and technical documentation;
* developing user guides and support system for training and tutorials; and
* community code management roles and responsibilities (and code management between EMC and GFDL)

**Day 1**

0845 - Welcome, introduction, and logistics

0900 - Workflow elements for the real-time systems (Fanglin Yang; 15 min/Matt Morin; 15 min)

0930 - Demo cases for repository & regressions

* How to run FV3GFS test case with latest working version (Jun Wang; 20 min)
* Process GFDL uses for regressions (Rusty Benson; 10 min)

1000 - Tools for regridding, pre-processing & post-processing (GFDL/EMC)

* EMC (George Gayno & Hui-Ya Chuang; 20 min)
  + - orography maker w/ gravity wave drag coefficients
      * terrain datasets
    - global chgres
      * field and surface
      * future plans
      * Post-processing
* GFDL (Rusty Benson; 10 min)
  + - Fregrid
    - Post-processing

1030 - NEMS ESMF & NUOPC Mediator/FMS for FV3 (Mark Iredell/Durachta; 45 min)

1115 - NEMS Apps/Compsets/FMS utilities (Sam Trahan/Rusty Benson; 45 min)

1200 - LUNCH (TBD)

1300 - Visualization/diagnostic tools

* DBrowswer (Dusan/Black;; 10 min)
* GFDL experiences with MET package (Shannon Rees; 10 min)
* VSDB/MET (Fanglin Yang; 10 min)
* Discussion on graphical tools used by GFDL (10 min)

1400 - Unified Workflow (CROW), NGGPS Talk (Samuel Trahan; Terry McGuinness 60min)

1500 - Scientific Verification/Validation Methodology

* EMC (Fanglin; 20 min)
* GFDL (Linjiong Zhou; 15 min)
* Tool for KE spectra (Xi Chen: 5 min)

1545 - BREAK (15 min)

1600 - Debugging/trouble-shooting tools

1630 - Scientific elements of FV3 (for scientific documentation):

* Open discussion, Q/A on FV3

GROUP DINNER - TBD

**DAY 2**

0900 - Physics

* EMC (Ruiyu, Moorthi and Yu-Tai; 60 min)
* NSST in FV3 (Xu Li; 20 min)
* Discussions (20 min): What are the metrics for physics selection? Other physics?

1040 - BREAK (20 min)

1100 Atmospheric Driver (Rusty Benson; 45 min)

* IPDv4 & CCPP (30 min)
* Dynamics-physics coupling (15 min)

1145 - DA/cycling system with discussion (Rahul Mahajan; Jeff Whitaker 60 min)

1245 - LUNCH (TBD)

1345 - Nesting and Regional efforts (technical aspects; 30 min)

* GFDL: plans to support multiple nests (Lucas Harris & Rusty Benson; 15 min)
* EMC (Tom Black & Jim Abeles; 15 min)
* DBrowswer (Dusan/Black;; 10 min)

1430 - Initial thoughts on training materials (forum discussion; 60 min)

* Scientific Documentation
* User guide/technical guide
* online and in-person
* Workflow considerations

1515 - END OF MEETING

1545 - PRINCIPALS WRAP-UP

1700 - ADJOURN

**ATTENDEES (remote access available upon request)**

GFDL (13+; not all will be in the room at the same time)

Rusty Benson

Lucas Harris

Shannon Rees

Matt Morin

Xi Chen

Linjiong Zhou

Jan-Huey Chen

Baoqiang Xiang

Ming Zhao

Andy Hazleton

Morris Bender

Tim Marchok

Jeffrey Duractha

EMC (9 + remote)

**George Gayno** (yes, global\_chgres)

**Fanglin Yang** (yes)

Jun Wang (remote, code management)

**Tom Black** (yes, FV3 Nesting)

Jim Abeles (remote, FV3 Nesting))

Shrinivas Moorthi (remote, Physics)

Daryl Kleist/Rahul Mahajan (remote, DA)

**Farida Adimi** (yes)

**Mark Iredell** (yes, NEMS & IPD)

**Sam Trahan** (yes, Workflow)

**Ruiyu Sun** (yes)

Yu-Tai Hou (remote)

Hui-Ya Chuang (remote, Post processing)

**Valbona** (yes, Documentation)

**Terry McGuinness** (yes)

Henry Juang (remote)

Dusan Jovic (remote)

Sajal Kar (remote)

Xu Li (remote)

Alexei (remote)

Anning (remote)

Jongil (remote)

Catherine Thomas (remote)

GSD (1)

Gerard Ketefian

AOML (2)

PSU (1)

Xingchao (XC) Chen

**Guidance to content providers:**

Upload your content(s) to this folder:

https://drive.google.com/open?id=0B8c0\_g4UkCRnUnk4ZFp1T0dzY2s