Notes from the meeting are in blue

**Day 1 – July 19**

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

* Need instructions on how to run the EMC workflow with verification to test and evaluate the result
  + Sam: Suggest picking one workflow rather than showing all of them. Reduces confusion.
* GFDL scripts are available upon request; are these scripts useful to EMC and/or community? Should they be included in the FV3GFS training?
* Anything else missing?

0930 - Demo cases for repository & regressions

* How to run FV3GFS test case with latest working version (Jun Wang; 20 min)
* Use “FV3GFS” instead of “FV3”;
* General: Need to establish common terminology for the FV3GFS community training & tutorial
* Anything else missing?
* Process GFDL uses for regressions (Rusty Benson; 10 min)
* Is this material needed for the FV3GFS community training?
* Anything else missing?

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); probably not needed for FV3GFS community training (?)
  + - Fregrid
    - Post-processing
* Huiya added links to tutorial presentation and user guide for UPP
* Anything else missing?

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

* Should this be included in the FV3GFS community training?

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

* Should this be included in the FV3GFS community training?
* Need to determine what FMS utilities are needed for EMC and the community

1200 - LUNCH (TBD)

1300 - Visualization/diagnostic tools

* GFDL experiences with MET package (Shannon Rees; 10 min)
* VSDB/MET (Fanglin Yang; 10 min); is there a user guide for VSDB?
* Discussion on graphical tools used by GFDL (10 min);
* Need to determine which GFDL graphical/animation tools are useful to EMC and the community

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

* Should this be part of the FV3GFS community training?
* Can Rahul’s talk at 1145 for the DA/cycling system be considered as a placeholder for the above?

1500 - Scientific Verification/Validation Methodology

* EMC (Fanglin; 20 min)
* GFDL (Linjiong Zhou; 15 min)
* Tool for KE spectra (Xi Chen: 5 min); GFDL agreed to provide the KE spectral script to EMC

1545 - BREAK (15 min)

1600 - Debugging/trouble-shooting tools

* Document instructions on how to debug FV3
* Document other debugging methods such as SST perturbation, …

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

* Open discussion, Q/A on FV3
* GFDL will provide guidance about the tunable parameters
* GFDL will provide a list of parameters for tuning microphysics
* Shallow convection issue at high resolution should be discussed further (GFDL & EMC)

**DAY 2 – July 20**

0900 - Physics

* EMC (Ruiyu, Moorthi and Yu-Tai; 60 min)
* Moorthi/Jongil and SJ need to discuss the TKE implementation
* Issues with the scale aware Aerosol; GFDL/SJ will share Aerosol test result with EMC to discuss further
* Ferrier & Aligo and GFDL MP are not in NEMS/FV3GFS IPD v4 yet; GFDL MO will be soon
* Stratospheric Ozone Photochemistry and water vapor will be tested further
* NSST in FV3 (Xu Li; 20 min)
* What is NCEP recommendation to the community of what SST variable to use?
* Xu Li is in the process of documenting the NSST
* Discussions (20 min): What are the metrics for physics selection? Other physics?
* Need to identify scientific/Physics documentation to be included as part of the community release & training
* Should Stochastic Physics be part of the training?

1040 - BREAK (20 min)

1100 Atmospheric Driver (Rusty Benson; 45 min)

* IPDv4 & CCPP (30 min)
* IPD documentation (technical and/or user guide); will need to discuss how much documentation is needed for the community release and training
* Dynamics-physics coupling (15 min)
* Need close collaboration between the Dynamic and the Physics developers from both GFDL and EMC
* Do we need documentation and/or user guide for the community to understand the coupling between dynamic and physics?

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)
* Should the nesting and regional effort be part of the training?
* EMC will provide/release the FV3 grid tool to the community

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

* Scientific Documentation
* User guide/technical guide
* online and in-person
* Workflow considerations
* During this session we went through these meeting notes and added some more notes

**General Notes**

* Establish common terminology
* No need to include training material internal to EMC and/or GFDL that are not needed by the community; such as tools related to transitioning to ops...
* Suggest generating an integrated FV3GFS guide; guides to specific components can be linked to this document
* Capabilities not included in the release should not be part of the FV3GFS training materials (?)
* Document FV3GFS directory structure as part part of the training material
* Need to finalize the scope of the community training; users only or both users and developers?
* Separate the training into sessions: users, developers, scientists,...etc
* Roles and responsibilities in term documentation, demos, tutorials,...
* Who will plan and conduct the training?
* Will probably need a couple of days for training
* Date of the release?
* Date of the training?
* Do we expect the community to generate their own initial conditions? Should we provide training on how to generate IC?
* Need to identify the training audience, is
* Identify categories of training based on targeted audience
* Identify supported configurations
* Remote access for the training
* Make sure the community is aware of the limitation of the released system
* SVN or Vlab Git?

**List of documents to be part of the “FV3GFS Community Training & Tutorial”**

**User Guides**

* Integrated user guide (EMC)
* UPP user guide (EMC)
* Workflow (EMC)
* DA/Cycling

**Scientific documentation**

* FV3 (GFDL)
* Physics (EMC, GFDL, GMTB…)
* NEMS Mediator?

**Technical documentation**

* FV3 (GFDL)
  + Valbona: FV3 directory structure needs to be documented
* NEMS
  + <https://svnemc.ncep.noaa.gov/projects/nems/trunk/doc>
  + <http://www.emc.ncep.noaa.gov/projects/nems-sample>
  + https://vlab.ncep.noaa.gov/web/environmental-modeling-center/nems

**Tutorials/Demos**

* Most of the above presentations
* Sam: suggest step-by-step (interactive?) tutorial:
  + Check out
  + Build
  + Run
  + Demo of each verification & visualization tool
  + Distribute recording of tutorial

**Items waiting for deadline from GFDL:**

1. GFDL is working on FV3 codes documentation using Doxygen (no deadline for delivery)
2. GFDL is working on scientific documentation (no deadline for delivery)
3. Rusty will update the “Introduction” for IPDv4 (no deadline for delivery)