

## **RELEASE NOTE: HMON v1.0.0**

### **Summary**

This version (HMON v1.0.0) is the first version for HMON system. The release has been fully tested and compared with the (soon-to-be replaced) GFDL hurricane model results. It has shown significant skill improvements in term of storm track and intensity forecasts in Northern Atlantic Basin, Eastern Pacific Basin and the Central Pacific Basin. The scientific and technique details are as following:

1. Dynamical core is NMMB ;
2. Time step, dt=30s;
3. Domain size, d01 (75° x 75°), d02 (12° x 12°), d03 (8° x 8°);
4. There are 43 vertical levels, model top is at 50 hPa;
5. Includes vortex relocation, but has no data assimilation;
6. Two-way coupling is with ocean model (HYCOM) for EPAC and CPAC storms;

### **Resources:**

1. The HMON system runs on WCOSS Cray;
2. The HMON system will use 26 nodes for a coupled forecast job and 18 nodes for an uncoupled forecast job;

### **Benefits of HMON:**

1. The HMON system will provide improved track forecasts in NATL, EPAC and CPAC basins;
2. The HMON system will provide improved intensity forecasts for NATL, EPAC and CPAC basins;
3. The coupled HMON system will provide additional ocean products;

### **User Impact Statement:**

The delivery time will be around T+5:55 (same as HWRF).

### **Technique Impact Statement:**

The HMON system requires more computer resources as compared to GFDL hurricane model:

1. The HMON coupled forecast job requires 624 cores (26 nodes);
2. The HMON coupled forecast job runs for 95min;
3. The HMON system requires 660G disk space for running per cycle, 15G disk space for archiving per cycle.

### **Risk:**

None.

**Proposed Implementation:**

June 20, 2017.