**Chapter 7: Forecasting, Satellite Data, and Models**

***Forecasting and Nowcasting***

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TCI briefings will take advantage of the established daily discussions from HRD until a potential TCI-focused target emerges in the long-range (~5-day) forecast. Once a long-range viable target is determined, then dedicated TCI daily forecast briefs would commence. Dedicated TCI afternoon briefs (after 12Z model runs are in) will occur at 1930Z (1530 EDT). On the morning of flight operations a “go-no go” forecast brief will be provided.

Summary of forecast priorities:

• 0-5 day forecasts of established TCs in the GOM, far-western ATL, and NW Caribbean, with particular attention on the predicted outflow structures. Consideration may be given to EPAC storms as well in 2015.

• TC genesis potential in the above regions, especially where outflow is expected to play a significant role in intensification.

• TC-trough interactions off the U.S. East coast that may enhance/inhibit outflow

• In the case of multiple targets, the following criteria will be considered

• TCs with the most established/interesting outflow structure

• TCs allowing the greatest on-station time

• A tropical system where additional assets (NOAA, USAF, etc) may be deployed in flight operations, permitting coordination.

• Long range forecasts beyond 5 days for planning purposes

On mission days, short term and nowcasting support will be provided by the forecast teams on duty for that day. Forecast teams (teams of two) will work in 1 week cycles. MTS products will be monitored to ensure they are up to date. The on-duty forecasters will monitor flight operations and provide hazard avoidance recommendations as needed to the mission scientists. CIMSS will provide real-time satellite imagery and derived products such as cloud-top heights, and overshooting top detection. Atmospheric motion vectors (AMVs) will be examined for estimating winds at the outflow level, and used for near real-time/real-time flight pattern/sampling considerations.

***Models***

Model data will be available on the EOL Catalog as well as a variety of other locations. A spreadsheet that organizes the key models has been created to assist forecasters in finding the model output they want and the availability/latency of the products (see Appendix F). http://andrew.rsmas.miami.edu/bmcnoldy/tci/tci\_model\_timing.xlsx

In the spreadsheet, the global models are shaded in red, regional/hurricane models are shaded in green, and ensembles are shaded in blue. A short list of valuable websites is provided that includes sites that are either operational or have historically been very reliable, timely, and helpful. The products on these websites are also easy to save and use in briefings.

It is recommended that forecasters become familiar with these sites and the resources that are available on them. Some have plots of basic fields, some have plots of derived fields, some have operational/research/experimental model output, and some just have time series of storm-specific statistics such as intensity and track (shaded in purple). Of course, there are many other websites that host tropical cyclone products, and if another website is suggested that provides useful and unique content in a timely fashion, it can be added… but in general, having fewer “go-to” websites is more efficient.

With the spreadsheet open, each website name can be clicked on to navigate to that page, and most entries also include a point of contact (with link to email) if any problems, suggestions, or questions arise. Along each row, the approximate timing of available models and their cycles is provided. For example, a timing of +3:30 means that products from a 1200 UTC (12Z) model run would typically be available beginning at 1530 UTC (11:30am EDT, 8:30am PDT).

ECMWF data processing is being hosted by the University of Albany and the University of Miami. Data is password protected and per agreement with ECMWF these products are not to be publicly distributed, but can be used within the scope of TCI planning activities. Resolution of the data is 0.25° and includes temperature, wind and moisture fields from the surface to 100 hPa. Temporal resolution is every 6 hours out to 72 hours then every 12 hours from 72- 240 hours. Ensemble Prediction System forecasts (50 members plus control) will also be available at 1° resolution from 0-240 hours.

**Satellite Data**

Satellite data will be available on the EOL Catalog in near-real time as well as a variety of other locations. A table of available satellites and their instruments that are available during TCI 2015 experiment is located in Appendix E.