Mid-year Report for Year 1 of Proposal Entitled
ATCF Requirements, Intensity Consensus and Sea Heights Consistent with NHC
Forecasts

Buck Sampson, PI
Jan 25, 2010

The following is a list of accomplishments broken into the three sub-tasks. Also included is an estimate (in percent) of the work completed on each of the sub-tasks.

1) ATCF Requirements (40% complete). The main focus of this effort in the first year has been in addressing the six and seven day forecast. Forecast dialogs and underlying code were modified to add the extra forecast days for both track and intensity. The interpolator was modified so that six and seven-day forecasts are adjusted to the current time for track, intensity and wind radii. The consensus code was also modified to produce six and seven day forecasts of track and intensity. Finally, the homogeneous statistics and triangle table modules were modified to produce statistical output for the new forecast times.

2) Intensity Consensus (50% complete). The intensity consensus aids(ICON and IVCN) implemented for the 2008 and 2009 seasons were evaluated along with their members. ICON is an average of four intensity aid forecasts (DSHP, LGEM, GHMI and HWFI) in which all need to be present for the aid to be generated. IVCN is a set of five intensity aid forecasts (DSHP, LGEM, GHMI, HWFI and GFNI) where only two of the five need be available to generate a forecast. Both aids generally outperform their members. ICON performs best in the Atlantic while IVCN performs well in the eastern North Pacific. Various other consensus combinations were tested on the 2008 and 2009 seasons and results indicate that ICON was the best choice of equally weighted members for the Atlantic. IVCN was among the top performers in the eastern Pacific, and a consensus of DSHP, LGEM, GHMI and GFNI slightly outperformed IVCN (though results are not significant).

3) Sea Heights Consistent with NHC Forecasts (10% complete).   This is an algorithm that inserts surface winds generated from the official forecast for each tropical cyclone in a GFS background, then runs WAVEWATCH III on the modified fields. The algorithm was run near real-time for Atlantic and eastern North Pacific 2009 seasons and resulting graphics are available at:

http://www.nrlmry.navy.mil/atcf_web/wavewatch/page/tcww3.php

Developed a preliminary version of algorithm that can handle more than one tropical cyclone in the basin, and added a GRIB file generation for the resultant WAVEWATCH III fields.