Joint Hurricane Testbed
Semi-annual Report
01 July, 2003

I. Introduction

The current JHT project involves two parts: (1) The running of a parallel cycle in real-time during the 2002 hurricane season surveillance missions, and (2) the creation of software to draw flight-tracks based upon any targeting technique.

II. Real-time Parallel Cycle

The operational Global Forecasting System (GFS - formerly the AVN), Geophysical Fluid Dynamics Laboratory (GFDL) model, and Statistical Hurricane Intensity Prediction System (SHIPS) have been run in parallel without dropwindsonde data for all synoptic surveillance cases since 1997. All GFS and SHIPS forecasts and model fields were available to NHC specialists within one hour of the operational runs when the NCEP IBM-SP computer was available during the 2002 hurricane season. No-dropwindsonde forecasts were not added to the Automated Tropical Cyclone Forecast (ATCF) System. The author does not know if the forecasts or fields were used in operations. Because of this, I am unsure how a decision on transition of this part of the project can be made.

Results from the 2002 hurricane season were provided in the previous semi-annual report, and are available at **http://www.aoml.noaa.gov/hrd/data_sub/assesment.html.**

Questions concerning the results can be sent to sim.aberson@noaa.gov. Since the previous semi-annual report, the parallel cycle has been transferred to the new computer system at NCEP and is ready for further real-time runs should this part of the project be transferred to operations. If JHT is interested in the running of the parallel cycle during the 2003 hurricane season, they should contact me so that the benefits of these runs can be seen in real time.

III. Automated flight track drawing software.

The development of automated flight track drawing software is proceeding. The software is being developed to not only mimic the current tropical cyclone targeting strategy, but any subsequently developed targeting strategy such as the Ensemble Transform Kalman Filter (ETKF) or simgular vector. The goal is to quickly provide the most economical flight track given the constraints of the individual situation. The parts of the software are:

1. Input (forecast storm location, targeting information, take off and recovery location, etc.)
2. Generation of a minimal set of dropwindsonde locations that covers the target feature with a regularly-spaced grid using mesh generation.
3. Generation of the minimal flight track to reach these dropwindsonde locations (traveling salesman).
4. Output of the flight track and necessary documentation.

Development of the individual pieces of this problem is nearing completion and this procedure

will be tested during the 2003 surveillance season. The software development is not yet complete, but will continue at as fast a pace as possible until completion. This will be done without the need for further resources from JHT until completion and decision on transition to operations is made. JHT will be notified once the software is ready for further testing.