University: University of Miami

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Partners or Cooperative Project: "Improving WsEta performance through incorporation of high resolution diagnostic datasets at NWS-MIA"

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SECTION 1: PROJECT OBJECTIVES AND ACCOMPLISHMENTS

1.1 The emphasis of this experiment was two-fold: 1) to investigate the impact of incorporating high resolution analyses (that assimilate non-traditional data sets) such as LAPS and data sets into the Workstation Eta (WsEta) initialization cycle; and 2) to investigate the performance of the model under different physical configurations. With that in mind, the objectives of this project were: 1) to quantitatively measure the model's performance under different physical/initial conditions using grid based threat scores, bias scores, and probability of detection for different precipitation thresholds; and 2) to quantitatively measure the impact of initializing the model with the AWIPS LAPS analyses and with a high resolution SST dataset, versus NCEP's real time global SST (RTG_SST) analysis, in the model performance by using the same metrics as described for the first objective.

The first objective was thoroughly completed during the past six months. The first part of objective number 2 was also completed. The second part of objective number 2 is currently being processed. A final paper is also being drafted to be submitted to Weather and Forecasting. Copy of the final draft of this paper will be submitted to the COMET Partners Program as an addendum to this report.

SECTION 2: RELATED ACCOMPLISHMENTS

2.1 Several requests for assistance in making the conversion of LAPS output into Eta-ready GRIB format were answered in the past 6-months. This assistance certainly spread the word.

UM has put together, and maintained a website dedicated to share with the WFO the enhanced real time WsEta that resulted from this work. The website address is http://etabox.rsmas.miami.edu. The model has also been prepared to be moved to the WFO to run it locally with the enhancements made during this COMET Partners project, namely, initialization off of LAPS and incorporation of high resolution SSTs into the initialization cycle.

2.2. Using results from this research work, WFO Miami SOO Pablo Santos, put together

a teletraining presentation for his staff. This presentation is also being shared with Southern Region Headquarters.

SECTION 3: SUMMARY OF BENEFITS

3.1 Results from the Workstation Eta were used in forecasting classes at Miami, and thus enhanced course offerings. This research also served to attract potential graduate students to the University of North Carolina at Charlotte (where Dr. Etherton is now employed), one of whom worked on a new project this summer.

3.2 As mentioned in the previous report, one of the first things the academic partner (Dr. Brian Etherton) and the forecaster partner (WFO Miami SOO) did was to set up a website that the operational forecasters at WFO Miami could use to access the output of the experimental WsEta. The staff now uses the experimental runs, a product of this COMET Partners Project, as real time guidance that they look forward to on a daily basis. This has also served as a means for WFO forecasters to be trained on issues relevant to mesoscale modeling. As part of the completion of this work, the workstation used to run these experiments has been prepared for moving into the WFO. So now WFO Miami will have a real time model they can locally initialize and incorporate high resolution SSTs while locally ingesting the guidance into AWIPS.

SECTION 4: PRESENTATIONS AND PUBLICATIONS

4.1.
Etherton, B., P. Santos, S. Lazarus, and C. Calvert, 2004: The effect of using AWIPS LAPS and High Resolution SSTs to locally initialize the Workstation ETA, in preparation to be submitted to Weather and Forecasting, a refereed journal.

Etherton, B., P. Santos, S. Lazarus, and C. Calvert, 2004: The effect of using AWIPS LAPS and High Resolution SSTs to locally initialize the Workstation Eta. Submitted to extended abstracts of the 9th Symposium on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface, 85th AMS Annual Meeting, San Diego, CA, January, 2005.

Etherton, B., and P. Santos, 2004: The Effect of Local Initialization on Workstation Eta. In extended abstracts of the 16th Conference on Numerical Weather Prediction, 84th AMS Annual Meeting, Seattle, WA, January, 2004.

An updated abstract has been submitted to the annual AMS meeting in San Diego CA, Conference on Data Assimilation Systems. Also, the academic and forecaster partners are currently drafting a paper to be submitted to Weather and Forecasting. This paper will include results from two experiments conducted with this modeling project. The first experiment was conducted during the summer of 2003 and was part of this COMET Partners Project. The second experiment derived from the work conducted as part of the partners projects and therefore will be included in the final paper. The extended abstract

for the San Diego paper will also derive from this draft. Final version of this draft will be copied to the COMET Partners Project as an addendum to this report.

SECTION 5: SUMMARY OF PROBLEMS ENCOUNTERED
5.1 Specific problems related to the University were few and far between. The only real issue was when Dr. Etherton relocated to Charlotte, and thus was removed from the physical location of the computer used in this experiment. The new resident of Dr. Etherton's office was very willing to monitor and tend to the computer, resulting in a seamless continuation of research.

5.2 We encountered numerous obstacles that slowed down our progress. However, Bernard Meisner at SRH SSD and Bob Rozumalski at COMET went out of their way to support this project. So we are very grateful to them.