FSL Third Quarter FY 2002 GIMPAP Progress Report

June 30, 2002

I. Introduction

This past quarter has been primarily spent gearing up for and operating LAPS analyses that include GOES data for IHOP. We successfully acquired the NESDIS generated product data for cloud top pressure and precipitable water and assimilated these into LAPS. GOES 11 data became available for a portion of the exercise. We acquired these data and saved the GVAR data stream, hence, our database can most likely be used as a back-up archive set. In addition to IHOP opportunities, Colorado experienced its largest wildfire to date. The Hayman fire started on June 9, and was a day that IHOP flights were occurring. The fact that this occurred (along with the other numerous fires that were burning on that date) when IHOP missions were flown will greatly enhance the utility of these saved data for later research.

II. Near Term Objectives

- Interface the LAPS system to new single field of view satellite data products in time for IHOP.

This has been accomplished.

III. Task Progress

NESDIS Products in LAPS

NESDIS products are now routinely assimilated in the LAPS system. The special IHOP domain data were used in the IHOP 4km LAPS runs and MM5 forecasts in support of the exercise. These products are being evaluated for their latency and improved resolution and their impact on a high-resolution analysis and model forecasting.

Product Implementation Plan

This past quarter assistance was provided to Southern Region forecasters for tuning LAPS analysis and cloud data for their forecast area. In addition, Pablo Santos, a COMAP participant from the Southern Region, has been working with us this summer in an attempt to improve his LAPS system for inclusion of water vapor data. We plan to supply satellite data to him and other LAPS users via the FSL Meteorological Assimilation Data Ingest System (MADIS) project. This is an effort with a direct avenue toward AWIAP/LAPS data support and an opportunity that should be exploited for GIMPAP goals. More will happen with this effort in the coming months.

GOES 11 Rapid Scan for IHOP

We now have expanded our acquisition system to enable full archive of the GVAR data stream. All GOES 11 data collected at FSL will likely interface well with the satellite community for

their research needs. We acquired GOES 11 in lieu of GOES 10 for the short duration of operation approved for IHOP. Data were archived to FSL's mass store system and some of that data has already been read from the archive and used for a closer look at some case days, therefore the data archive has proved viable.

GOES Product Latency

GOES special product latency was seen to be a nominal 20 to 25 minutes past the scanning of the IHOP domain. Coordination with Jaime Daniels and Bob Kuligowski prior to and during IHOP have enabled the acquisition of these perishable data in time for LAPS utilization. This demonstrated that the tested concept offers more timely data to local data applications and is viable. NESDIS should be recognized for their part in producing and delivering data in a timely manner to FSL. Large domains can be served by assembling the small domains for that large region. This technique would therefore satisfy both the large-scale and local-scale processing needs. During IHOP, special products of TPW and CTP were made available to FSL in real-time from both GOES 8 and GOES 11. When GOES 11 came on-line it was then possible to acquire two scans per hour to support the LAPS cloud and moisture analyses.

GOES Data and its Impact on LAPS Moisture Analysis Quality

At the annual GIMPAP review last October, preliminary statistics showing the impact of GOES data on the LAPS analysis were presented. This summary was inadequate and not representative of the data sample; also there was no rigorous measurement of bias or RMS error significance. Since last October, data have been continuously compiled and analyzed that indicate a definite positive GOES data impact on LAPS. The latest real-time comparison plots are now available on line. These figures are fairly self-explanatory and are updated periodically.

http://laps.fsl.noaa.gov/birk/vapor_stats/index.htm

IV. Anticipated Activities in the Next Quarter

- Continue to configure the Fortran 90 version of OPTRAN for LAPS.
- Work on parallelizing the code utilizing satellite data in the LAPS moisture anlaysis.
- Review data from IHOP time frame and examine it for impact of derived products in the analyses.

V. Problems and Corrective Actions

None this quarter.

VI. Publications or Presentations

None this quarter. Publications are being planned for the AMS satellite conference and the water vapor symposium planned for the Annual Meeting.