



WESTERN REGION TECHNICAL ATTACHMENT  
NO. 88-02  
January 12, 1988

SELECTED HIGHLIGHTS OF CAFTI MEETING, NOVEMBER 18, 1987

[Editor's Note: Following are selected highlights from the November CAFTI meeting. They consist of changes to the central guidance system that have either gone into effect or are being considered for the future.]

- 3) NGM Radiation Call Every Two Hours - E. Kalnay - W/NMC2, Information Item (See Briefing Materials, Part B).

Jim Tuccillo (W/NMC22) presented results of decreasing the frequency of computing various radiation parameters in the NGM. Presently, several diabatic physical processes (large-scale and convective condensation, and boundary layer mixing) are computed at each time step on the NGM C-grid (viz., every 75 seconds). However, such a small time step is only required to avoid gravity-inertia wave instabilities. A 75 sec time step is not required for computing the non-adiabatic processes mentioned above which have a much longer time scale than the scale of actual physical processes. In addition, long wave radiation parameters are now calculated hourly, which is very costly in computational time (almost 50 percent of NGM run time is spent doing radiation calculations).

NMC proposed to compute long wave radiation every two hours (vs hourly). Also, NMC proposed to increase the interval between the diabatic physical processes mentioned above from 75 secs. to 900 sec (15 minutes). Results of internal testing at NMC demonstrated that when these two changes were tested in the parallel RAFX, there was no adverse impact on NGM precipitation or circulation forecasts (see Briefing Materials Part B). Based on the evidence presented, CAFTI concurred with Mr. Tuccillo that this change had no significant impact on NGM forecasts and thanked him for his presentation before CAFTI members. CAFTI agreed that this change would not require a TPB describing the change and test results.

- 4) 18-Level Moisture in the MRF Model - E. Kalnay - W/NMC2, Information Item

Dr. Eugenia Kalnay (W/NMC2) advised CAFTI that NMC just started parallel testing of incorporating moisture throughout all 18 levels of the MRF model. She will advise CAFTI of the test results at the next scheduled CAFTI meeting.

- 5) Corrected MOS Cloud Equations - G. Carter - W/OSD21, Information Item (See Briefing Materials, Part C).

Ms. Mary Erickson (W/OSD211) presented information concerning an error in LFM-based MOS cloud amount equations. The problem occurs when the MOS "best category" cloud cover is clear whenever the LFM forecasts large precipitation amounts, where one would expect broken to overcast as being the "best category" sky cover. The problem was traced to one of the sky cover regression equations. A solution (outlined in Part C, page 1 of the Briefing Materials) to correct the equations will be made in January, 1988. CAFTI thanked Mary for this information.

- 6) Consistency Check for Perfect Prog. Max/Min Guidance - G. Carter - W/OSD21, Information Item (See Briefing Materials Part D).

Paul Dallavalle (W/OSD211) presented information on a consistency check for NGM-based perfect prog Max/Min temperature guidance. A small number of perfect prog forecasts (2 percent) would contain instances where, for example, tomorrow's max temperature is predicted to be less than tonight's min. This is not meteorologically consistent. After investigating several solutions, a simple averaging technique was selected. Using this technique for the example above, if tomorrow's max temperature is less than tonight's min, then both the max and min temperatures are replaced by the arithmetic average of the two original temperatures.

CAFTI asked why this consistency check had not been in place when the perfect prog guidance was first issued, as CAFTI members were briefed a year ago about a similar problem in the LFM MOS max/min temperature guidance. Mr. Dallavalle responded that they were still testing possible solutions and had not decided which one was the best. They did not want to delay distribution of the perfect prog guidance because of this rather infrequent problem. Mr. Dallavalle said that the change will be implemented on December 9, 1987, with an appropriate administrative message announcing to the field the details of this change. CAFTI felt that this check is meteorologically sound. CAFTI appreciated this information provided by Mr. Dallavalle.