



**Western Region Technical Attachment
No. 91-31
July 30, 1991**

NMC UPDATE

Models

Some NGM model subroutines have been optimized for the CRAY computer at NMC and have increased the overall speed of the NGM by about 30 percent. This faster speed will allow some major changes to be made to the NGM model and initialization procedure. These changes are scheduled to be implemented on August 6, 1991.

Changes to the NGM model:

The old a-grid (322km resolution) will be eliminated and the b-grid (166km resolution) will be expanded to the old a-grid size. The c-grid (83km resolution) will be expanded to cover an area slightly larger than the old b-grid (see Fig. 1).

The bottom line is the NGM will be a 2-grid nested model rather than a 3-grid nested model and almost 50 percent of the Northern Hemisphere will be covered by the 83km resolution grid.

Changes to the NGM analysis and initialization:

Full implementation of the Regional Data Assimilation System (RDAS), using the NGM model to assimilate data rather than the Global T126 spectral model.

Observations will be inserted into the assimilation system every three hours instead of every six hours. Data from the central U.S. profiler network will be included.

Quality control of observations will be based on an optimum interpolation at each observation site and not by simple "buddy checks" with neighboring observations.

Increased number of analysis points, and analysis in "layers" rather than "levels" (which makes temperature analyses better in the new scheme than in the old scheme).

NMC believes that the most significant impact on model forecasts will be better precipitation forecasts (mostly due to the RDAS implementation) and better forecasts over the oceans (mostly due to increased grid resolution).

NGM MOS

NMC has also completed development of NGM MOS equations for 6-hour POP guidance, and they have also regenerated the 12-hour POP equations. These new equations use data from four years of NGM forecasts (the current NGM MOS equations are based on only two years of data), and allow many more possible predictors than the current NGM or LFM MOS equations. Preliminary results for the warm season indicate that these new equations produce better results than the current 6-hour POP forecasts from the LFM (see Fig. 2). Results for the cool season are not available yet, but are expected to be similar. These new MOS equations will likely be implemented as soon as tests with cool season data are completed.

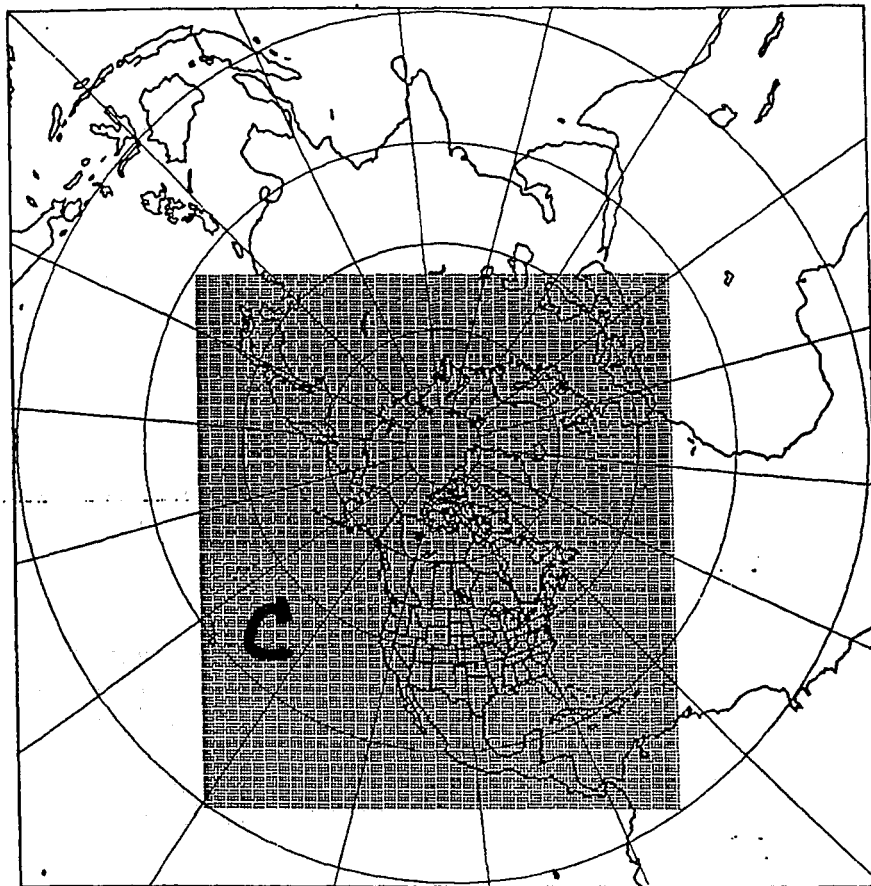


Fig. 1

NGM MOS 6-H POP VERIFICATION (WARM,00Z)
IMPROVEMENT IN BRIER SCORES OVER CLIMATE

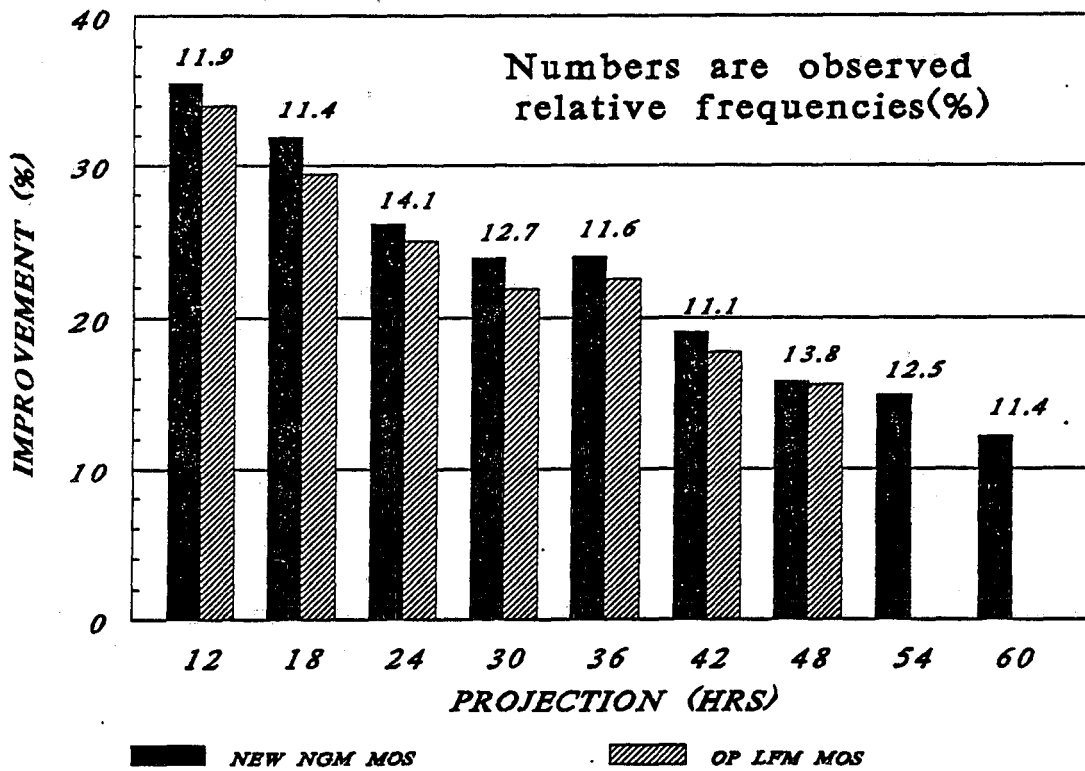


Fig. 2