



**Western Region Technical Attachment  
No. 93-12  
April 20, 1993**

**OVERVIEW OF INITIALIZATION OF "EARLY" ETA**

**Keith W. Meier - WRH SSD, Salt Lake City**

*[Editor's Note: This information was obtained in conversation with Russ Schneider of the Techniques Development Group at NMC.]*

Currently, Western Region Forecast Offices are incorporating the so-called "early" ETA model into the forecast process through the use of gridded model data and PCGRIDS. This model is termed the "early" ETA due to the early data cut-off time, similar to that of the LFM. In contrast, a later ETA model run, not currently available for use in the field, has a data cut-off similar to the NGM. The earlier data cut-off time may have an influence on some of the initialization differences between the early ETA and the NGM.

The early ETA also undergoes a substantially different overall initialization scheme. The first guess fields used for the initialization of the model are a product of a six hour forecast from a global spectral model, which is then adjusted for the upper-air observations received prior to the data cut-off. The six hour global forecast is generated using the previous set of upper-air observations in conjunction with all available synoptic observations between the time of those upper-air observations and the beginning of the global model run. For example, the 1200 UTC early ETA is initialized using a first guess field obtained from the global six hour forecast, which is run after 0600 UTC. This global model uses the complete 0000 UTC data set, as well as any synoptic data obtained from 0200-0600 UTC. The initialization for the 1200 UTC ETA uses this six hour forecast as a first guess for the 1200 UTC analysis, which is then modified by the 1200 UTC upper-air observations obtained prior to the early data cut-off.

This process may contribute to the early ETA initialization closely resembling the previous AVN run, especially in data sparse regions such as off the Pacific coast. This results from a lack of modification of the six hour forecast by any observations in data sparse areas, and consequently the first guess field is given more credibility.

Although the ETA model is inherently different than the LFM, NGM, and AVN primarily due to the handling of terrain, the initialization schemes used in the early ETA may have some impact on the model over data sparse areas. Consequently, it is not surprising that the early ETA has shown similarity to the AVN within the Western Region and along the Pacific coast. Understanding these factors will lead to more insightful interpretation of the early ETA forecasts.