**NCEP’s Role in a National Unified Weather-Climate Modeling Strategy**

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On the request of Jin Huang, I will present personal perspectives gained while I have been chairing an NRC report on ‘A National Strategy for Advancing Climate Modeling’, due out by mid-2012.

There are many compelling benefits to a well-funded national effort to develop a world-leading unified weather-climate model capable of skillful forecasts on timescales of days to several years using a single code; experience at UKMO and ECMWF has shown this vision is achievable, and NCEP is within reach of such a capability. Benefits include improved data assimilation, reduced drift of 1-2 week forecasts, ability to use frequent short-range forecasts to constrain parameterizations of ‘fast’ physics such as clouds and convection that also impact long timescales, and more efficient use of limited manpower by consolidating model development. There is broad-based enthusiasm within the climate science community for such an approach.

NCEP’s CFSv2 effort was a partly-unified model effort, in which significant additional modifications were made to a version of GFS to make it suitable for seasonal forecasting, but then those modifications were not brought back into the main development stream of GFS. I argue that CFSv3 should be developed using a more fully unified approach in which both weather and climate metrics are simultaneously used to judge GFS/CFS model improvement. In addition, while it is clearly necessary to maintain operational versions of this unified model, the development effort should be a truly national effort unifying the research and operational communities, based on an open grant-funded collaboration with interested members of the outside community, including user-friendly code, run script documentation, and computing and human resources dedicated to supporting this collaboration.