

A discretization of deep-atmospheric model dynamics for the  
NCEP Global Forecast System

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The NCEP GFS has been supported Space Weather Prediction Center (SWPC) in research and operation, thus the deep atmospheric dynamic system is considered. Current NCEP global model has an option to consider any continents of gases in the atmosphere by enthalpy, thus thermodynamic variable is ready to be used with deep atmosphere. However, the dynamics have to be further improved to consider the variation of elevation and to include nonhydrostatic system. The concept of hydrostatic coordinates similar to mass coordinates, as used in NCEP MSM, will be used and extended to a generalized vertical coordinates. The conservations of nature will be considered in the discrete equation to code the model. The discretization of the system is derived, and the preliminary of the model results will be presented.