



Noah land-surface model upgrades in the NCEP operational mesoscale Eta model

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We present testing of upgrades to the 'Noah' land-surface model (LSM) used in the National Centers for Environmental Prediction (NCEP) mesoscale Eta model whose operational domain includes North America. These improvements consist of changes to the model physics, most notable in the area of cold season processes, the addition of certain surface fields used in model initialization, and finally to the verification systems used to assess model performance. Results indicate improved performance in forecasting low-level temperature and humidity, with improvements to (or without affecting) the overall performance of the Eta model. Remaining issues that directly affect Noah LSM performance include non-LSM physical parameterizations, i.e. radiation and clouds which affect the amount of available energy at the surface, and surface layer and stable boundary layer processes which affect surface turbulent fluxes and the surface energy budget. Noah model development has been sponsored as part of the GEWEX-GAPP Core Project by the NOAA Office of Global Programs.