EMS7/ECAM8 Abstracts,
Vol. 4, EMS2007-A-00234, 2007
7th EMS Annual Meeting / 8th ECAM

LAPS versus OSU LSM coupled into NWP Workstation Eta model

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Physical processes representing soil-vegetation-atmosphere interaction have a great influence on atmospheric circulation. Accordingly, parameterizations of vegetation and soil processes in general circulation, mesoscale, and small-scale atmospheric numerical models have become more sophisticated over the last decades. For that purpose a vast number of soil–vegetation–atmosphere transfer (SVAT) schemes with different level of complexity was developed.

In order to estimate impact of different SVAT schemes on regional numerical weather prediction model outputs (NWP), Workstation NWP Eta model has been used. Two SVAT schemes were incorporated in the Eta model, Land Air parameterization Scheme (LAPS) and Oregon State University Land Surface Model (OSU LSM). The objective of this paper is to compare NWP outputs simulated using LAPS and OSU LSM schemes. Sensible and latent heat fluxes from canopy air space to reference level and momentum flux for both schemes are compared as a diagnostic variables. Prognostic variables of main interest in this study are temperature, relative humidity and precipitation. Analysis of the obtained results and verification of both forecasts is performed against the available synop data.