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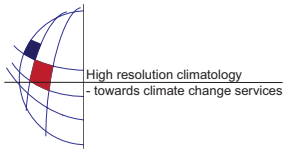

Analysis of regional albedo characteristics and its influence in the regional climate model REMO

S. Preuschmann and D. Jacob

Atmosphere in the Earth System, Max Planck Institute for Meteorology, Hamburg, Germany
(swantje.preuschmann@zmaw.de)

The effects of land-use changes on climate have a high priority in climate impact researches. Nevertheless it is not trivial to integrate land-use changes in the Regional atmospherical climate Model REMO (Jacob 2001) so that characteristics of a typical land-use type can be created and therewith systematical effects can be analyzed. As in many regional dynamical climate models, REMO is calculating in the target resolution with parameters which are independent of land-use classes. Considering only one of these parameters, e.g. the albedo, the processing chain (Rechid et al. 2008) to construct the underlying model-albedo uses a number of assumptions which levels phase and amplitude of the albedo-cycle of a regional typical land cover.
The albedo data product ALBEDOMAP (Fischer et al. 2006) of the Medium Resolution Imaging Spectrometer (MERIS) on the ESA platform ENVISAT is used as comparative data set. The annual cycle of the ALBEDOMAP data exceeds the modeled variability of the annual albedo cycle permanently in some cases by a factor of ten. Results of REMO-sensitivity studies show, that even small changes in the albedo about one percent is influencing the simulation.
Within this study the relevance of characteristically surface information concerning land-use change for fine resolutions in REMO were shown.

Fischer, J. ; Preusker, R.; Muller, J.-P. & M. Zühlke (2007): ALBEDOMAP -Validation Report - ESA AO/1-4559/04/I-LG, Online-Publikation: http://www.brockmann-consult.de/albedomap/pdf/MERIS-AlbedoMap-Validation-1.0.pdf.

Jacob, D. (2001): A note to the simulation of the annual and inter-annual variability of the water budget over the Baltic Sea drainage basin; Meteorol. Amtos. Phys., 77, 61-73, 2001.

Rechid, D.; Raddatz, T. & D. Jacob (2008): Parameterization of snow-free land surface albedo as a function of vegetation phenology based on MODIS data and applied in climate modelling.; Theor. Appl. Climatol., DOI 10.1007/s00704-008-0003-y.