



Simulating Evapotranspiration in Semi-Arid Environment: Influence of Land Cover Data Quality and Resolution

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ABSTRACT: In the interdisciplinary project IMPETUS (An Integrated Approach to the Efficient Management of the scarce Water Resources in West-Africa) water availability, quality and sustainability are investigated for a subcatchment in Morocco. A meteorological model chain is employed for downscaling meteorological informations. At the high resolution end of this model chain, the non-hydrostatic mesoscale model FOOT3DK (Flow Over Orographically structured Terrain, 3 Dimensional, Cologne Version) is used to simulate evapotranspiration for the semi-arid research site in southern Morocco. Results will be shown with special emphasis to the influence of subgrid surface heterogeneity. Recently, fine resolution land use / land cover data, obtained from LANDSAT satellite data analysis, is incorporated and improvements obtained will be presented. While for periods with dry soil conditions, neither subgrid surface heterogeneity nor implementation of improved land cover data show large impact on simulation results, for moister soil conditions changes become more pronounced downstream the vegetation belt. The simulation results are checked against measured data at different locations over the subcatchment. The results are encouraging with respect to the employment of the model as a reliable tool for the area-covering simulation of evapotranspiration and related parameters in a semi-arid environment.