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Land cover variability and its effect on potential predictability

M. Weiß, B. van den Hurk, and R. Haarsma
KNMI, De Bilt, Netherlands (weiss@knmi.nl)

Anthropogenic land-use activities have led to large-scale changes in global vegetation cover over the past centuries, and will probably continue so in the future. Land cover changes can range from changes in the state of vegetation to modifications in the character of vegetation to complete vegetation type conversion. The impact of this change is potentially significant, since on the one hand new surface parameters differ from those of the replaced natural vegetation, and on the other hand managed crop lands and pastures are now among the largest ecosystems on earth.
In this study we therefore investigate the role of land cover variability and vegetation in controlling the land-atmosphere coupling, its relation with evaporation and surface temperature, and impact on potential predictability over land. Results are based on the EC-EARTH model, which combines ocean (NEMO), sea-ice (LIM2), atmosphere (IFS), and land surface (HTESSEL) components.