

Supporting Information for ”Incorporation of the CORINE land cover dataset into the WRF-NoahMP model”

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Introduction

This supporting information file mostly include figures for a more detailed analysis of the results. The supplemental table includes the list of land cover class names.

Text S1. Snow depth data refers to the Copernicus Global Land Service's (CGLS) snow water equivalent product at 0.05° resolution. The dataset is created by using satellite and station snow depth measurements (Takala et al., 2011; Pulliainen, 2006). From the snow water equivalent, snow depth is can be calculated using a constant 240 kg m^{-3} snow density.

References

- Pulliainen, J. (2006). Mapping of snow water equivalent and snow depth in boreal and sub-arctic zones by assimilating space-borne microwave radiometer data and ground-based observations. *Remote sensing of Environment*, 101(2), 257–269.
- Takala, M., Luojus, K., Pulliainen, J., Derksen, C., Lemmetyinen, J., Kärnä, J.-P., ... Bojkov, B. (2011). Estimating northern hemisphere snow water equivalent for climate research through assimilation of space-borne radiometer data and ground-based measurements. *Remote Sensing of Environment*, 115(12), 3517–3529.

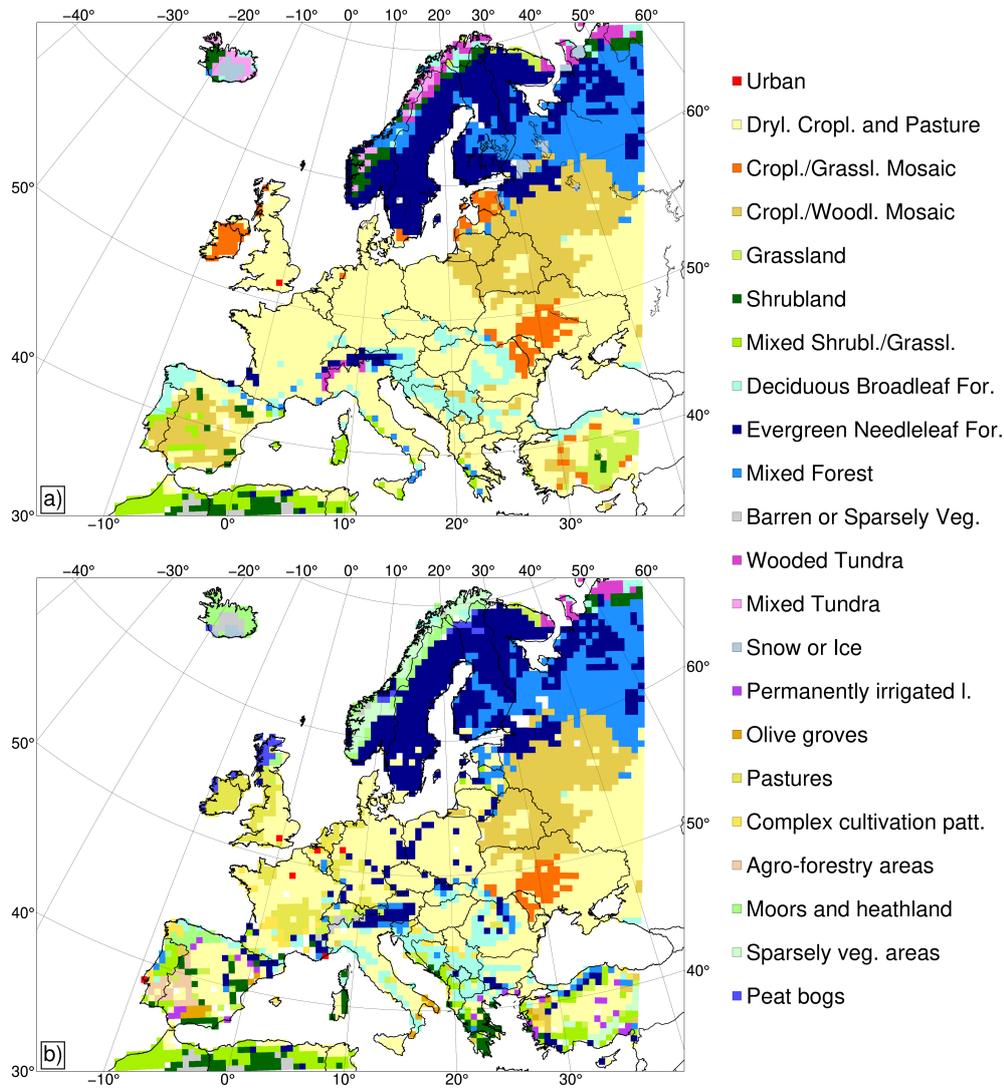


Figure S1. Dominant land cover categories at 50 km resolution over landmass based on a) USGS, b) CORINE database. With the exception of urban category, only categories with at least 5 grid point coverage are colored.

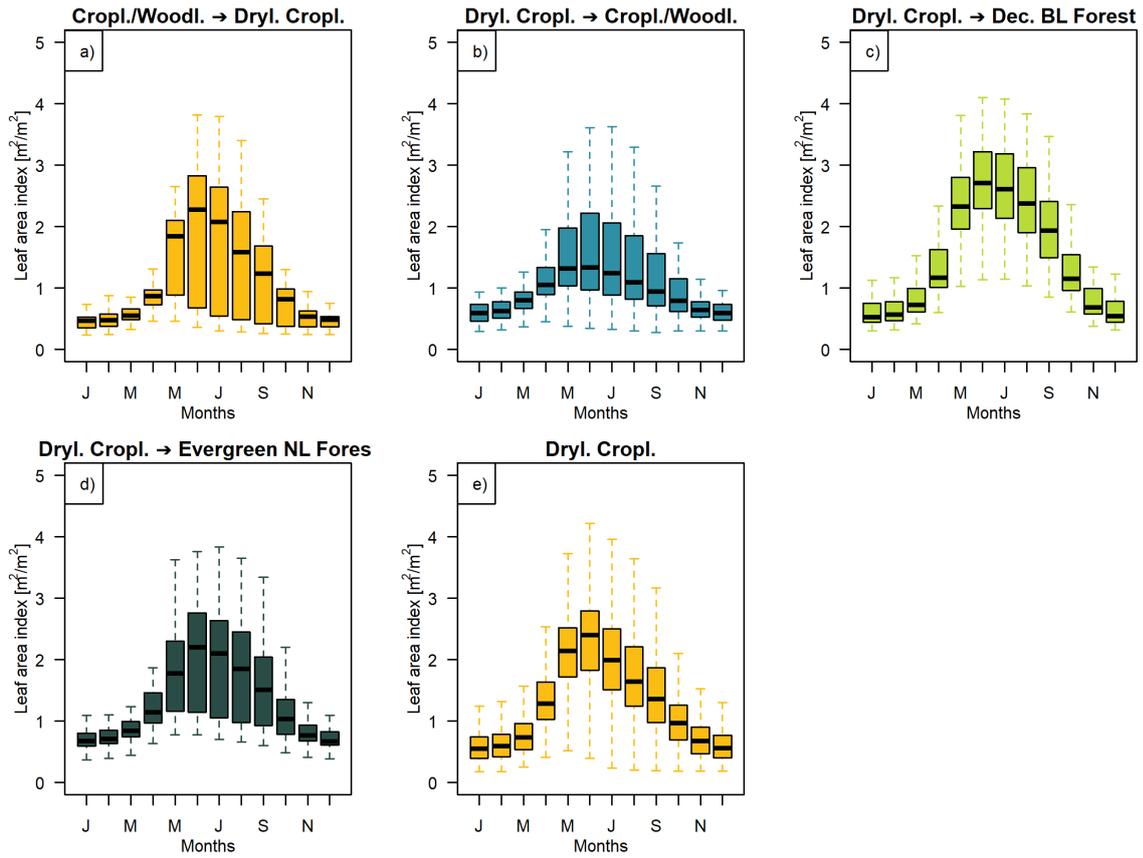


Figure S2. Monthly leaf area index at grid points with the indicated land cover change between the reclassified CORINE and the reference simulation.

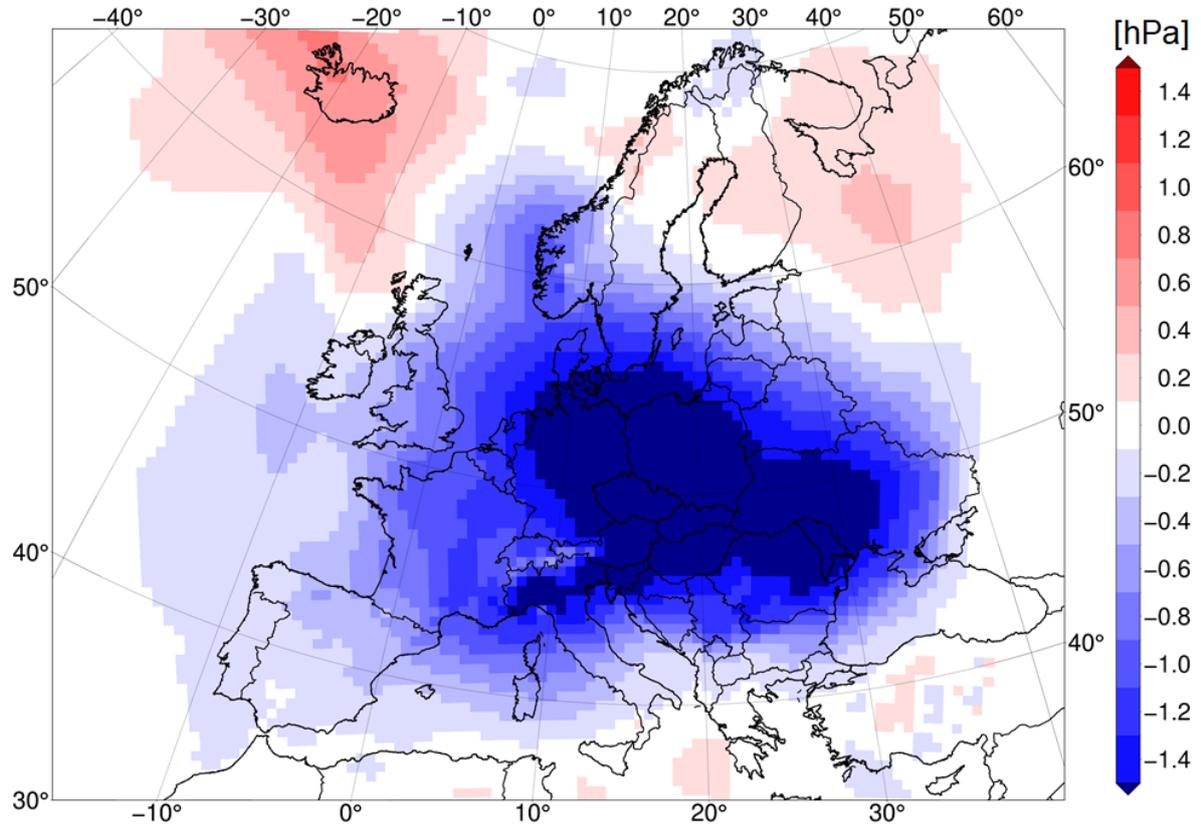


Figure S3. January average mean sea level pressure difference [hPa] between reclassified CORINE and reference simulation

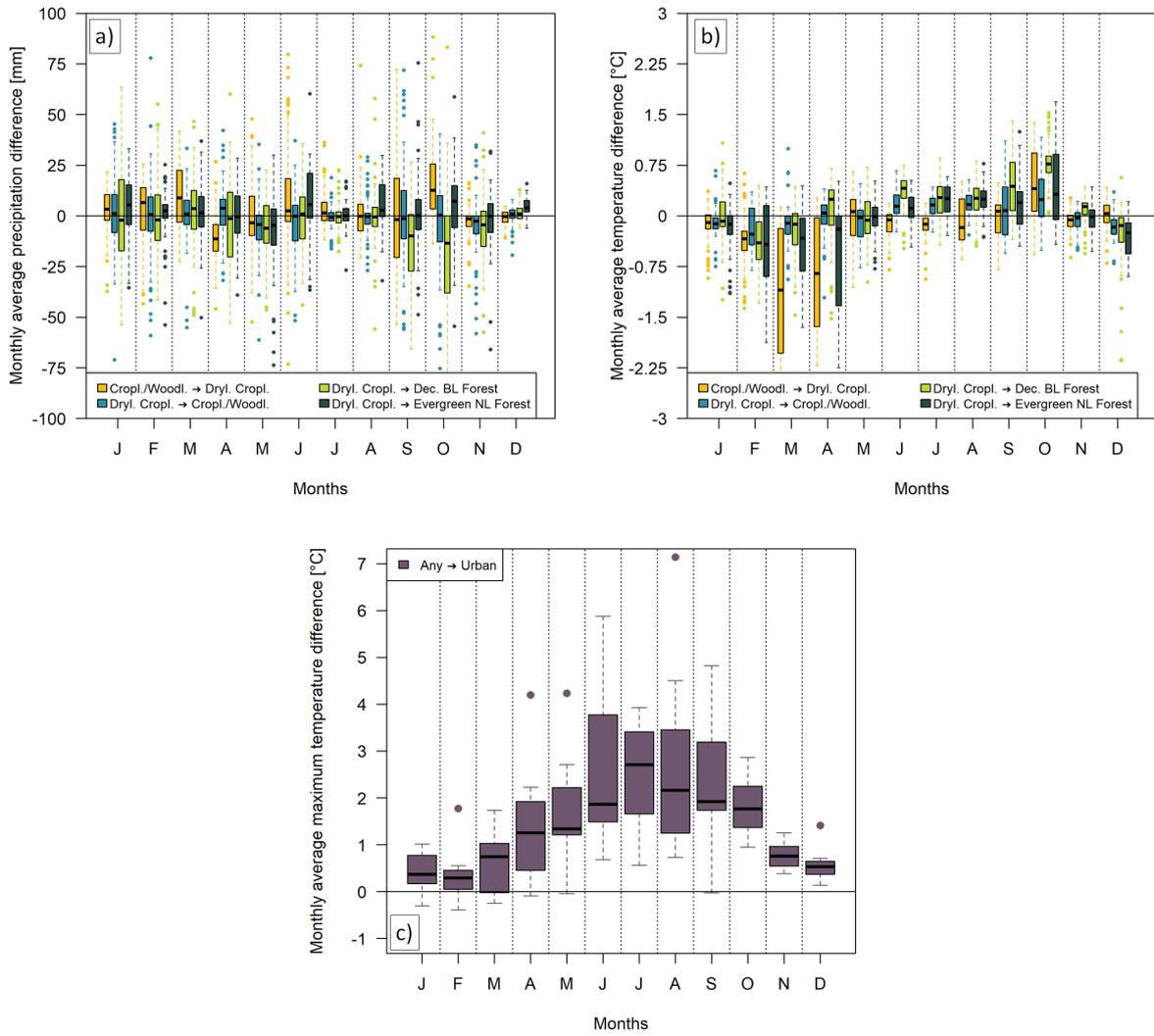


Figure S4. Monthly differences at grid points of a) precipitation [mm], b) temperature at 2 m [°C], c) maximum temperature at 2 m [°C] between the CORINE reclassified and reference simulations over selected land cover class changes.

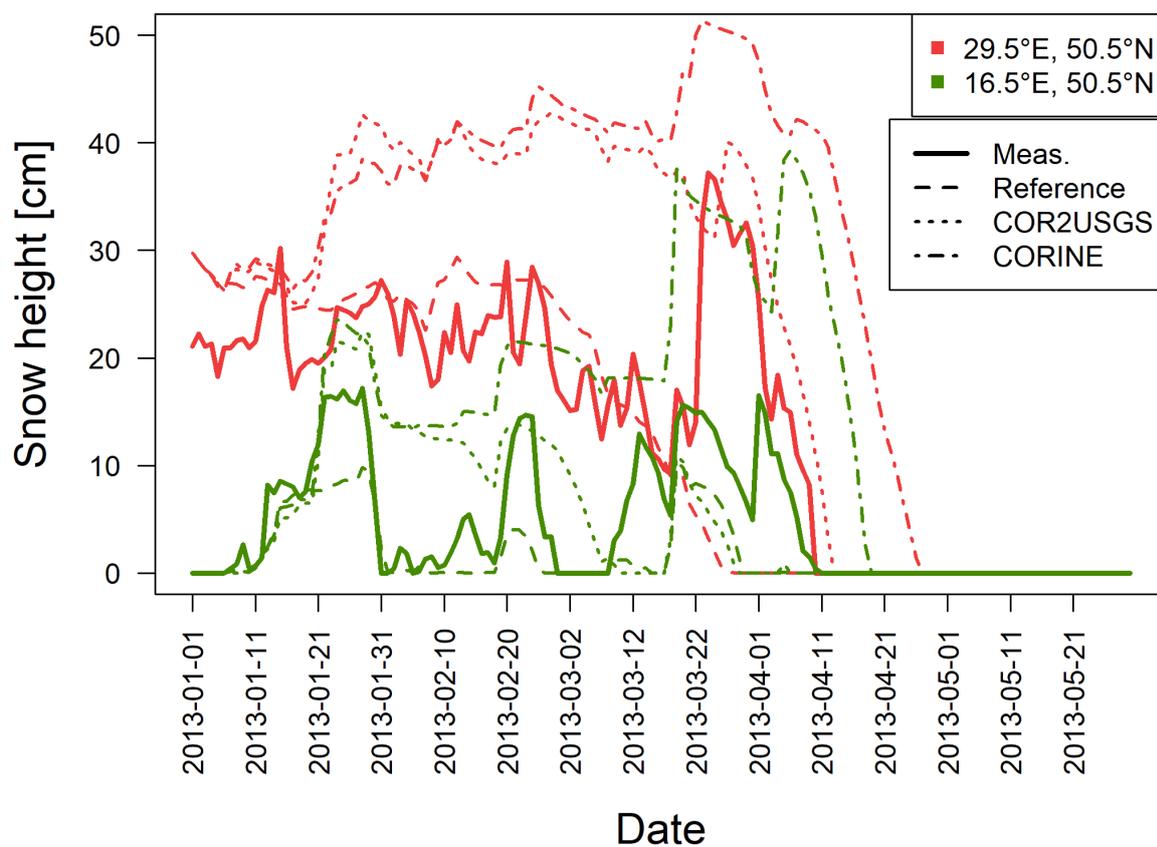


Figure S5. Snow height at two locations based on satellite measurements and on the three simulations. (29.5°E, 50.5°N: Central Dnieper Upland, Ukraine; 16.5°E, 50.5°N: Central Sudetes, Poland).

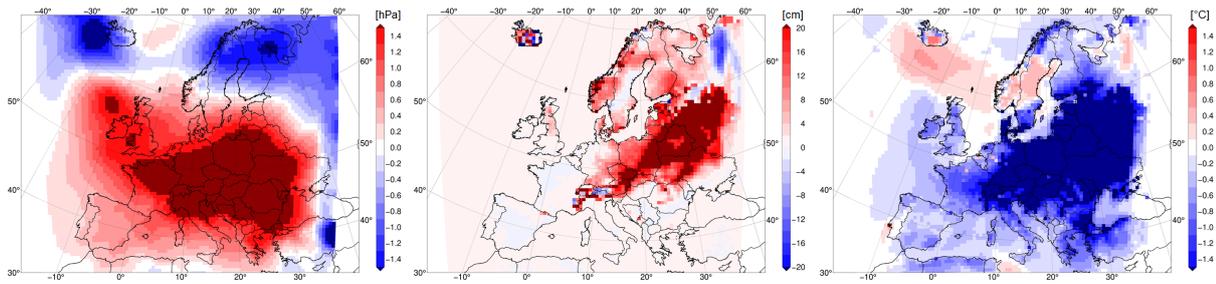


Figure S6. Monthly average difference between the full CORINE and reference simulation in April 2013 for a) sea level pressure [hPa], b) snow height [cm], c) temperature [°C].