



Impact of land-surface initialisation on sub-seasonal and seasonal predictability

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The idea that soil moisture and snow can influence the variability of temperature and precipitation has been deeply explored with the help of both climate models and observations. Significant impacts have been found in different areas such as Europe or monsoon regions. Nevertheless, the impact of the land surface on near-surface climate is complex and climate models differ significantly in their response to land-surface variations. Different studies have shown that a better land-surface initialisation could improve forecast skill at sub-seasonal time scales. In this work we discuss the impact of a realistic land-surface initialisation on sub-seasonal and seasonal forecasts. We compare the forecast quality of a set of four-month long hindcasts performed over 1981-2010 with the EC-earth2.3 forecast system where the land-surface is initialised either with the best observational estimates or with climatology. The land-surface data are extracted from the ERA-Land experiment, while the ocean, sea-ice and atmospheric components are initialised with ORAS4, the IC3 sea-ice analysis and ERAInterim, respectively.