



Land-atmosphere coupling associated with snow cover

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Two EC-EARTH AMIP type simulations of 30 years were carried out to investigate the role of snow cover inter-annual variability on near surface and ground temperature variability. The first simulation was forced by climatological boundary conditions (SST and sea ice) (COUP). A second simulation is performed by prescribing the daily climatology maps of snow mass, snow density and snow albedo derived from the COUP simulation. In this second simulation (UNCOUP) the inter-annual variability of snow cover is suppressed. Preliminary results show that the inter-annual variability of snow cover is closely related with near surface and ground temperature variability. In the UNCOUP simulation there is a reduction of almost 60% of the near surface temperature inter-annual variability when compared with COUP. The results point to the strong land-atmosphere decoupling induced by snow cover. The role of boundary conditions is also investigated by performing a second set of simulation with time varying SSTs and sea ice.