Land cover change (LCC) plays an important role in the climate system. Impacts of LCC can be observed at all spatio-temporal scales. LCC results in the modification of biogeophysical and biogeochemical properties of the land and atmosphere. Examples of biogeophysical characteristics can be leaf area index (LAI), surface roughness and albedo, while biogeochemical could be the carbon and nitrogen budgets. Changes in these properties impact weather and climate.

It is found that LCC, related to deforestation, reforestation, afforestation, urbanization, and agricultural activities, can increase or lower the long-term maximum temperature over a region by changing energy partitioning (latent vs. sensible energy flux) and also atmospheric moisture content. LCC impacts timing and location of convection and amount of precipitation. These impacts can be observed at the meso-, regional-/sub-continental scale. In addition, LCC may remotely impacts sub-continental scale climate. However, it needs further investigation.