



Can afforestation help to reduce the drought severity?

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Vegetation has an influence on the biogeophysical properties of the land surface, thus it affects the surface water and energy fluxes. Changes of the land cover due to climatic conditions and human influence feed back to the atmosphere and lead to the enhancement or reduction of the original climate change signal. Regional scale hydrologic effects induced by forest cover change in the temperate zone, under future climate conditions are still poorly understood and quantified.

For the period 2071-2100, probability and severity of extreme dry events and the climatic effects of afforestation have been investigated for Hungary, using the regional climate model REMO. Droughts have been identified and classified applying general- and forestry indices. Influence of the forest cover increase on the components of the water and energy cycle have been analysed, with special focus on the most climate change affected areas.

Research efforts are concentrating on the following questions:

- How big is the effect of afforestation on the summer precipitation and temperature compared to the projected climate change signal?
- Is the probability of severe droughts smaller assuming larger forested area?
- Which are the regions, where forest cover increase is the most beneficial from climatic point of view and should be supported to reduce the projected tendency of drying?

Understanding the role of forests in the climatic processes and interactions can provide useful information for the adaptation strategies in forestry and water management.

Keywords: drought severity, land cover change, climatic effects of afforestation