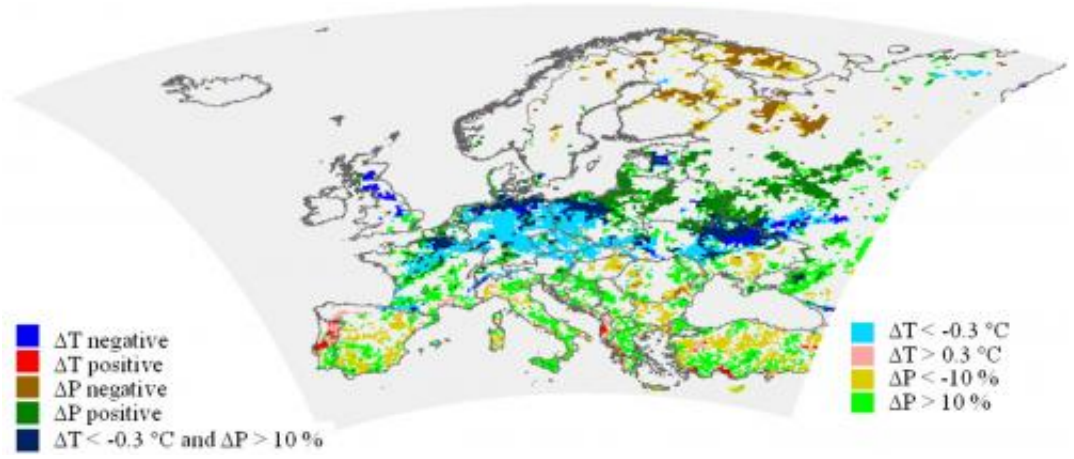
# Planting trees may not reverse climate change but it will help locally

February 1 2013




Afforestation, planting trees in an area where there have previously been no trees, can reduce the effect of climate change by cooling temperate regions. Credit: Case study for the assessment of the biogeophysical effects of a potential afforestation in Europe Borbála Gálos, Stefan Hagemann, Andreas Hänsler, Georg Kindermann, Diana Rechid, Kevin Sieck, Claas Teichmann and Daniela Jacob

Afforestation, planting trees in an area where there have previously been no trees, can reduce the effect of climate change by cooling temperate regions finds a study in BioMed Central's open access journal *Carbon Balance and Management*. Afforestation would lead to cooler and wetter summers by the end of this century.

Without check climate change is projected to lead to summer droughts

and winter floods across Europe. Using REMO, the regional climate model of the Max Planck Institute for Meteorology, researchers tested what would happen to climate change in 100 years if land currently covered in non-forest vegetation was converted into deciduous forest. This equates to more than a doubling of forest in Poland, Czech Republic, Denmark, Northern Ukraine, Northern Germany and France. But in already heavily forested countries such as Sweden the increase is smaller, at less than 10%.

The large leaf area and low aerodynamic resistance of these types of trees lends itself to enhanced evapotranspiration compared to other vegetation, cooling the surrounding air, and leading to cooler surface temperatures. The model indicates that in the northern part of central Europe and Ukraine afforestation results in 0.3-0.5C decrease in temperature and 10-15% more summer rain by 2071-2090.

The effect of planting trees depends on the environment of each region. Dr Borbála Gálos, who led this study, explained, "While we realize that the amount of afforestation included in our model is unrealistic in practice, even a more modest program of planting trees could theoretically reduce the effect of climate change in Northern Europe. There is less of an effect in more southerly regions due to complex issues including soil moisture content. However, even in these areas, forest cover can provide localized benefits by making the surrounding air moister and cooler, sequestering carbon, protecting biodiversity and air quality, and preventing soil erosion."

Provided by BioMed Central