

REFORESTATION: COMPARING CO₂ UPTAKE AND SURFACE ALBEDO CHANGE

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The Kyoto Protocol includes afforestation and reforestation as means of reducing net carbon emissions. The motivation is a desire to reduce the radiative forcing of climate change. However, since a forest generally has a lower albedo than open land, particularly when snow is lying, reforestation may provide a positive radiative forcing by albedo change which opposes the negative forcing by CO₂ uptake. A spatially-explicit comparison of these forcings is made using a climate model and soil and vegetation carbon estimates, and the limitations of carbon accounting for quantifying climatic impacts of reforestation are discussed.