

## Small temperature benefits provided by realistic afforestation efforts

### Supplementary Figure 1

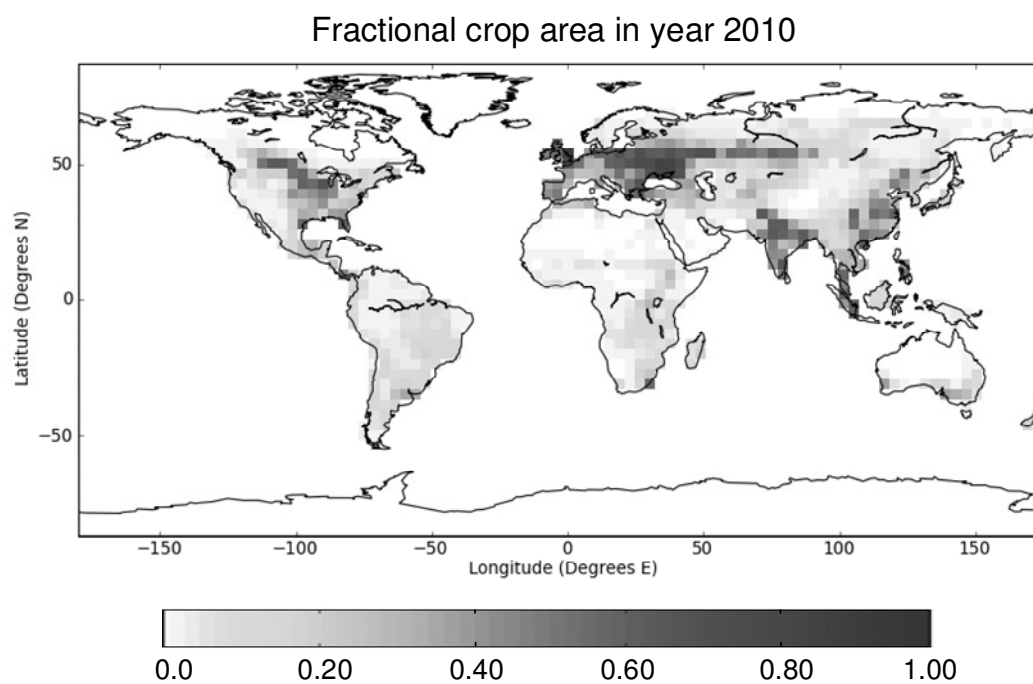


Figure S1: **Fractional crop area in year 2010.** An observation-based crop area data set (Ref. 8) is used for the period 1850-1992 and extended up to 2010 as explained in the Methods.

Supplementary Figure 2

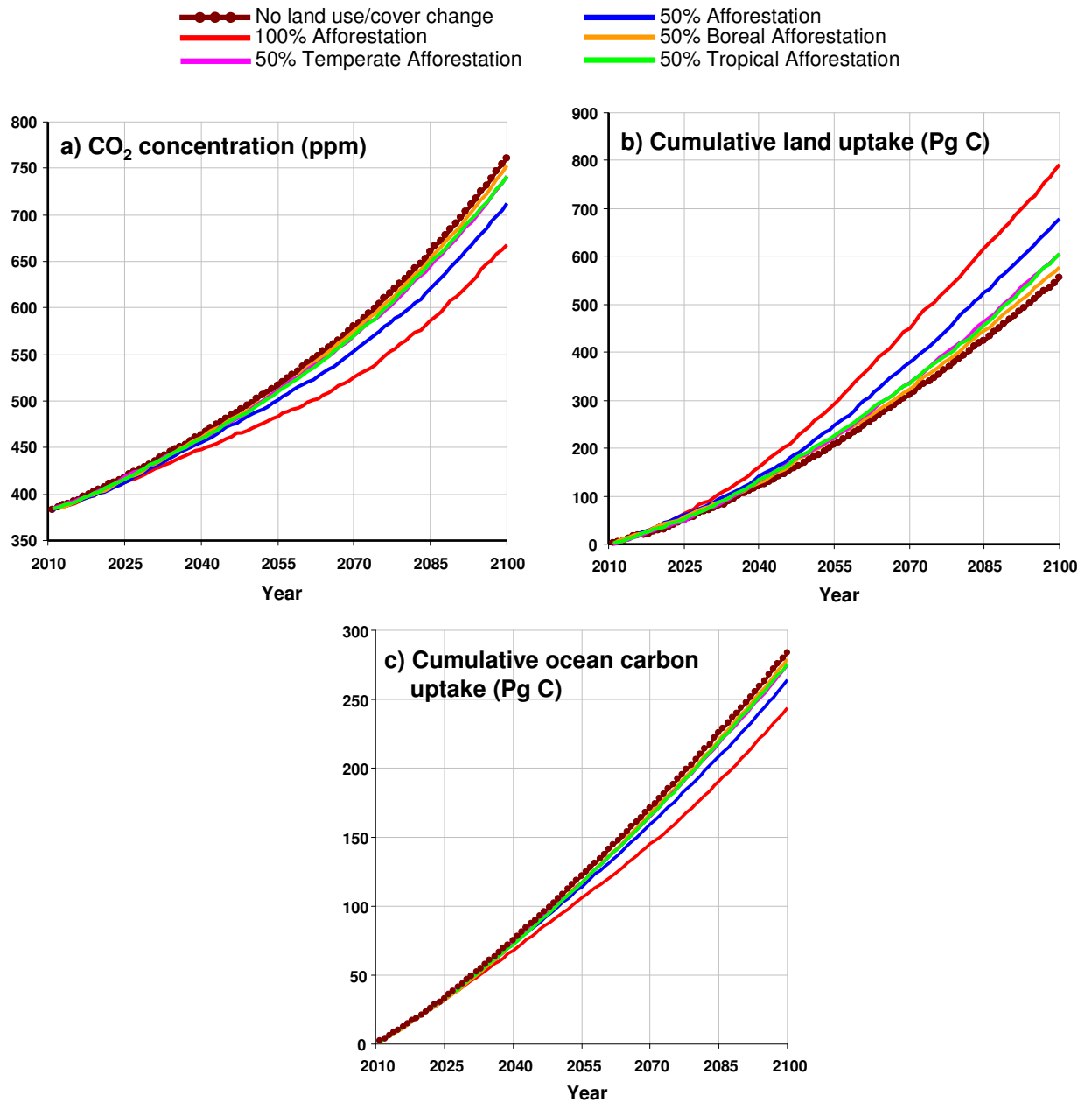
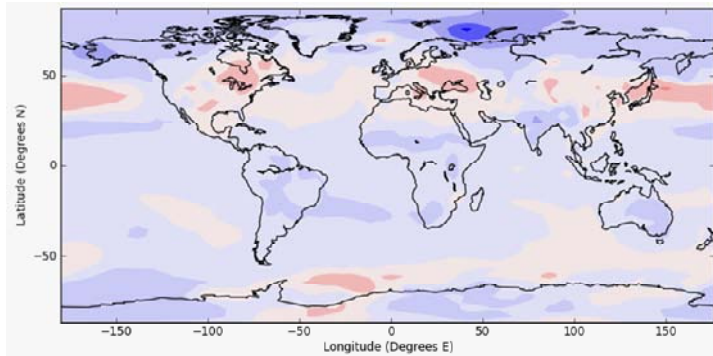


Figure S2: **Effect of afforestation on atmospheric CO<sub>2</sub> and land and ocean carbon uptake.** Simulated CO<sub>2</sub> concentration (panel a), cumulative land uptake (panel b), and cumulative ocean uptake (panel c) for the standard no land-use/land cover change and the five afforestation simulations.

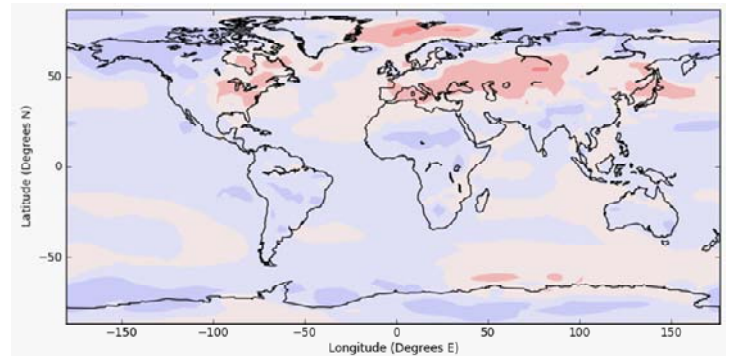
## Supplementary Figure 3

Temperature difference ( $^{\circ}\text{C}$ ) over the 2081-2100 period between the latitudinal afforestation and the standard no land cover change simulations

a) 50% temperate afforestation



b) 50% boreal afforestation



c) 50% tropical afforestation

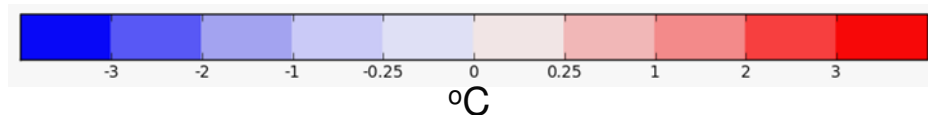
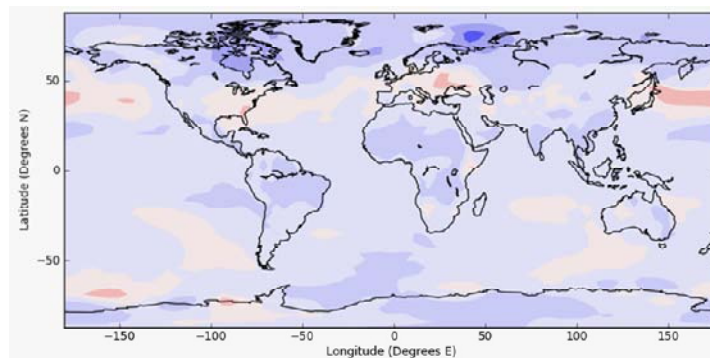


Figure S3: **Spatial distribution of temperature difference in the three latitudinal afforestation simulations.** Differences are for the period 2081-2100 compared to the standard no land-use/land cover change simulation. Negative values (blue colours) indicate reduced warming and positive values (red colours) indicate areas of enhanced warming.

Supplementary Figure 4

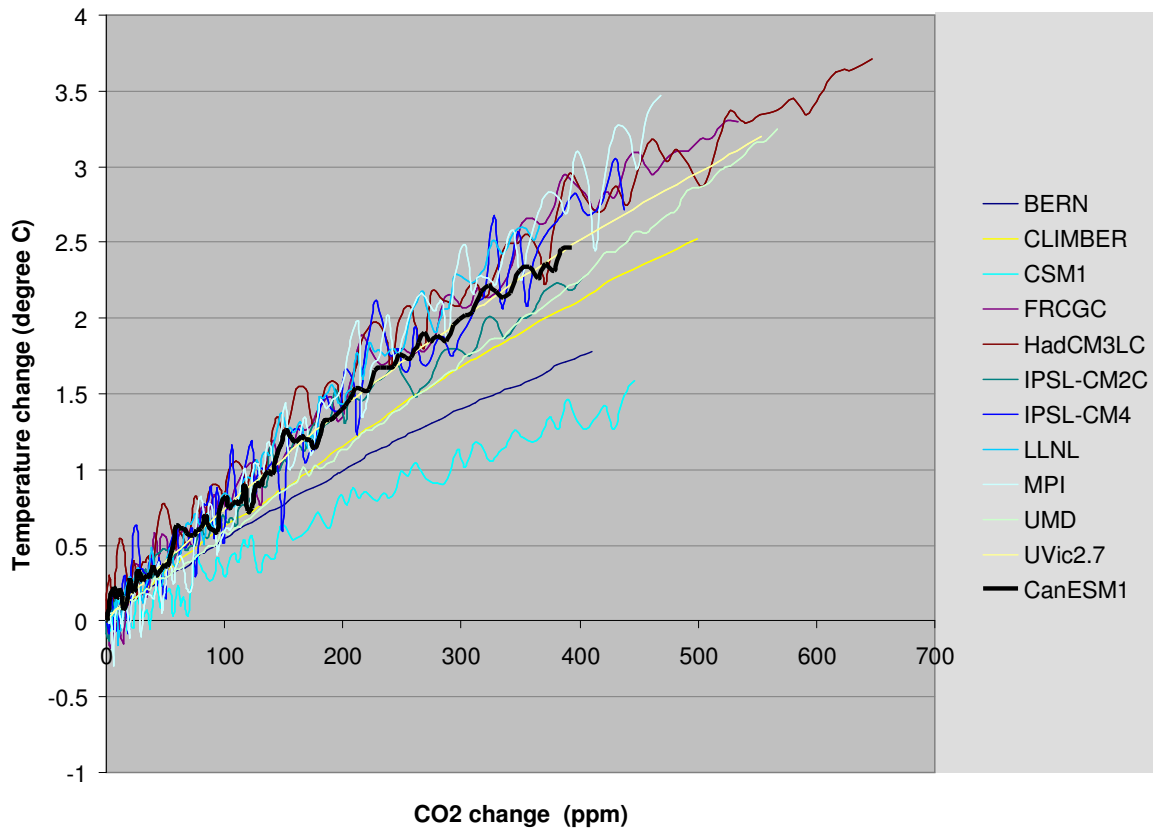


Figure S4: **Comparison of climate sensitivity of CanESM1 with models that participated in the C4MIP study.** Temperature change is plotted against CO<sub>2</sub> change for the period 2001-2100 for a simulation driven with emissions from the IPCC SRES A2 scenario.