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Impact of land use change on the European terrestrial carbon cycle.

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The land surface of Europe is highly managed with dense forest cover largely replaced by cropland. A newly developed version of the community land surface model, JULES, will be applied to Europe, quantifying the impact that large-scale conversion of the vegetation cover has had on the carbon balance. This version of JULES includes realistic treatment of carbon re-distribution resulting from land-use change and represents harvesting of carbon from crops. These developments facilitate the application of JULES to present-day Europe and will allow better comparison against observations in the future. The scheme will also be used in the coupled climate-carbon cycle model HadGEM2 to enable us to more realistically simulate the interactions and feedbacks between climate, carbon cycle and human activity.