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Towards Estimates of Full Climate Change Effects of Forestry

Frank Berninger (1,2,3), Annikki Mäkelä (1,2), Tuomo Kalliokoski (1,2), and Lauri Valsta (1)

(1) University of Helsinki, Forest Sciences, University of Helsinki, Finland (frank.berninger@helsinki.fi), (2) Institute for Atmospheric and Earth System Research / Forest Sciences Faculty of Agriculture and Forestry, University of Helsinki, Finland , (3) Faculty of Forestry and Biotechnology, Zhejiang A&F University, Hangzhou China

Climate change and the rise of the bio-economy have increased the discussion about the future management of boreal forests. On the one hand there has been an interest into increasing the use of forests for bio-energy purposes leading to higher cut of forests and a higher production. On the other hand it might be more climate friendly to protect forests and to, consequentially, decrease wood production to increase carbon storage in forests. In this presentation we try to integrate carbon sequestration in forests and forest products, albedo as a non-CO_2 climate forcing factor as well as emissions from the use of forest products for product substitution. Simulations were done using a suite of state of the art climate models for the current climate and the climate in 2050. Albedo effects favored shorter rotations but the effects were somehow smaler than in some other studies. If product substitution is not taken into account scenarios that maximize carbon sequestration (and consequently minimize wood use) were the most climate friendly. Accounting for the effects of product substitution decreased the differences between scenarios to the point where differences between some scenarios were uncertain.