

Land Use Change and Climate

Lecturer: Dr. habil. Borbála Gálos, PhD.

Institute: University of Sopron, Faculty of Forestry, Institute of Environmental and Earth Sciences

Course code: EG670-E

Credit points: 5

Time table: Lecture: 2

Language: English, German

Course description

Topics

Ecological climatology: concepts and applications. Components of the Earth system. Natural and anthropogenic climate forcings. Climate variability and climate change: driving forces and main effects on global and regional scale. Climate feedbacks: ice – albedo, cloud – albedo, water vapour feedbacks, C-sequestration of the ocean, permafrost thaw. Vegetation – climate interactions: effects of climate on vegetation; the role of land surface in the climate system (biophysical and biogeochemical processes and feedbacks). Investigation of the possible climate change mitigation potential of land use and land use change. Models as research tools in ecological climatology. Short presentation of selected interactive topics and related discussion.

Invited speaker for one lecture: Prof. Dr. Éva Konkoly-Gyuró: Land use change in the Carpathian basin during the 19-20 century

References

1. Bonan, G.B. 2008. Ecological climatology. Cambridge University Press, UK, 550 p
2. Anderson R.G. et al 2010. Biophysical considerations in forestry for climate protection. *Front. Ecol. Environ.* doi:10.1890/090179
3. Gálos B. and D. Jacob 2013. Regional-scale assessment of the climatic role of forests under future climate conditions. In: Liu, G. (ed). *Greenhouse Gases - Emission, Measurement and Management* ISBN 979-953-307-224-0, 295-314.
4. IPCC 2013. *Climate change 2013: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* <http://www.ipcc.ch>
5. de Noblet-Ducoudré N. et al. 2012. Determining Robust Impacts of Land-Use-Induced Land Cover Changes on Surface Climate over North America and Eurasia: Results from the First Set of LUCID Experiments. *J. Climate*, 25:3261–3281.