

Collection: NFZ Summer School 2009 - Birmensdorf (Switzerland)

Long-term ecosystem research: understanding the present to shape the future

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Since 1994, the Swiss long-term forest ecosystem research project has been addressing global change as a driving force on forest biota and ecological processes. On this landmark date experts from the respective research field were invited to the 15<sup>th</sup> anniversary of the Swiss Long-term Forest Ecosystem Research LWF to reflect on the current state of long-term (forest) ecosystem research and its scientific value. In parallel, the 2009 Summer School of the eight forest research centers of the European NFZ.-Forestnet was organized by the Swiss Federal Institute WSL, in close collaboration with the Albert-Ludwig University (ALU) in Freiburg and the INRA in Nancy.

The topic of the 2009 NFZ Summer School was "How to publish and conference - HOWTOPC". The main objective was to provide insight into scientific writing and publishing and how to conference. The methods and techniques for scientific writing were communicated during various workshops and lectures. The lecturers were scientists and experts in scientific communication. Main emphasis was put on "what is scientific writing" and "how to produce a peer-reviewed paper". The students gained an in-depth insight in the editorial world and learned how to structure and organize a scientific paper based on the state of the art.

The respective techniques were acquired by 20 students from Austria, Canada, Finland, France, Germany, Hungary, Indonesia and Switzerland during seminars, workshops and through participation in the international

LWF Conference on "Long-term ecosystem research: Understanding the present to shape the future". The final product were five mini-review papers written by five teams with two students per team on one of the five following main topics from the International LWF Conference:

- Impacts of air pollution on forest ecosystems
- Forest growth and biodiversity
- Drought and heat effects on forest ecosystems
- Mountain forests in a CO<sub>2</sub> enriched world
- Natural ecosystems

The teams were free to determine the focus within the given topic of their manuscript. For example; the students may have gone broad and develop a review on the main topic of "Impacts of air pollution on forest ecosystems" or they may have focused on, e.g., one air pollutant and/or one region. In order to pass the peer-review process, the information from the submitted manuscripts has to be novel, *i.e.*, based on the presentations of the International LWF Conference combined with a literature review. However, considering the given time frame and the educational objectives of the 2009 NFZ Summer School, the review committee that consisted of the lecturers of the 2009 Summer School weighted the structure and reasoning of the manuscript over the scientific content.

This special issue on "Long-term ecosystem research: Understanding the present to shape the future" consists of the following nine mini-review papers summarizing and discussing the latest state of the art on "Impacts of climate change on the establishment, distribution, growth and mortality of Swiss stone pine (*Pinus cembra* L.)" by Boden et al. (2010), "Separating soil respiration components with stable isotopes: natural abundance and labeling approaches" by Braig & Tupek (2010), "Drought-induced mortality of Scots pines at the southern limits of its

distribution in Europe: causes and consequences" by Giuggiola et al. (2010), "Monitoring the effects of air pollution on forest condition in Europe: is crown defoliation an adequate indicator?" by Johnson & Jacob (2010), "Remote sensing-supported vegetation parameters for regional climate models: a brief review" by Latifi & Galos (2010), "Indicators of drought effects in *Pinus sylvestris*: Genetic analyses to corroborate the results of empirical methods" by Lechner & Rigal (2010), "Open Top Chamber and Free Air CO<sub>2</sub> Enrichment - approaches to investigate tree responses to elevated CO<sub>2</sub>" by Macháčová (2010), "Field experiments using CO<sub>2</sub> enrichment: a comparison of two main methods" by Mauri (2010), and on "Increasing dissolved organic carbon concentrations in freshwaters: What is the actual driver?" by Suker & Krause (2010).

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