



LUND UNIVERSITY

Storm effects on net ecosystem productivity in boreal forests

Vestin, Patrik; Grelle, Achim; Lagergren, Fredrik; Hellström, Margareta; Langvall, Ola; Lindroth, Anders

Published in:
Geophysical Research Abstracts

2010

[Link to publication](#)

Citation for published version (APA):

Vestin, P., Grelle, A., Lagergren, F., Hellström, M., Langvall, O., & Lindroth, A. (2010). Storm effects on net ecosystem productivity in boreal forests. *Geophysical Research Abstracts*, 12. <http://adsabs.harvard.edu/abs/2010EGUGA..1210827V>

Total number of authors:
6

General rights

Unless other specific re-use rights are stated the following general rights apply:
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

Read more about Creative commons licenses: <https://creativecommons.org/licenses/>

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

LUND UNIVERSITY

PO Box 117
221 00 Lund
+46 46-222 00 00



Storm Effects on Net Ecosystem Productivity in Boreal Forests

Patrik Vestin (1), Achim Grelle (2), Fredrik Lagergren (1), Margareta Hellström (1), Ola Langvall (3), and Anders Lindroth (3)

(1) Department of Earth and Ecosystem Sciences, Lund University, Lund, Sweden, (2) Department of Ecology, Swedish University of Agricultural Sciences, Uppsala, Sweden, (3) Asa Forest Research Station, Swedish University of Agricultural Sciences, Sweden

Regional carbon budgets are to some extent determined by disturbance in ecosystems. Disturbance is believed to be partly responsible for the large inter-annual variability of the terrestrial carbon balance. When neglecting anthropogenic disturbance, forest fires have been considered the most important kind of disturbance. However, also insect outbreaks and wind-throw may be major factors in regional carbon budgets. The effects of wind-throw on CO₂ fluxes in boreal forests are not well known due to lack of data. Principally, the reduced carbon sequestration capacity, increased substrate availability and severe soil perturbation following wind-throw are expected to result in increased CO₂ fluxes from the forest to the atmosphere. In January 2005, the storm Gudrun hit Sweden, which resulted in approx. $66 \cdot 10^6 \text{ m}^3$ storm-felled stem wood distributed over an area of approx. 272 000 ha. Eddy covariance flux measurements started at storm-felled areas in Asa and Toftaholm in central Sweden during summer 2005. Data from the first months suggests increased CO₂ fluxes by a factor of 2.5-10, as compared to normal silviculture (clear-cutting). An important question is how long such enhanced CO₂ fluxes persist. The BIOME-BGC model will be calibrated against measured CO₂ fluxes from both sites for 2005 through 2009. Modeled data will be used to fill gaps in the data sets and annual carbon balances will be calculated. Data from Asa and Toftaholm will be presented at the conference.