

Relationship between climate change and environmental risk's of forestry technologies

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Environmental risk analysis of the technological aspects of forestry is an important complement to the climate research.

Commonly used forestry technologies, like cleaning cutting or final harvest, causes various environmental effects which presents different environmental risks. Based on their material and energy deductions and emissions, they can contribute in different ways to global environmental problems such as climate change.

Using environmental risk assessment we explored the newly emerging environmental hazards of the typical forestry technologies due to climate change.

These hazards are known in terms of their properties (eg. aridification, toxic load etc), but the spatial appearance is novel. We investigated the possible stressor-response relationships, then estimated the expected exposure. In the risk characterization, we summarized information received in the previous steps. As a result we set up the risk matrices of the working systems of intermediate cutting and final harvest in the stands of beech, oak and spruce.

In the matrices, the technologies ranked by values of Global Warming Potential (GWP 100 years) were placed in relation of the average temperature change (dT [$^{\circ}$ C]) of climate change scenarios.

We defined the environmental risks in text form, specifying classes of risks:

- I. Class: high risk
- II. Class: medium risk
- III. Class: low risk.

The use of a risk matrix is an important complement to climate change decision-making when selecting the forestry technologies. It serves as a guideline for both foresters and decision makers.

Keywords: climate change / environmental risk / risk assessment / forest technology's risk matrix

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