CLIMATE SMART FORESTRY NORWAY 2020-2024

Virtual Bio4Fuels Days 2020

Erik Trømborg, NMBU

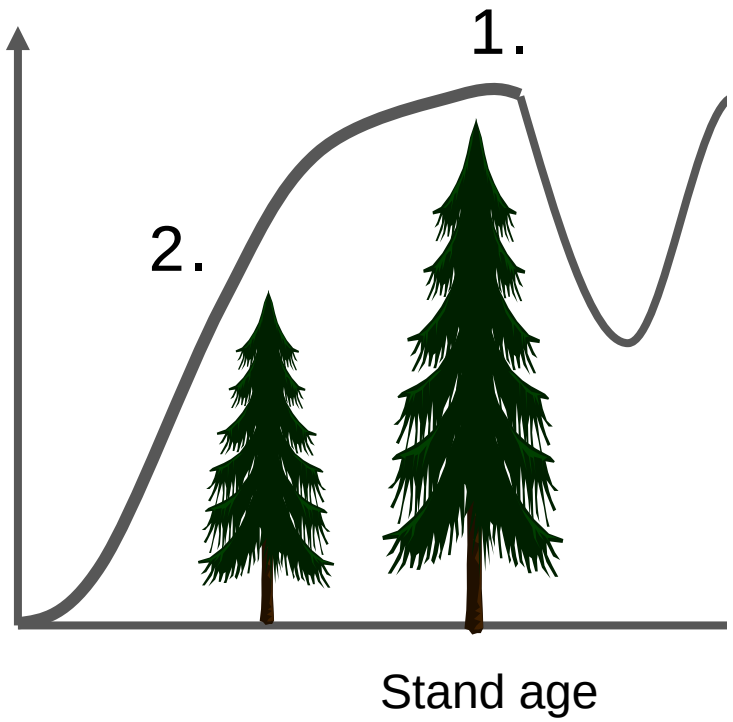
CONTENT

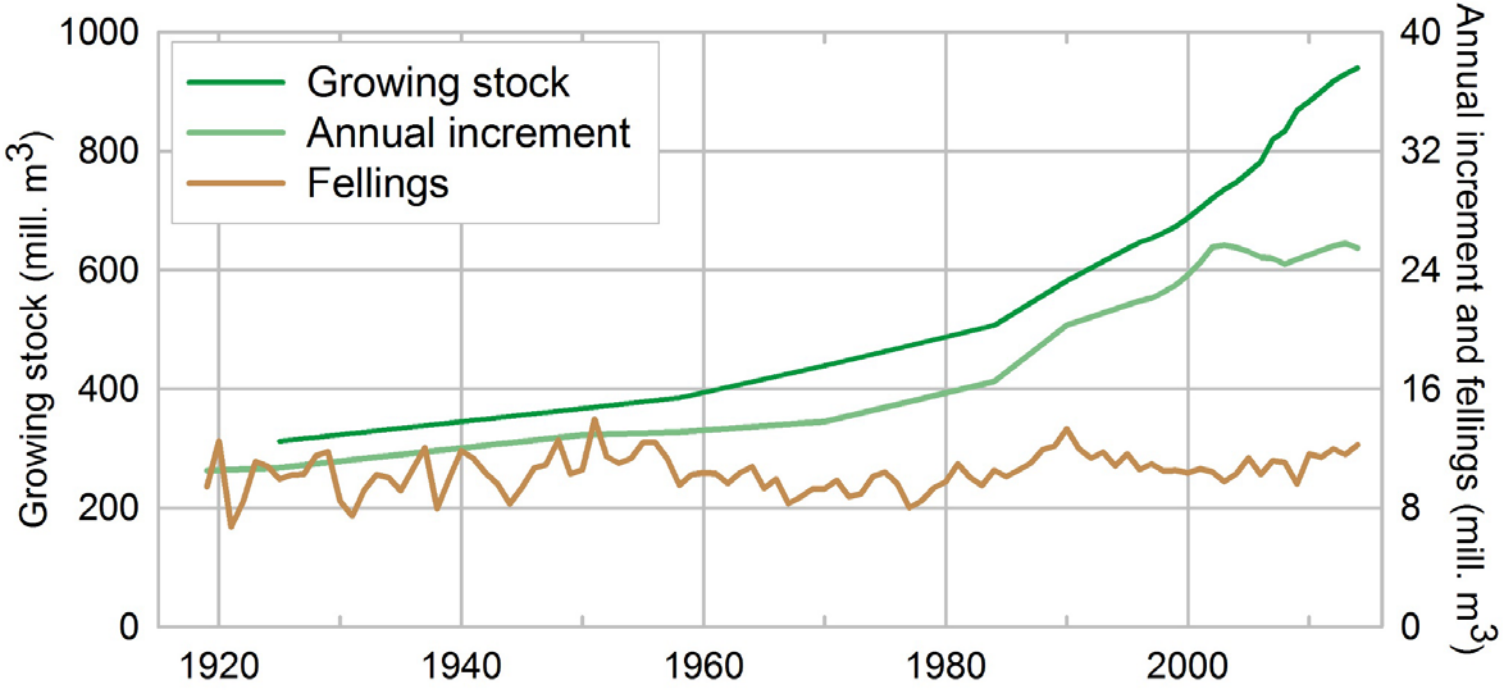
- Research project on Climate Smart Forestry in Norway from 2020-2004
- NMBU and NIBIO Norway, LUKE Finland, Wageningen the Netherlands
- Budget about 2 mill Euro, main funding from the Norwegian Research Council
- 1 post-doc and 1 PhD student + staff
- Representatives from Norwegian stakeholder in a counseling board

Background - we can choose...

1. High storage, low annual sequestration of CO_2
2. High sequestration of CO_2 and wood supply, reduced storage

What is climate smart forestry when disturbances, substitution effects and radiative forcing are taken into account?





Source: Norwegian Institute of Bioeconomi Research and Statistics Norway

1.What are the **carbon storage** and **substitution benefits** of wood-based products most relevant in the Norwegian context?

2. What are the market and resource potentials for a more climate friendly product palette?

GLOBAL CHANGE BIOLOGY BIOENERGY

GCB Bioenergy (2011), doi: 10.1111/j.1757-1707.2011.01102.x

CO_2 emissions from biomass combustion for bioenergy: atmospheric decay and contribution to global warming

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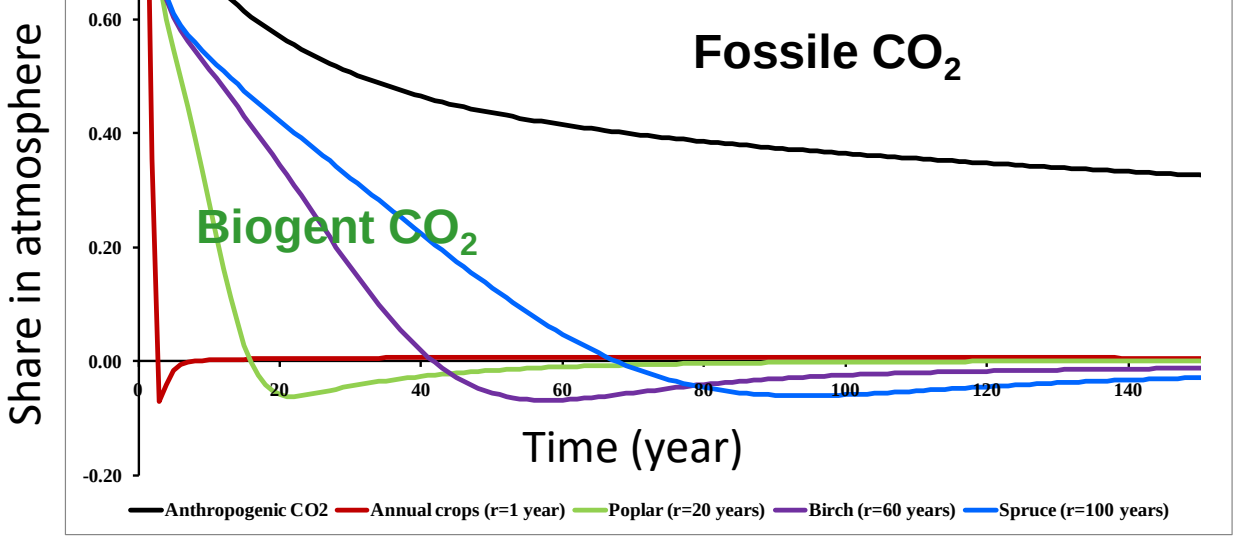


What are the **probabilities**, **consequential effects** and their **links to forest structure** under climate change (CC= of the key (rot, wind, beetles, fire) disturbance factors?

Foto: Anders Eid Hohle

What are the effects of radiative- and non-radiative **biogeophysical climate forcings** and their **links to forest structure** under CC?

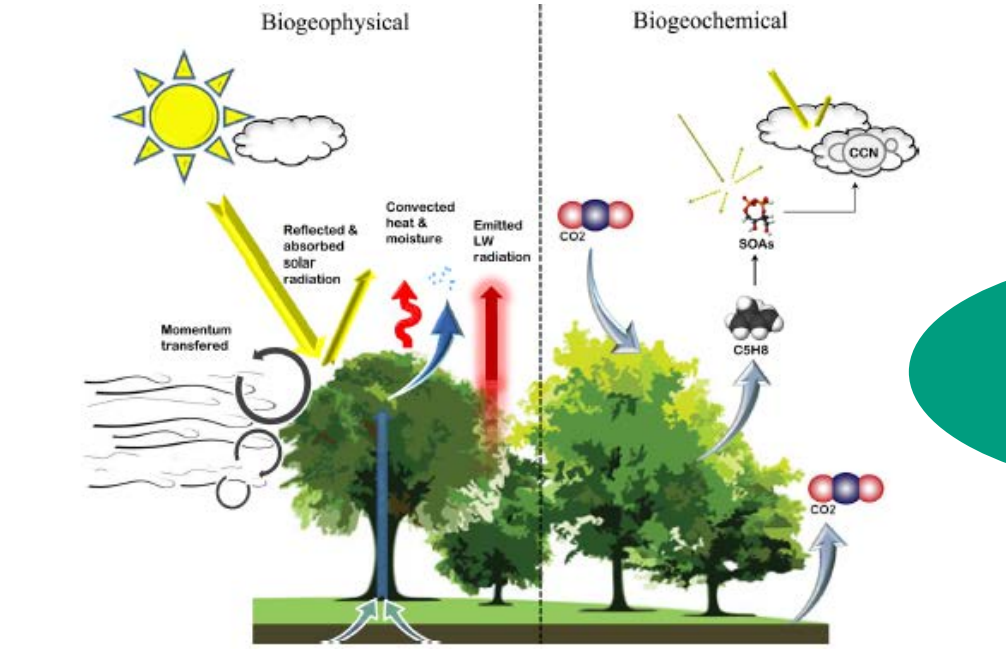
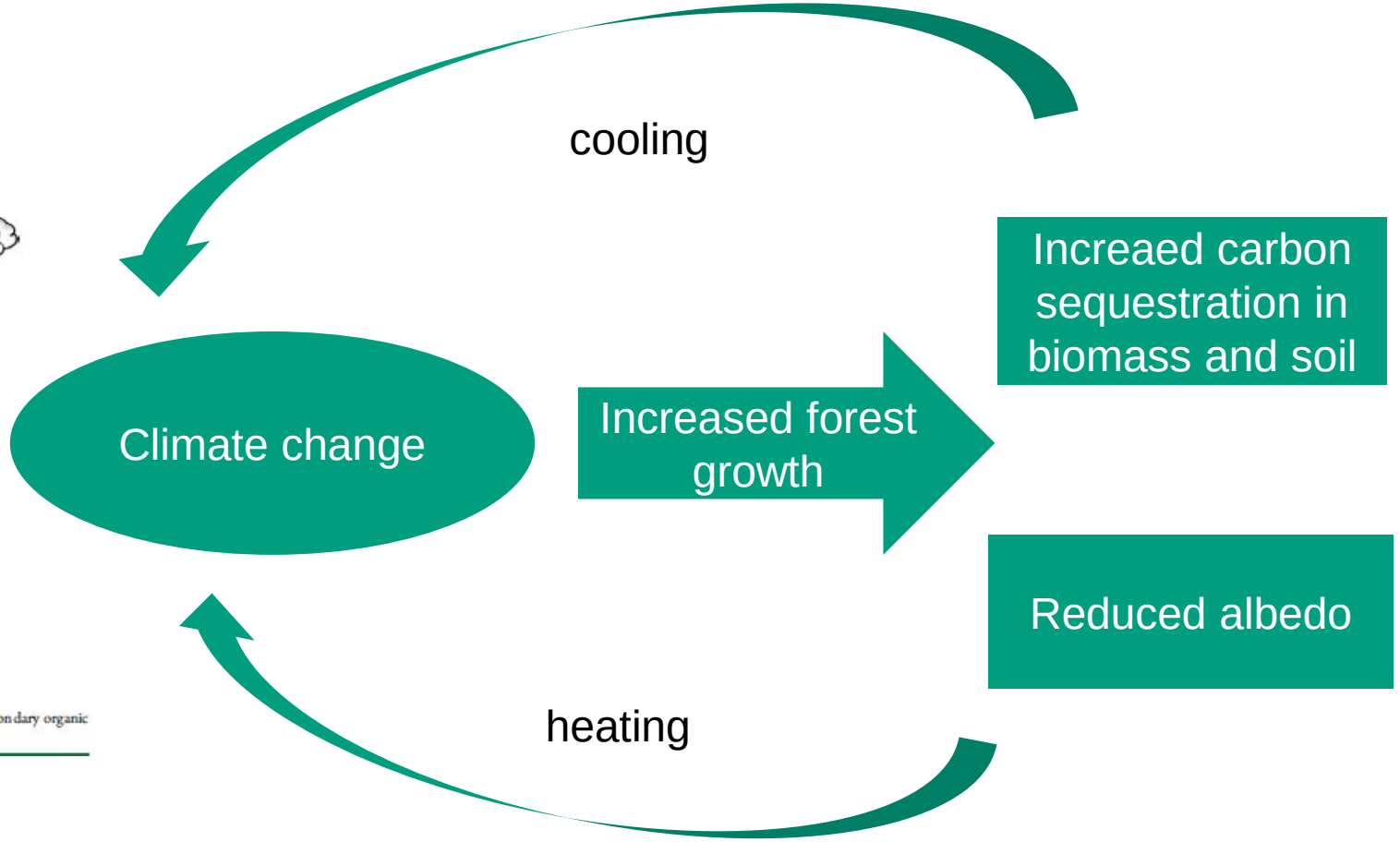


Figure 1. Conceptual illustration of the principle physical mechanisms by which vegetated surfaces directly affect climate. "SOA" = secondary organic aerosols; "CCN" = cloud condensation nuclei.

Bright (2015)



How should different forest types in Norway be managed to adapt to risk and build forest resilience while increasing forest growth and carbon storage?

How does long-term substitution affect optimal management of different forest types in Norway?

What are the most cost-effective carbon mitigation and adaptation options in the Norwegian forestry context?

Objectives

- To improve the scientific foundation for CSF by developing a framework for holistic assessments of forest management that simultaneously consider carbon, other biophysical forcings, substitution, and risk of natural disturbance while acknowledging forest owners to have a sustainable income from their forests.

- To facilitate the implementation of CSF in Norway by providing guidance on how forest management should be altered to improve forest resilience, CC mitigation benefits while providing strong and sustained economic returns to the forest owner.

WAGENINGEN
UNIVERSITY & RESEARCH

N M B U

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Norwegian University
of Life Sciences

Luke
NATURAL RESOURCES
INSTITUTE FINLAND

NIBIO
NORWEGIAN INSTITUTE OF
BIOECONOMY RESEARCH

Organisering og arbeidspakker

WP0: Project management and communication
Erik Trømborg, NMBU

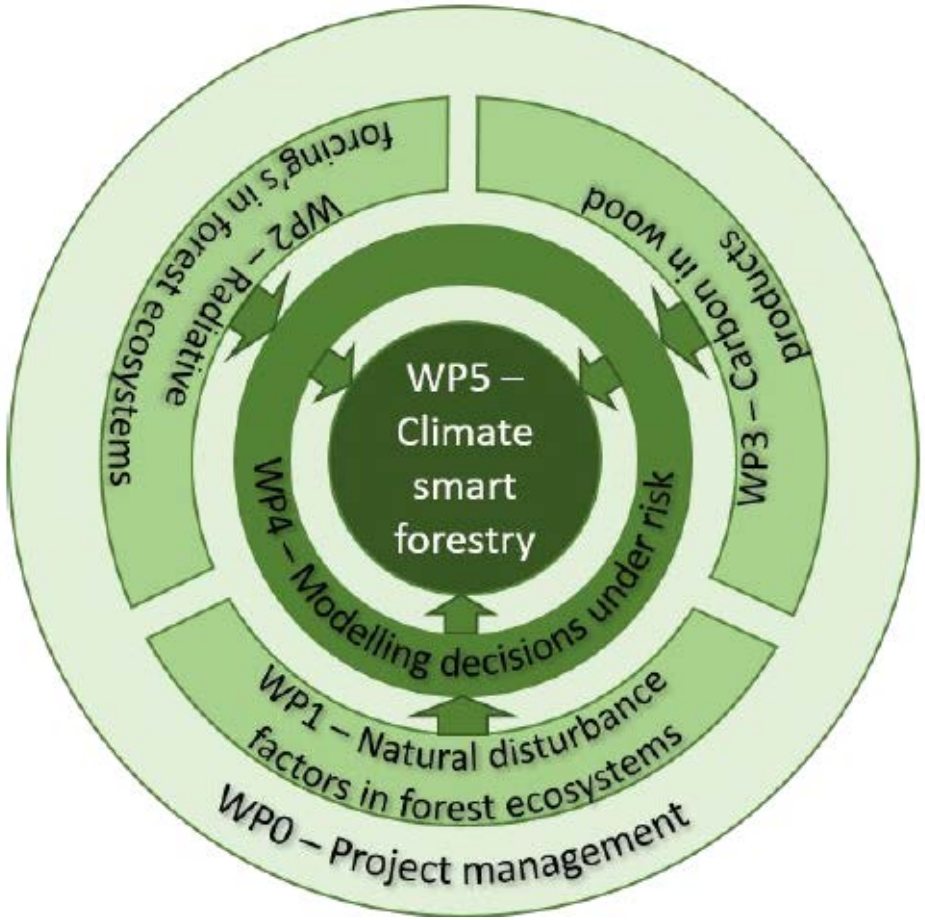
WP1. Natural disturbances
Clara Antón-Fernández, NIBIO

WP2. Radiative forcings
Ryan Brigth, NIBIO

WP3. Carbon in wood products
Maarit Kallio, NMBU

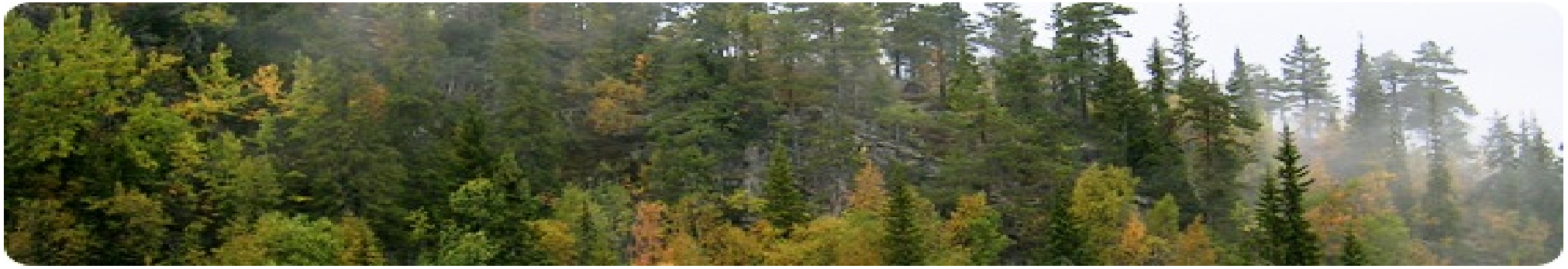
WP4. Risk modelling
Annika Kangas, KUKE

WP5. Climate smart forestry – modelling and synteses
Tron Eid, NMBU



Outputs (selected)

- Forest management scenarios under CC
- Radiative forcing and management
- Natural hazard scenarios
- Optimal management in light of storage and substitution
- Guidelines for different forest types
- Policy briefs

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