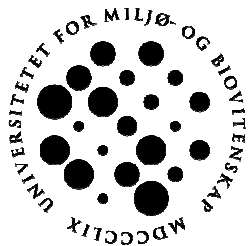


Country report: Major points

Norway

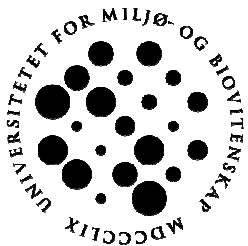
22-24 of Januar 2009



Background

- Forest area: 7.4 mill. Ha (boreal forest), ~27% of land area
- Increment: ~20 mill. m³
- Harvesting: ~8 mill. m³, 70% spruce/30% pine

- Intensive NFI
- Implemented Kyoto-protocoll accounting



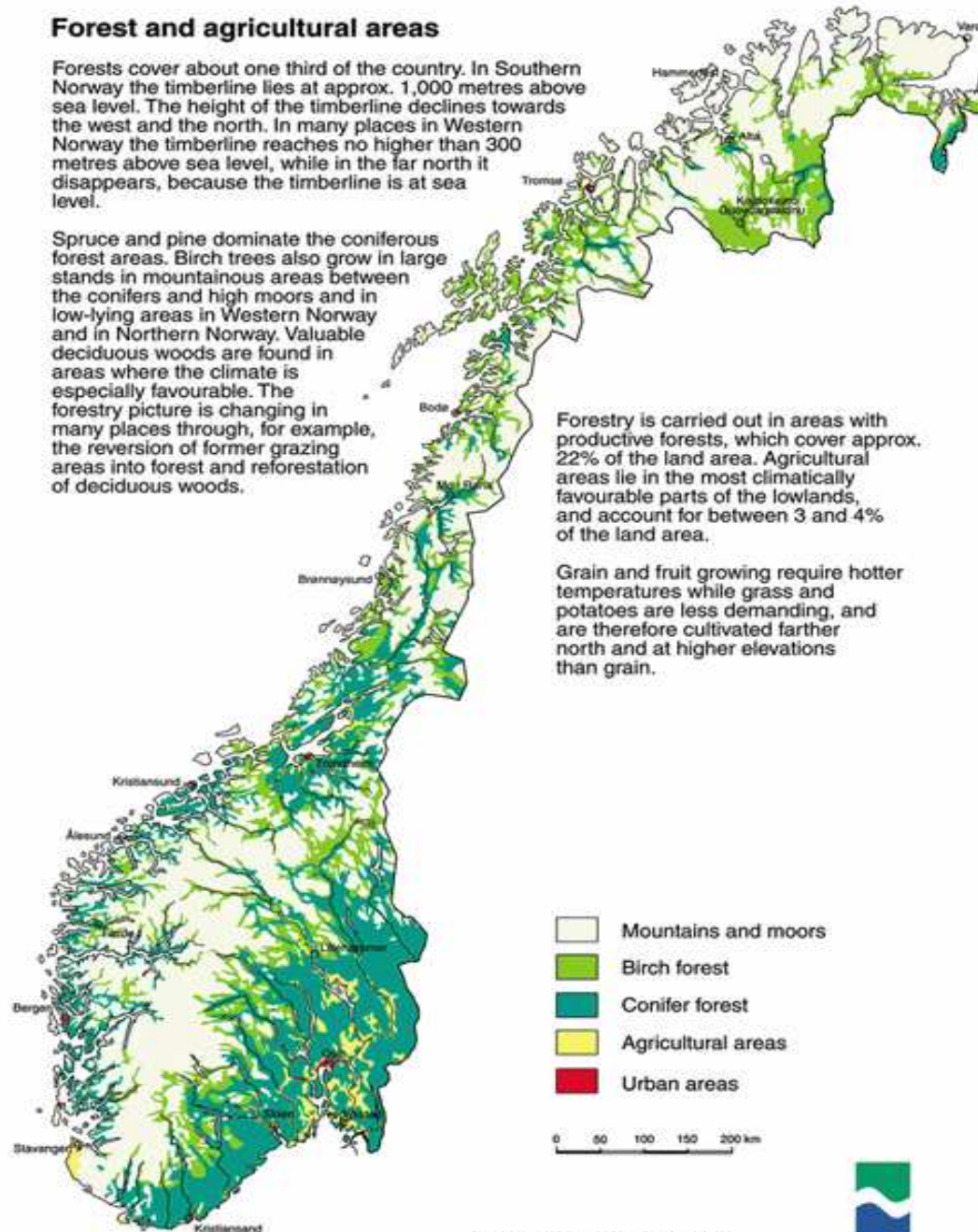
Forest and agricultural areas

Forests cover about one third of the country. In Southern Norway the timberline lies at approx. 1,000 metres above sea level. The height of the timberline declines towards the west and the north. In many places in Western Norway the timberline reaches no higher than 300 metres above sea level, while in the far north it disappears, because the timberline is at sea level.

Spruce and pine dominate the coniferous forest areas. Birch trees also grow in large stands in mountainous areas between the conifers and high moors and in low-lying areas in Western Norway and in Northern Norway. Valuable deciduous woods are found in areas where the climate is especially favourable. The forestry picture is changing in many places through, for example, the reversion of former grazing areas into forest and reforestation of deciduous woods.

Forestry is carried out in areas with productive forests, which cover approx. 22% of the land area. Agricultural areas lie in the most climatically favourable parts of the lowlands, and account for between 3 and 4% of the land area.

Grain and fruit growing require hotter temperatures while grass and potatoes are less demanding, and are therefore cultivated farther north and at higher elevations than grain.



- Mountains and moors
- Birch forest
- Conifer forest
- Agricultural areas
- Urban areas

0 50 100 150 200 km

Source: National atlas for Norway
© Norwegian Mapping Authority



Impacts

- **Observed:**

Few actual observations so far that can be linked directly to climate change

“Intersect Norway” - Lidar-project to detect changes in tree line in mountain areas

- Prof. Erik Næsset and Ass. Prof. Terje Gobakken with PhD-students

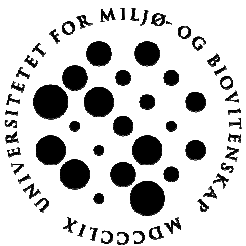
Forest Health Surveillance Program (Norw. Inst. for Forest & Landscape)

- **Expected:**

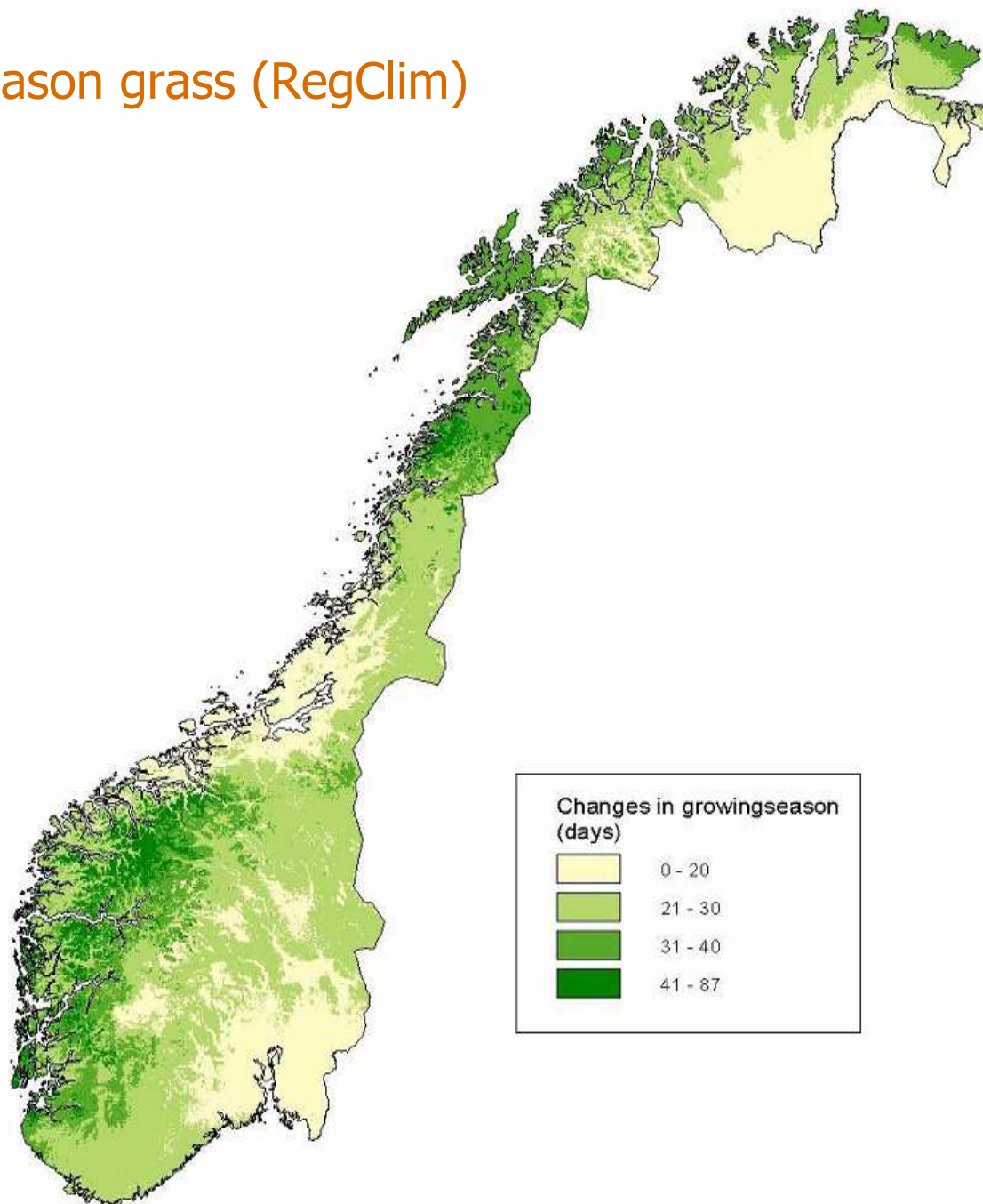
- Warmer summers, wetter winters (mainly as rain), little bit more wind

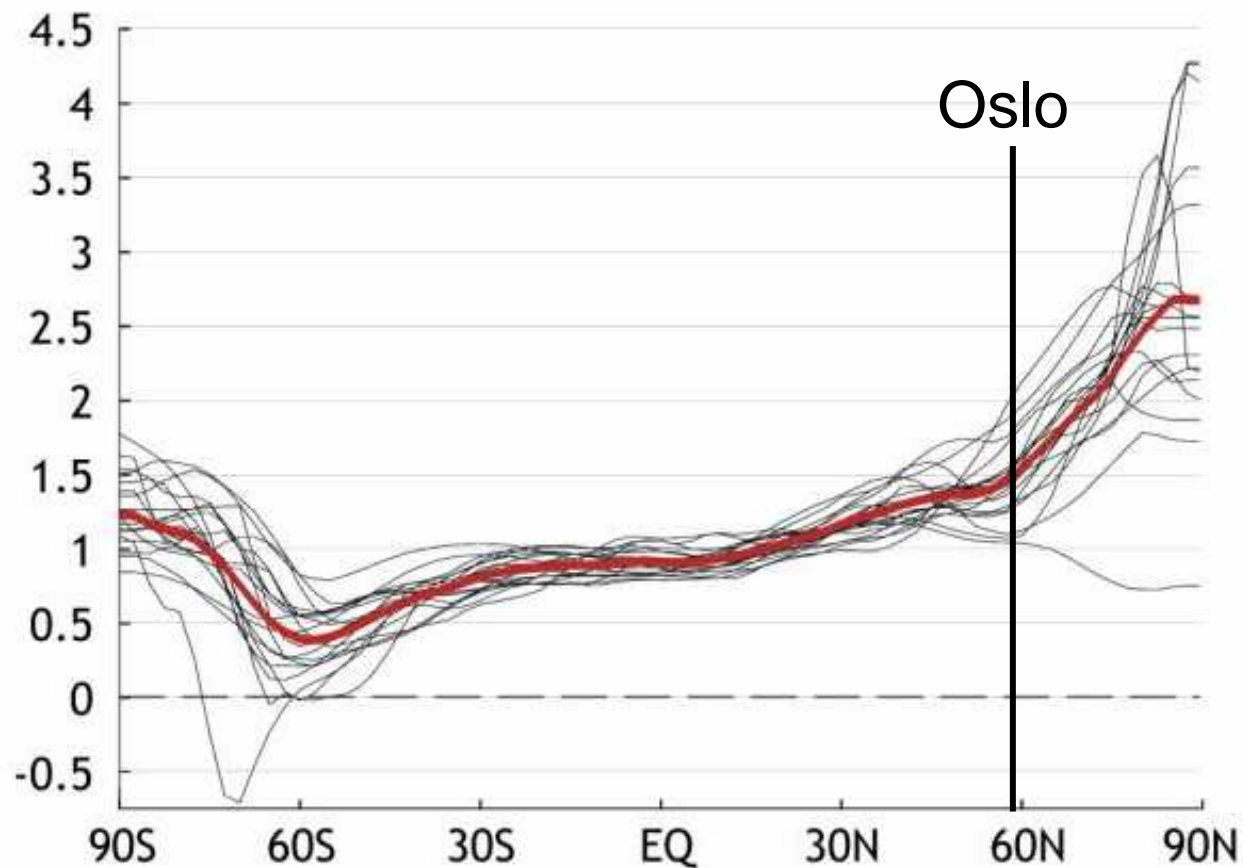
Collect and combine information on expected climate change

- Meteorological data (RegClim), soil data and topography

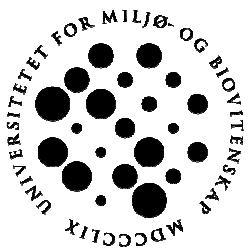


Effects, growing season grass (RegClim)



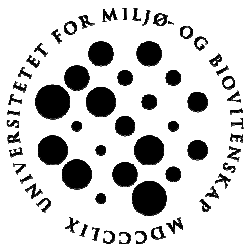


Climate predictions are uncertain north of 60°N. Increased temperature in relation to global average for 19 models under double CO₂-concentration (2080). Red line is average. (J. Rälsänen, SMHI, Sverige)



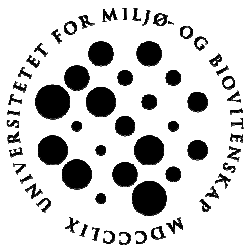
Impacts - research

- **Process models of forest ecosystems and integrated analysis of climate change impacts in Norway**
 - Dr. Even Bergseng & prof. Birger Solberg (Norw. U. of Life Sciences)
- **Tree growth and wood formation**
 - Prof. Øystein Johnsen (Norw. Inst. for Forest & Landscape)
- **Forest damage projects**
 - Prof. Svein Solberg (Norw. Inst. for Forest & Landscape)
- **Species composition and distribution/geography**
 - Dr. Per Holm Nygård, dr. Paal Krokene, dr. Bernt Håvard Øyen (Norw. Inst. for Forest & Landscape)



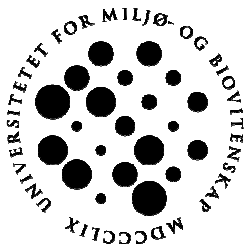
Adaptation

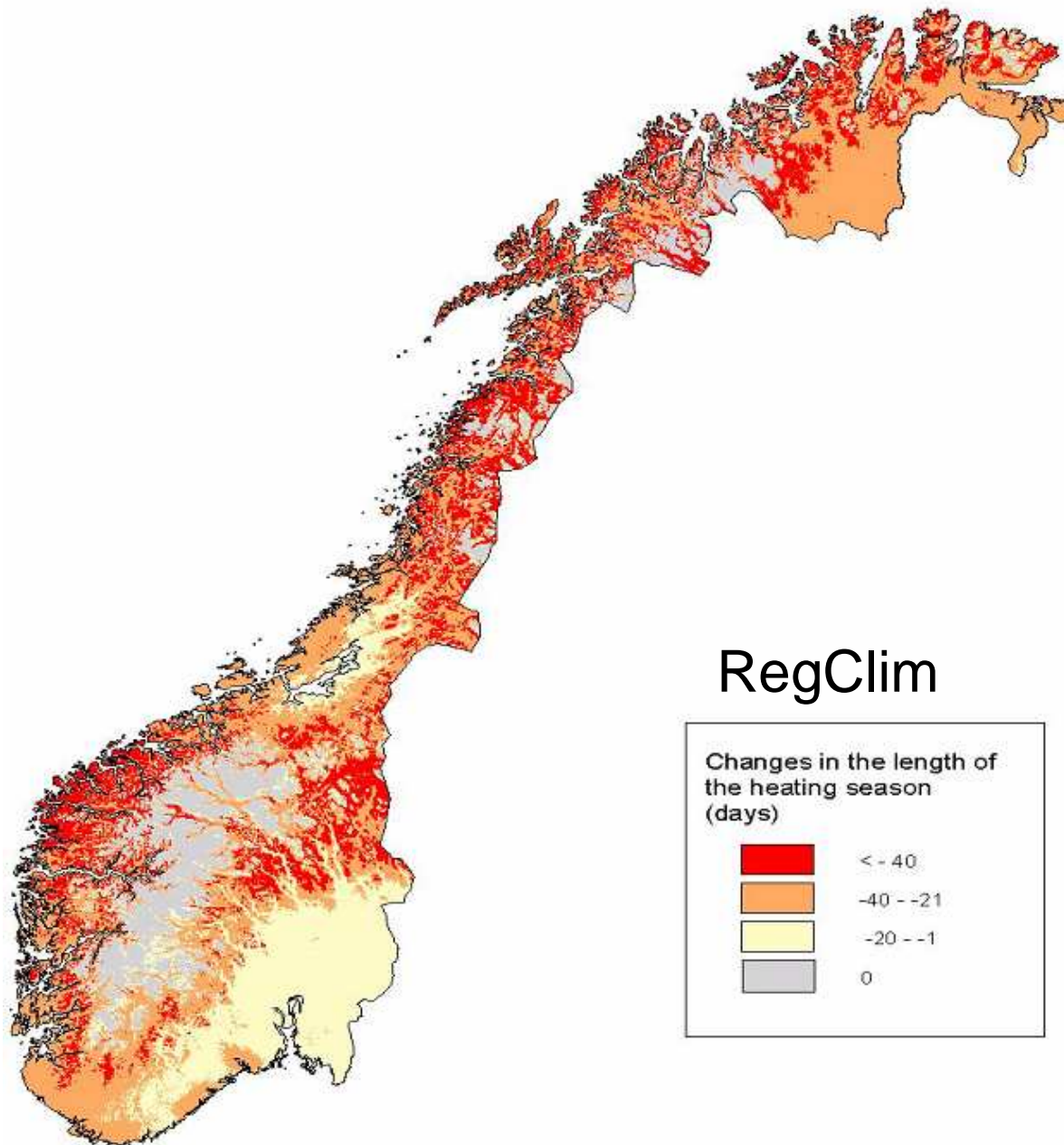
- **Ministry of Agriculture ->**
white paper on climate change impacts and mitigation
- **Process models of forest ecosystems and integrated analysis of climate change impacts in Norway**
 - Dr. Even Bergseng & prof. Birger Solberg (Norw. U. of Life Sciences)
- **Tree breeding and genetics**
 - Prof. Øystein Johnsen (Norw. Inst. for Forest & Landscape)



Mitigation

- **Recent work for the Ministry of Agriculture -> white paper on climate change impacts and mitigation**
- **Process models of forest ecosystems and integrated analysis of climate change impacts in Norway**
 - Dr. Even Bergseng & prof. Birger Solberg (Norw. U. of Life Sciences)
- **GHG, life-cycle analyses and forest management**
 - Dr. Ann Kristin Raymer, PhD-student Katrine Sunde
- **Use of bioenergy from forests**
 - Prof. Birger Solberg, Dr. Erik Trømborg, PhD-students Hanne Sjølie and Katrine Sunde





Overall

- **Integration of different International Agreements:
e.g., CBD, Kyoto and CDM!**
- **Ongoing research**
- **Little practical use at the moment**
- **National strategy in preparation**

