

Winter tourism in Norway: adapting to or promoting climate change?

Presentation at a Clim-ATIC seminar on winter tourism and climate change in Åre, 15-17.03 2010

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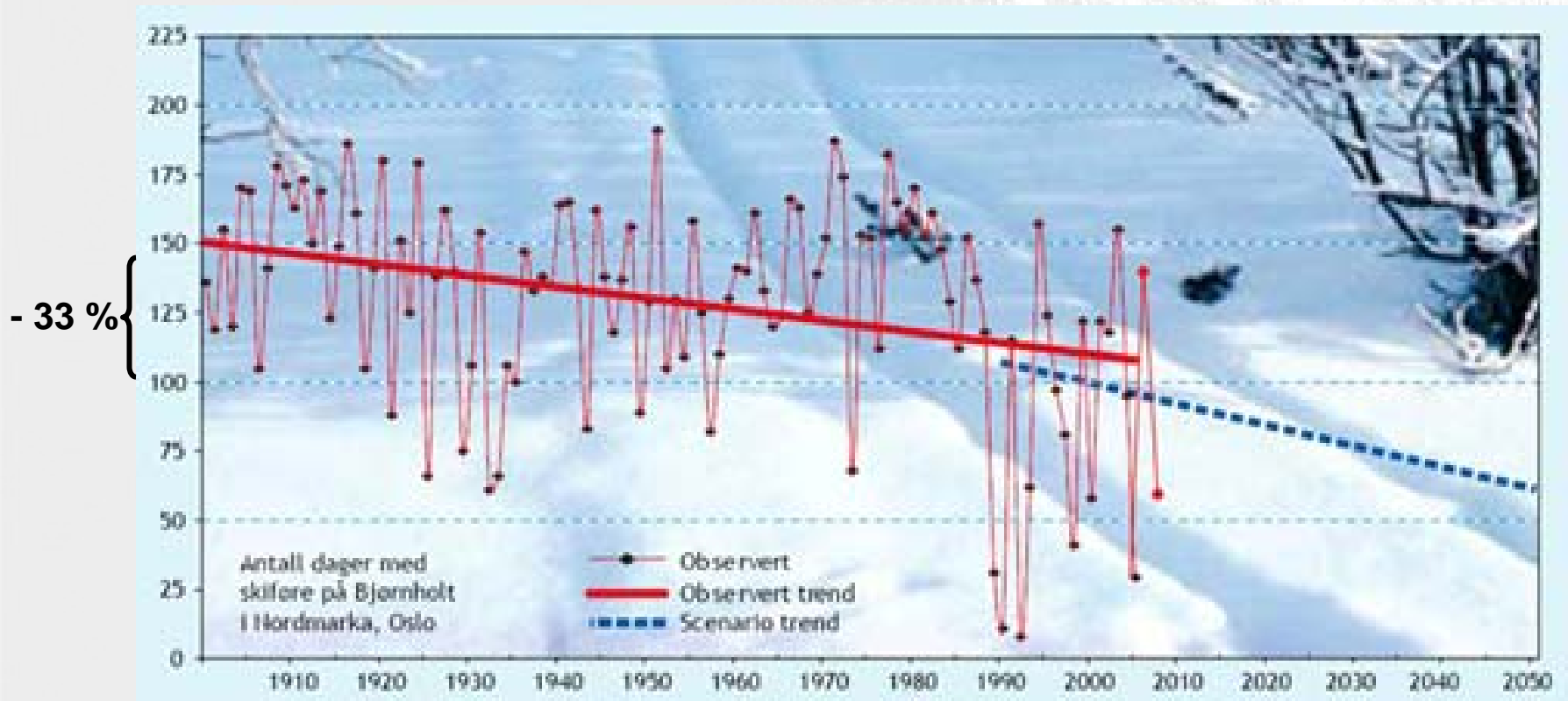
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Commonly thought of as climate change challenges for tourism

- **Vulnerability towards climate change**
 - Tourists: low
 - Tourism industry: high
 - Winter tourism industry: very high
- **Changes in tourism travel patterns due to climate change**
 - Norwegians spending more time inland (warmer summers in Norway and too warm in regular summer destinations abroad)
 - More tourists visiting Norway – especially during winter (less snow in the Alps)

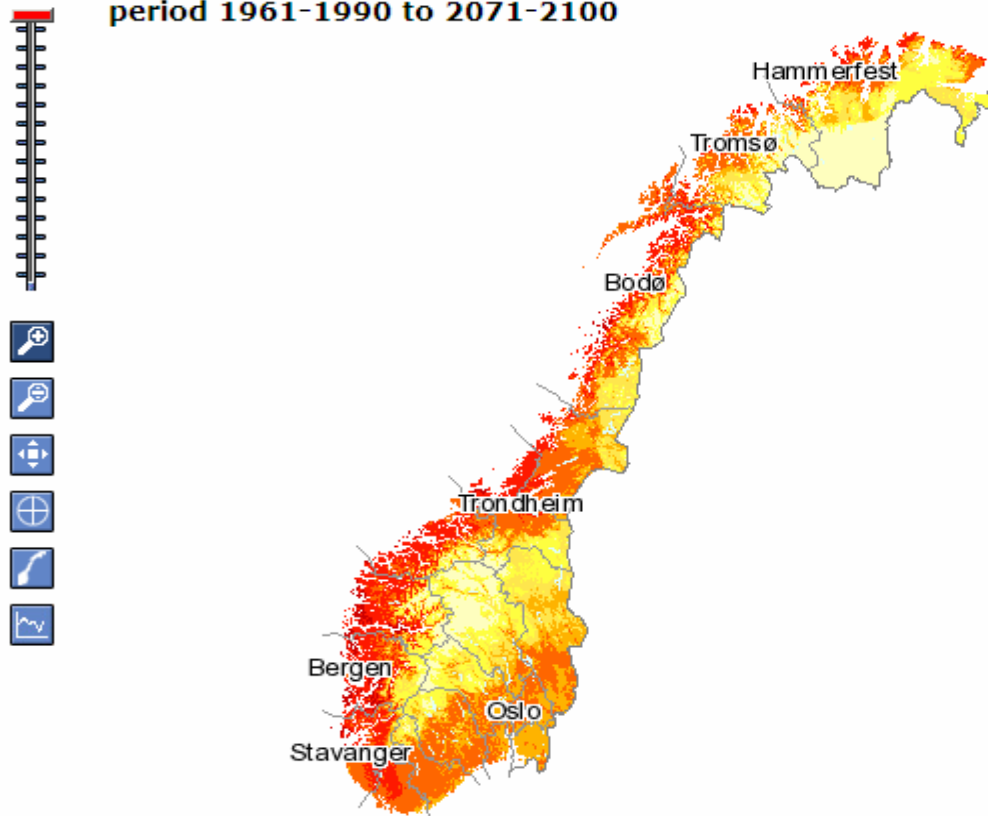
Winter tourism in Norway are already experiencing and adapting to climate change

Changes in annual number of "skiing days" in Nordmarka – the main skiarea for the population of Oslo



And worse things to come?

Change in average annual maximum of snow amount in % from period 1961-1990 to 2071-2100



[Theme from NVE](#)

Presented on seNorge.no

UTM zone 33 coordinates are

East and

North

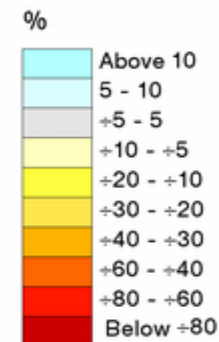
Map scale 1: 13782097

Theme information

Map shows change in average annual maximum of snow amount in % from normal period 1961-1990 to 2071-2100.

The results presented here are based on the global climate model ECHAM4/OPYC3 from the German Max-Planck-Institut für Meteorologie, the regional climate model HIRHAM, IPCC SRES scenario B2 for greenhouse gas emissions to the atmosphere and the hydrological model HBV.

Colour legend



Map legend

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Six modes of climate change adaptation in winter tourism in Norway

	Tourism	Tourists
1 Change <u>ways</u> of production and consumption	e.g. artificial snow production	e.g. diversify skiing equipment
2 Change <u>location</u> of production and consumption	e.g. move ski-tracks "upwards"	e.g. drive longer distances
3 Change <u>types</u> of products and services	e.g. develop summer tourism activities	e.g. do other leisure activities

1 Change ways of production and consumption

- **Tourism**

- Artificial snow production
- E.g. (Almost) 100% of all commercial alpine resorts and 65% of 200 large cross country ski-arenas have artificial snow facilities

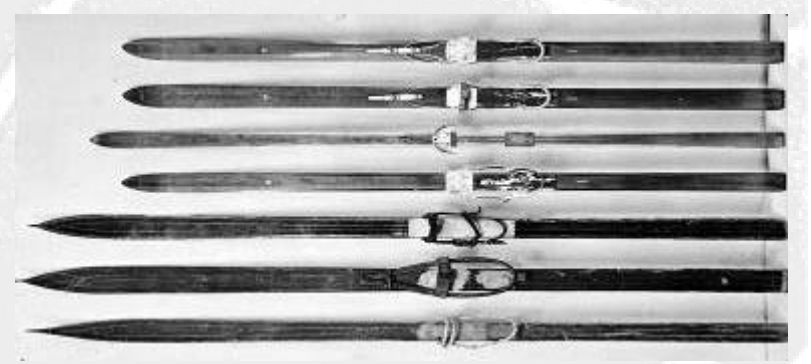
- **Tourists**

- Diversifying in ski-equipment to tackle changes in weather
- E.g. 100% increase in weight of import of sports equipment from 2001 to 2005



KREVER ENERGI, kunstis, snøproduksjon, snøkanon, snøspenning, snøtransport, kunstig snølegging. Det nye nasjonalløypet som nå reiser seg i Holmenkollen vil forbeholder en drift som krever mye energi. Foto: Sjøberg

- Holmenkoll-anlegget er svært klimafiendtlig



2 Change location of production and consumption

- **Tourism**

- Move ski-tracks og ski-destinations higher up
- E.g. Myrkdalen close to Voss with investments of 10 billion NOK to ensure Voss as a reliable winter destination

Superdestinasjon til 8,5 milliarder



Myrkdalen. Foto: Voss Fjellandsby/Finansavisen.

Nå braker det løs på Voss. 3.400 hytter og leiligheter skal bygges, pluss fire stolheiser.

- **Tourists**

- Increase transport distance to “chase” for good winter tourism areas
- E.g. leisure person transportation increases (much) more than transportation for other purposes



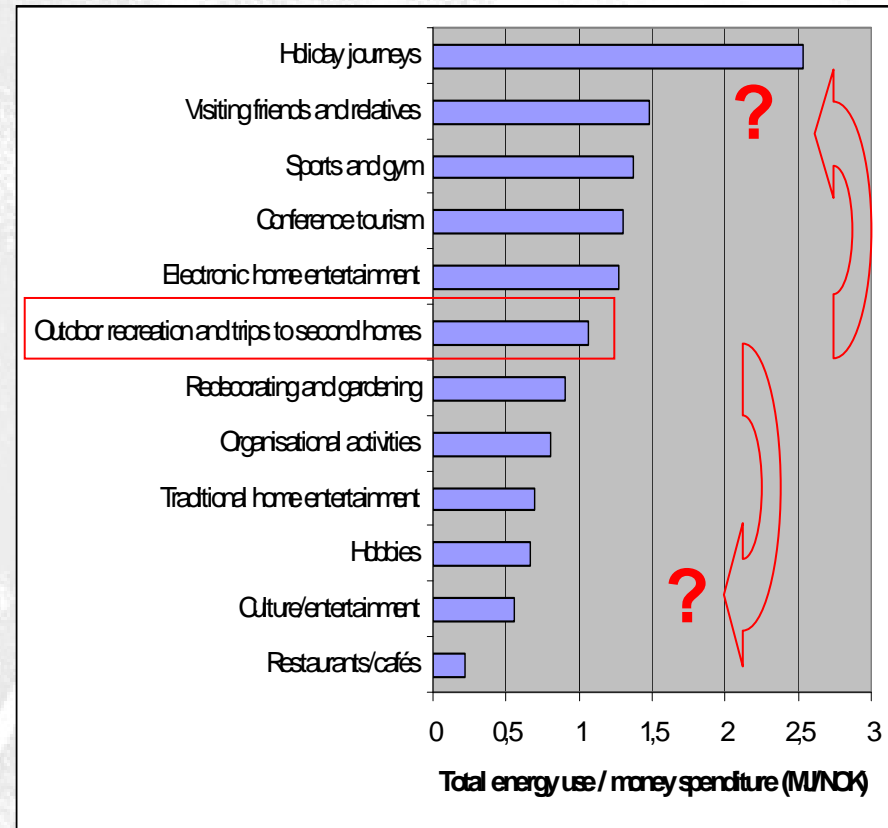
3 Change types of products and services

- **Tourism**

- The producer changes also the product or service itself
- E.g. Tourism company in Sogn og Fjordane had to stop glacier guiding, and started guided tours with sailing boats and activity parks

- **Tourists**

- The consumer change to consume other leisure activities than traditional winter tourism activities
- E.g. from skiing to cultural events or holiday journeys by airplane



The problems of climate change adaptation in winter tourism

	Challenges of adaptation	GHG emission effects
1 Change ways of production and consumption	<u>Industry:</u> Technological skills <u>Consumer:</u> Consumer skills	<u>From production:</u> + (?) <u>From consumption:</u> ++
2 Change location of production and consumption	<u>Industry:</u> Heavy investments <u>Consumer:</u> Time constrains for transportation	<u>From production:</u> +++ <u>From consumption:</u> +++
3 Change products and services	<u>Industry:</u> Innovations skills <u>Consumer:</u> Change consumption preferences	<u>From production:</u> +/- <u>From consumption:</u> +/-

Conclusions

- Climate change is already affecting winter tourism and winter related outdoor leisure activities in Norway
- Thus climate change adaptation – or maybe “**reaction**” – is also taking place
- However, the problems of adaptation (or “reaction”) is not that this is hard to make happen
- The opposite is the problem: Adaptation (or ”reaction”) takes place to a high degree in both the tourism industry and among the consumers, thus resulting in a large increase in GHG emissions.
- **So the real problem is not “adaptation” but “environmental effects of adaptation”!**