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Summary

The article gives a wide overview of the major issues that will frame Norway's strategic choices in the Arctic. The author points out seven challenges: unsolved jurisdictions, future developments in Russia, political conflicts in exploiting large natural resources, a clean environment with major contamination challenges, environmental stress on ecosystems, climate change and how to ensure sustainable development. The article is based on a lecture held at the 36th Annual Conference of the Norwegian Atlantic Committee, February 2001.

About the author

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Olav Orheim

What are the strategic challenges Norway is facing in the High North?

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What are the strategic challenges Norway is facing in the High North?

by Olav Orheim

Introduction

The given title implies a wide overview of the major issues that will frame Norway's strategic choices in the Arctic. I will not discuss military aspects, but I will try to cover seven other major items. I will furthermore discuss issues where recent developments have changed the focus, namely petroleum and maritime transport, and also the climate scenarios.

Unresolved jurisdictions

Fundamental to all developments are those of jurisdiction. North of us are two main issues: The boundary on the continental shelf between Russia and Norway, and what jurisdiction applies around Svalbard, is it the Svalbard Treaty or Norwegian law?

The Russia/Norway disputed area equals 150 000 km² (half the area of mainland Norway). As is well known the protracted negotiations have not yet led to any conclusive results. Periodic rumours in the media indicate, however, that some progress has been achieved, and that Norway is willing to compromise.

The issue of the continental shelf around Svalbard is one of applying the

Svalbard treaty (which states 4 nautical miles from land as its boundary) in the context of international law. Svalbard is undisputed Norwegian, but the Treaty binds Norway in many cases to treat equally citizens and companies of the nations that are signatory to the Treaty. The rate of direct taxation is furthermore low, which can be an added incentive for making developments under the Svalbard regime. However it should be noted that amortisation aspects may reduce this tax advantage for industry.

The water depths are relatively shallow between mainland Norway and Svalbard. The Norwegian position is therefore that the mainland continental shelf extends all the way to and beyond Svalbard, that the continental shelf associated with Svalbard has only 4 n. miles extension, and that outside this Norwegian law applies, as was the case when the Svalbard Treaty was negotiated in 1920. A different view is that the extent of the Svalbard continental shelf should be seen in the light of recent legal developments, i.e. the UN Law of the Sea. Most Svalbard treaty nations have not expressed an opinion on this issue, although some have reserved the right to take a different view.

Fixed boundaries, and a predictable, fair management of resources, are in the best interest of the wider international community. The Norwegian off shore area is seven times larger than continental Norway, so maintaining adequate presence and control here will be a long- term challenge for our country. Automatic reporting of all fishing vessels' positions, and other earth observations from space, will help to achieve this.

Whither goes Russia?

The cessation of the Cold War caused dramatic changes in the security architecture, with new political and strategic arrangements. It is not my field of competence to speculate on future developments in Russia. I therefore make only the obvious points that these will depend on political situation and law and order, and that they are of critical importance to Norway's own developments in the area. Russia and Norway are the only two countries on

the European continent that face the Arctic Ocean, so our future in the High North is fatefully linked by geography. There are also few, if any, national borders where the difference in standard of living is as high as when crossing our joint border in the north. Reduced constraints on mobility of information, people, and goods have made this very obvious to all citizens.

Thus, apart from issues of military security, there are economic and social impacts as a result of these national differences. It is in Norway's best interest that the differences are reduced, with inherent increased stability in the region. The Russian people have high Arctic competence, and there are clear limits to what Norway can do to contribute to Russia's problem solving. But we need to strengthen ties and understanding between Russia and Norway. Because of our joint roles as stewards of the North with its new environmental challenges, Norway must have a political vision, with a long-term commitment, in co-operating in exchanging environmental knowledge and appreciation.

Potential conflicts in exploiting large natural resources

There are major known petroleum fields in Eastern Barents region. Oil exploitation has started both from the gigantic Timan-Pechora complex on the Nenets tundra and off shore, and here is also the world's largest off shore gas field (Shtokmanovskoye, 2-3 times Troll).

The western Barents region is less studied. However, the Norwegian Petroleum Directorate has recently announced that they regard the Norwegian part of the Barents Sea as the third oil province on our continental shelf. Using new geological approaches AGIP found the Goliat oil field last autumn. And in February 2001 Statoil announced oil discovery in the North Cape Basin, raising significantly the industry's expectations. This comes on top of Statoil's recent announcement that they plan to start LNG production from Snøhvit in 2006, by bringing the gas ashore near Hammerfest through a 150 km long pipeline.

At the same time the Barents Sea is one of the most bioproductive seas in the world, with major importance for the population structure in Northern

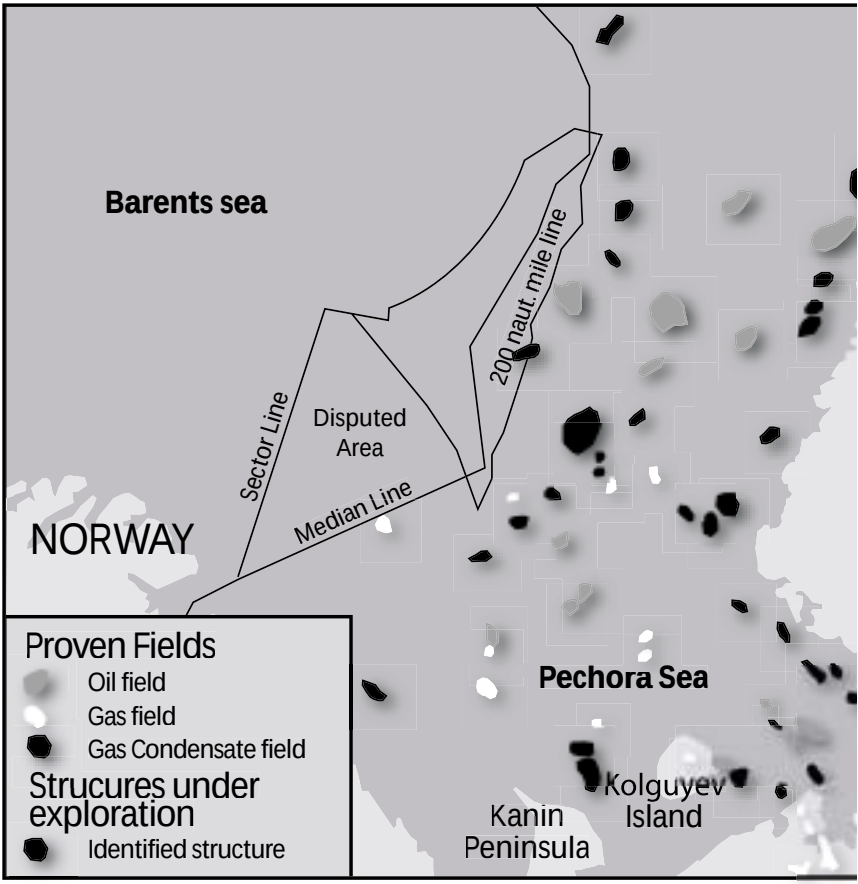
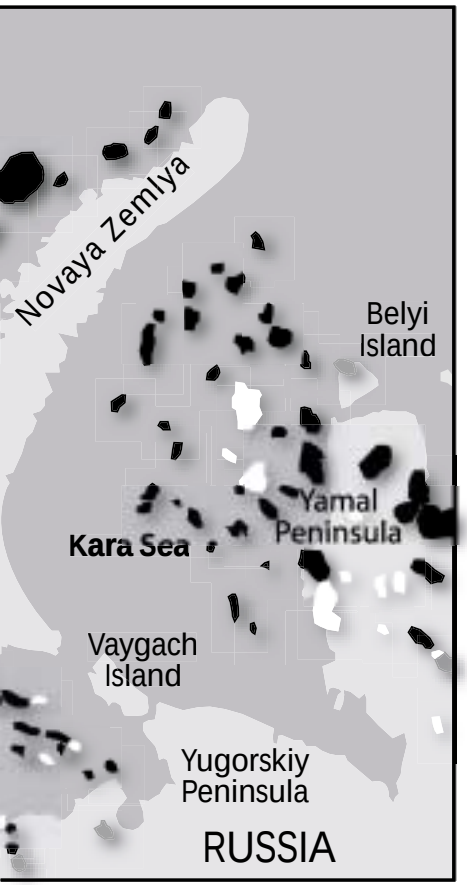


Fig. 1. Oil and gas fields in eastern Barents Sea, and the boundaries of disputed area. Note that most of the identified off shore areas are structures under exploration. Source: Norwegian Polar Institute

Norway and North-western Russia. The total export value of Norwegian fisheries - including fish farming - is 1/5-1/10 of petroleum. (The proportion depends upon the fluctuating prices. Annually 1-2 million tons fish are caught in the Barents Sea. Total Norwegian petroleum production is 250 mill. m^3 oil equivalent). It is predicted that in year 2020 the total Norwegian sea food production will be 4-6 times higher than today. In that case it will have about the same importance for Norwegian trade balance as oil and gas.



So the question is: What developments are in the best long-term interests for Norway - and for Russia - and for the wider international community? I have no answer to this, but the following section outlines some of the challenges.

Both very clean and potentially highly polluted areas

The Arctic is the last major wilderness in Europe, and clean, undisturbed nature is ubiquitous. However, lack of pollution is *not* what media conveys. There are highly visible types of environmental impacts, with resulting public awareness. Russia has here about 100 nuclear submarines taken out of active operation, most of them with reactors still onboard. The recent accident of Kursk was world news, and the nuclear tests at Novaya Zemlya and nearby nuclear dumping sites are well known. The most recent news item related to potential radioactive pollution is the Russian proposal for transport along the northern maritime corridor, partly to reprocess spent fuel from international nuclear facilities in Mayak in the southern Urals, partly to move spent nuclear fuel from Japan to Europe.

The issue of petroleum transport is an even more certain environmental concern. It is now planned that gas from the Stockman field will be transported ashore by pipeline, while oil production from the Timan-Pechora field will

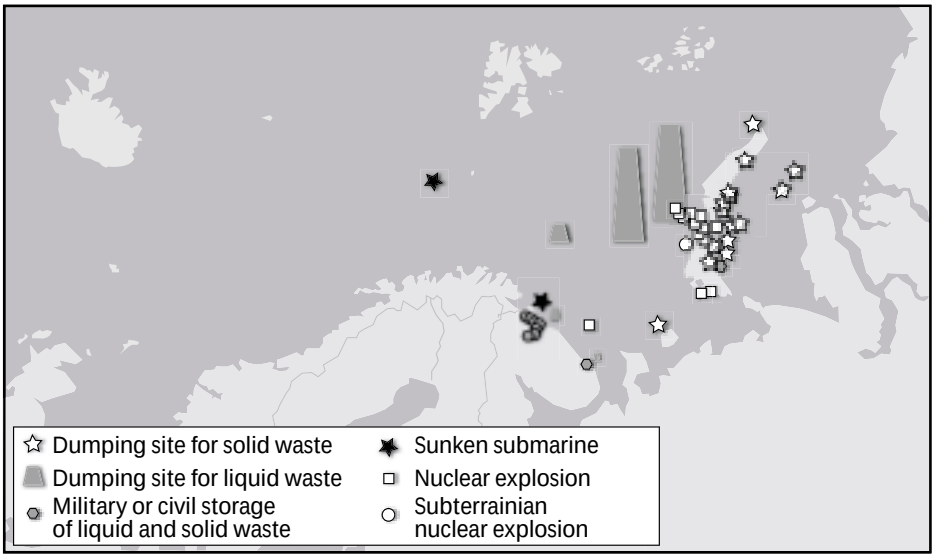


Fig. 2. Nuclear waste in the Barents Sea. Source: Norwegian Polar Institute.

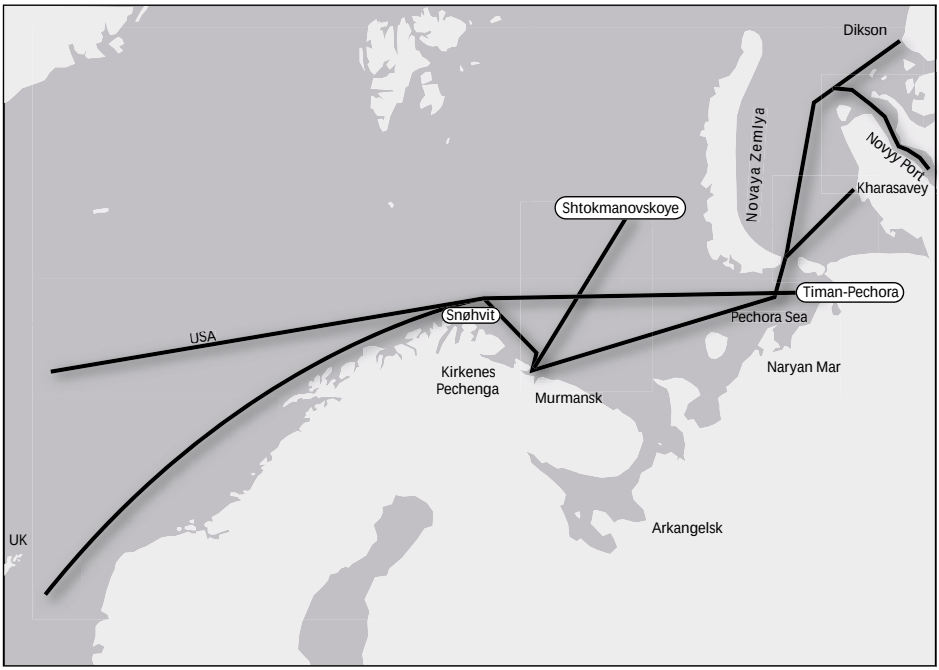


Fig. 3. Shipping routes and pipe lines for Russian petroleum. Source: Barlindhaug, 2001.

move by sea. This area of eastern Barents Sea has environmental constraints for production and transport in the form of sea ice, permafrost, and shallow waters, requiring initial use of small tankers only. Recently LUKOil and Conoco are reported to have reached agreement with local authorities that the small tankers shall transfer their loads to larger vessels at Pechenga, right next to the Norwegian border. Ship transport of oil started in a small fashion in year 2000, and is by some expected to reach an annual quantity of 20 million ton crude oil by 2006.

It may be more than five years before the very large transport volumes become reality. But for sure oil transport will increase dramatically during coming years in this region of large fisheries. We must be prepared that accidents will happen, with a resulting consumer reaction to such visual impacts. Selling fish on the global market depends on consumer perception, and it has been a marketing advantage that Norwegian fish is (rightly) perceived as coming from clean waters.

It is necessary to have in place a basket of activities to build and maintain consumer confidence in an area of increasing petroleum developments. These include obvious aspects such as environmental impact assessments and consequent actions, systems for ship surveillance and a reliable ability to handle oil spills. Consumers are increasingly also concerned with food documentation, and even the ethics of how the food is produced. This will require the collection of trustworthy environmental data, including pollutant content within fish, and baseline levels. Clean nature has also its own intrinsic value, which is being increasingly appreciated by the global traveller. We will have to place considerable efforts in these environmental activities if Norway is to avoid a situation where we get the problems without any benefits.

Environmental stress on ecosystems

Ship accidents and oil spills are dramatic forms of environmental pollution. However, for the biological systems in the high north, the environmental stress introduced by the less visible long-distance transported pollutants are

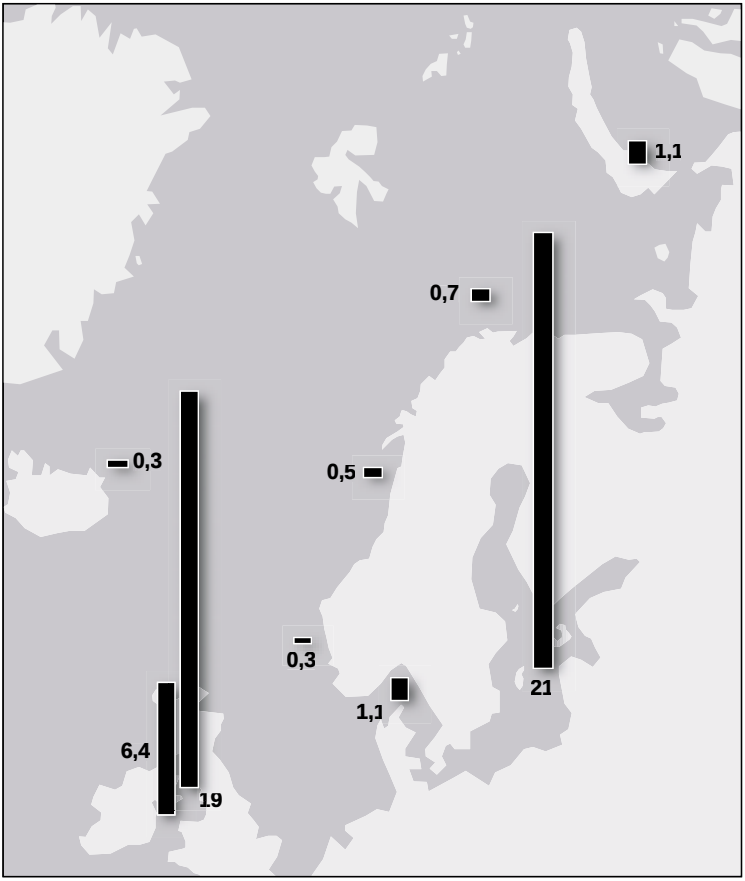


Fig. 4. Cs137 levels (Bq/kg) in fish from different seas around western Europe. Note low levels in the Barents Sea, even near Novaya Zemlya, compared to the Irish Sea (emissions from Sellafield) and the Baltic (results of Chernobyl). Source: Norwegian Radiation Protection Authority, 1998.

probably much more serious.

The top predators (including humans) living in this clean air and water have high levels of fat-soluble pollutants, caused by bio-accumulation in the food chains. Arctic animals adapted to large seasonal variations in food availability generally have a strategy of increasing body fat when food is plentiful, as a reserve for lean periods. When they starve they draw on this to fuel their energy needs. This leads to the paradoxical situation that critical

organs – for example the brain – receive a disproportional large amount of fat-soluble pollutants such as PCB. We suspect that this bio-accumulation in critical organs may be the cause of impacts now being observed, such as shortened life span of polar bears around Svalbard. Note also that mothers pass high PCB levels to their suckling babies in indigenous populations with a heavy seal diet.

The animals of the Arctic may be particularly threatened by environmental stress caused by a combination of pollutants and climate change. The retreat of the sea ice now being observed is for example reducing the habitat of the polar bear, which feeds on the seals in the pack ice. The evidence of major climate change in the Arctic is now so prevalent that I discuss also whether climate have implications for Norwegian arctic policy.

Climate change

All climate scientists agree that climate and greenhouse gases are related. Without the atmosphere the global temperature would be 33°C colder, i.e. the same as at the moon. All also agree that mankind has raised the level of carbon dioxide (CO2). There is disagreement on how much of the present climate change shall be ascribed to natural variations (which have been large in the past), and how much is man-caused. There is also disagreement about our ability to predict the future.

The Intergovernmental Panel on Climate Change (IPCC), which is the authoritative body of climate scientists, has now stated that the Arctic is getting warmer, and sea ice is diminishing. IPCC furthermore predict that human-induced greenhouse warming will lead to changes in the thermohaline circulation and a weaker Gulf Stream.

A warmer climate means also a windier and wetter climate, and wind strength and precipitation has increased along the Norwegian coast to such an extent that building standards have been increased to accommodate for larger snow loads. This phenomenon is not special for Norway. Global insurance statistics for the past two decades show a many-fold increase in

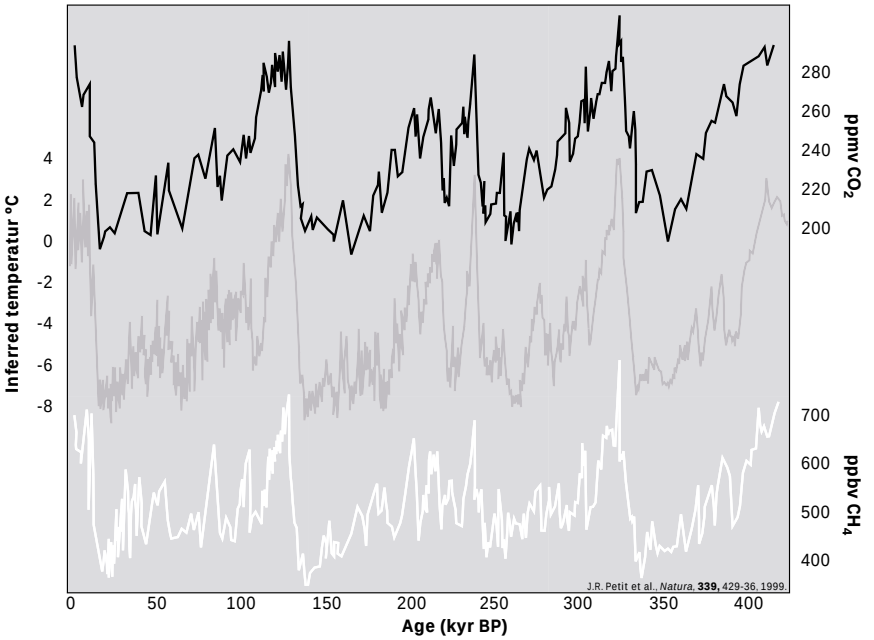


Fig. 5. Natural climate variations during the past 400 000 years. Temperature is shown by the middle curve, as deviation from present level (scale on the left). The upper curve shows CO2, the lower methane (both scales on the right). Note that we humans live in a warm period which has lasted about 10 000 years and been remarkably stable, whereas most of the time temperatures are much lower (glacial periods) and more unstable. Note also the close correlation between CO2 and temperature. Present level of CO2 is 367 parts per million, i.e. as shown above the frame. This increase has been caused by mankind.

compensations paid for weather-caused damage.

Arctic people – situated in a marginal climate – will probably be more affected than most by climate change. Warming will not bring only problems, but should the climate become more violent, and climate change more rapid, then adjustment may be difficult. The Gulf Stream (also called the North Atlantic Current) causes Northwest Europe and "our" part of the Arctic to be 5-10°C warmer than corresponding latitudes. Will we maintain our mild climate advantage in a globally changing climate?

IPCC's prediction of major changes in Arctic climate will change ecosystems, and reduced sea ice will ease transport and industrial developments in the

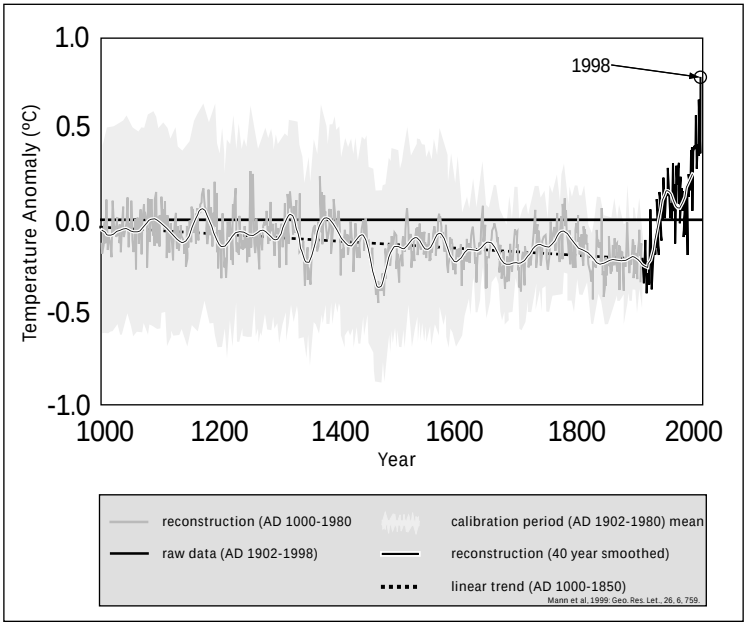


Fig. 6. Average temperature for the northern hemisphere for the past 1000 years, as deviation from a mean. The oldest data are based on a number of proxy sources (such as tree rings, glacier records, pollen strata, etc.) but also on written records. The gray area in the back indicate level of uncertainty, which gradually decreases to the present, when thermometers and other instruments are the main data sources. Note the rapid temperature rise in the past century, paralleling increasing use of fossil fuels. But note also that the hemispheric temperature fell from 1930 to 1960, indicating that natural variations still overrode any human-induced warming.

Barents Sea. Very important in the long run for Norway will be the impact of changing climate on our fisheries, with their growing importance as an export industry. Infrastructure investments are made on time scale of decades, and in this connection climate now becomes a strategic element. It is necessary to clarify whether a rapidly changing climate can develop on top of global warming, with attendant much larger societal consequences. Unfortunately no climatologist can resolve that challenge today.

Preparing for change - and reaping the benefits!

The High North with its rich untamed natural resources can be viewed as the

new frontier for Europe. Developments involve potential conflicts both between renewable and non-renewable resources (fisheries, forestry and petroleum), and with a fast-growing tourism industry attracted by the remarkable, undisturbed nature. Norway occupies a unique position to lead in this development, and to introduce an element of long-term thinking. The strategic challenge for us will be to have the knowledge needed to ensure that actions are founded on insight, for the benefit of future generations!

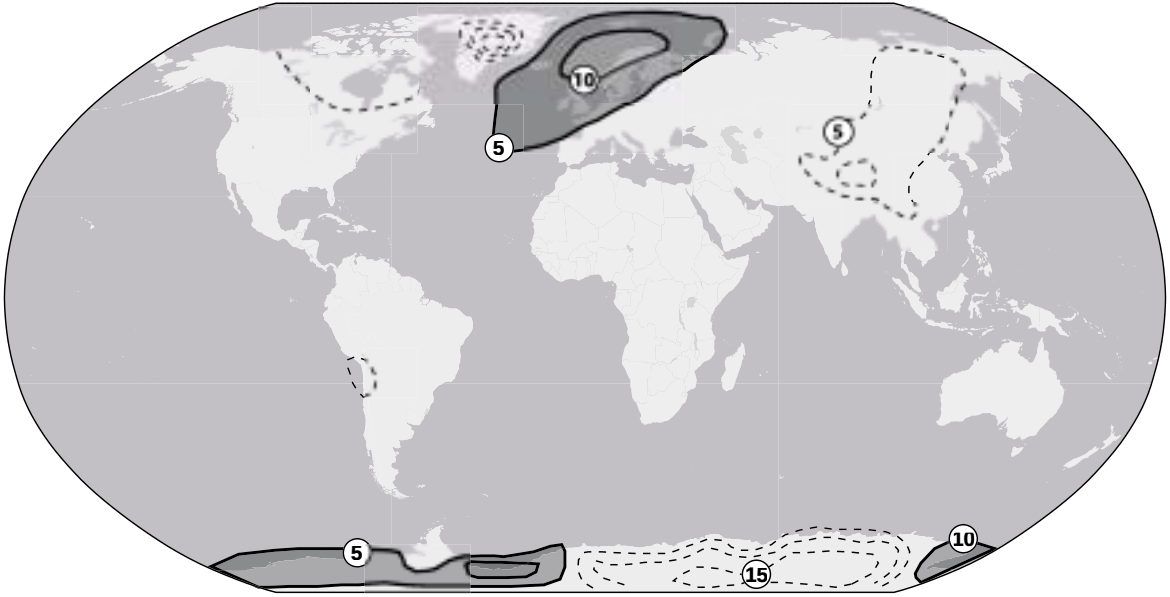


Fig. 7. Annual mean surface temperature anomalies, relative to zonal averages. Note the 5-10^0 C warm anomaly over Northwest Europe and the Nordic Seas. Source: Rahmstorf and Ganopolski, 1999.

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