



Joint Development of Arctic Ocean Oil and Gas Resources and the United Nations Convention on the Law of the Sea

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Arctic Ocean – NASA Blue Marble



Photo – NASA

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Introduction



The United States Geological Survey (USGS) Circum-Arctic Resource Appraisal released as estimates in 2008 a potential 90 billion barrels of oil, 1,699 trillion cubic feet of natural gas, and 44 billion barrels of natural gas liquids, in the Arctic Ocean region.

Currently it is next to impossible to exploit these potential reserves with present technology, and much of the estimated reserves is in a difficult to extract 'gas hydrate' form. However global warming and technological development make future exploitation much more likely.

Introduction



There are many issues with any future development. The issues include:

- The dangers of pollution, as shown by the extreme sensitivity of the Arctic region shown in the Exxon Valdez oil tanker disaster in 1989,
- The rights of the indigenous peoples of the Arctic including the Inuit of Canada and Greenland, the Saami of Finland and Sweden, the Aleut of Alaska and Russia, and the indigenous peoples of Arctic Russia and Siberia.
- Determining the sovereignty over oil and gas resources in the region



Introduction

This presentation is an introduction to the issue of sovereignty over resources in the region, and suggests the potential for Joint Development Zones (JDZs) to resolve potential sovereignty disputes.

Introduction



Article 76 of the United Nations Convention on the Law of the Sea (LOSC) provides for the delimitation of the outer continental shelf based on the physical characteristics of the seabed.

In regions such as the Arctic Ocean, coastal states may use different methods and interpretations allowed under LOSC to determine the maritime boundary, and disputes can arise where these boundaries overlap.

Extension of the OCS

Article 76 of LOSC provides for the outer limit delimitation of the continental shelf to be based on physical characteristics of the seabed

There may be a sound basis for the competing claims, however the result under Article 76 can be a dispute over the overlapping claims.

The Aurora over Svalbard, Norway



Photo - Bjørn Jørgensen - Samfoto

Extension of the OCS



- LOSC Article 76 Paragraph 1 provides that the continental shelf of a coastal state comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, up to the limits provided for in paragraphs 4 to 6, or
- To a distance of 200 nautical miles from the territorial sea baseline where the outer edge of the continental margin does not extend to that distance.

Extension of the OCS



LOSC Article 76 Paragraph 4 provides that a coastal state shall establish the outer limits of the continental margins wherever the margin extends beyond 200 miles from the baselines from which the breadth of the territorial sea is measured, by either:

- a line delineated in accordance with paragraph 7 by reference to the outermost fixed points at each of which the sedimentary rocks is at least 1 per cent of the shortest distance from such point to the foot of the continental slope, or
- a line delineated in accordance with paragraph 7 by reference to fixed points not more than 60 miles from the foot of the continental slope.

Extension of the OCS



LOSC Article 76 Paragraph 5 provides that the outer limits of the continental shelf shall not exceed:

- 350 nautical miles from the baselines, or
- shall not exceed 100 nautical miles from the 2,500 metre isobath, which is a line connecting the depth of 2,500 meters.

Extending the OCS



■ LOSC Article 76 Paragraph 6 provides a limit of 350 nautical miles for claims based on submarine ridges, but does not apply this limit to submarine elevations that are natural components of the continental margin, such as its plateaus, rises, caps, banks and spurs.

■ This is the provision which may give rise to very large claims in the Arctic discussed below, essentially where undersea ridges may extend across the North Polar region of the Arctic Ocean from Canada and Denmark (from the Greenland coast), across to the Russian Federation coast.

Overlapping OCS Claims

Article 83 of LOSC provides that the delimitation of the continental shelf between States with opposite or adjacent coasts shall be effected by agreement on the basis of international law.

Pending agreement the states concerned shall make every effort to enter into provisional arrangements of a practical nature. These arrangements are to be without prejudice to a final boundary delimitation.

Overlapping OCS Claims



The sovereignty of landmasses, such as islands, may be disputed. The maritime boundary can then also be in dispute where the landmasses generate EEZ and continental shelf zones.

The baselines may closely follow the coast, or across the outer edge of a large bay and thus give rise to a larger EEZ and continental shelf area from the longer baseline.

The method of determining the boundary may also be in dispute. One country may rely on equidistance between the countries baselines, and the other country may have a historical claim.

Overlapping OCS Claims



The boundaries of the EEZ and continental shelf may conflict where coastlines are opposite or adjacent. One state may consider the boundary should be equidistant between the two states, and the other state may consider that the boundary should be modified by special circumstances such as historical claims.

The physical characteristics of the seabed may not meet the requirements set out in LOSC to generate a continental shelf.

Russian Nuclear Powered Ice Breaker - Arktika Class



The CLCS and Overlapping OCS Claims

- LOSC requires that the respective Outer Continental Shelf (OCS) submissions are reviewed by the Commission on the Limits of the Continental Shelf (CLCS).

These deliberations are made purely on geographical circumstances, and so ocean surveys are extremely important to determine the basis of a submission before the CLCS.

The CLCS and Overlapping OCS Claims



- The recommendations of the CLCS are based on a strict evaluation of geographical criteria for the continental shelf under LOSC, and not based on negotiation between states and CLCS, or with the International Seabed Authority (ISBA), which has rights to the ocean seabed beyond the OSC of coastal states.

The CLCS and Overlapping OCS Claims



- LOSC previously imposed a time limit, which has been amended and is currently 10 years from 13 May 1999 for states which ratified LOSC prior to that date, and 10 years after ratification for states which became parties to LOSC after that date.
- This deadline was amended to allow original signatories to LOSC, and states which ratified LOSC prior to 13 May 1999, to notify their intention to make OCS submissions to the CLCS by the former deadline of 13 May 2009, rather than requiring the submission by that date.

The CLCS and Overlapping OCS Claims



- Canada ratified LOSC in 2003, and so its OCS submission must be lodged by 2013.
- Denmark ratified LOSC 16 November 2004, and will have an OCS submission in respect of the Arctic, north of the Greenland coast. Denmark must therefore lodge its OCS submission with CLCS by 2014.

The CLCS and Overlapping OCS Claims



- The Russian Federation lodged its OCS claim with the CLCS in 2001. The CLCS adopted recommendations on the claim in June 2002. The CLCS in general terms requested a revised submission with additional scientific data to support the claim.
- The Russian Federation could be required to lodge the updated submission by May 2009, being the original deadline under LOSC, but it appears more likely that it has a 'reasonable time' which may comprise several years.

The CLCS and Overlapping OCS Claims



- If the United States ratifies LOSC, it will then have 10 years to make an OCS submission, which should include the continental shelf from the north coast of Alaska extending into the Arctic Ocean.

The CLCS and Overlapping OCS Claims



- The CLCS is relevant to Australia in respect of several regions including the Antarctic.
- Australia's OCS submission was lodged in 2004, and a determination was made in 2008.
- The Australian submission included coordinates for an extension of the continental shelf north of the Antarctic coast, notwithstanding that the ATS prohibits new claims to territorial sovereignty in Antarctica while the treaty is in force.
- However the CLCS was asked to defer ruling on Australia's Antarctic OCS.

Russian Arctic



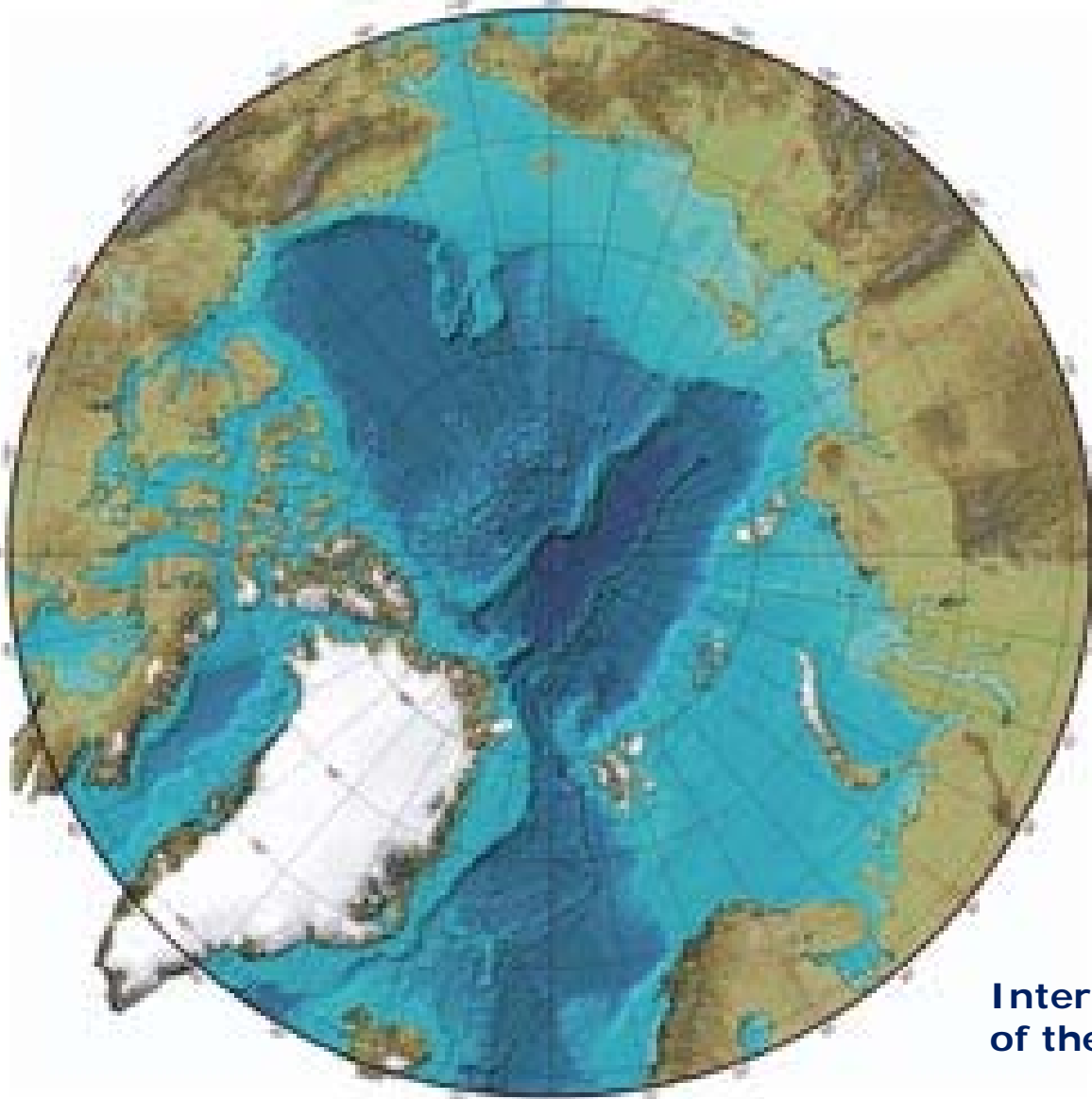
Photo - Wildlife Worldwide

IBCAO Initiative



- The International Bathymetric Chart of the Arctic (IBCAO) is an initiative by investigators affiliated with institutions in Canada, Denmark, Germany, Iceland, Norway, Russia, Sweden, and the USA.
- The initiative is supported by the Intergovernmental Oceanographic Commission (IOC), the International Arctic Science Committee (IASC), the International Hydrographic Organization (IHO), the US Office of Naval Research (ONR), and the US National Geophysical Data Center (NGDC).
- The IBCAO current chart is shown as follows:

Arctic Seabed



**International Bathymetric Chart
of the Arctic Ocean - IBCAO**

Current and Anticipated Arctic Ocean Claims



The current and anticipated continental shelf claims in the Arctic Ocean are reviewed at an introductory level below, including some brief current information on estimated oil and gas reserves where available.

For detailed analysis of the boundaries, please refer to IBRU publications and other sources of reference.

The areas of the Arctic Ocean with potential for JDZ are then identified and reviewed below, including the claims of the countries with coastline boundaries and continental shelves around the Arctic Ocean.

Oil and Gas Surveys



Arthur R. Green and Anatoly A. Kaplan have reviewed the sedimentary basins of the Arctic and suggest that the significant part of oil and gas reserves may be within the 200 mile EEZ of the states with coastlines.

Michael D. Max and Allan Lowrie suggest that large reserves of natural gas hydrates in the Arctic Ocean basin may exist outside the 200 mile EEZ limits, and may include the area beyond state claims to be developed by the International Seabed Authority (ISBA).

Oil and Gas Surveys

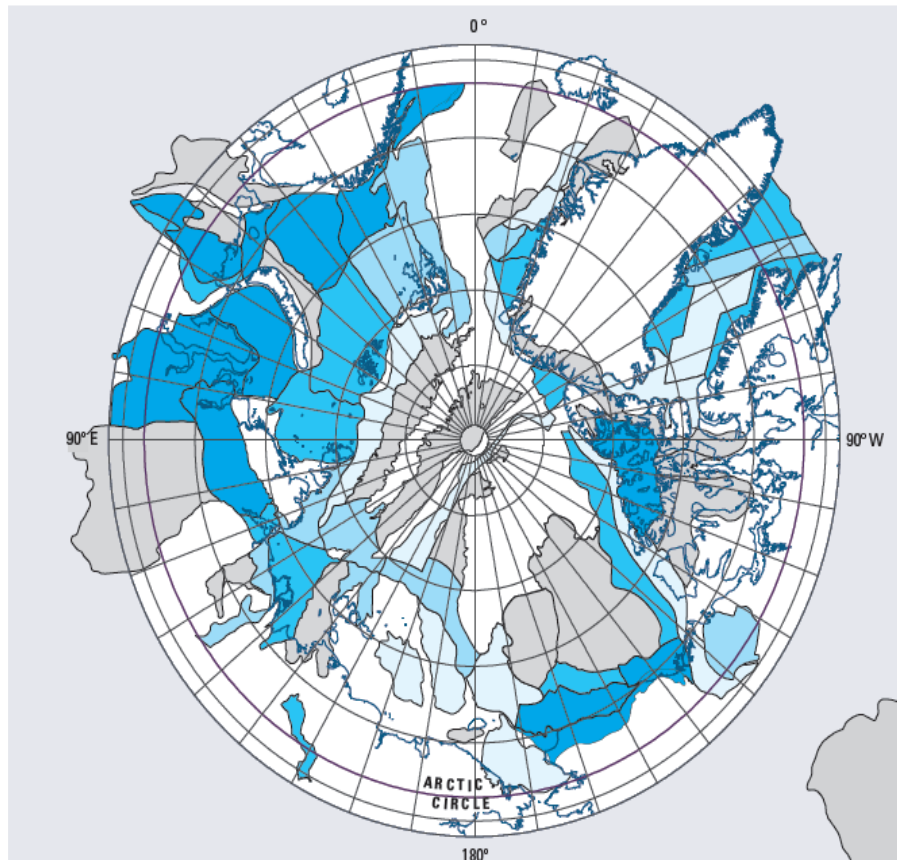


The process of exploration is underway though much remains to be done. As an example, the European Union is developing the Aurora Borealis, as the first ice breaker and drilling platform intended to take samples beneath the central Arctic Ice

The US Geological Survey (USGS) has commenced a program to determine the oil and gas potential in the Arctic Ocean region. The first general report was released in 2008, as the Circum-Arctic Resource Appraisal (CARA) Estimates of Undiscovered Oil and Gas North of the Arctic Circle.

Arctic Oil and Gas – USGS Survey

United States Geological Survey (USGS) – Circum-Arctic Resource Appraisal - 2008



**Combined Oil
and Gas
Summary**



IBRU Arctic Ocean Jurisdiction Survey

The maritime jurisdictions including expected OCS claims which apply in the Arctic Ocean were published on 15 August 2008 by the International Boundary Research Unit (IBRU) of Durham University.

This presentation does not include a detailed review of the survey findings, however the survey results are shown in the IBRU summary map as follows:

Maritime jurisdiction & boundaries in the Arctic

www.dur.ac.uk/ibru/resources/arctic



Bering Sea - US and Russia



Names are not necessarily authoritative

US Department of State - Russia has not yet ratified

Arctic Ocean Claims – Bering Sea Region



- The Bering Sea between the United States and the Russian Federation, and immediately to the north, the Chukchi Sea north to the Arctic Ocean.
- The United States signed an Agreement on the Maritime Boundary on 1 June 1990 delimiting the baselines and continental shelf, from the Bering Sea, north through the Bering Straits, then into the Chukchi Sea, and then into the Arctic Ocean.
- The United States ratified the Agreement on September 16, 1991, however both the Soviet Union government and the successor Russian Federation governments have not ratified the Agreement.

Arctic Ocean Claims – Bering Sea Region



- The United States gave up a possible claim to islands that lie close off the Russian coast, such as Wrangel Island, Herald Island, and Copper Island. However as discussed by Oude Elferink, the islands were not part of the United States purchase from Russia and so the claim appears to be based on exploration only
- The advantage of the Agreement to the United States is that a substantial area of the Bering Sea is within the United States boundary under the Agreement.

Arctic Ocean Claims – Bering Sea Region



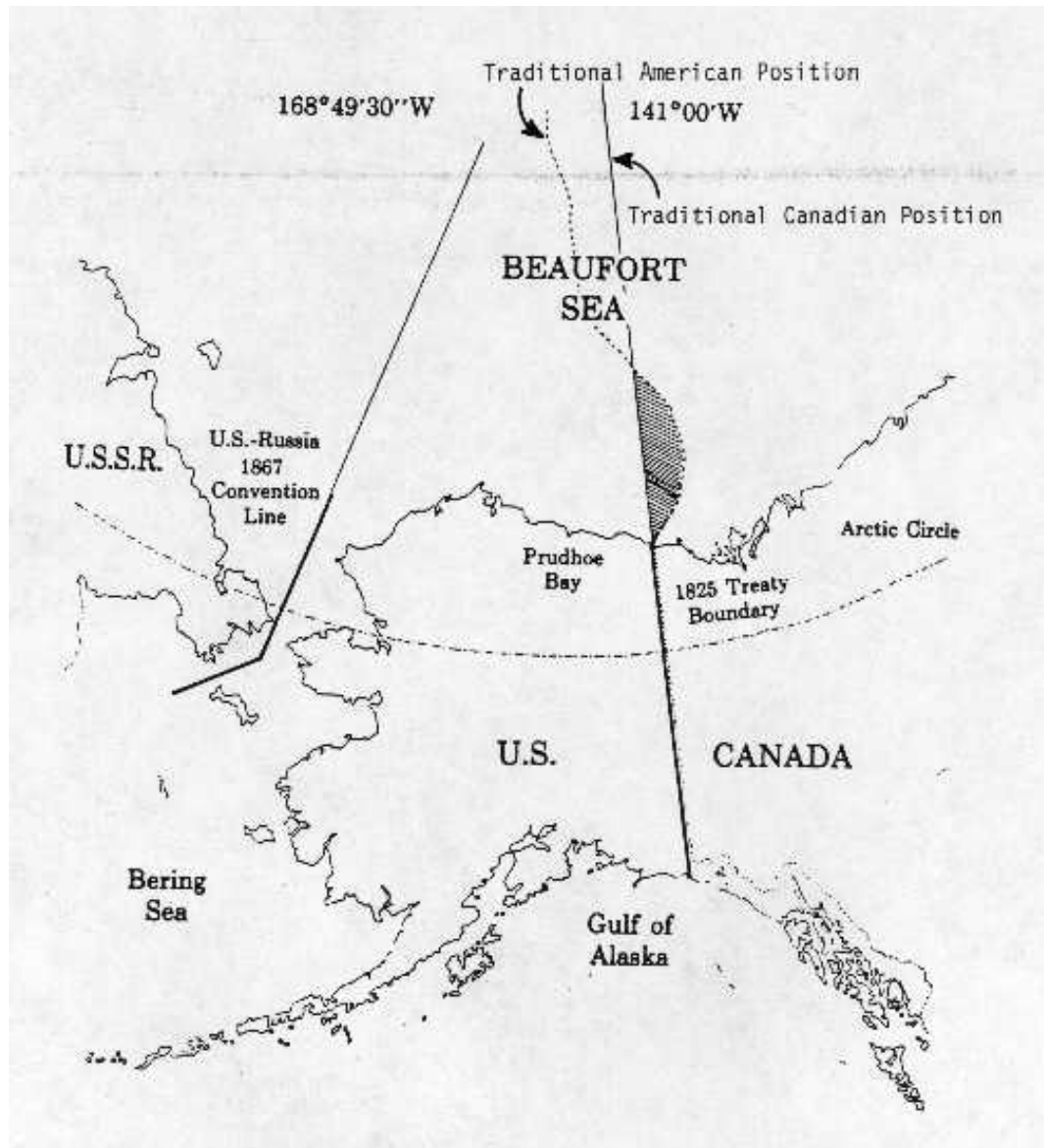
- Oil and gas appear likely to be discovered in significant quantities in the Bering and Chukchi Seas, based on preparatory drilling and the location of sedimentary basins that may harbour oil and gas reservoirs
- These include Norton Sound off the Alaska coast into the Bering Sea, and two basins to the north in the Chukchi Sea
- The USGS Survey indicates some oil immediately to the north of the Bering Sea and higher amount further north, however the high concentration oil reserves are north of the US Alaskan coast in the Chukchi Sea, to the east of the Russian Federation/United States maritime boundary.

Arctic Ocean Claims – Bering Sea Region



- Gas hydrates have been identified in the Bering Sea, but appear less likely in the Chukchi Sea and Arctic Ocean immediately to the north
- The USGS Survey indicates gas reserves matching the oil estimates, with some gas immediately to the north of the Bering Sea, higher amounts further north, and high concentrations of gas reserves are north of the US Alaskan coast in the Chukchi Sea, again to the east of the boundary.
- In summary, the main interest is likely to be oil and gas however, as more easily exploitable resources, and the principal overlapping claims therefore relate to oil and gas in the Bering Sea and the Chukchi Sea.

Beaufort Sea - US and Canada



Government of Canada

Exploration leases offered by both countries in the disputed area

Arctic Ocean Claims – Beaufort Sea Region



- The Beaufort Sea between the United States Alaskan coast and Canada has a current boundary delimitation dispute.
- Canada introduced a baseline claim in the Arctic region in 1985, in general from the boundary with the United States to the entrance to the Hudson Strait.
- The dispute with the United States concerns an area of about 6,250 square miles, where the Canadian claim extends north from the land boundary. The United States claim is based on equidistance.

Arctic Ocean Claims – Beaufort Sea Region



- The basis for the Canadian boundary is the 1825 Convention between Great Britain and Russia, which defined the boundary as 141 degrees of latitude, 'in its prolongation as far as the Frozen ocean'.
- The United States adopted the Russian rights under the agreement for the purchase of Alaska in 1867.
- Canada subsequently adopted Great Britain's rights.

Arctic Ocean Claims – Beaufort Sea Region



- Oil and gas has been discovered in the Beaufort Sea, and the United States OSC claim includes potential new oil and gas resources further offshore.
- Canada is also conducting oil and gas activities and is extending these further offshore. Both Canada and the United States have granted conflicting offshore exploration leases in the disputed zone.

Arctic Ocean Claims – Beaufort Sea Region



- The USGS Survey indicates high concentration oil reserves north of the US Alaskan and Canadian coasts in the Chukchi Sea, and high concentration gas reserves north of the US Alaskan and Canadian coasts in the Chukchi Sea.
- In summary the Beaufort Sea has strong oil and gas potential, and the disputed region is considered in detail below for a potential JDZ

US Coast Guard – USCGC Polar Star



Photo - US Coast Guard

Arctic Ocean Claims – Canadian Arctic Coast



- The northern coastline of Canada is defined under the baseline claim in the Arctic region in 1985, and follows the outer boundary of Canadian Arctic islands including Banks Island, Ellesmere Island and Baffin Island.
- The Canadian OCS claim must be lodged with the CLCS by 2013. In relation to the expected claim, Canada has been surveying the Alpha undersea ridge extending from the north coast of Ellesmere Island northwest into the Arctic Sea, and also the Lomonosov Ridge extending from Ellesmere Island near Greenland to the North.

Arctic Ocean Claims – Canadian Arctic Coast



- A Canadian OCS claim relating to the Lomonosov Ridge may overlap the expected Russian Federation claim based on the same Ridge but extending from the Russian Federation coast from the other direction across the Pole.
- Oil and gas is being exploited off the Canadian Arctic coast, and offshore exploration is extending to the north into the EEZ. It is currently expected that oil and gas may be found out to the EEZ.

Arctic Ocean Claims – Canadian Arctic Coast



- The USGS Survey indicates high concentration oil reserves north of the Canadian coast, a concentration of oil reserves over a very large area extending out to the continental shelf to the north and north east, and a lower concentration close to the Canadian north east coast.
- The USGS Survey indicates high concentration gas reserves north of the Canadian coast, a concentration of oil reserves over a very large area extending out to the continental shelf to the north and north east, and a concentration close to the Canadian north east coast.

Arctic Ocean Claims – Lincoln Sea Region



- The Lincoln Sea region is between Canada and Denmark, based on current Danish sovereignty over Greenland,
- The major portion of the boundary between Canada and Denmark was agreed in 1973
- The agreed boundary runs for nearly 1500 miles from the Davis Strait to the south to Robeson Channel, at the northern end of Canada's Ellesmere Island and the north east coast of Greenland. The agreed boundary is generally based on equidistance, with a provision for adjustment when new information on the low water line of Canada's Arctic islands and the Greenland coast becomes available.

Arctic Ocean Claims – Lincoln Sea Region



■ There is a dispute over the sovereignty of Hans Island, a small island in the channel between the Ellesmere Island and Greenland coasts

■ The area to the north of the agreed boundary, in the Lincoln Sea and the Arctic Ocean to the north, has not been agreed. The boundary does not therefore extend to the EEZ or OCS of Canada or Denmark.

Arctic Ocean Claims – Lincoln Sea Region



- There is an issue of whether Canada and Denmark will agree their boundary if an OSC claim is made relating to the Lomonosov Ridge. The expected OCS claims by Canada and Denmark to the CLCS may include an agreed delimitation, or there may be a disputed zone. As the two countries are cooperating on survey data there may be an agreed boundary.
- The expected OCS claim may extend to the north to conflict with the Russian Federation OCS claim.

Arctic Ocean Claims – Lincoln Sea Region



- An agreement by either Canada or Denmark with the Russian Federation, as to the extend of claims relating to the Lomonosov Ridge, appears less likely in the near future.
- Oil and gas resources are expected off the Canadian coast north of Ellesmere Island and towards the Greenland coast, though not extending to the EEZ
- The USGS Survey indicates potential concentrations of oil reserves north of the Canadian and Danish (Greenland) coasts.
- The USGS Survey also indicates potential concentrations of gas reserves north of the Canadian and Danish (Greenland) coasts.

Proposed European Commission Icebreaker Drilling Ship - Aurora Borealis



Alfred Wegener Institute

Arctic Ocean Claims – Danish Arctic Coast



- Denmark ratified LOSC on 16 November 2004, and is currently preparing a continental shelf claim in respect of the coasts of Greenland and the Faroe Islands, known as the Continental Shelf Project
- Denmark therefore has 10 years to finalise Danish claims to extend the continental shelf beyond 200 nautical miles
- In relation to the Danish claim, there is currently a move towards independence of the Greenland and the Faroe Islands, and a degree of autonomy has been granted by Denmark in the form of Home Rule Governments. At March 2009, it is not clear whether these Danish territories are likely to obtain full independence

Arctic Ocean Claims – Danish Arctic Coast



- Three potential claim areas off the coast of Greenland are south of Greenland yet to be agreed with Canada, northeast of Greenland to the Norwegian islands of Jan Mayen and Svalbard, and to the north of Greenland yet to be agreed with Canada, Russia and Norway.
- The Northern claim is likely to include the Lomonosov Ridge under the continental shelf provisions of UNLCOS, on a similar basis to the current claim by the Russian Federation which proceeds from the northern coast of Russia to the North Pole

Arctic Ocean Claims – Danish Arctic Coast



- Oil and gas resources are expected offshore from the north Greenland coast to the east Greenland coast, though not extending to the EEZ to the north. The larger area may be offshore the East Greenland coast in the Greenland Sea towards Svalbard. It may require offshore drilling to determine any oil and gas potential.
- The USGS Survey indicates potential concentrations of oil reserves north of the Danish (Greenland) coasts (NGS) and potential concentrations of oil further north towards the Pole.
- The USGS Survey indicates potential concentrations of gas reserves north of the Danish (Greenland) coasts (NGS) and potential concentrations of gas further north towards the Pole

Arctic Ocean Claims – Danish Boundary with Norway (Svalbard and Greenland Sea)



- The Danish boundary with Norway was determined under an Agreement made in 1995. The Agreement implemented a decision of the International Court of Justice (ICJ) in the Jan Mayen case.
- The ICJ considered a median line claim by Norway and a 200 mile fisheries zone and continental shelf claim by Denmark
- The ICJ held that the boundary should be made between the two claims, and creating a three part joint development area. The Agreement between Denmark and Norway implemented the court's decision, and therefore set a precedent for other areas in the Arctic.

Arctic Ocean Claims – Danish Boundary with Norway (Svalbard and Greenland Sea)



- Oil and gas are expected to the north of Svalbard extending in large area to the North east.
- Gas hydrates are expected to the east of Svalbard, and in a large region to the north east similar to the expected oil and gas reserves

Arctic Ocean Claims – Norway Iceland



- Iceland and Norway have agreed the boundaries in respect of area within 200 nautical miles of the coast of each state, in two agreements made in 1980 and 1981
- These agreements generally give a 200 mile boundary to Iceland rather than being based on equidistance. On this basis they may be considered concessional by Norway
- There is a Joint Zone which extends roughly one third on the Icelandic side of the boundary, and two thirds on the Norwegian (Jan Mayen Island) side of the boundary, which broadly allows 25% of benefits from the other state's part of the zone. Accordingly there is another precedent for JDZs in the Arctic region.

Arctic Ocean Claims – Norway Iceland



- The USGS Survey indicates potential concentrations of oil reserves west of the Norwegian coast
- The USGS Survey also indicates potential concentrations of gas reserves west of the Norwegian coast

Norway - Lofoten Islands



**South Quay
Cruises**

Arctic Ocean Claims – Norway

Arctic Coast



- Norway defined the limits of the continental shelf in the Act Pertaining to Petroleum Activities of 1985.
- The limits are defined as the seabed and subsoil outside Norwegian territorial sea, as far as it can be regarded as a natural prolongation of the Norwegian land territory but no less than 200 nautical miles from the baseline from which the territorial sea is measured, but not beyond the median line in relation to other states.

Arctic Ocean Claims – Norway

Arctic Coast



- Oil and gas is expected in a very large area north from the Norwegian coast towards Svalbard, this area extending over almost the entire ocean area eastwards to the Russian Federation.
- The USGS Survey indicates potential concentrations of oil reserves north of the Norwegian coast, and north of Svalbard (Spitsbergen) Islands, and a very high concentration north of the Norwegian coast to the east towards the Russian Federation.
- The USGS Survey also indicates potential concentrations of gas reserves north of the Norwegian coast, north of Svalbard (Spitsbergen) Islands, and a concentration north of the Norwegian coast to the east towards the Russian Federation.

Barents Sea - Norway and Russia



UNEP
GRID-Arendahl
Hugo Ahlenius

Arctic Ocean Claims – Barents Sea Region



- The Norway and Russian Federation boundary in the Barents Sea region is currently disputed.
- The Norwegian claim is based on equidistance, whereas the Russian claim is a boundary running to the north of the land boundary on the basis of the sector principle.
- The result is a disputed area of 175,000 square kilometres.
- There does not appear to be an international consensus to support the sector boundary as claimed by the Russian Federation. There have however been negotiations towards a boundary compromise, including the possible use of a joint development zone.

Arctic Ocean Claims – Barents Sea Region



- The Russian claim for the sector principle is based on special circumstances including population size, Russian economic interests, and the Svalbard Treaty as a result of which the island should not be given the status normally received as Norwegian territory.
- There are few precedents however for factors such as population size or economic interest as special circumstances to support not using equidistance as the basis for the boundary.

Arctic Ocean Claims – Barents Sea Region



- Oil and gas is expected in the entire Norwegian boundary area with the Russian Federation.
- The USGS Survey indicates a very high potential concentration of oil north of the Norwegian coast and the Russian Federation coast.
- The USGS Survey indicates a potential concentration of gas north of the Norwegian coast and the Russian Federation coast

Russia Polar Claim



Arctic Ocean Claims – Russian Arctic Coast



- The Russian Federation made a claim to the CLCS in 2001, which included the underwater Lomonosov and Mendeleev Ridges as a 'natural prolongation' of the Russian continental shelf, and which therefore gave rise to a claim to resources such as oil and gas extending on either side of the ridges.
- The claim may be expected to partly overlap a Canadian OCS claim. The claim is also expected to overlap the expected Danish claim extending from the north coast of Greenland.
- The technical basis for CLCS claims and related deliberations are confidential, including reviews which could support a claim extending several hundred nautical miles north from the Russian Arctic coast.

Arctic Ocean Claims – Russian Arctic Coast



- The claim to the Lomonosov and Mendeleev Ridges may be made as 'oceanic ridges' under LOSC under Article 76(3), however oceanic ridges are excluded from the continental margin, as it states that 'the continental margin...does not include the deep ocean floor with its oceanic ridges or the subsoil thereof.'
- However the term 'oceanic ridges' is not defined in LOSC.
- Accordingly it would appear that the CLCS may be required to analyse if Lomonosov and Mendeleev Ridges are oceanic ridges, and if this is the case, the CLCS may be required to reject this part of the Russian OCS claim.

Arctic Ocean Claims – Russian Arctic Coast



- A claim relating to Lomonosov and Mendeleev Ridges may also be made under the 'submarine ridges' clause of Article 76(6), however such claims are specifically limited by Article 76(6) to 350 nautical miles from the coastal state's baseline.

Arctic Ocean Claims – Russian Arctic Coast



- A claim exceeding 350 nautical miles should therefore rely on the 'submarine elevations that are natural components of the continental margin' under Article 76(6). Such a claim is not subject to the 350 mile limit, providing the claim is within the 2500 meter isobath line plus 100 nautical miles.
- A claim on this basis would be similar in principle to the US claim in respect of the Chukchi undersea peninsula discussed above, which is also based on submarine elevations under Article 76(6), and not on oceanic ridges which would be subject to the 350 nautical mile limit.

Arctic Ocean Claims – Russian Arctic Coast



■ However, as with the term 'oceanic ridges', the term 'submarine elevations that are natural components of the continental margin' is not defined in LOSC, and CLCS is required to undertake a law making function rather than a strictly technical evaluation, according to Professor Marc Benitah, University of Quebec.

Arctic Ocean Claims – Russian Arctic Coast



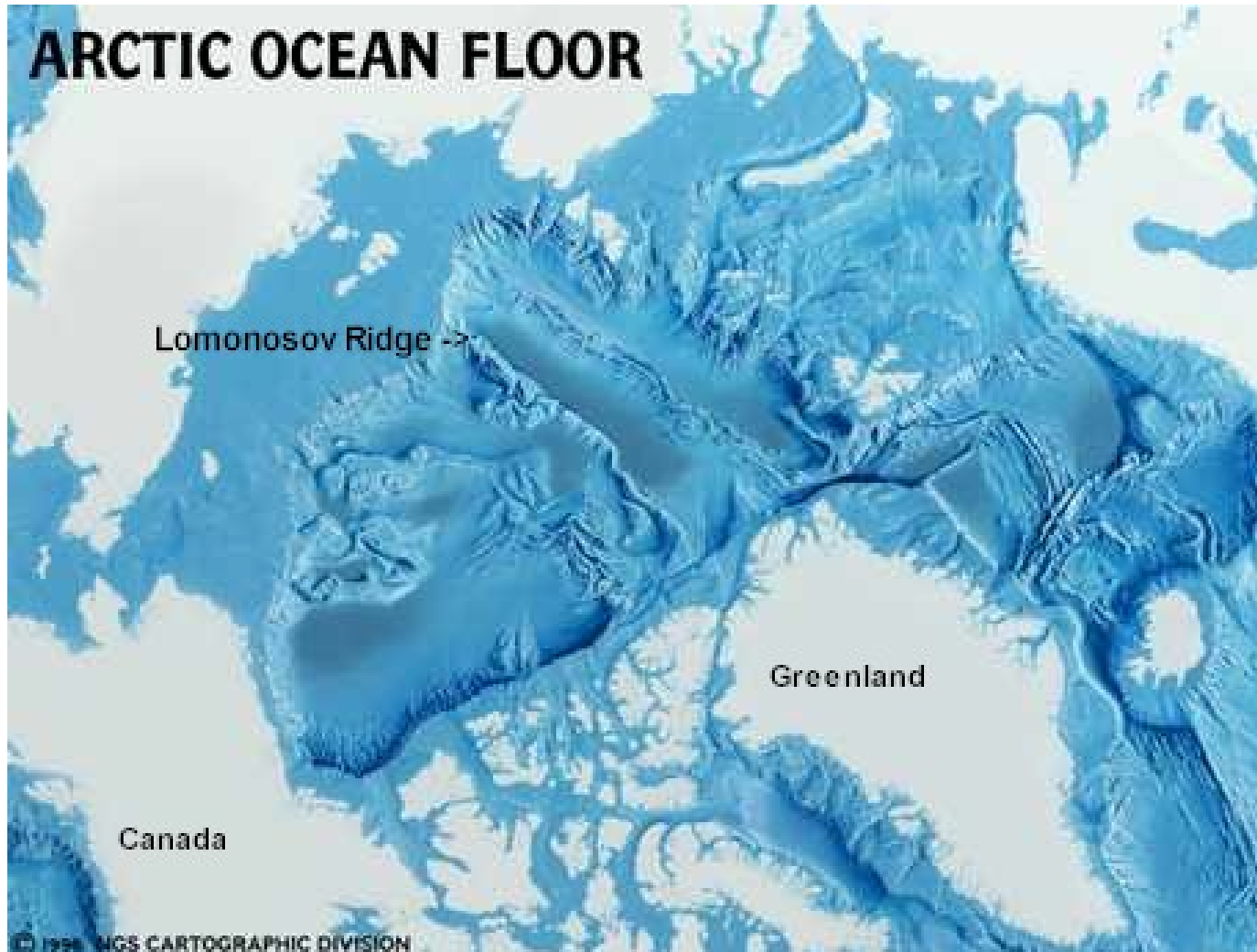
- Oil and gas potential is expected in the Kara Sea north of the Russian Federation coast, and north of the Russian Franz Joseph islands, and in the Arctic Ocean towards the Norwegian OCS, in total one of the largest potential oil and gas reserves in the Arctic region.
- The USGS Survey indicates potential high concentrations of oil north of the Russian Federation coast, some potential concentrations off the Russian Federation coast, and potential high concentrations in the north Arctic Ocean to the North Pole area.

Arctic Ocean Claims – Russian Arctic Coast



- The USGS Survey indicates potential very high concentrations of gas north of the Russian Federation coast, high concentrations north of the coast, some potential concentrations off the Russian Federation coast, and potential high concentrations in the north Arctic Ocean to the North Pole area

Lomonosov Ridge



JDZs and their Basis in LOSC

Article 83

Article 83 of LOSC provides that the delimitation of the continental shelf between States with opposite or adjacent coasts shall be effected by agreement on the basis of international law.

Pending agreement the states concerned shall make every effort to enter into provisional arrangements of a practical nature. These arrangements are to be without prejudice to a final boundary delimitation. JDZs can constitute such agreements where the sovereignty remains unresolved.

Form of JDZ



A JDZ agreement may specify the maritime boundary while sharing benefits on either side of the boundary, or may agree that the boundary is not resolved and allow sharing of benefits within the disputed zone.

Agreed JDZ Boundary or Suspended Delimitation

A JDZ can be entered into by which the states concerned either agree a boundary and also agree to share resources such as oil and gas on either side of the boundary within the JDZ area, or the states may agree to suspend the boundary delimitation, and still share the benefits of development of oil and gas resources in the JDZ.

Establishment of JDZs

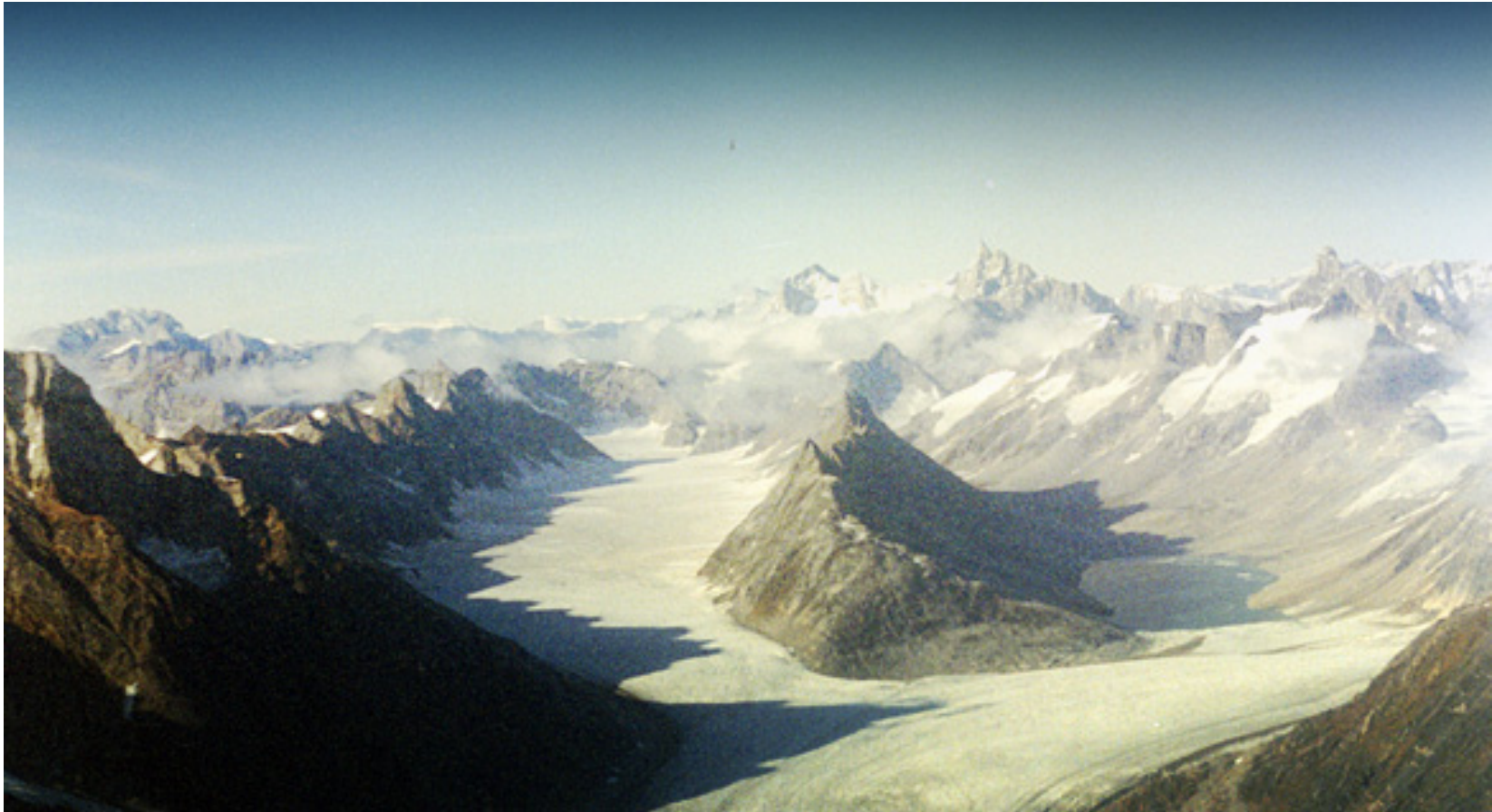
The establishment of Joint Development Zones (JDZs) for the development of oil and gas resources in the Arctic Ocean can effectively resolve competing continental shelf claims arising under the continental shelf delimitation provisions of Article 76 of LOSC.

Use of JDZs to Resolve Potential Disputes



JDZs have been used to resolve maritime boundary disputes in a growing number of cases, and therefore present a potential solution to the current and potential boundary disputes in the Arctic Ocean.

Canada - Nunavut



Tierecke

Joint Development Zones



JDZs have their origin in treaties relating to oil and gas land boundaries.

Kuwait Saudi Arabia 1922

- An early example was the Uqair Convention in 1922 which provided for equal sharing oil and gas in a neutral zone where the boundary was not agreed.
- The international boundary was however resolved by Agreement in 1965 which partitioned the Neutral Zone.

Joint Development Zones



Svalbard (Spitsbergen), 1920.

- The Agreement gave sovereignty to Norway but allowed other countries access to resources of the islands.
- The Agreement may, arguably, allow joint access to maritime zones. However this is still an open issue.

Joint Development Zones



France and Spain - Bay of Biscay, 1974

- France and Spain agreed to a JDZ applying in the Bay of Biscay region in 1974. The Agreement is an example of a determination of the continental shelf boundary, while also establishing a JDZ which straddles the agreed boundary.
- The JDZ is an area of about 814 square miles, and is defined as a region where specific procedures apply for the award of licences for the exploration and exploitation of the natural resources of the zone.

Joint Development Zones



Sudan and Saudi Arabia - Common Zone, 1974

- Sudan and Saudi Arabia agreed to a Common Zone JDZ in 1974 in respect of the seabed and subsoil of the Red Sea between the two countries.
- The agreement provides for equal sovereign rights for each state within the JDZ.
- Activities are to be undertaken by a Joint Commission including surveying, applications for licences and concessions, and supervision of exploitation.
- There are also specific provisions for resources which straddle the JDZ and either state's EEZ.

Joint Development Zones



Japan and Republic of Korea – 1974

- Japan and Korea made an agreement in 1974 in respect of the disputed southern region of the continental shelf in the Yellow Sea and the East China Sea. The JDZ concerned the overlapping claims.
- The Korean claim is based on an extension of the continental shelf. Japan's claim is based on an equidistance line between Japan and Korea,
- The Agreement provides that nothing in the Agreement shall be regarded as determining the question of sovereign rights over all or any portion of the JDZ.

Joint Development Zones



United Kingdom and Norway - Frigg Field Reservoir, 1977

- The agreement followed an earlier agreement in 1965 on the delimitation of the continental shelf maritime boundary.
- This JDZ was for the purpose of effective exploitation of an oil and gas field where the boundary had previously been agreed.
- The Agreement allows unitisation of the field as a single deposit irrespective of the OCS boundary.

Joint Development Zones



Malaysia and Thailand - Joint Development Area, 1979

- The states were not able to agree the boundary but wanted to provide for the joint exploitation of non-living resources of the seabed and subsoil.
- A Joint Authority was established for with equal membership from each state, and which exercises on behalf of both states all powers necessary for the exploration and exploitation of the resources of the JDZ.
- The Agreement requires the states and the Joint Authority to reach agreement in relation to resources which straddle the JDZ so that expenses and benefits are equitably shared.

Joint Development Zones



Iceland and Norway - Jan Mayen Island Treaty Area, 1981

- The OCS boundary between Iceland and the island of Jan Mayen held by Norway to the north east was referred to a Conciliation Commission.
- The Commission recommended that the same line as the economic zone boundary should also be the boundary for the continental shelf, and recommended a JDZ overlapping the boundary. The Agreement was based on the recommendations
- The Agreement is of the type that does determine state sovereignty in respect of competing OCS claims.

Joint Development Zones

Argentina United Kingdom - South West Atlantic, 1995

- Argentina and the United Kingdom both claim sovereignty over the Falkland (Malvinas) Islands.
- The Argentine claim is based on succession to the rights of Spain, territorial integrity, continental contiguity, occupation and protest against the U.K.'s claim. The UK claim is based on discovery, the nationality of the islanders living there, and the right to self-determination.
- The Joint Declaration created a Zone of Cooperation over about 20,000 square kilometres to the south-west of the Falklands. In 2008 however the current Argentine government withdrew from the Agreement.

Joint Development Zones



Australia and Timor Leste -East Timor - Timor Sea Treaty, 2002, and CMATS Treaty 2007

- The Treaty follows a previous JDZ between Australia and Indonesia, which previously occupied East Timor.
- Australia's claim is based on the natural prolongation of the continental shelf in the Timor Sea. The Timor Leste claim is based on equidistance between the coastlines of the two countries.
- The Agreement established a Joint Petroleum Development Area with joint control of exploration and exploitation. Petroleum production is shared 90% to Timor Leste and 10% to Australia.
- This was followed by the CMATS Agreement in 2007 for a JDZ for the Greater Sunrise field on a 50% shared basis.

Joint Development Zones



China and Japan - East China Sea - 2008

- The Japanese claim had been based on equidistance between baselines of the two states. The Chinese claim had been based on natural prolongation of the Chinese coast.
- The JDZ straddles the median line however the majority of the JDZ is on the Japanese side of the median line. Accordingly the Agreement may be considered to be a compromise between the Japanese median claim and the Chinese prolongation claim.
- This is an agreement in principal, and detailed implementation is under development.

Joint Development Zones – BIICL Review



- A detailed review of JDZ was chaired by Lady Hazel Fox QC CMG of the British Institute of International and Comparative Law (BIICL).
- This team published a Model Agreement based on these agreements, with changes for areas considered to be capable of improvement.
- There have been varying levels of success with JDZs and so the legal mechanisms reviewed in the BIICL report are extremely important.

Canada - Nunavut



Photo by Ansgar Walk

Joint Development Zones – Best Prospects



- A detailed analysis of the best prospects for the effective application of JDZ solutions to the Arctic Ocean would require a much longer presentation.
- However in brief, these areas are likely to be as set out in the following slides:

Potential Joint Development Zones – Bering Sea



- One example would be the Bering Sea between the United States and the Russian Federation, and immediately to the north, the Chukchi Sea north to the Arctic Ocean.
- The case is unusual as Russian ratification of the 1990 Agreement would determine the boundary.

Potential Joint Development Zones – Beaufort Sea



- The Beaufort Sea between the United States and Canada also has potential for a JDZ. The disputed area is not large, however oil exploration is already conducted in this region.
- However in this case Canada's claim appears quite strong and the Canadian government may prefer to refer the matter for arbitration under LOSC unless a corresponding concession was offered by the United States to support a JDZ.
- One example would be US recognition of the Northwest passage as Canadian internal waters rather than an international strait.

Potential Joint Development Zones – Barents Sea



- The Barents Sea between Norway and the Russian Federation also has potential for a JDZ.
- In this case however the Norwegian claim appears stronger, as the sector principle used in the Russian claim has not been widely adopted and is not incorporated in LOSC.
- Accordingly a JDZ may be appropriate where Norway receives a corresponding concession, such as Russian recognition of Norwegian sovereignty and OSC rights surrounding Svalbard.

Potential Joint Development Zones – Central Arctic



- The Lomonosov Ridge and Mendeleev Ridge area where the claim made by the Russian Federation to the CLCS on the outer continental shelf extending from the Russian Federation coast to the North Pole may overlap a Canadian OCS claim and a Danish claim extending from Greenland.
- A JDZ may be the appropriate solution where the CLCS cannot determine an appropriate interpretation of 'submarine elevations that are natural components of the continental margin' under Article 76(6) not subject to the 350 mile limit.

Joint Development Zones – Arctic Issues



- The International Seabed Authority (ISBA) is responsible for a form of joint development of the high seas region beyond OCS jurisdiction of coastal states, under LOSC Part XI.
- Although as discussed the OCS boundaries for Russia, Denmark and Canada in the polar region are yet to be determined, it appears there will be some regions beyond coastal state OCS boundaries.
- There should be scope for cooperation with ISBA such as a JDZ where a state has some grounds to OCS jurisdiction but not sufficient basis for a CLCS determination.

Joint Development Zones – Arctic Issues



- The JDZ agreements for the Arctic will need much stronger environmental provisions.
- There is evidence that Arctic peoples are suffering damage from chemicals which are concentrated in the North due to weather patterns.
- In addition, oil pollution may only very slowly break down in Arctic regions, based on the damage done by the Exxon Valdez oil spillage in 1985.
- The international community has successfully taken such action in other cases, for example with the introduction of double hulled tankers.

Joint Development Zones – Arctic Issues



- Multinational organisations such as the Arctic Council should therefore have a significant role in ensuring JDZ environmental standards are the safest possible.
- Accordingly a 'standard' current model JDZ, such as the Australia Timor Leste Agreement, and the United Kingdom Argentina Agreement, should be modified to require compliance with an agreed environmental standard.
- This will require agreement to enforcement of standards by an agreed third party such as the Arctic Council.

Polar Bears



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Thank you.

Please contact me for any follow up comments or discussions at:

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