

Continental Shelf

The Last Maritime Zone



Environmental Knowledge for Change



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All information in this publication is derived from official material that is posted on the website of the UN Division of Ocean Affairs and the Law of the Sea (DOALOS), which acts as the Secretariat to the Commission on the Limits of the Continental Shelf (CLCS): www.un.org/Depts/los/clcs_new/clcs_home.htm.

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Continental Shelf

The Last Maritime Zone



Authors and contributors

Tina Schoolmeester and Elaine Baker (Editors)

Joan Fabres

Øystein Halvorsen

Øivind Lønne

Jean-Nicolas Poussart

Riccardo Pravettoni (Cartography)

Morten Sørensen

Kristina Thygesen

Cover illustration

Alex Mathers

Language editor

Harry Forster (Interrelate Grenoble)

Special thanks to

Yannick Beaudoin

Janet Fernandez Skaalvik

Lars Kullerud

Harald Sund (Geocap AS)

Foreword

During the past decade, many coastal States have been engaged in peacefully establishing the limits of their maritime jurisdiction. This represents an historical milestone towards the definition of maritime sovereignty, and presents enormous economic opportunities for coastal States, but also brings new environmental challenges and responsibilities.

States may secure their legal entitlement to the seabed by submitting information on the continental shelf beyond 200 nautical miles as defined in Article 76 of the United Nations Convention on the Law of the Sea (UNCLOS). This is profoundly significant in that it will enable many developing coastal States and small island nations to access valuable natural resources, such as oil, gas and minerals, as well as sedentary organisms.

The high costs and extensive technical capacity required to comply with the provisions of Article 76 were recognized by the UN General Assembly. Accordingly, in 2002 they called on the UN Environment Programme's Global Resource Information Database (GRID) network to assist interested states, particularly developing States and small island developing nations. This gave rise to the UNEP Shelf Programme, which along with other international initiatives, has been providing data and technical assistance to States preparing proposals to define their national jurisdiction.

All States have an obligation to ensure that their territorial rights – including marine territories – are secured for future

generations. Importantly, the rules and regulations regarding the continental shelf require the States to safeguard the environment and share benefits from resource development with developing States. Furthermore, the ocean beyond national jurisdiction remains the common heritage of all mankind.

Today there are legitimate concerns about the state of the marine environment, and its unique and largely undocumented ecosystems. While resource development in these marine areas will likely present additional challenges and environmental management issues, the sustainable development of these areas could result in long-term economic and environmental benefits. Therefore States should consider all options, including the establishment of marine protected areas, which could support eco-tourism and healthy fisheries.

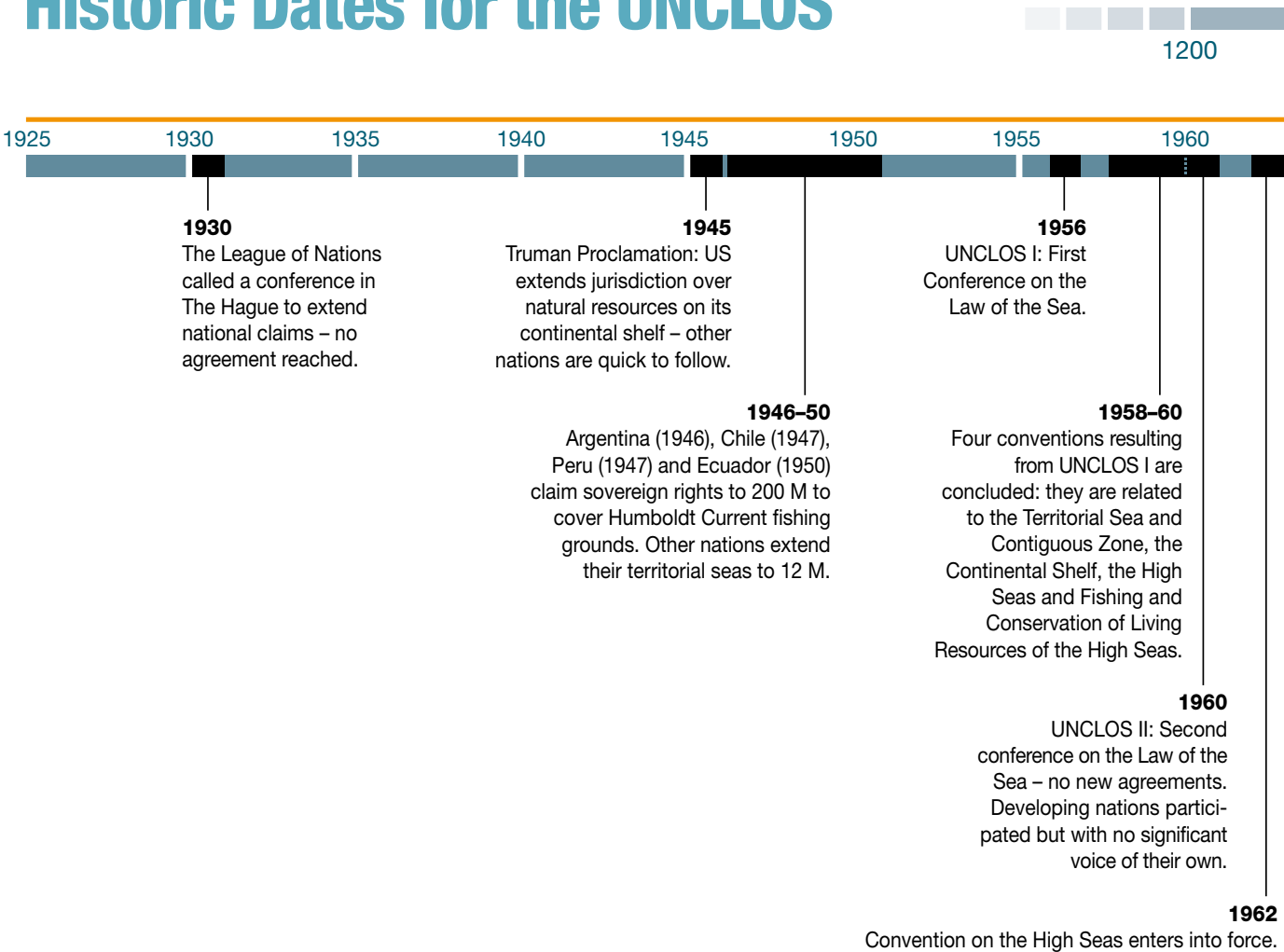
Continental Shelf: The Last Maritime Zone examines the status of the submissions made to date and begins to illustrate a new world map – one which will hopefully help reduce poverty and lead to the wise use of ocean resources.

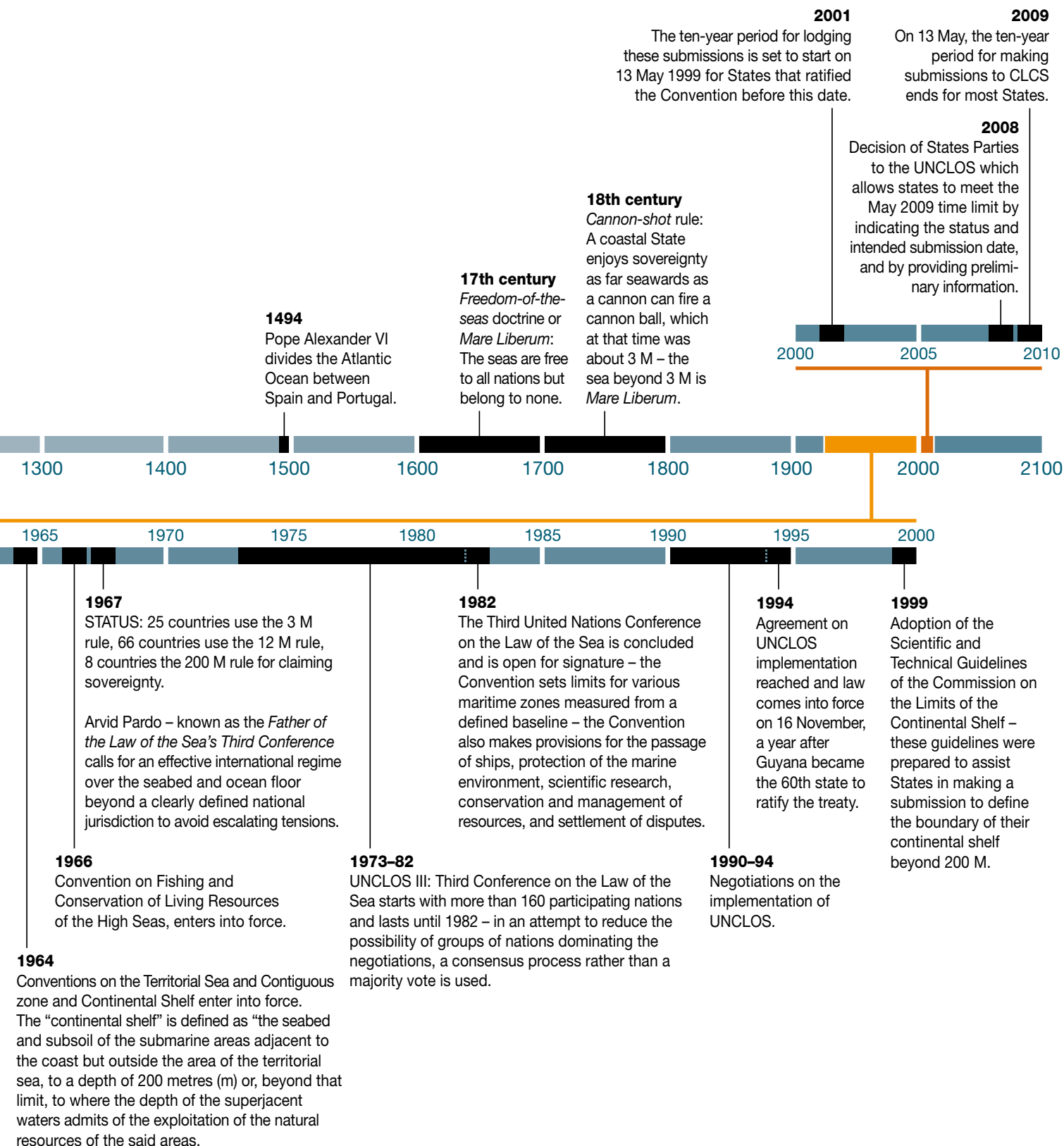
Peter Prokosch
Managing Director
UNEP/GRID-Arendal

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Historic Dates for the UNCLOS





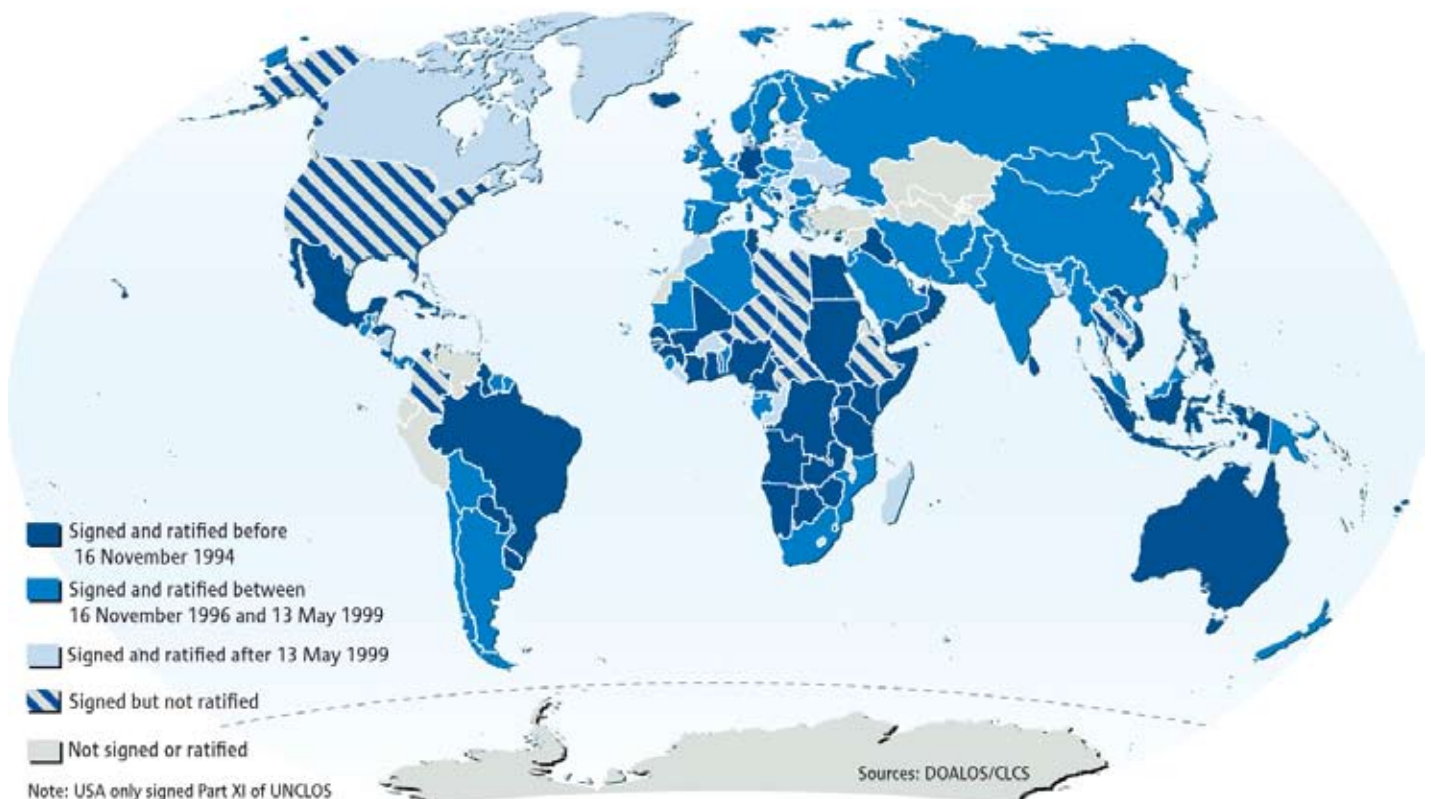
Peaceful Regulation of Ocean Space

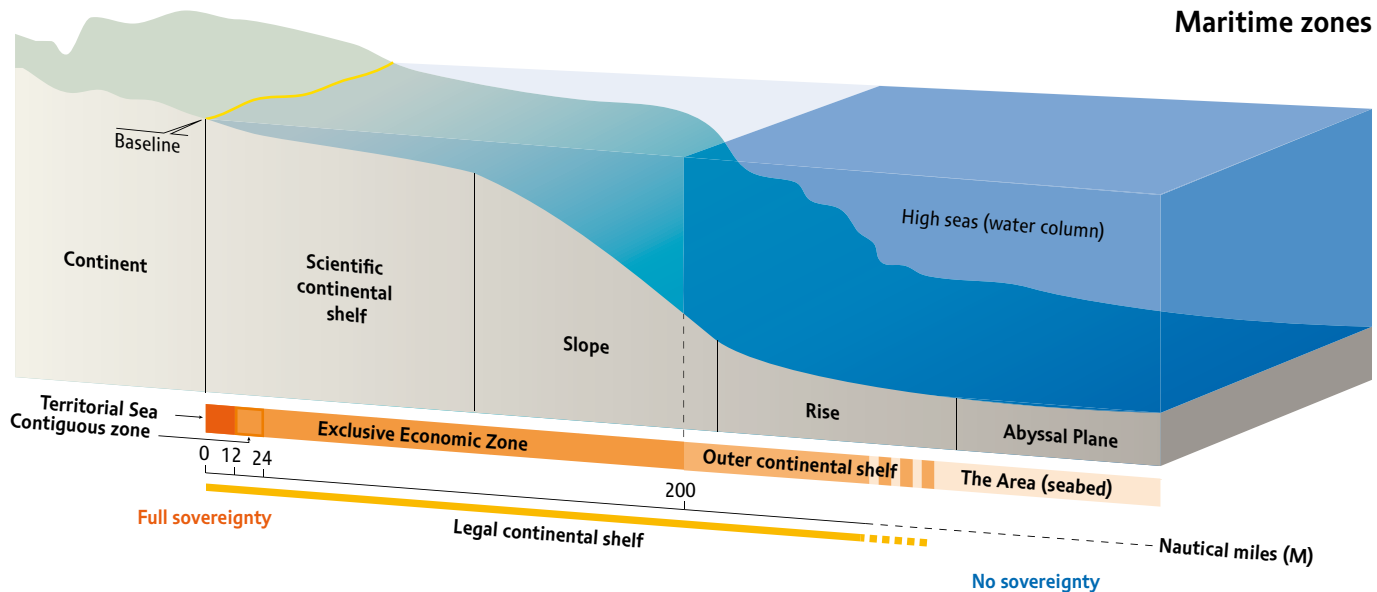
Where does sovereignty end?

After many years of negotiation to regulate the use of the oceans in a single convention acceptable to all nations, the United Nations Convention on the Law of the Sea (the “Convention” or UNCLOS)¹ was adopted on 10 December 1982 and entered into force on 16 November 1994. Many developing States were among the first 60 ratifications. As of December 2009, significant progress towards universal ratification of the Convention has been made since the treaty has now been signed and ratified by 159 States Parties and an additional 19 States have signed the Convention but not yet ratified it.

When the Convention was negotiated, particular attention was given to the definition of the outer continental shelf beyond 200 nautical miles (M) in order to establish the precise limits of national jurisdiction. Article 76 of the Convention² defines the legal continental shelf and the process of delineating its outer limits. Setting these limits ensures the right of coastal States to explore and exploit the resources of the seabed and subsoil. Article 76 does not affect the legal status of the water column or the airspace above the continental shelf.

Status of the Convention





In order to define its continental shelf, a coastal State needs to submit scientific and technical data on its outer limits³. For those states which became a party to the Convention prior to 13 May 1999, the time period for making a submission expired on 13 May 2009 – this refers to the vast majority of States⁴. States which became a party after 13 May 1999 have 10 years from the date of ratification to file their submission. Once Article 76 has been implemented by all the present Parties to the Convention, most of the outer limits of the continental shelf in relation to the international seabed area (the “Area”) will be defined in precise terms. In other words, only when coastal States have established their “final and binding” limits, will the Area be finally delineated. Therefore this process is not only important for the coastal States; it is equally important for the authority responsible for the international seabed and for the stability of the international legal regime of the oceans.

Except for the continental shelf, the legal maritime zones have a width defined by specific distances from the baselines of the State¹. For the continental shelf, the extent depends on the width of a coastal State’s continental margin. The continental margin is the submerged prolongation of the land mass of a coastal State. It consists of the seabed and subsoil of the shelf, the slope and the rise, but specifically excludes the deep ocean floor with its oceanic ridges. This definition is based on physiographic components: geologists generally use the term “continental shelf” to mean the part of the continental margin that is between the shoreline and the shelf break. This is the top of the continental slope.

The legal definition of the continental shelf is dependent for its implementation on geo-scientific information – or science is applied within a legal framework. The underlying concept is that the extended continental shelf must be part of the continental margin. The legal or juridical continental shelf then extends to the outer edge of the continental margin or up to 200 M where this is not reached.

However, if the continental margin is narrower than 200 M, the legal continental shelf is 200 M wide, and need not to be defined by geo-scientific data; if the continental margin is wider than 200 M, it has the same width as the legal continental shelf.

Article 76 of the Convention defines the continental shelf and the criteria by which a coastal State may establish its so-called outer continental shelf – this is the continental shelf beyond 200 M. These conditions are based on analysis of the depth and shape of the seafloor, as well as the thickness of the underlying sediment. The extent of the outer continental shelf shall not exceed either 350 M from the baselines or 100 M from the 2,500 m isobath.

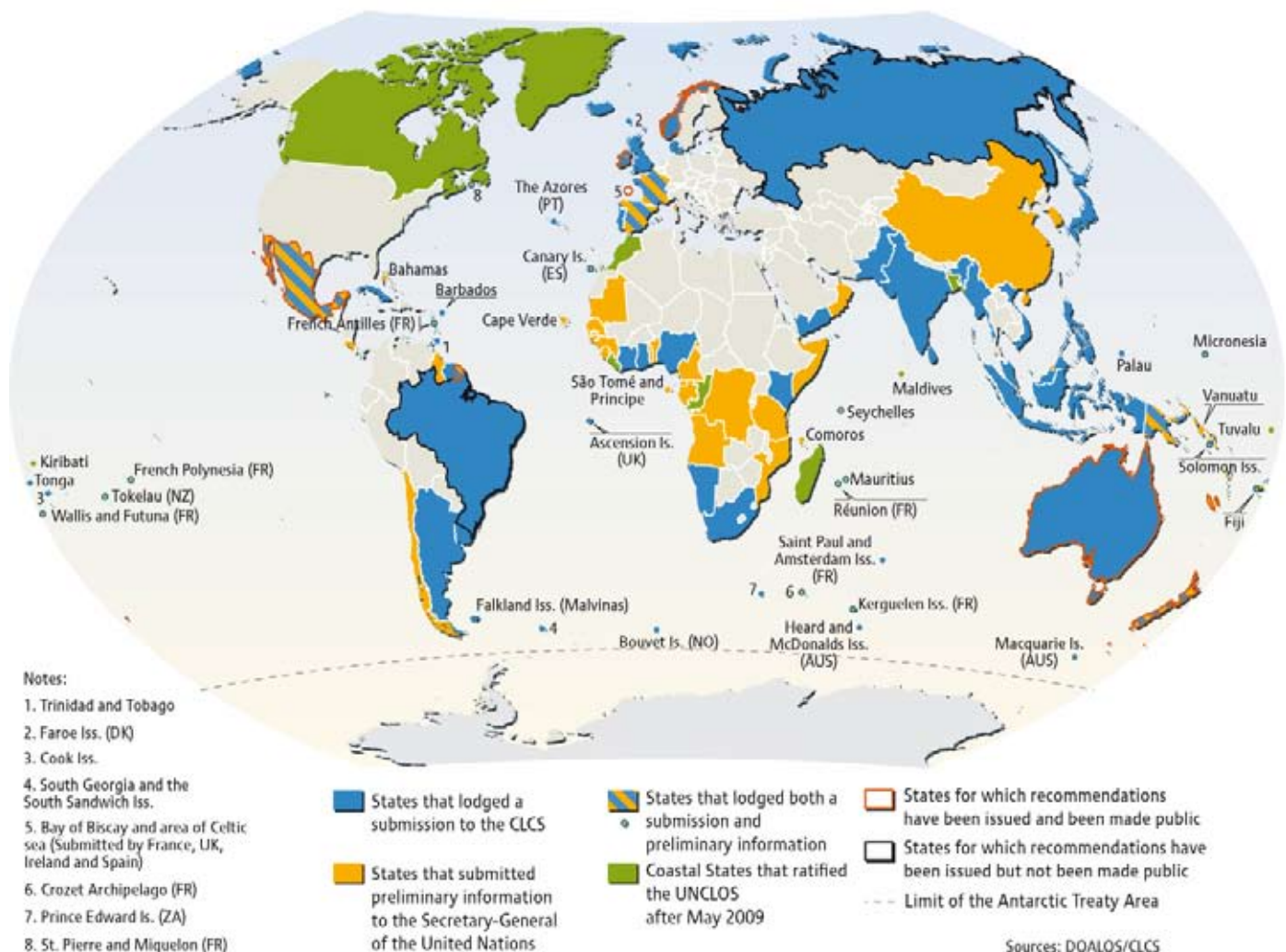
Besides defining the continental shelf and laying out the provisions for the establishment of its outer limits, Article 76 also requires coastal States to document the process of delineating their outer continental shelf and to submit this information, within a prescribed time limit, to the Commission on the Limits of the Continental Shelf (the Commission or CLCS).

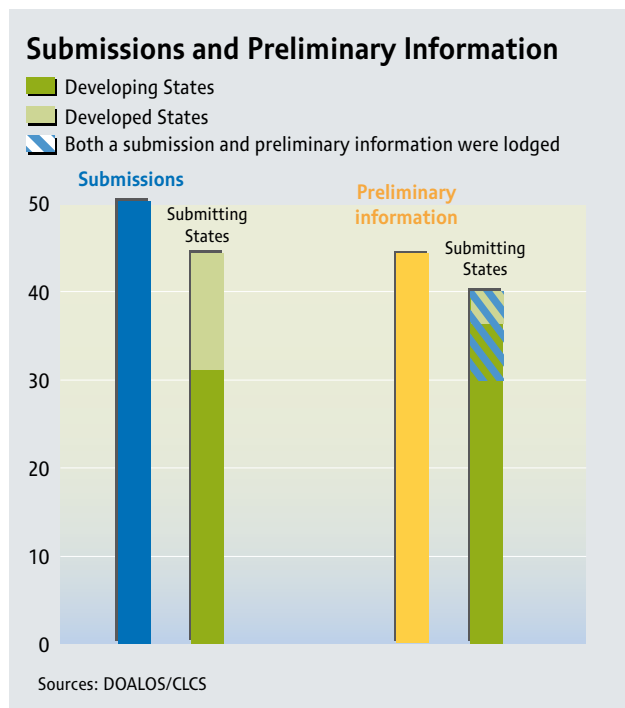
All States cross the Finish Line

Status of Submissions

The vast majority of States were subject to the 13 May 2009 time limit for lodging submissions. By failing to do so, States may lose the opportunity to establish the limits of their continental shelf that would be final and binding under the Convention. Consequently, there has been a concerted effort by many States to prepare submissions.

Status of submissions for outer continental shelf





Some coastal States, and in particular developing States and Small Island Developing States (SIDS), face particular challenges in the preparation of a submission. They might for example lack the necessary geological and bathymetric data and the financial or technical means to acquire these, or they might lack relevant capacity and expertise.

It would have been inconsistent with the general approach of the Convention if, in particular, developing States were unable to meet the time limit due to lack of resources or capacity. Therefore, special provisions were put in place allowing States to submit, using the same time limit, preliminary information indicative of the potential outer limits of the continental shelf⁵. This information will however not be considered by the Commission and is without prejudice to the final submission in accordance with Article 76, the Rules of Procedure of the Commission, and the Scientific and Technical Guidelines (STG)⁶. Despite the challenges, all relevant States managed to either make a submission or lodge the accepted alternative.

Submission *versus* Preliminary Information

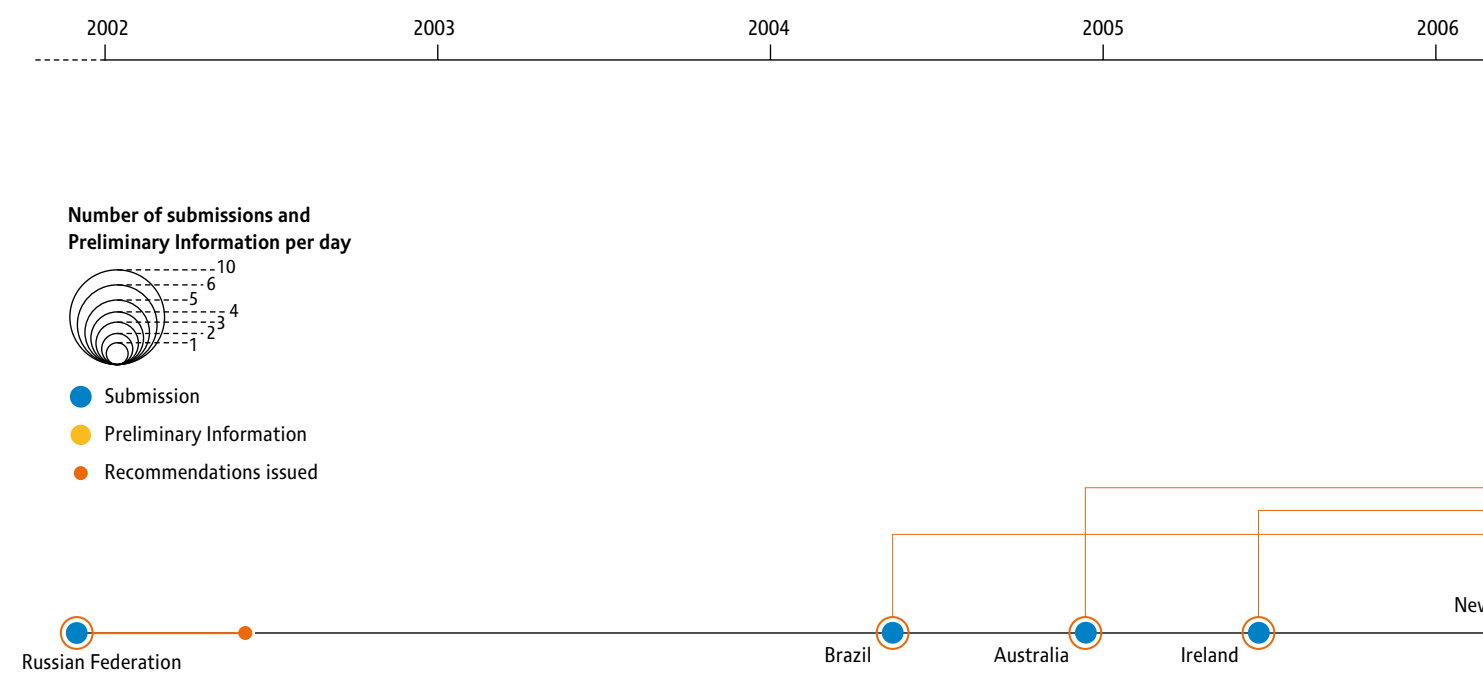
	Submission	Preliminary Information
Submitted to	Commission on the Limits of the Continental Shelf	Secretary-General of the UN
Contains	<ul style="list-style-type: none"> the Executive Summary; the main body of analytical and descriptive nature; and the supporting scientific and technical data. 	<ul style="list-style-type: none"> preliminary information indicative of the outer limits of the continental shelf a description of the status of preparation intended date of making a submission
What is made public?	The Executive Summary including all charts and coordinates	Everything
Where is it published?	CLCS website	CLCS website

Source: DOALOS.⁷

Making it Final and Binding

Busy Bees

The Commission is responsible for making recommendations on the outer limits of the continental shelf to States in accordance with the Convention and based on the information contained in the submission. These recommendations may or may not agree with the limits of the continental shelf submitted by the individual State. In the case of disagreement between a State and the recommendations from the Commission, the State may – within a reasonable time – make a revised or new submission. When a coastal State accepts the recommendations, it may proceed with establishing the limits of the continental shelf beyond 200 M based on those recommendations, which can then be considered as final and binding.



1. Joint submission by France, Ireland Spain and the UK
2. Joint submission by the Federated States of Micronesia, Papua New Guinea and Solomon Islands
3. Joint submission by Malaysia and Viet Nam
4. Joint submission by France and South Africa
5. Fiji, Solomon Iss, Vanuatu
6. Chile, Seychelles, Guinea Bissau, Togo, France

Sources: DOALOS/CLCS

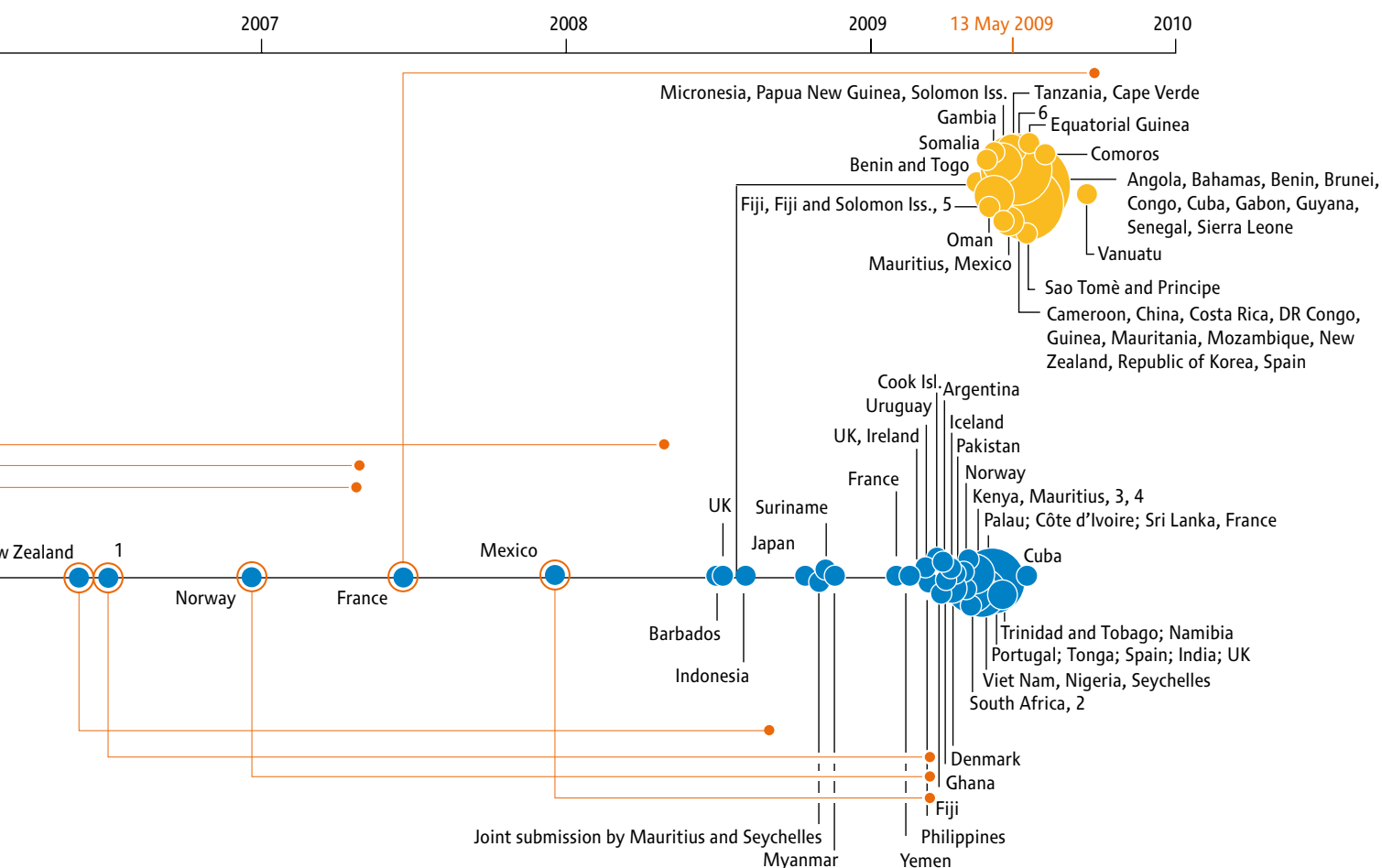
The first submission was made by Russia in 2001⁸, however most submissions were received shortly before 13 May 2009⁹. With the large volume of submissions received in a short time the Commission's workload has substantially increased. It is not a permanent body and only meets for a few months each year, so it may take several years for the Commission to process the current batch of submissions.

In the coming years the workload of the Commission is set to increase further as almost half the States which submitted preliminary information, have indicated that they intend to complete their submissions within the next five years. One quarter indicated they will make a submission between five and 10 years, the remaining quarter did not specify a submission date¹⁰. In addition some States may decide to resubmit following the release of recommendations.

Growing expertise and experience within the Commission, combined with increased predictability of recommenda-

tions (due to submissions with similar geological or physiological settings), may speed up the process. In addition a number of submissions will not be dealt with immediately because the Commission is not allowed to formulate recommendations when a dispute exists¹¹. However, it is expected that a large number of submissions are under development and that for at least some years the backlog might increase as submissions come in faster than recommendations are issued.

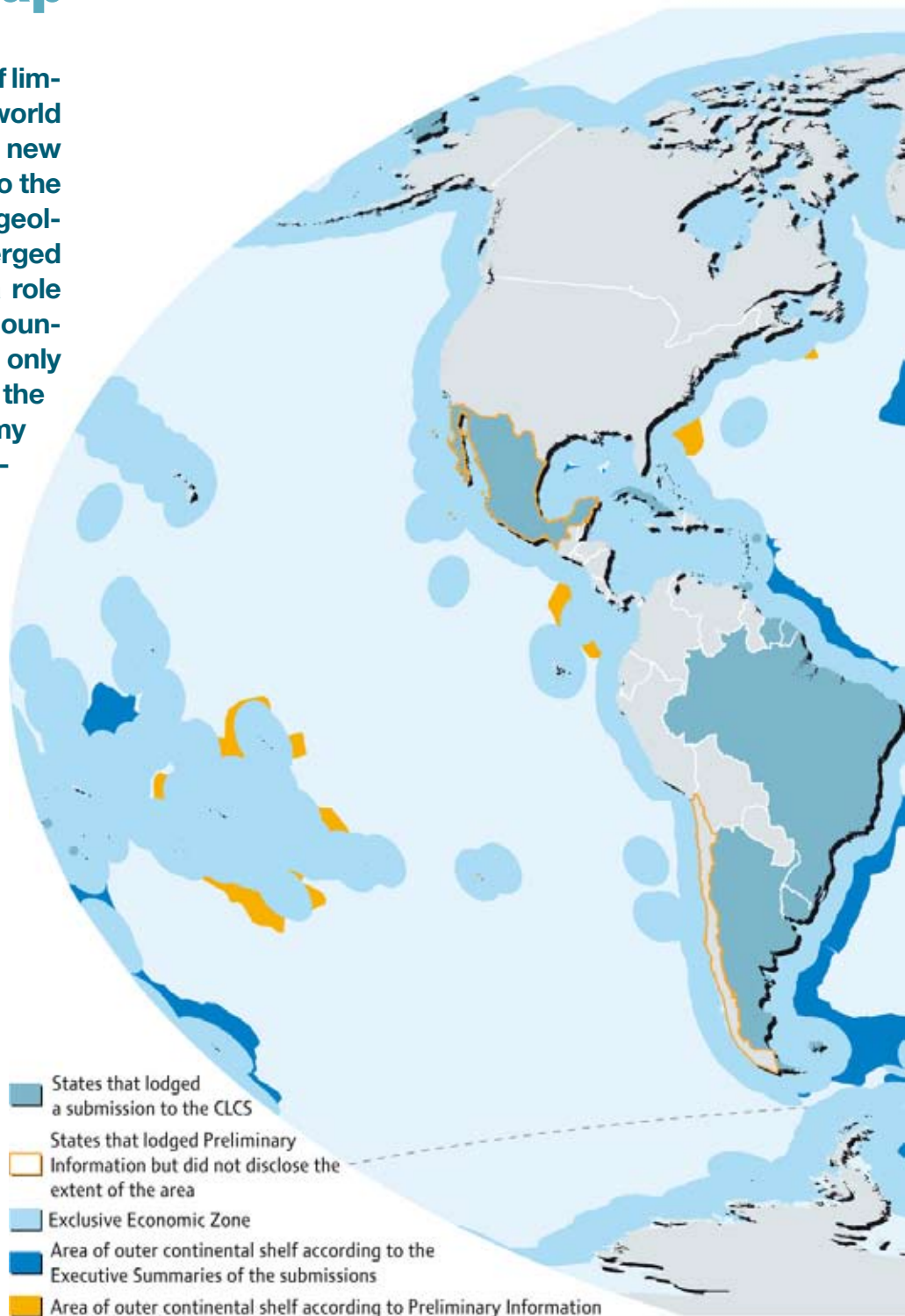
The ability of the CLCS to cope with the predicted workload is a real issue and may be of concern, especially for developing coastal States and SIDS. When States made submissions they did not necessarily anticipate that it would take many years to receive recommendations. These countries face institutional memory loss if the process does not speed up. It may be necessary in the future to change the workings of the Commission in order to issue recommendations more quickly so as not to disadvantage States. This can only be decided by the State Parties.



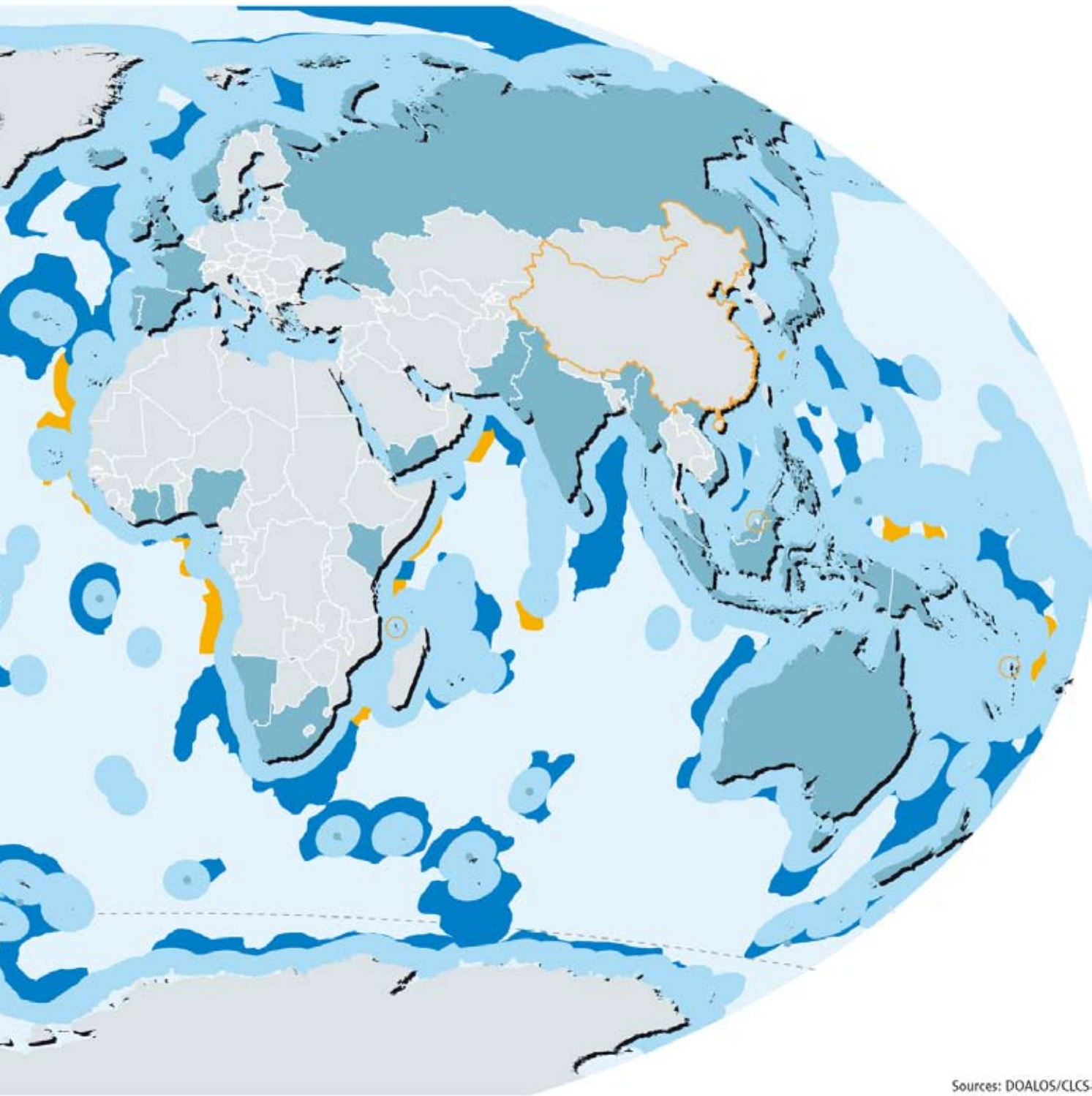
Under Construction

A New World Map

The new outer continental shelf limits will radically transform the world map. The definition of these new boundaries is directly related to the geology of the seabed. The geology and morphology of emerged areas has previously played a role in boundary delimitation (i.e. mountain ranges, rivers, etc.) but only because of its influence on the dispersion of culture, economy or on the sustainable expansion of military power. In this case geology and boundaries are directly related.

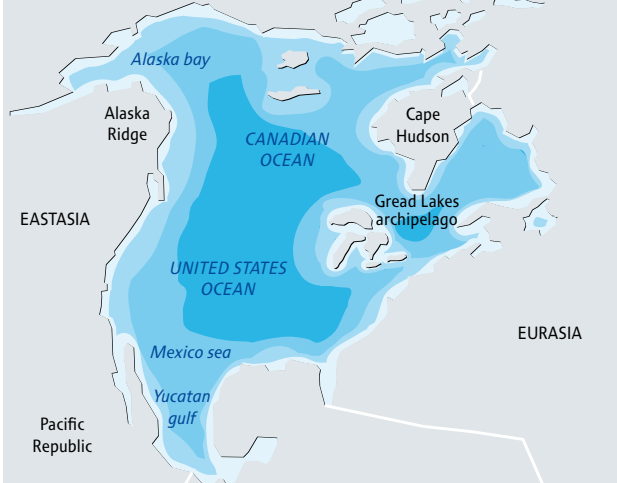


Global distribution of outer continental shelf



Sources: DOALOS/CLCS

If the area of the seabed under review was land...

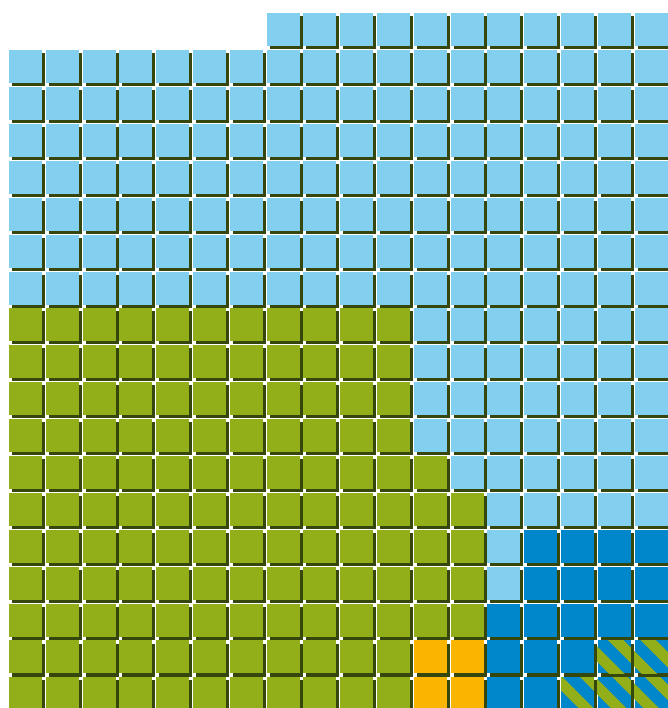


...It would cover an area almost as large as the North American continent

Note: not including outer continental shelf generated from Antarctic Territory and overlaps in Submissions.

It is not possible at present to calculate the full extent of the outer continental shelf. The area will change as more submissions are received from States with a later submission date, preliminary information documents are developed into full submissions, additional States ratify the Convention, and recommendations are adopted. Using the information calculated from the submissions alone, the present area of outer continental shelf is more than 25 million km² ⁹ (this includes the area generated from Antarctic Territory and overlapping areas). If you include the area estimated from preliminary information, this adds a further 4 million km² ¹⁰. It is most likely that the area submitted and the area resulting from recommendations will not be exactly the same. However, the recommendations issued so far agree for 97% of the area originally submitted (not including the submissions by Russia and Brazil for which recommendations have not been made public)¹².

The area beyond 200 M is made up of potential outer continental shelf and the Area. Current information indicates that the potential outer continental shelf represents more than 10% of the total area under national sovereignty for two-thirds of all submitting States. Only when the continental shelf area is finalised will the extent of the Area be defined. A State's entitlement to the outer continental shelf is already in place according to Article 77 of UNCLOS¹³. States do not lose their rights



Seabed Jurisdiction

■ Area under national jurisdiction (up to 200 M from the baseline)

Seabed area beyond 200 M:

■ The Area (final boundary to be determined following the delineation of the outer continental shelf)

■ Total area of outer continental shelf included in the submissions

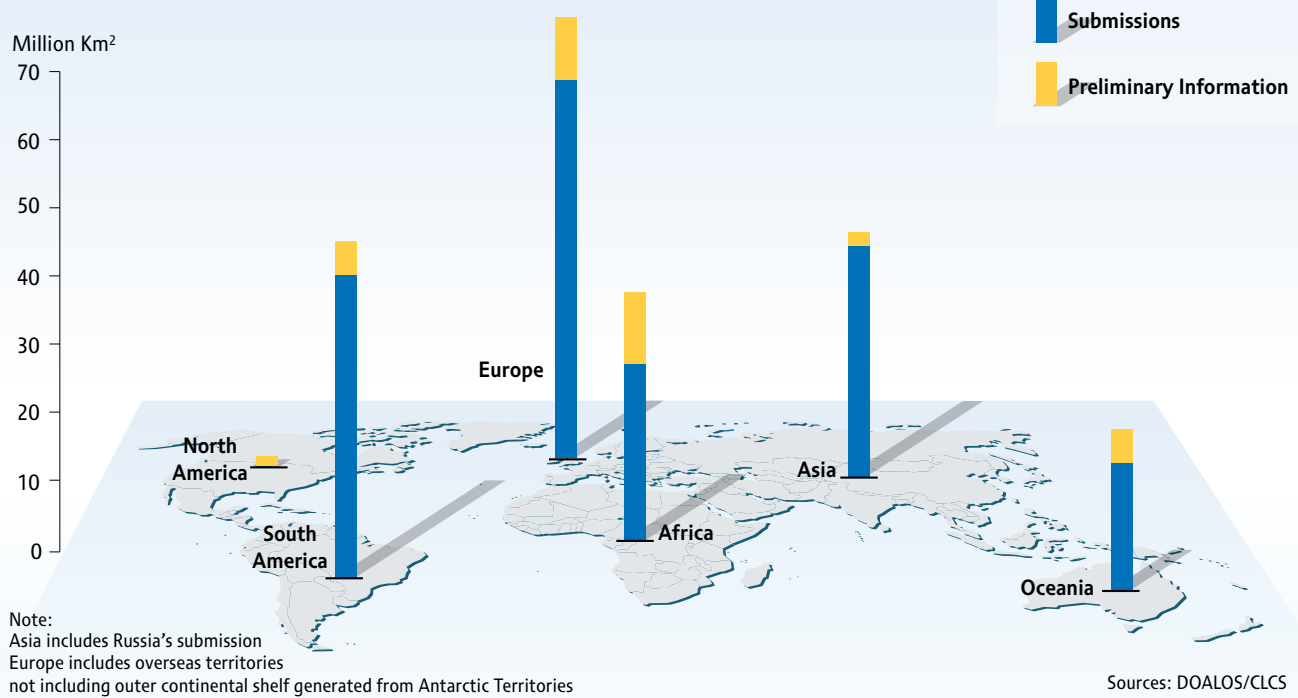
■ Area for which recommendations were issued and made public

■ Total area of outer continental shelf included in the Preliminary Information

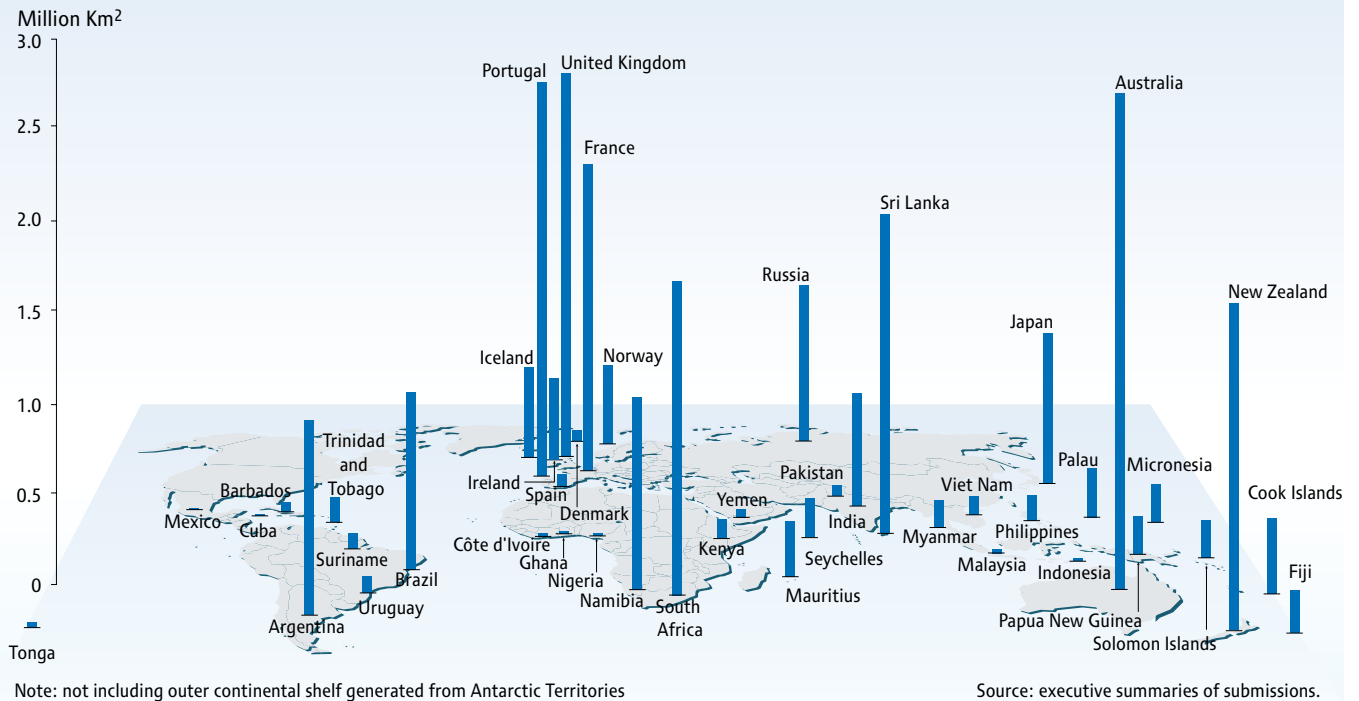
■ = 1 million Km²

Sources: DOALOS/CLCS

Area of outer continental shelf submitted per continent

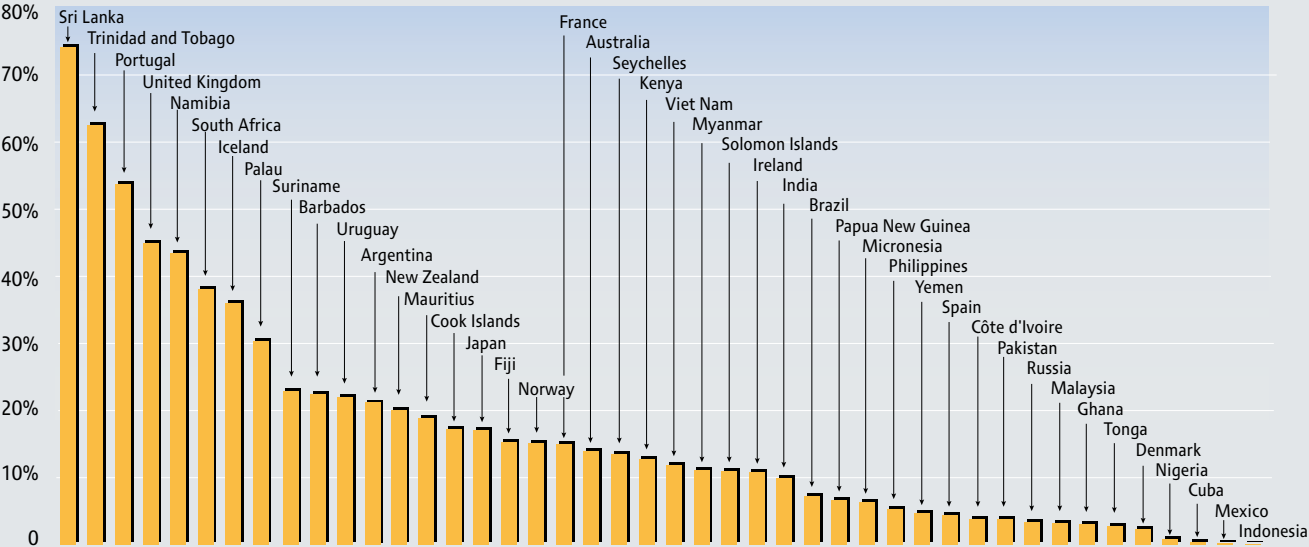


Total area of outer continental shelf by State



Relative contribution of outer continental shelf to total area under national jurisdiction

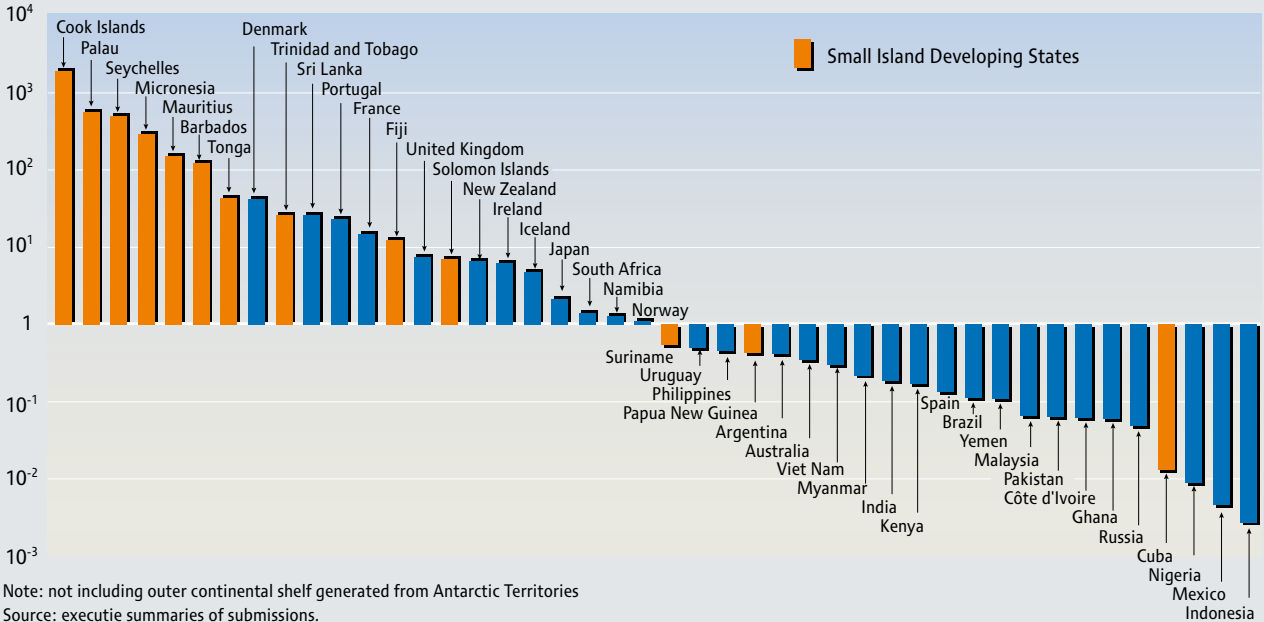
Percentage



Note: not including outer continental shelf generated from Antarctic Territories
Source: executive summaries of submissions.

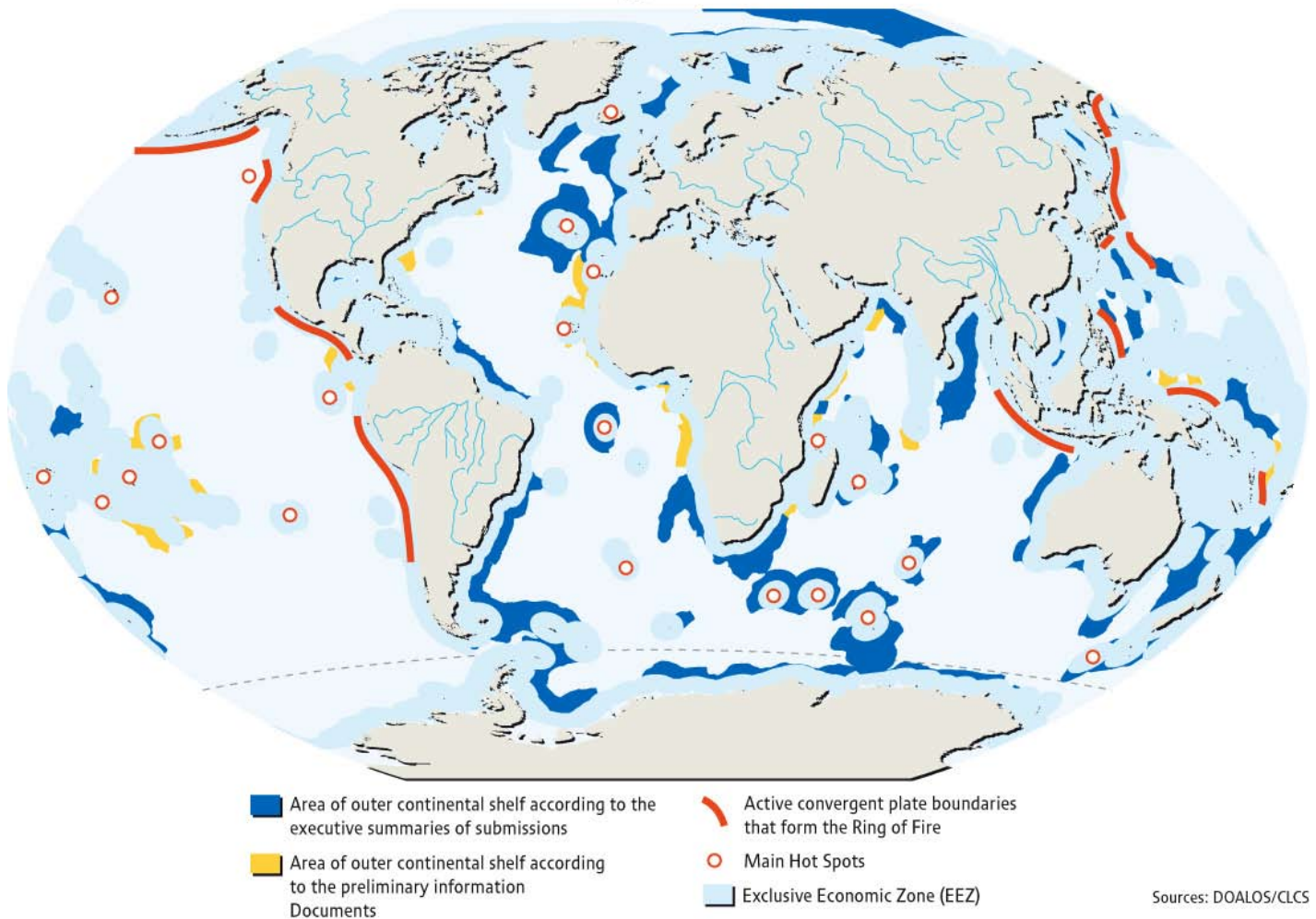
Ratio of outer continental shelf over emerged land area

Logarithmic scale



Note: not including outer continental shelf generated from Antarctic Territories
Source: executive summaries of submissions.

Role of Geology in Article 76



by not making a submission, but the area over which they have entitlement will continue to be undefined and by definition so will the boundaries of the Area.

Areas of outer continental shelf are predominantly associated with broad passive continental margins which by their nature are often wider than 200 M. There are far fewer extensive areas of outer continental shelf associated with the generally narrow active continental margins, such as the Ring of Fire bordering the Pacific Ocean. Islands in the South West Pacific, the southern Indian Ocean and scat-

tered in the Atlantic Ocean can also generate substantial areas of outer continental shelf due to factors such as isolation and the lateral continuity of underwater features related to micro-continents, oceanic plateaus, hot spot ridges and island arc ridges. Another contributing factor in the distribution of areas of outer continental shelf is the presence of large rivers and their deltas as they control in large part the distribution of the thickest sediment sequences covering the continental margins. In the polar regions, thick packages of glacial sediment contribute to the formation of extended continental shelf.

Room to Move

Strategies for Securing the Seabed

Few of the coastal States making a submission do so without inviting close examination from a neighbouring State. In many cases, two or more States might have access to overlapping areas beyond 200 M, have unresolved boundaries or disputes regarding land or maritime borders. The Commission is not allowed to consider submissions regarding disputed areas unless the Parties involved give their consent¹¹. The time limit of 13 May 2009 provided the impetus for many States to examine ways of dealing with their neighbours in order to allow the Commission to consider their submission¹⁴. A coastal State must examine its own circumstances and national interest to determine to what extent it wants or needs to engage with its neighbours.

Different approaches for dealing with sensitive boundary issues include the preparation of partial submissions or joint submissions and any possible intermediate variant of these two, reflecting different degrees of cooperation with respect to bi- or multi-lateral agreements, data sharing and transparency of the process. The degree of cooperation does not need to be disclosed in the submission. Two or more coastal States may coordinate their submissions without any reference to having done so either to the CLCS or other coastal States.

A partial submission is typically made to exclude overlapping or disputed areas, or when a State has very dispersed territory. Other reasons might be to group areas with the same geological characteristics or to spread the workload involved in lodging a submission. States can reserve the right to make additional partial submissions at a future time. Twenty-seven of the 51 submissions to date are partial submissions. This has to follow the State's time limit for submissions, unless it concerns a disputed area¹². Iceland, Indonesia, and the Philippines, are examples of States which have made partial submissions to avoid possible disputes and reserve the right to submit additional submissions in the future¹⁰.

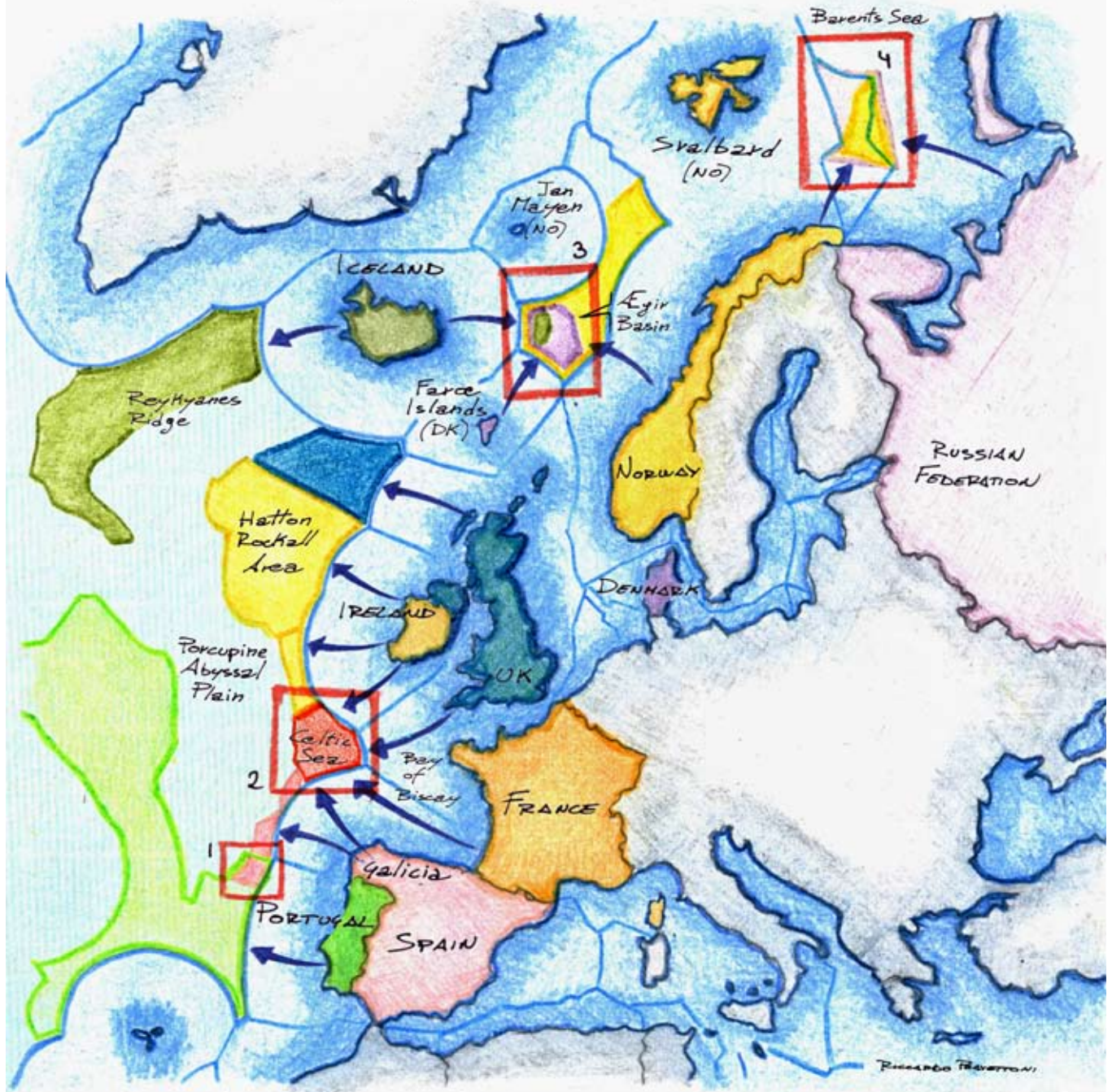
A joint submission is a single submission made by two or more States working collaboratively. There would normally be full disclosure of submission data and information between the coastal States and the technical team preparing the submission would operate as a single technical team cooperating on all facets of the submission. Besides technical advantages (e.g. combined datasets, pooled exper-

tise, shared workload), a joint submission can overcome problems associated with unresolved boundaries, as these can be negotiated between States independently of the submission. At present 13 States have chosen to make a joint submission. Their efforts are contained in five joint submissions of which some are partial submissions.

More than 2 million km² of all submissions to date are included in two or more overlapping submissions. In cases of overlapping areas, coordination between States may take the form of agreeing on a possible border in advance of a submission, or agreeing to make "no objection" to each other's submissions, in which case the Commission can consider the submissions. This level of diplomatic coordination does need to be communicated to the Commission. In some cases a coastal State may object to the examination of another State's submission until delimitation issues are resolved. States are requested to inform the Commission of any dispute.

States may also work together to maximise their skills and resources. In the South West Pacific for example, SIDS joined forces in a unique example of cooperation. Over four years, the technical teams from nine Pacific Island states shared data and information, and supported each other through a series of capacity building workshops. This resulted in the preparation and lodgement of five full submissions and five preliminary information documents. Five of the states identified areas of overlapping outer continental shelf and resolved to compile joint submissions and preliminary information documents^{10,11}.

SMALL AREA, BIG VARIETY IN TYPES OF SUBMISSIONS



- 1 Overlapping area between Spain and Portugal. This is an extension to the area of common interest in the EEZ between the two States.
- 2 Joint submission by France, Ireland, Spain, and the United Kingdom of Great Britain and Northern Ireland - in the area of the Celtic Sea and the Bay of Biscay.
- 3 Overlapping area between Iceland, Faroe Islands (Denmark) and Norway, with agreement on border prior to submission.
- 4 Overlapping area between Norway and the Russian Federation. No agreement on borders is made prior to submission, both States agreed not to object to each other's submission, without prejudice to the final boundaries.

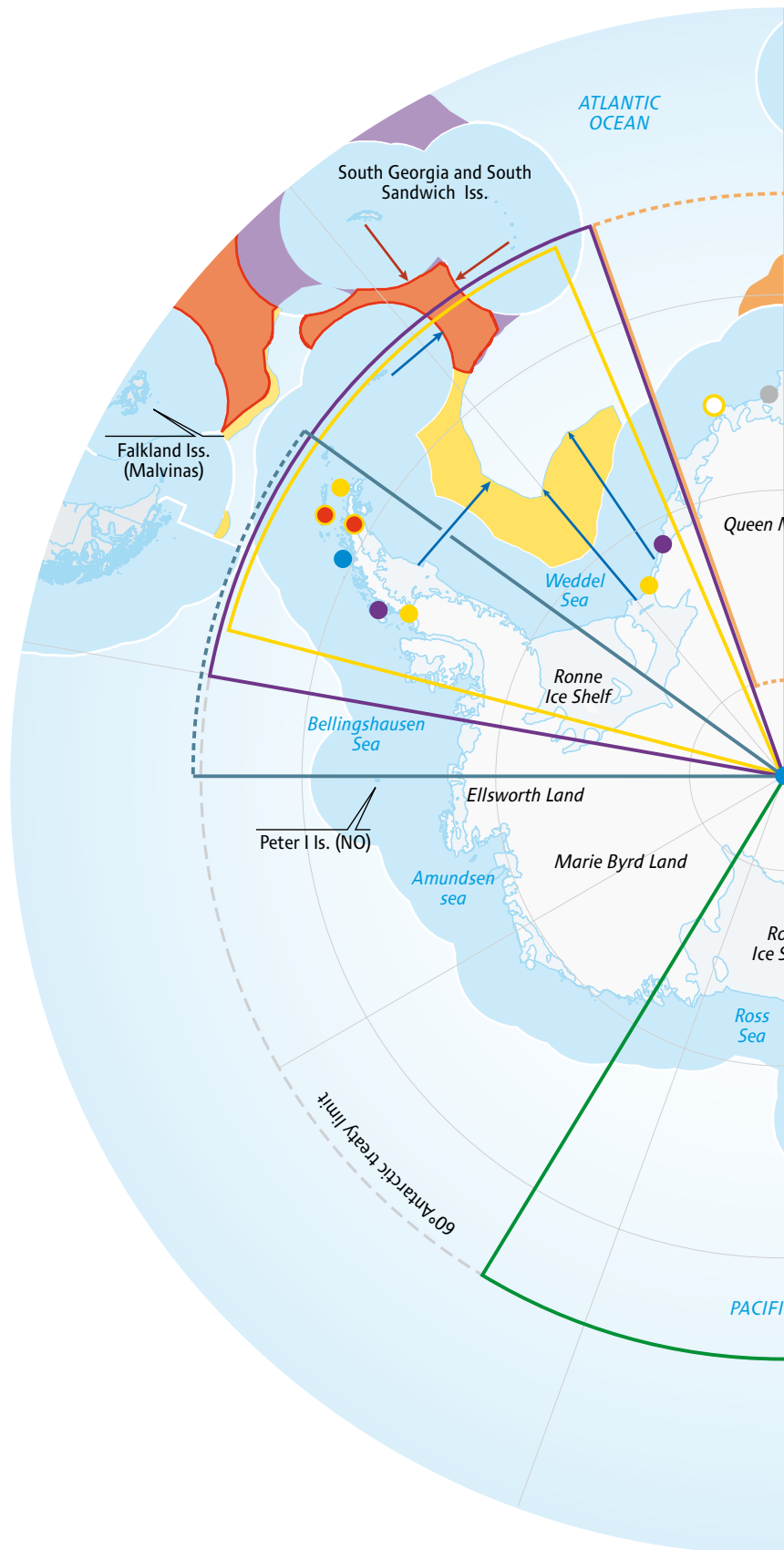
Antarctica

Frozen decision

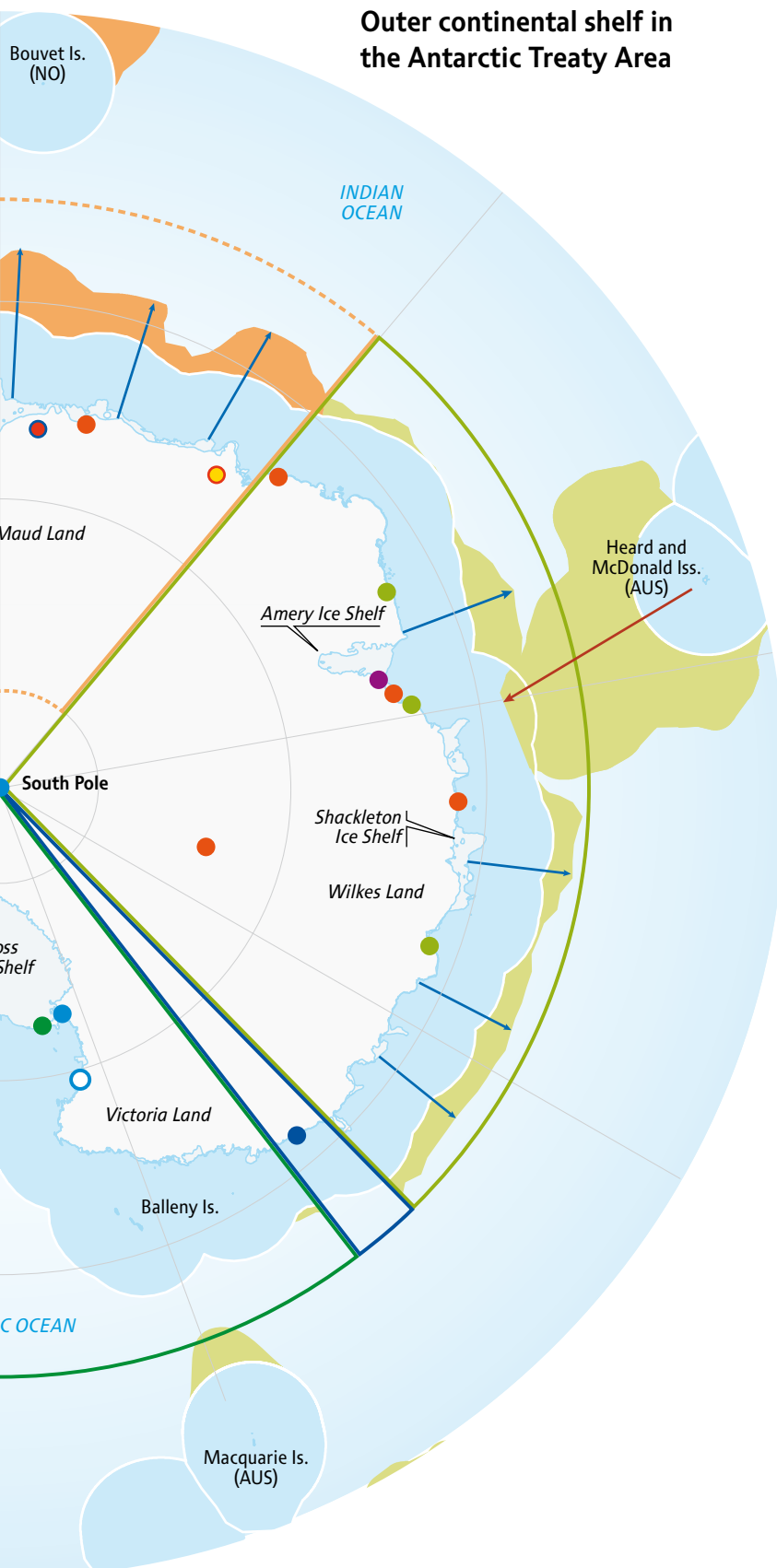
For the purposes of the Antarctic Treaty, Antarctica is defined as the area south of 60°¹⁵. The treaty was established primarily to govern the Antarctic continent, but it also dealt with the status of the surrounding sea in the interest of all mankind. Seven of the signatory States make claims to Antarctic territory and the adjacent maritime zones. Although these claims are disputed, the Antarctic Treaty contains certain provisions that have satisfied claimant and non-claimant states regarding the legitimacy of the claims. Basically, under the Treaty, States have “agreed to disagree” about the legal status of Antarctica.

In order not to disturb the agreements of the Antarctic Treaty, but to safeguard the outer limit of the continental shelf under UNCLOS, two approaches have been applied to deal with the situation: a submission is filed but instructed not to be examined by the CLCS or a State can reserve the right to make a submission at a later date.

Some islands north of 60°S, which are not part of the Antarctic Treaty, may generate maritime zones that extend south of 60°S. This is for example the case for the outer continental shelf surrounding the Australian Heard and McDonald Islands, for which the CLCS made its recommendations in 2008¹⁶.



Outer continental shelf in the Antarctic Treaty Area



- Antarctic ice shelves
- 200 miles zone (for reference only)

Outer continental shelf

- Argentina
- United Kingdom
- Australia
- Norway
- Area for which a submission was made by both Argentina and UK
- Limit of the Application Area of the Antarctic Treaty
- Outer continental shelf generated from the Antarctic landmass and south of 60°S
- Outer continental shelf generated from landmass that lies north of 60°S

Antarctic land claims

- Argentina
- United Kingdom
- Norway
- Australia
- France
- Chile
- New Zealand

Main research station from 12 original signatories to the Antarctic Treaty

- Argentina
- Australia
- Belgium
- Chile
- France
- Japan
- New Zealand
- Norway
- Russia
- South Africa
- United Kingdom
- United States

Sources: executive summaries of submissions; British Antarctic Survey; Antarctic Treaty.

Oceans of Possibilities

... and Responsibilities

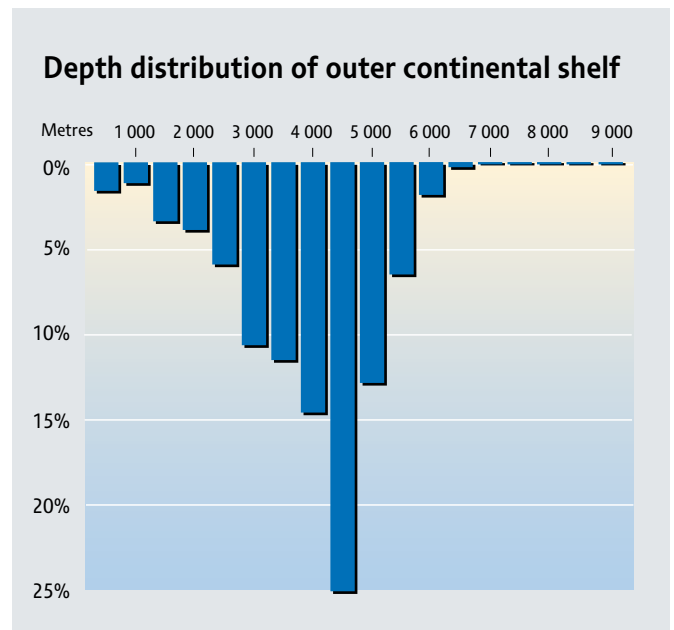
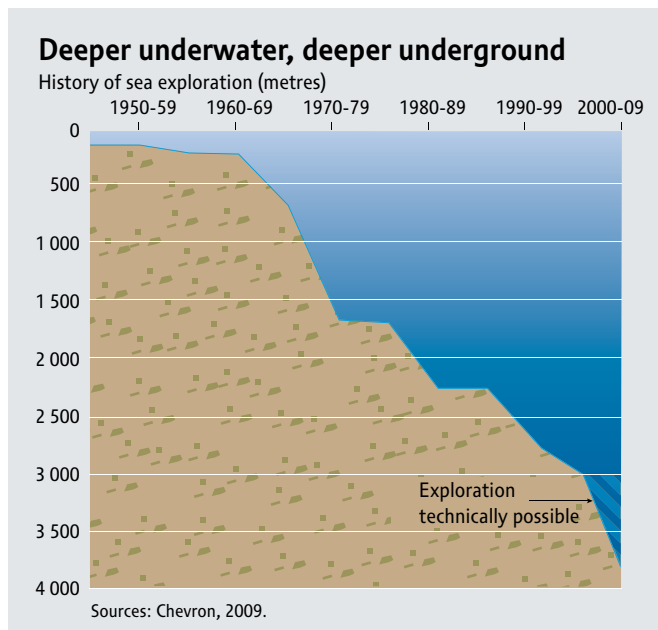
When the new boundaries are in place, States will probably proceed to explore and exploit their outer continental shelves. There is still limited knowledge about the variety and distribution of resources in the deep ocean, but research and investigation is accelerating. Dwindling land-based reserves of hydrocarbons and minerals and the rising commodities market, together with the development of deep-sea technology has made this new frontier possible.

On its outer continental shelf, a coastal State has the right to explore and exploit the natural resources of the seabed and subsoil. These are defined as mineral and other non-living resources, and living sedentary species¹³. One of the major differences between the continental shelf regime within the 200 M zone and the outer continental shelf area is the requirement to share part of the revenue from non-living resources with the international community¹⁸. States have to make payments or contributions in kind when non-living resources are extracted. These are to be distributed by the International Seabed Authority (ISA) to developing states, “particularly the least developed and the land-locked amongst them”. Such benefit sharing does not apply to living resources.

Beyond areas of national jurisdiction, the seabed and subsoil with its non-living resources belong to the Area, which is designated as the common heritage of mankind¹⁹. Within the Area, the ISA licence and control the exploitation of resources. The ISA has to find an equitable way of sharing the benefits from mining the Area.

The oil and gas industry is very effective at overcoming engineering challenges: in 2009, a new generation of offshore drilling units is ready to explore the oceans to a depth of 4 km¹⁹. Similarly the search for methane hydrates is venturing onto continental slopes and beyond the EEZs. Interest in marine mining has recently surged too and commercial extraction of massive sulphides is set to start in the near future. Besides mineral resources, the deep ocean is seen as the medicine chest of the future. The pharmaceutical industry, driven by rising profits, is exploring the marine environment, harvesting biological material, and patenting its inventions including the living creatures it uses.

Technological progress not only allows us to extract resources, but also to put back waste products. The interest in carbon capture and storage has rocketed, starting out in the late 1990s with CO₂ injection into oil and gas fields to enhance recovery. It has since developed into a whole new industry, with the latest research looking at the storage of frozen CO₂ directly on the seabed. There is also an ever increasing use of the oceans for renewable energy and recreation purposes.



There are legitimate concerns regarding the current state of knowledge of the marine environment, including the unique and largely undocumented ecosystems that inhabit the seabed. There are potential environmental effects associated with resource development, from exploration through extraction, processing and transport, resulting in challenging and complex environmental management issues. The resource industry is often steps ahead of planning guidelines or legislation in their bid to create revenue for the future.

According to UNCLOS, States have the sovereign right to exploit their natural resources²⁰, and also have a general obligation to protect and preserve the marine environment²¹. The UNCLOS rules oblige the States to prevent, reduce and control pollution and develop ways to manage, protect and preserve the marine environment²². Importantly UNCLOS also requires that developing States are offered wide-ranging assistance in order to manage their marine environment and participate in the global debate on the use of the oceans.

The need to delineate the outer boundary of the continental shelf has been a major driver for research on the continental margin. For many States this has resulted in the first compilation of marine scientific data, a valuable resource that can be used in the development of ocean management strategies and plans. Many States, including small island developing States have jurisdiction over enormous areas which include unique and vulnerable marine ecosystems. There is a need to safeguard biodiversity in these areas, while managing the issues related to resource development. The Convention does not necessarily provide solutions to all management challenges that might arise in the future, but it does offer a sound framework for addressing them.

Abbreviations

ATS	Antarctic Treaty System
CLCS	Commission on the Limits of the Continental Shelf
DOALOS	Division of Ocean Affairs and the Law Of the Sea
EEZ	Exclusive Economic Zone
ISA	International Seabed Authority

M	Nautical mile - 1 M equals 1,852 metres (m)
SIDS	Small Island Developing States
STG	Scientific and Technical Guidelines
UNCLOS	United Nations Convention on the Law Of the Sea

Glossary

Active continental margins

Margins at the edges of converging plates are called active margins, because they experience frequent volcanic or earthquake activity. These are caused by the subduction of the oceanic plate under the continental plate. A trench is formed at the subduction site and sediments eroding from the continent accumulate on the shelf or are transported into the trench (continental rises are generally absent on active margins because the presence of the trench doesn't allow for sediment to accumulate). Active margins occur around much of the Pacific Rim, in North and South America, the Alaska and Kamchatka Peninsulas, the Aleutian Islands, and Japan.

Antarctic Treaty

Was signed in Washington on 1 December 1959 and entered into force on 23 June 1961. The purpose of the Treaty is to ensure "in the interests of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord." A total of 47 countries have become Parties to the Antarctic Treaty. Of these, seven claim territory in Antarctica (Argentina, Australia, Chile, France, New Zealand, Norway, United Kingdom), 12 are Original Signatories, and 28 are Consultative Parties. The Antarctic Treaty area is the area south of 60°S

Baseline

All maritime zones – apart from the continental shelf – are defined by a distance criterion measured from a baseline. Depending on the nature of the coastline, different types of baselines can be employed: normal – low water line along the coast; straight – points connected along the coast; archipelagic – straight baselines joining the outermost points of the outermost islands and drying reefs of an archipelago. States lodge baseline data with DOALOS. The CLCS does not make judgements about the validity of the baselines submitted as part of the supporting data for the delineation of the continental shelf.

Commission on the Limits of the Continental Shelf

Is elected by the States Parties and consists of 21 members who are experts in the field of geology, geophysics or hydrography. The main purpose of the Commission is to examine data submitted by coastal States and make recommendations related to the establishment of the outer limits of the continental shelf beyond 200 M. The Commission ordinarily meets twice a year, in the spring and autumn, at United Nations Headquarters in New York.

Contiguous zone

The coastal state has authority in the contiguous zone in regards to customs, fiscal, immigration, and sanitary laws and regulations. The contiguous zone extends up to 24 M from the baseline.

Continental margin

Under the terms of the Convention: *The continental margin comprises the submerged prolongation of the land mass of the coastal State, and consists of the seabed and subsoil of the shelf, the slope and the rise. It does not include the deep ocean floor with its oceanic ridges or the subsoil thereof.* (Article 76, paragraph 3).

Continental shelf (geological)

The concept of the continental shelf contained in the Convention differs from the corresponding scientific concept. The scientific continental shelf forms part of the continental margin, which is made up of the shallow, relatively flat continental shelf, bordered by an inclined continental slope, at the base of which is often found a wedge shaped layer of sediments, the continental rise. Depending on the geological setting continental shelves can be narrow or broad.

Continental shelf (legal)

The concept of the legal continental shelf is generally traced back to the 1945 Truman Proclamation. The current legal definition contained in the Convention states: 1. *The continental shelf of a coastal State comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea (i) throughout the natural prolongation of its land territory to the outer edge of the continental margin, or (ii) to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.* 2. *The continental shelf of a coastal State shall not extend beyond the limits provided for in paragraphs 4 to 6 (article 76, paragraphs 1 and 2).*

Continental slope

The edge of the continental shelf, called the shelf break, is marked by an abrupt increase in slope occurring at an average depth of 135 m. The continental slope is the sloping edge of the continent that merges into the deep ocean, or the continental rise where this exists.

Continental rise

The wedge of sediment that may form at the base of the continental slope due to the change in gradient from the steeper slope to the flat abyssal plain.

Division for Ocean Affairs and the Law of the Sea

DOALOS is the division of the United Nations that provides advice and assistance on the implementation of the United Nations Convention on the Law of the Sea and on issues and developments relating to research and the legal regime for the oceans.

Exclusive Economic Zone

The coastal state has sovereign rights over the natural resources, whether living or non-living, of the water, the seabed and its subsoil, and over other activities for the economic exploitation and exploration of the zone. Jurisdiction is also provided over establishment and use of artificial islands, installations, and structures and over the protection and preservation of the marine environment. The exclusive economic zone extends to a maximum breadth of 200 M from the baseline.

High Seas

The area of seas beyond the exclusive economic zone, the high seas, is not subject to the jurisdiction of any State. In this area, all States can undertake activities such as navigation, overflight, fishing, marine scientific research, construction of artificial islands and laying of cables and pipelines. However, the Convention stipulates that States shall exercise their freedoms on the high seas with due regard for the interests of other States.

Hot spot

In geology, a hot spot is a location on the Earth's surface that has experienced active volcanism for a long period of time. A chain of extinct volcanoes or volcanic islands (and seamounts) can form over millions of years when a tectonic plate moves slowly over a hot spot.

Internal waters

Internal waters are those on the landward side of the baseline of the territorial sea. The coastal State has full sovereignty over its internal waters, much as it does over its land territory.

International Seabed Authority

International organization established under UNCLOS, through which the States Parties can organize and control activities related

to the seabed and subsoil in the Area, particularly the resources of the Area.

Isobath

A line connecting points of equal water depth.

Passive continental margin

The edges of the continents – the continental margins can be classified according to their tectonic setting. Those located at the edges of diverging plates are called passive margins, because they do not generally experience earthquakes or volcanic eruptions. They are sinking areas where thick sequences of sediments accumulate. Passive margins occur around Australia, on both sides of the Atlantic Ocean, in Europe, Africa, and North and South America.

Ring of Fire

The volcanic arcs and oceanic trenches that partly encircle the Pacific Ocean form the so-called “Ring of Fire.” This zone, which is notorious for frequent earthquakes and volcanic eruptions, is a direct result of plate tectonics and the movement and collisions of tectonic plates.

Scientific and Technical Guidelines

The STG of the Commission on the Limits of the Continental Shelf were issued on 13 May 1999. The guidelines were produced to assist coastal states planning to submit data and other material on the outer limits of the continental shelf. They describe the geodetic, geological, bathymetric, geophysical and other methodologies stipulated in Article 76 for the establishment of the outer limits of the continental shelf.

Territorial Sea

The territorial sea is measured from the baseline. The maximum breadth of the territorial sea allowed under international law is 12 M. The coastal state enjoys sovereignty and jurisdiction over the territorial sea but must allow the right of innocent passage for foreign vessels. However research activities require the consent of the coastal state.

The Area

Consists of the seabed and ocean floor, and the subsoil thereof, beyond the limits of any nation's jurisdiction. The resources of the international seabed area (defined as “all solid, liquid or gaseous mineral resources in situ in the Area at or beneath the seabed, including polymetallic nodules”) are considered the common heritage of mankind.

Fact Sheet: Outer Continental Shelf

Status of submissions (as of 1 December, 2009)

Total number of Submissions 51

- Submitted by 44 States (of which 32 are developing States)
- 27 of the 51 Submissions are Partial Submissions
- 5 of the 51 Submissions are Joint Submissions
- 3 out of 51 Submissions include outer continental shelf off Antarctica

Total number of Preliminary Information Documents 44

- Submitted by 40 States (of which 37 are developing States)
- 3 of the 44 were submitted jointly between 2 or 3 States
- 10 States submitted both a Submission and Preliminary Information Document (of which 7 are developing States)

... information from Submissions

Total accumulated area in submissions	25.4 million km ²
Area included in 2 or more submissions (overlap)	2.3 million km ²
Actual area contained in submissions	23.1 million km ²
Area generated from Antarctic Territory (South of 60°S)	1.8 million km ²
Depth statistics of outer continental shelf areas in submissions ²³	
Minimum depth	a few metres
Maximum depth	8200 m
Average depth	3600 m
Median	3900 m
Majority (value that appears most often)	4100 m
Standard deviation	1200 m

... information from Recommendations

Total area for which CLCS has issued recommendations	6.8 million km ²
Area for which recommendations were issued but not made public by the State*	1.8 million km ²
Area for which recommendations were issued and made public by the State**	5.1 million km ²
Area adopted after recommendations**	4.9 million km ²
Return rate of recommendations	97%
Area still to be considered by the CLCS	16.3 million km ²

* Brazil and Russia.

** Australia, Ireland (Porcupine Abyssal Plain), New Zealand, Joint submission by France, UK, Ireland and Spain, Norway (North East Atlantic and the Arctic), Mexico (western polygon in the Gulf of Mexico), France (French Guiana and New Caledonia).

... information from Preliminary Information

Total accumulated area derived from Preliminary Information Documents***	> 4.0 million km ²
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Other maritime zones (for comparison purposes)




















Territorial Sea	22.4 million km ²
Contiguous Zone	6.6 million km ²
Exclusive Economic Zone	101.9 million km ²
Total area under national jurisdiction excluding the outer continental shelf	131.0 million km ²
High Seas	200.4 million km ²
Area of the Earth covered by Oceans	ca. 335 million km ²

*** Because of the preliminary nature of these documents, this number has a high uncertainty level.

References



- 1 UNCLOS – United Nations Convention on the Law of the Sea (LOSC), United Nations Publication No.E.97.V. 10. Full text of the Convention: http://www.un.org/Depts/los/convention_agreements/texts/unclos/closindx.htm
- 2 Article 76 of UNCLOS: *Definition of the continental shelf*.
- 3 UNCLOS, Annex II, Article 4.
- 4 UN Doc. SPLOS/72 (29 May 2001).
- 5 UN Doc. SPLOS/183 (20 June 2008).
- 6 Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf, CLCS/11, 13 May 1999; (United Nations, New York).
- 7 Division for Ocean Affairs and the Law of the Sea – <http://www.un.org/Depts/los/index.htm>
- 8 Executive Summary of Russian submission: http://www.un.org/Depts/los/clcs_new/submissions_files/submission_rus.htm
- 9 http://www.un.org/Depts/los/clcs_new/commission_submissions.htm
- 10 http://www.un.org/Depts/los/clcs_new/commission_preliminary.htm
- 11 Annex I to the Rules of Procedure of the CLCS
- 12 http://www.un.org/Depts/los/clcs_new/commission_recommendations.htm
- 13 Article 77 of UNCLOS: *Rights of the coastal State over the continental shelf*.
- 14 Murphy, 2008. Coordinated, harmonized or joint submissions to the commission on the limits of the continental shelf. 5th ABLOS Conference “Difficulties in Implementing the Provisions of UNCLOS” 15-17 October 2008, Monaco.
- 15 Antarctic Treaty, 1959. http://www.ats.aq/index_e.htm
- 16 Summary of the Recommendations to Australia, 2008. http://www.un.org/Depts/los/clcs_new/submissions_files/submission_aus.htm
- 17 Article 82 of UNCLOS: *Payments Payments and contributions with respect to the exploitation of the continental shelf beyond 200 nautical miles*.
- 18 Article 136 of UNCLOS: *Common heritage of mankind*.
- 19 Siegele, 2007. Chevron. Deep Water Gulf of Mexico.
- 20 Article 193 of UNCLOS: *Sovereign right of States to exploit their natural resources*.
- 21 Article 192 of UNCLOS: *General Obligation*.
- 22 Article 194 of UNCLOS: *Measures to prevent, reduce and control pollution of the marine environment*.
- 23 ETOPO2v2, Global Gridded 2-minute Database, National Geophysical Data Center, National Oceanic and Atmospheric Administration, U.S. Dept. of Commerce, <http://www.ngdc.noaa.gov/mgg/global/etopo2.html>

Summary of Submissions

Order of sub-mission	Submission by [State]	Date of submission	Comment	Approximate area in km ² calculated by GRID-Arendal
 1	Russian Federation	20 December 2001		836 000
 2	Brazil	17 May 2004		953 000
 3	Australia	15 November 2004		3 302 000
 4	Ireland – Porcupine Abyssal Plain	25 May 2005	Partial submission	38 000
 5	New Zealand	19 April 2006		1 757 000
 6	Joint submission by France, Ireland, Spain and the United Kingdom of Great Britain and Northern Ireland – in the area of the Celtic Sea and the Bay of Biscay	19 May 2006	Joint submission/ Partial Submission	82 000
 7	Norway – in the North East Atlantic and the Arctic	27 November 2006	Partial submission	323 000
 8	France – in respect of the areas of French Guiana and New Caledonia	22 May 2007	Partial submission	194 000
 9	Mexico – in respect of the western polygon in the Gulf of Mexico	13 December 2007	Partial submission	9 000
 10	Barbados	8 May 2008		53 000
 11	United Kingdom of Great Britain and Northern Ireland – Ascension Island	9 May 2008	Partial submission	645 000
 12	Indonesia – North West of Sumatra Island	16 June 2008	Partial submission	5 000
 13	Japan	12 November 2008		809 000
 14	Joint submission by the Republic of Mauritius and the Republic of Seychelles – in the region of the Mascarene Plateau	1 December 2008	Joint submission/ Partial Submission	374 000
 15	Suriname	5 December 2008		81 000
 16	Myanmar	16 December 2008		148 000
 17	France – areas of the French Antilles and the Kerguelen Islands	5 February 2009	Partial submission	468 000
 18	Yemen – in respect of south east of Socotra Island	20 March 2009	Partial submission	46 000
 19	United Kingdom of Great Britain and Northern Ireland – in respect of Hatton-Rockall Area	31 March 2009	Partial submission	166 000
 20	Ireland – in respect of Hatton-Rockall Area	31 March 2009	Partial submission	382 000
 21	Uruguay	7 April 2009		90 000
 22	Philippines – in the Benham Rise region	8 April 2009	Partial submission	135 000
 23	The Cook Islands – concerning the Manihiki Plateau	16 April 2009	Partial submission	406 000
 24	Fiji	20 April 2009	Partial submission	230 000
 25	Argentina	21 April 2009		1 779 000
 26	Ghana	28 April 2009		15 000

	Communications received with regard to the submission (as of 1 December 2009)	Provisions of Article 76 invoked (as indicated in submissions)	Max. water depth (m) in submission area (based on ETOPO2)	Average water depth (m) in submission area (based on ETOPO2)
	Denmark, Norway, Canada, USA, Japan	4(a)(i) and (ii), 5	4500	3200
	USA (2)	4(a)(i) and (ii), 5, 7	5100	3900
	USA, Russian Fed., Japan, Timor-Leste, France, The Netherlands, Germany, India	4(a)(i) and (ii), 4(b), 5, 7	6450	3750
	Denmark, Iceland	4(a)(i) and (ii), 7	4900	4600
	Fiji, Japan, France, Tonga, The Netherlands	3, 4(a)(i) and (ii), 4(b), 5, 6, 7	8200	3600
	–	4(a)(i) and (ii), 4(b)	5000	4450
	Denmark, Iceland, Russian Federation, Spain	1, 3, 4(a)(i) and (ii), 5, 7	4050	3100
	Vanuatu, New Zealand, Suriname	1, 4 (a)(i) and (ii), 4(b)	5050	4200
	–	3, 4(a)(i) and (ii), 5, 6	3700	3350
	Suriname, Trinidad and Tobago, Venezuela	4(a)(i), 4 (b)	5900	5300
	The Netherlands	4(a)(ii), 4(b), 6, 7	5350	3850
	India	1, 4(a)(i)	4350	4150
	USA, China, Republic of Korea, Palau	4(a)(ii), 4 (b), 5, 7	6500	5100
	–	4(a)(ii), 4(b), 5, 7	4500	2650
	France, Trinidad and Tobago, Barbados	3, 4(a)(i), 4(b), 5, 7	5050	4850
	Sri Lanka, India, Kenya, Bangladesh	1 to 10	3100	2700
	The Netherlands	4(a)(i) and (ii), 4(b), 5	5950	4000
	Somalia	4(a)(ii), 4 (b), 7	5000	4000
	Iceland, Denmark	4(a)(i) and (ii), 5	3150	1850
	Iceland, Denmark	4(a)(i) and (ii)	4900	2550
	–	4(a)(ii), 4(b), 5	5450	4850
	–	1 to 5	6300	5200
	New Zealand	4(a)(ii), 4(b), 5, 7	6450	4550
	New Zealand, Vanuatu	4(a)(ii), 4(b), 5, 7	4500	4300
	UK, USA, Russian Federation, India, The Netherlands	4(a)(i) and (ii), 4(b), 5	6350	3600
	Nigeria	4(a)(i) , 4(b) , 7	5150	4850

Summary of Submissions (continued)

Order of sub-mission	Submission by [State]	Date of submission	Comment	Approximate area in km ² calculated by GRID-Arendal
 27	Iceland – in the Ægir Basin area and in the western and southern parts of Reykjanes Ridge	29 April 2009	Partial submission	485 000
 28	Denmark – in the area north of the Faroe Islands	29 April 2009	Partial submission	58 000
 29	Pakistan	30 April 2009		57 000
 30	Norway – in respect of Bouvetøya and Dronning Maud Land	4 May 2009	Partial submission	621 000
 31	South Africa – in respect of the mainland of the territory of the Republic of South Africa	5 May 2009	Partial submission	1 137 000
 32	Joint submission by the Federated States of Micronesia, Papua New Guinea and Solomon Islands – concerning the Ontong Java Plateau	5 May 2009	Joint submission/ Partial Submission	604 000
 33	Joint submission by Malaysia and Viet Nam – in the southern part of the South China Sea	6 May 2009	Joint submission/ Partial Submission	43 000
 34	Joint submission by France and South Africa – in the area of the Crozet Archipelago and the Prince Edward Islands	6 May 2009	Joint submission/ Partial Submission	1 108 000
 35	Kenya	6 May 2009		101 000
 36	Mauritius – in the region of Rodrigues Island	6 May 2009	Partial submission	110 000
 37	Viet Nam – in North Area (VNM-N)	7 May 2009	Partial submission	78 000
 38	Nigeria	7 May 2009		8 000
 39	Seychelles – concerning the Northern Plateau Region	7 May 2009	Partial submission	22 000
 40	France – in respect of La Réunion Island and Saint-Paul and Amsterdam Islands	8 May 2009	Partial submission	411 000
 41	Palau	8 May 2009	Partial submission	264 000
 42	Côte d'Ivoire	8 May 2009		20 000
 43	Sri Lanka	8 May 2009		1 710 000
 44	Portugal	11 May 2009		2 115 000
 45	United Kingdom of Great Britain and Northern Ireland – in respect of the Falkland Islands, and of South Georgia and the South Sandwich Islands	11 May 2009	Partial submission	1 228 000
 46	Tonga	11 May 2009		30 000
 47	Spain – in respect of the area of Galicia	11 May 2009	Partial submission	47 000
 48	India	11 May 2009		605 000
 49	Trinidad and Tobago	12 May 2009		134 000
 50	Namibia	12 May 2009		1 062 000
 51	Cuba	1 June 2009		1 000

	Communications received with regard to the submission (as of 1 December 2009)	Provisions of Article 76 invoked (as indicated in submissions)	Max. water depth (m) in submission area (based on ETOPO2)	Average water depth (m) in submission area (based on ETOPO2)
	Denmark, Norway,	1, 3, 4(a)(ii), 4(b), 5, 7	4600	2600
	Iceland, Norway	1, 3, 4(a)(i), 6, 7	3750	3250
	Oman	4(a)(i), 4(b), 5, 7	3600	3300
	USA, Russian Federation, India, The Netherlands	1, 3, 4(a)(i) and (ii), 5, 6	5800	4400
	–	4(a)(i) and (ii), 4(b), 5	5950	3950
	–	4(a)(ii), 4(b), 5, 7	5650	3400
	China, Philippines	4(a)(ii), 5	2750	1450
	–	4(a)(ii), 4(b), 5, 6, 7	6200	3750
	Sri Lanka, Somalia	5, 6, 7 and Annex 2	4900	4550
	–	4(a)(ii), 4(b), 5, 6, 7	5150	3050
	China, Philippines	1, 4(a)(i) and (ii), 5, 7	4600	3600
	Ghana	1, 4(a)(i) and (ii), 5, 7	4600	4350
	–	4(a)(ii), 4(b), 5, 7	5250	5050
	–	1, 4(a)(ii), 4(b), 5, 6, 7	5550	3400
	Philippines	4(a)(ii), 4(b), 5, 7	6350	5000
	Ghana	4(a)(i), 4(b), 7	5250	5100
	Maldives	4(a)(i) and (ii), 7 and Annex 2	5600	4100
	Morocco, Spain (2)	1, 2, 3, 4(a)(i) and (ii), 5, 7	6350	3700
	Argentina	4(a)(ii), 4(b), 5, 7	6550	3700
	New Zealand	1, 2, 3, 4, 5, 6, 7	8200	4950
	Portugal, Morocco	4(a)(i) and (ii), 5, 7	5600	5000
	Myanmar, Bangladesh	4(a)(i), 4(b), 5, 7	4200	3550
	Suriname	4(a)(i), 5, 6, 7	5000	4450
	–	3, 4(a)(ii), 4(b), 5, 6, 7	5600	4050
	USA, Mexico	4(a)(i) and (ii), 5, 7	3350	3300

Summary of Preliminary Information

Number	State	Date of submission	Status of preparation (i.e. completed, as indicated in the PI document)	Intended date of making a submission (as indicated in the PI document)	Communication from other States (as of 1 December 2009)
1	Angola	12 May 2009	desktop study	end 2013	
2	Bahamas	12 May 2009	desktop study	13 May 2019	
3	Benin	12 May 2009	appurtenance study	13 May 2012	
4	Benin and Togo	2 April 2009	appurtenance study	14 May 2019	
5	Brunei Darussalam	12 May 2009	significant progress towards full submission	13 May 2010	
6	Cameroon	11 May 2009	appurtenance study	<i>not specified</i>	
7	Cape Verde	7 May 2009	appurtenance study	end 2014	
8	Chile	8 May 2009	acquisition & further planning	13 May 2019	
9	China	11 May 2009	preparation final submission	<i>not specified</i>	Japan 23 July 2009
10	Comoros	2 June 2009	<i>work in progress</i>	<i>not specified</i>	
11	Congo	12 May 2009	<i>work in progress</i>	<i>not specified</i>	
12	Costa Rica	11 May 2009	appurtenance study	13 May 2012	
13	Cuba	12 May 2009	FINAL SUBMISSION DONE	end May 2009	
14	Democratic Republic of the Congo	11 May 2009	appurtenance study	end July 2014	Angola 31 July 2009
15	Equatorial Guinea	14 May 2009	<i>work in progress</i>	<i>not specified</i>	
16	Fiji	21 April 2009	desktop study	<i>not specified</i>	
17	Fiji and Solomon Islands	21 April 2009	<i>work in progress</i>	end 2012	
18	Fiji, Solomon Islands and Vanuatu	21 April 2009	<i>work in progress</i>	end 2012	
19	France - Polynésie française et Wallis et Futuna	8 May 2009	desktop study	13 May 2013	
20	France - Saint-Pierre-et-Miquelon	8 May 2009	desktop study/planning acquisition	13 May 2013	Canada 9 November 2009
21	Gabon	12 May 2009	<i>work in progress</i>	end 2011	
22	Gambia	4 May 2009	appurtenance study	13 May 2019	
23	Guinea	11 May 2009	appurtenance study	13 May 2019	
24	Guinea-Bissau	8 May 2009	appurtenance study	13 May 2019	
25	Guyana	12 May 2009	appurtenance study	<i>not specified</i>	
26	Mauritania	11 May 2009	appurtenance study	13 May 2017	Morocco 26 May 2009
27	Mauritius	6 May 2009	Advanced stage	end 2012	

(continued)

■ Africa
 ■ Asia
 ■ Europe
 ■ North America
 ■ South America
 ■ Oceania

Number	State	Date of submission	Status of preparation (i.e. completed, as indicated in the PI document)	Intended date of making a submission (as indicated in the PI document)	Communication from other States (as of 1 December 2009)
■ 28	Mexico	6 May 2009	<i>work in progress</i>	end 2009	
■ 29	Micronesia (Federated States of)	5 May 2009	<i>work in progress</i>	end 2017	
■ 30	Mozambique	11 May 2009	acquisition and all data analysed	13 May 2010	
■ 31	New Zealand - Tokelau	11 May 2009	desktop study (no additional acquisition) planned)	13 May 2014	
■ 32	Oman	15 April 2009	desktop study	13 May 2019	
■ 33	Papua New Guinea	5 May 2009	desktop study/planning acquisition	end 2012	
■ 34	Republic of Korea	11 May 2009	<i>work in progress</i>	<i>not specified</i>	Japan 23 July 2009
■ 35	Sao Tome and Principe	13 May 2009	appurtenance study	<i>not specified</i>	
■ 36	Senegal	12 May 2009	appurtenance study	13 May 2015	
■ 37	Seychelles	8 May 2009	desktop study (ongoing)	end 2011	
■ 38	Sierra Leone	12 May 2009	<i>work in progress</i>	end 2010	
■ 39	Solomon Islands	5 May 2009	<i>work in progress</i>	end 2012	
■ 40	Somalia	14 April 2009	appurtenance study	13 May 2019	
■ 41	Spain	11 May 2009	appurtenance study	13 May 2014	Morocco 16 May 2009
■ 42	Togo	8 May 2009	appurtenance study	13 May 2019	
■ 43	United Republic of Tanzania	7 May 2009	acquisition	13 May 2011	
■ 44	Vanuatu	10 Aug 2009	<i>work in progress</i>	end 2014	

UNEP/GRID-Arendal

PO Box 183

N-4802 Arendal

Norway

Phone: +47 4764 4555

Fax: +47 3703 5050

grid@grida.no

www.grida.no

