

The Progress and Situation of Extended Continental Shelf Delineation Worldwide

FANG Yinxia* YIN Jie** TANG Yong*** LI Jinrong****

Abstract: In 2001, Russia made the first submission, containing proposed outer limits of its continental shelf beyond 200 nautical miles (nm) from the baselines from which the breadth of the territorial sea is measured, to the Commission on the Limits of the Continental Shelf (CLCS). As of 30 June 2016, the CLCS had received 81 submissions and had reviewed and released recommendations on 24 of them. After systematically outlining the situation of the submissions that have been, are being, or will be filed by States, the modes that CLCS adopts to treat submissions, and the primary issues that the CLCS examines during its consideration of submissions, this paper explores, from both scientific and legal perspectives, the features of current practice with respect to extended continental shelf delineation, as well as its development tendency. In this context, this paper suggests that greater efforts should be invested in the study of relevant scientific, technical and legal issues, and the latest developments regarding the theories and practice of the continental shelf regime should be learned and summarized in a timely manner, which could be used for reference by China in the delineation of its extended continental shelf, or when China's maritime rights and interests are undermined by other States' claims of continental shelf.

Key Words: Continental shelf beyond 200 nm; Submission; Commission on

* FANG Yinxia, research fellow, Research Center on Exclusive Economic Zones and Continental Shelves at the Second National Institute of Oceanography, State Oceanic Administration (SOA). Email: fangyx@sio.org.cn. This article is funded by the Ocean Public Welfare Scientific Research Special Appropriation Project (No: 201205003) and two Programs of National Natural Science Foundation of China (Nos. 41476048 and 41401142).

** YIN Jie, assistant research fellow, Research Center on Exclusive Economic Zones and Continental Shelves at the Second National Institute of Oceanography, SOA.

*** TANG Yong, research fellow, Research Center on Exclusive Economic Zones and Continental Shelves at the Second National Institute of Oceanography, SOA.

**** LI Jinrong, assistant research fellow, National Marine Data and Information Service.

the Limits of the Continental Shelf (CLCS); Recommendations of the CLCS

I. Introduction

According to Article 76 of the United Nations Convention on the Law of the Sea (UNCLOS), 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, or to a distance of 200 nautical miles (nm) 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; and a coastal State may claim a continental shelf beyond 200 nm if the natural prolongation of its land territory extends beyond 200 nm from the baselines of its territorial sea.¹ In light of the UNCLOS provision above, the continental shelf of a coastal State may, based on the geomorphological and geological conditions of its continental margin, extend to a distance of 350 nm from the baselines from which the breadth of the territorial sea is measured, or a distance of 100 nm from the 2500 metre isobath. Additionally, UNCLOS Annex II, Article 4 provides that, where a coastal State intends to establish, in accordance with Article 76, the outer limits of its continental shelf beyond 200 nm, it shall submit particulars of such limits to the Commission on the Limits of the Continental Shelf (hereinafter “CLCS” or “Commission”) along with supporting scientific and technical data (hereinafter “Submission”) as soon as possible.

To implement UNCLOS Article 76, the CLCS was formally established in March, 1997. Pursuant to UNCLOS, apart from providing scientific and technical advice concerning the outer limits of the continental shelf to coastal States, the primary functions of CLCS also include considering submissions made by the coastal States concerning the outer limits of the continental shelf in areas where those limits extend beyond 200 nm and making recommendations. The limits of the shelf established by a coastal State on the basis of these recommendations shall be final and binding.

The Rules of Procedure of the Commission on the Limits of the Continental

1 China Institute for Marine Affairs, SOA ed., *United Nations Convention on the Law of the Sea (Chinese-English)*, Beijing: China Ocean Press, 1996.

Shelf, hereinafter referred to as “Rules of Procedure”, was adopted at its thirteenth session, held in 2004. It replaced the *Modus Operandi* of the Commission,² adopted at its second session, held in 1997, and the Internal Procedure of the Subcommittee of the Commission on the Limits of the Continental Shelf,³ adopted at its ninth session, held in 2001. Since the Commission deals with things that have never been done before, its Rules of Procedure is being added and amended during the gradual accumulation of practice pertaining to extended continental shelf delineation. The revised Rules of Procedure was adopted at the 21st session of CLCS in April of 2008 and basically defined its *modus operandi* and rules of procedure.⁴ At its fifth session held on 13 May 1999, the CLCS adopted a series of important scientific documents, including the Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf (hereinafter “Scientific and Technical Guidelines”).⁵ The adoption of the Rules of Procedure and the Scientific and Technical Guidelines implies that the CLCS was well prepared to receive submissions from coastal States. Noting that it was only after the adoption by the Commission of its Scientific and Technical Guidelines that States had before them the basic documents concerning submissions, the eleventh meeting of States Parties of UNCLOS decided that in the case of a State Party for which UNCLOS entered into force before 13 May 1999, the ten-year time period referred to in Article 4 of Annex II to UNCLOS shall be understood to have commenced on 13 May 1999, when the Scientific and Technical Guidelines was adopted.⁶ That is to say, the deadline for submissions from all these coastal States would be 13 May 2009.

II. An Overview of the Filing of Submissions to CLCS

On 20 December 2001, Russia became the first to forward its submission to the CLCS; it was the first submission that CLCS received upon its establishment. As of 30 June 2016, the total number of submissions filed had come to 81, including revised submissions made by Russia, Brazil and Barbados (Fig. 1).⁷ In terms of the filing time, 50 submissions were made before the deadline (13 May

2 Document CLCS/L.3.

3 Document CLCS/L.12.

4 Document CLCS/40/Rev.1.

5 Document CLCS/11.

6 Document SPLOS/72.

7 At http://www.un.org/depts/los/clcs_new/commission_submissions.htm, 18 October 2016.

2009), accounting for 62% of the total filed submissions, and 31 after the deadline, accounting for 38% of submissions. Of the 81 submissions, four submissions were revised, seven were jointly filed,⁸ 48 were partial, and five were added with supplementary information before being considered by the Commission.⁹ In terms of submissions by States, these 81 submissions were made by 77 States, some of which filed more than one submission in different forms. Specifically, France made seven submissions (including three joint submissions), the UK filed four (including one joint submission), Denmark filed four, Ireland and Spain each filed three (including one joint submission each), and Norway, Mexico and Tonga each filed two; additionally, New Zealand, Mauritius, South Africa, Micronesia, Vietnam and Seychelles each filed two (including one joint submission each).

Excluding the four revised submissions, 68 of the remaining 77 submissions claimed areas of extended continental shelves in polygon, forming encircled areas. However, nine submissions only established the outer limits of continental shelves, without forming any encircled areas, including the Submissions by Suriname, by the United Kingdom of Great Britain and Northern Ireland in Respect of Hatton Rockall Area, by Viet Nam in North Area, by the United Kingdom of Great Britain and Northern Ireland in Respect of the Falkland Islands, and of South Georgia and the South Sandwich Islands, by Tonga in the Eastern Part of the Kermadec Ridge, by China in Part of the East China Sea, by the Republic of Korea, by Nicaragua in the Southwestern Part of the Caribbean Sea, and by France in Respect of Saint-Pierre-et-Miquelon. Without forming any encircled polygons, it is impossible to calculate the areas of the extended continental shelves established by these nine submissions. The area of the extended continental shelves claimed by the remaining

8 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, Joint Submission by the Republic of Mauritius and the Republic of Seychelles in the Region of the Mascarene Plateau, Joint Submission by the Federated States of Micronesia, Papua New Guinea and Solomon Islands concerning the Ontong Java Plateau, Joint Submission by Malaysia and Viet Nam in the Southern Part of the South China Sea, Joint Submission by France and South Africa in the Area of the Crozet Archipelago and the Prince Edward Islands, Joint Submission by Tuvalu, France and New Zealand (Tokelau) in Respect of the Area of the Robbie Ridge, and Joint Submission by Cabo Verde, The Gambia, Guinea, Guinea-Bissau, Mauritania, Senegal and Sierra Leone in Respect of Areas in the Atlantic Ocean Adjacent to the Coast of West Africa.

9 Submission by Fiji, Submission by the Cook Islands concerning the Manihiki Plateau, Joint Submission by France and South Africa in the Area of the Crozet Archipelago and the Prince Edward Islands, Submission by South Africa in Respect of the Mainland of the Territory of the Republic of South Africa, and Joint Submission by the Federated States of Micronesia, Papua New Guinea and Solomon Islands concerning the Ontong Java Plateau.

68 submissions comes to more than 30,000,000 km².

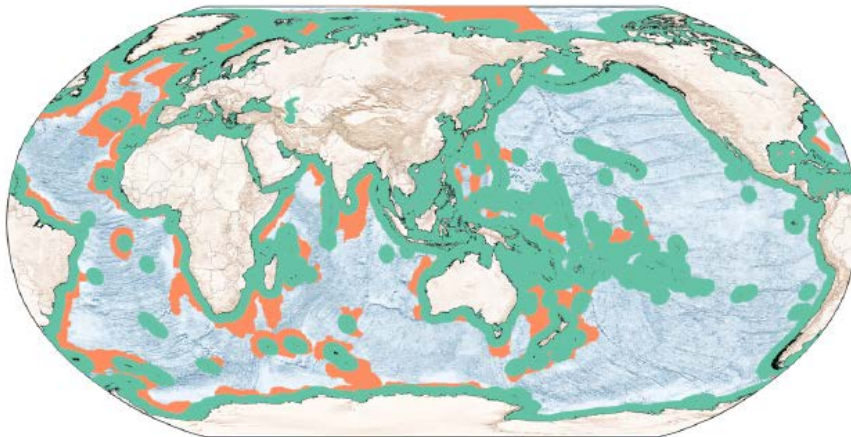


Fig. 1 The Global Situation on the Delineation of Extended Continental Shelves (Based on the Data of the Submissions Released on the Official Website of CLCS)

(The exclusive economic zone is shown in green, and the extended continental shelves claimed by coastal States in their submissions are in orange.)

Recognizing that some coastal States, in particular developing countries, including small island developing States, continue to face particular challenges in submitting information to the Commission in the ten-year time period referred to in Article 4 of Annex II to the UNCLOS, the Eighteenth Meeting of States Parties decided that the time period referred to in Article 4 of Annex II to UNCLOS may be satisfied by submitting to the Secretary-General preliminary information indicative of the outer limits of the continental shelf beyond 200 nm and a description of the status of preparation and intended date of making a submission (hereinafter “preliminary information”).¹⁰

Up to 30 June 2016, 44 States have submitted 47 copies of preliminary information.¹¹ Specifically, 39 States submitted 42 copies of preliminary information before the provided deadline (13 May 2009). Thereafter, Equatorial Guinea, Comoros, Vanuatu, Nicaragua, Canada and Morocco, which are not subject to the said deadline, submitted their preliminary information. Among the 47 copies of

¹⁰ Document SPLOS/183.

¹¹ At http://www.un.org/depts/los/clcs_new/commission_preliminary.htm, 18 October 2016.

preliminary information submitted, three are joint preliminary information.¹² Plus, four of the submitting States are developed States, including France, Spain, New Zealand and Canada, and the remaining 40 States are developing States. France, Mauritius, Togo and Solomon Islands each submitted two copies of preliminary information.

A comparison between the filing of preliminary information and submissions to CLCS reveals that, 25 of the 44 States which have submitted their preliminary information, or 57% of these States, have formally presented 18 submissions to the Commission, including the Joint Submission by Cabo Verde, the Gambia, Guinea, Guinea-Bissau, Mauritania, Senegal and Sierra Leone in Respect of Areas in the Atlantic Ocean Adjacent to the Coast of West Africa.

III. Modes that the CLCS Adopted to Treat Submissions

The CLCS considers submissions in the order filed. By 30 June 2016, the Commission had completed the consideration of 24 submissions, including two revised submissions by Russia and Barbados, and published its summaries of recommendations on the website of the United States.¹³ Additionally, two draft recommendations are being reviewed by the Commission; ten submissions, including the newly-filed Partial Revised Submission by Russian Federation in Respect of the Arctic Ocean, are being considered by the subcommission; and the consideration of another seven submissions have been deferred. To date, the Commission has decided not to consider submissions under two circumstances. First, in cases where a submission concerns territorial claims in the Antarctic, the Commission refuses to consider the submission. For example, the Commission refused to consider the Submissions by Australia, by Argentina, and by Norway because they were pertinent to the provisions, as contained in the Antarctic Treaty, banning ownership claims to the area south of 60° South Latitude, and the Commission is not empowered to deal with matters pertaining to the Antarctic Treaty. Second, in cases where the submissions made by two States concern the same area or in cases where there is a land or maritime dispute, the Commission refuses to consider the submission. Examples of such case are the Submissions by Argentina and by the

12 Preliminary Information Submitted by Benin and Togo, Preliminary Information Submitted by Fiji and Solomon Islands on the Charlotte Bank Region, and Preliminary Information Submitted by Fiji, Solomon Islands and Vanuatu on the North Fiji Basin.

13 At http://www.un.org/depts/los/clcs_new/commission_submissions.htm, 18 October 2016.

UK. Since these submissions involve the sovereignty issue of the Malvinas Islands (also known as “Falkland Islands” in Britain), the Commission decided not to consider them. These results of consideration indicate that the Commission often adopts the following three modes to treat submissions:¹⁴

(1) To consider a submission in its complete form. If the area claimed by a submission does not involve land or maritime delimitation disputes, that is to say, if the Commission fails to receive any *note verbale* in response to the submission, by invoking Article 5(a) of Annex I to the Rules of Procedure, the Commission will establish a subcommission to consider whether the outer limits of continental shelves proposed by a coastal State is well grounded. Then it will decide to approve, partly approve or deny, in the form of recommendations, the claims to extended continental shelves made by the coastal State. Examples of this case include: the Submission by Russian Federation and its Partial Revised Submission in Respect of the Okhotsk Sea, the Submission by Barbados and its Revised Submission, the Submissions by Brazil, by Ireland in Respect of Porcupine Abyssal Plain, by New Zealand, by Norway in the North East Atlantic and the Arctic, by Mexico in Respect of the Western Polygon in the Gulf of Mexico, by United Kingdom of Great Britain and Northern Ireland in Respect of Ascension Island, by Indonesia in Respect of North West of Sumatra Island, by Suriname, by France in Respect of the Areas of the French Antilles and the Kerguelen Islands, by the Philippines in the Benham Rise Region, by Ghana, by Denmark in the Area North of the Faroe Islands, and by Pakistan, as well as the Joint Submissions 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, and by the Republic of Mauritius and the Republic of Seychelles. The Commission has completed the consideration of the submissions listed above and made recommendations thereon.

(2) To defer the consideration of a submission to some time later. There are cases where States concerned have delivered *notes verbales* in response to a submission, by invoking Article 5(a) of Annex I to the Rules of Procedure, but the submission is still waiting for its turn to be considered. Considering that the dispute is currently being or will likely be solved by the States concerned, the Commission would decide not to consider the submission for the time being, and may reconsider

14 Li Jinrong, Luo Tingting and Wan Fangfang, A Study of the Review Process and Development Trend about the Delineation of the Continental Shelf beyond 200 Nautical Miles, *International Forum*, No. 3, 2014, pp. 37-42. (in Chinese)

it when its turn arrives; if the dispute remains unresolved when its turn comes, the submission may continue waiting until no protest is raised by the States concerned. For instance, the consideration of the Submission by Myanmar was put off due to Bangladesh's protest; the consideration of the Submission by Yemen in Respect of South East of Socotra Island was deferred because of Somalia's opposition; the consideration of the Submission by Fiji was put off owing to the objection from Vanuatu; and the consideration of the Submission by the United Kingdom of Great Britain and Northern Ireland in Respect of Hatton Rockall Area and the Submission by Ireland in Respect of Hatton Rockall Area was postponed due to the protest from Iceland and Denmark; the consideration of the Joint Submission by Malaysia and Viet Nam in the Southern Part of the South China Sea was put off because China and the Philippines submitted *notes verbales*, expressing their opposing views; and the consideration of the Submission by Kenya was postponed because of Somali's objections.

(3) To consider certain portion(s) of a submission. As described above, in cases where a submission filed by a coastal State concerns claims for territory in the Antarctic, or involves land or maritime disputes, the Commission will, on a case-by-case basis, not consider it or postpone its consideration, or only consider the portion free from disputes relating to the Antarctic and land or maritime disputes. For example, the Commission refused to consider the parts of Submission by Australia related to the Antarctic territory; it only chose to review nine regions, including Argo region, Great Australian Bight region, Kerguelen Plateau region, Lord Howe Rise region, Macquarie Ridge region, Naturaliste Plateau region, Three Kings Ridge region, and Wallaby and Exmouth Plateaus region. Plus, the Commission did not consider the portions of the Submission by Argentina associated with the Antarctic territory and the Malvinas Islands involving territorial disputes, merely deliberating the northern sector of Argentine passive continental margin and the western sector of the combined continental margin. In addition, the Commission decided not to consider, for now, the portion of the Submission by France in Respect of the Areas of French Guiana and New Caledonia that involved an area to the south east of New Caledonia, only to consider the area of French Guiana and the area to the south west of New Caledonia. Additionally, the portion of the Submission by Japan involving Okinotorishima Rocks has not been considered by the Commission, which merely examined and reviewed the Minami-Io To Island Region, the Minami-Tori Shima Island Region, the Mogi Seamount Region, the Ogasawara Plateau Region, the Southern Oki-Daito Ridge Region, and

the Shikoku Basin Region.¹⁵

IV. The Main Issues That the CLCS Examines during Its Consideration of Submissions

According to the Rules of Procedure, the full text of the recommendations proposed by the Commission on a submission is kept confidential; therefore, it is difficult for us to get a complete picture of the Commission's deliberation of the submissions. However, the summaries of recommendations are duly publicized on the website of the United Nations, which can give us a rough idea of the deliberation of the submissions. A close look at the publicized summaries of recommendations shows that, when considering a submission, the Commission chiefly examines the following matters: whether it has the authority to consider the submission, the geological and geographical description of the region concerned, the natural prolongation of the land mass of the coastal State, and the determination of the location of the foot of the continental slope (FOS), the outer edge of the continental margin, and the outer limits of continental shelf. Upon the establishment of a subcommission, during its examination of submissions, the subcommission primarily evaluates the following issues: whether the base and the foot of the continental slope are appropriately located, whether the sediment thickness of 1% is reliably determined, whether the constraint line constructed at 100 nm from the 2500 metre isobaths is applicable, and whether the points on the 200 nm lines are appropriately identified.

A. The Appropriateness of the Base and the Foot of the Continental Slope

The Commission recognizes the FOS as an important geomorphological feature. Plus, the two formulae lines employed to extend continental shelf under the UNCLOS are determined on the basis of the FOS. Therefore, the FOS serves as the basis for entitlement to the extended continental shelf and a critical factor to be reviewed by the Commission. Pursuant to the Scientific and Technical Guidelines,

15 Fang Yinxia, Tang Yong and Fu Jie, Summary of Recommendations by the Commission on the Limits of the Continental Shelf with Regard to Japan's Submission: A Commentary, *China Oceans Law Review*, No. 2, 2013, pp. 110~129.

the FOS can be established through two main methods. First, it may be identified as the point of maximum change in the gradient at its base, based on the geological and geomorphological features of the continental margin. Second, evidence to the contrary to the general rule may be invoked to define the location of the FOS. That is, the Commission may use the continental-oceanic transitional zone, which was determined on the basis of geological and geophysical evidence and other sources of evidence available, to locate the FOS, when the geomorphological evidence given by the maximum change in the gradient can not reliably locate the FOS. Currently, in almost all of the submissions which have been considered by the Commission, the first method is applied to determine the FOS, that is, the point of maximum change in the gradient at its base is selected as the FOS.

When considering the Submission by the United Kingdom of Great Britain and Northern Ireland in Respect of Ascension Island, the Commission questioned the base of the continental slope and the location of the FOS established by the UK; however, the two parties failed to reach a consensus after communications. The UK regarded the rift valley of the spreading axis and the deeps of associated fracture zones as parts of the continental slope of Ascension Island. However, the Commission argued that ocean spreading structures, which were normally part of the deep ocean floor, could only form the continental slopes of island landmasses in cases where such structures formed part of the discrete seafloor highs from which the island edifices rose. This was not the case for Ascension Island, as its edifice was not morphologically connected to any such discrete seafloor high (Fig. 2). The recommendations provided by the Commission pointed out that, the rugged seafloor between the Ascension Island volcanic edifice and the axis of the Mid-Atlantic Ridge was part of the normal deep ocean floor, rather than the continental shelf of the Ascension Island. As a result, the FOS identified by the UK in this area was rejected by the Commission.¹⁶

16 At http://www.un.org/Depts/los/clcs_new/submissions_files/gbr08/gbr_asc_isl_rec_summ.pdf, 18 October 2016.

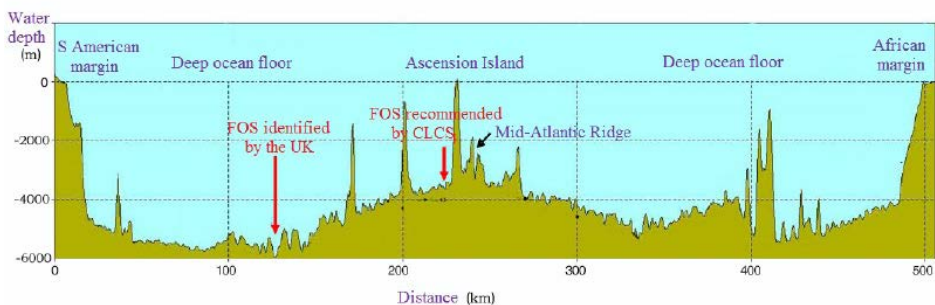


Fig. 2 The Location Map of the FOS of Ascension Island Recommended by the CLCS¹⁷

B. The Reliability of the Sediment Thickness of 1%

The sediment thickness rule is one of two equally valid formulae for entitlement to the extended continental shelf and the delineation of its outer limits. In this connection, the Commission conducts strict examinations. The determination of the sediment thickness formula line relates to the identification of the sediment/basement interface, the calculation of sediment thickness and the variability of sediment distribution, as well as other technical issues. The thickness of sediments can be determined by means of direct sampling and indirect methods. Since direct sampling, such as drilling, is very costly, presently, the sediment thickness, in all the submissions filed to the Commission, is indirectly calculated from seismic data. This method involves issues like the identification of the sediment, the reliability of velocity analysis, and depth conversion. In this case, because of uncertainties involved in the procedure, inaccuracies in sediment thickness could typically be 10%. For example, when deliberating the Submission by Barbados, the Commission objected to the position of Gardiner point 12 (GP12) identified in the submission. Considering large extrapolation distances were involved in the Barbados' determination of Gardiner point, the Commission requested that Barbados provide any additional data available to support the extrapolation. In this case, Barbados utilized the information from a new sonobuoy to provide additional support for the extrapolation of the velocity model and offered a revised location of GP12 determined on the basis of a seismic line. Eventually, this relocated GP12

17 At http://www.un.org/Depts/los/clcs_new/submissions_files/gbr08/gbr_asc_isl_rec_summ.pdf, 18 October 2016.

was approved by the Commission.¹⁸

C. The Applicability of the Constraint Line Constructed at 100 NM from the 2500 Metre Isobath

Article 76 of UNCLOS sub-classed the highs into three legal types: oceanic ridges of the deep ocean floor, submarine ridges, and submarine elevations, each of which has a different entitlement to continental shelf. Specifically, oceanic ridges of the deep ocean floor are not entitled to an extended continental shelf. In the case of submarine ridges, the outer limit of the continental shelf shall not exceed 350 nm from the baselines from which the breadth of the territorial sea is measured. Furthermore, in the case of submarine elevations that are natural components of the continental margin, the continental shelf can extend up to 350 nm from the baselines or 100 nm from the 2,500 metre isobath. Article 76 prescribed the entitlement to continental shelf for these three types of ridges; however, it failed to provide precise definitions for the three terms or an exact method to distinguish them. Due to the uncertainty in the UNCLOS provisions concerning ridges, Scientific and Technical Guidelines also failed to offer a final solution, which has attracted the attention of many scholars. For example, Symonds, a former member of CLCS, and other scholars, when discussing the UNCLOS provision with respect to ridges, classified ridges into two categories: ridges in divergent settings and ridges in convergent settings. They contended that the classification of ridges should take into account the geological origins and tectonic settings of the ridges, along with other geological factors.¹⁹ In contrast, Brekke, also a former member of CLCS, when classifying the ridges, did not consider the geological forming process of ridges, but he did take note of the locations of ridges related to the continental margin.²⁰ The provisions of UNCLOS should be interpreted in good faith. In this connection, the authors believe that only the ridges which are continuous, both

18 At http://www.un.org/Depts/los/clcs_new/submissions_files/brb_10rev2011/brb_10rev2011_summary_recommendations.pdf, 18 October 2016.

19 Philip A. Symonds, Mike F. Coffin, George Taft and Hideo Kagami, Ridge Issues, in Peter J. Cook and Chris M. Carleton eds., *Continental Shelf Limits: The Scientific and Legal Interface*, New York: Oxford University Press, 2000, pp. 285-307.

20 Harald Brekke and Philip A. Symonds, The Ridge Provisions of Article 76 of the UN Convention on the Law of the Sea, in Myron H. Nordquist, John Norton Moore and Tomas H. Heidar eds., *Legal and Scientific Aspects of Continental Shelf Limits*, Leiden/Boston: Martinus Nijhoff Publishers, 2004, pp. 169-199.

in morphology and geology with the land mass and submerged prolongation of a coastal State, are submarine elevations. Ridges which are discontinuous in morphology with the continental margins are oceanic ridges. Those ridges which are continuous in morphology, but discontinuous in geology, are submarine ridges.²¹ Currently, given that ridges are not precisely defined, we cannot find any clear principles and methods to identify them. Besides, when treating submissions made by different States, the Commission's views are not completely consistent with respect to the issue of the features of ridges.

For example, during the consideration of the Submission by Australia, the Commission questioned whether the Williams Ridge and the Joey Rise could be classified as submarine elevations in the sense of UNCLOS Article 76. Since the data submitted for the Williams Ridge and Joey Rise gave only indirect evidence of their natures and origins, the Commission held that their geological origin still remained unresolved and they should not be recognized as submarine elevations. Additionally, the Commission did not agree with the location of the fixed points on continental shelf outer limit line, established by Australia, in accordance with constraint lines at 100 nm from the 2500 metre isobath.²² This example shows that the Commission, when evaluating the three types of ridges above, took into account both morphological and geological continuity, which is consistent with the original purpose of UNCLOS, to provide that different types of ridges have different entitlements to continental shelf.

D. The Appropriateness of the Points on the 200 NM Lines

Article 76(7) of the UNCLOS states that, the coastal State shall delineate the outer limits of its continental shelf, where that shelf extends beyond 200 nm from the baselines from which the breadth of the territorial sea is measured, by straight lines not exceeding 60 nm in length, connecting fixed points, defined by coordinates of latitude and longitude. Based on the article, in order to maximize its benefits, Australia, in its submission, used lines not more than 60 nm in length to join fixed points on the formula line to any fixed point on the 200 nm line to

21 Wang Weiguo, Geological Structures of Ridges with Relation to the Definition of Three Types of Seafloor Highs Stipulated in Article 76, *Acta Oceanologica Sinica*, Vol. 30, No. 5, 2011, pp. 125~137.

22 At http://www.un.org/Depts/los/clcs_new/submissions_files/aus04/Aus_Recommendations_FINAL.pdf, 18 October 2016.

delineate the outer limits of its continental shelf in each region it claimed. However, the Commission was of the view that this extended continental shelf delineated by Australia exceeded the limits provided for in UNCLOS. The Commission stated that the determination of the last fixed point of the outer limits of the continental shelf should be established by the intersection of the formula line and the 200 nm line. Consequently, the Commission disagreed with the determination of the points on the 200 nm line in all the regions submitted by Australia in its submission. In a similar manner, the Commission held that, in the Macquarie Ridge Region and the Three Kings Ridge Region, Australia should not use straight lines not exceeding 60 nm in length to determine the points on the Australian-New Zealand boundary line.²³

E. The Appropriateness of the Points beyond the 350 NM Lines

This factor is mainly considered in joint submissions. When reviewing the Joint Submission by France, Ireland, Spain and the United Kingdom of Great Britain and Northern Ireland, the Commission noted that the proposed fixed point FP 30 was located within the Spanish 350 nm constraint line but beyond all other 350 nm constraint lines. Further, the Commission contended that FP 30 was determined based on the extension of the Irish, rather than the Spanish, continental margin; therefore, it should be subject to the 350 nm line constructed from the baselines from which the territorial sea of Ireland was measured. As a result, the point FP 30 should lie within or on the Irish 350 nm constraint line. Following the Commission's recommendation, the four coastal States revised their outer limits, which were eventually approved by the Commission after deliberation.²⁴

V. Features and Development Tendency of Extended Continental Shelf Delineation

Abundant natural resources can be found on the extended continental shelf. And UNCLOS Article 77(1) explicitly provides that "the coastal State exercises

23 At http://www.un.org/Depts/los/clcs_new/submissions_files/aus04/Aus_Recommendations_FINAL.pdf, 18 October 2016.

24 At http://www.un.org/Depts/los/clcs_new/submissions_files/frgbires06/fisu_clcs_recommendations_summary2009.pdf, 18 October 2016.

over the continental shelf sovereign rights for purpose of exploring it and exploiting its natural resources.” Obviously, the delineation of the outer limits of the continental shelf beyond 200 nm, pertains to the sovereign rights of coastal States and also directly relates to their economic benefits. Due to the rich natural resources on the extended continental shelf, and the effect of declaring sovereignty that may arise from the filing of submissions, States have taken the application for extended continental shelf more and more seriously and invested more deeply in this cause known as “Blue Enclosure Movement”. Especially in the 15 years since Russia made the first submission to the CLCS in 2001, state practice with regards to the delineation of extended continental shelf and the modes in which the Commission considers submissions have developed gradually. In terms of state practice, initially, coastal States rushed to present their submissions in order to meet the deadline, but now, more and more States are taking the initiatives to protect, in an all-round and multi-level way, their maritime rights and interests, through filing submissions to the CLCS, which has highlighted and also in some ways exacerbated the maritime delimitation disputes in the world. In terms of the practice of the Commission, the procedures and the rules of the Commission to consider and review the submissions have gradually become stable and fixed, which in turn affect, more or less, state practice in respect of extended continental shelf delineation. Overall, the practice with regards to extended continental shelf delineation in the world has shown the following features.

A. Large Overlapping Claims

The 77 submissions as received by the CLCS exhibit serious overlapping claims of extended continental shelves. The areas claimed by 47 different States are overlapping to varied degrees (Table 1), and some are seriously overlapping. For example, the extended continental shelves claimed by Bangladesh, India, Myanmar and Sri Lanka, in the Bay of Bengal, almost overlap completely. Additionally, the continental shelf claimed by the UK for the Malvinas Islands is almost fully overlapping with the one claimed by Argentina, and the continental shelves in the Hatton Rockall Area claimed by the UK, Ireland, Iceland and Denmark are also overlapping. In the case of the East China Sea, apart from the Sino-Japanese disputes centered on the sovereignty of Diaoyu Islands, South Korea also raised its claim to an extended continental shelf in this area. In the South China Sea, bordering States, including China, Viet Nam, Malaysia and the Philippines, have

disputes centered on the sovereignty of the Nansha Islands. In practice, these overlapping claims are originated from the sovereignty disputes and maritime delimitation conflicts that have already existed in these sea areas, which have resurfaced by virtue of extended continental shelf delineation. The Commission definitely will not consider some disputable submissions. Nevertheless, the submitting State has achieved the purpose of declaring its sovereignty by filing submissions before the Commission, whether its submissions would be considered or not. In this sense, declaration of sovereignty could be said to be one of the main reasons that compel the coastal State to forward submissions to the Commission.

**Table 1 Statistics on the Overlapping Claims for
Extended Continental Shelves**

No.	States Submitting Overlapping Claims	Overlapped Areas
1	Argentina vs. United Kingdom	The Area Surrounding Malvinas Islands
2	Ireland vs. Denmark	Hatton Rockall Area
3	Angola vs. Gabon	Continental Margin of West Africa
4	Barbados vs. France	Eastern Waters off French Antilles
5	Barbados vs. Guyana vs. Surinam vs. Trinidad and Tobago	Northeastern Waters off South America
6	Iceland vs. Norway	Northeastern Waters off Iceland
7	Denmark vs. Canada	Southern Waters off Greenland
8	Denmark vs. Norway	Northern Waters off Faroe Islands and off Greenland
9	Denmark vs. United Kingdom	Hatton Rockall Area
10	Russian Federation vs. Denmark	Arctic Ocean
11	Russian Federation vs. Norway	Arctic Ocean
12	France vs. South Africa vs. Madagascar	Southwest Indian Ocean
13	France vs. Canada	Northwest Atlantic
14	France vs. Surinam	Eastern Waters off French Guiana
15	France vs. New Zealand	Waters Surrounding New Caledonia (French)
16	Fiji vs. Tonga vs. New Zealand	South Pacific
17	Cuba vs. Mexico	Gulf of Mexico

18	Ghana vs. Nigeria	Gulf of Guinea
19	Kenya vs. Somalia	Continental Margin of East Africa
20	Maldives vs. Sri Lanka	North Atlantic
21	Bengal vs. Burma vs. Sri Lanka vs. India	Bay of Bengal
22	Mozambique vs. South Africa	Southwest Indian Ocean
23	Portugal vs. Spain	Northern Waters off Canary Islands
24	Portugal vs. Seven West African States	Southern Waters off Canary Islands
25	Japan vs. Palau	Philippine Sea
26	Somalia vs. Tanzania	Continental Margin of East Africa
27	Somalia vs. Yemen	Continental Margin of East Africa
28	China vs. Korea	East China Sea

B. Many States Choose to Make Partial or Joint Submissions

Considering the serious overlapping claims, in practice, if a submission involves delimitation disputes or other relevant maritime or land disputes, the States concerned would deliver *notes verbales* to express their concerns or protests, which suffice to prevent the Commission from reviewing the submissions involving such disputes. Rule 3 of Annex I to the Rules of Procedure states that a submission may be made by a coastal State for a portion of its continental shelf in order not to prejudice questions relating to the delimitation of boundaries between States in any other portion or portions of the continental shelf. This rule encouraged some coastal States to first file a submission for the portion of continental shelf free from disputes in order to avoid causing disputes and conflicts with neighboring States. Hence, it is not surprising to find that, up to now, 46 partial submissions have been filed, which accounts for 60% of the 77 submissions received by the Commission.

Apart from avoiding disputes, partial submissions, which have acquired the full attention of the submitting States, have more of a chance to get approved by the Commission. The delineation of extended continental shelves relates to complex legal, scientific and technical issues. Given the discrepancy of scientific understanding on an issue, any submission, in theory, is inevitably uncertain to some extent. However, if the claims of a submitting State differ from the views held by subcommission after deliberation, it would be difficult for the submission to get approved by the Commission, unless that State provides sufficient evidence. In this

case, undoubtedly, it is wise for States to first make submissions for the portion of continental shelf in which evidence is sufficient, especially for the developing States inflicted with scientific, technical, financial and other problems.

C. The Delineation of Antarctic and Arctic Continental Shelves Has Generated Widespread Concerns

Seven States, including Australia, New Zealand, Argentina, Chile, France, the UK and Norway, have officially claimed territory in the Antarctic, primarily the sector-area between 60° South Latitude and the South Pole. Up to now, those States, excluding Chile, which has submitted the preliminary information indicative of the outer limits of its continental shelf beyond 200 nm, have officially presented their submissions or partial submissions to the Commission. Particularly, three States (Australia, Norway and Argentina) in their submissions, raised express claims to the Antarctic territorial sovereignty and continental shelf, and some of the continental shelves claimed by Australia, Argentina and the UK extended to the area south of 60° South Latitude, which is the area where the Antarctic Treaty System applies. UNCLOS established a 12 nm territorial sea and 200 nm exclusive economic zone, and created and developed the regimes of continental shelf and international seabed area. Nevertheless, the existing legal provisions under the Antarctic Treaty System would surely be challenged or impaired if these regimes are applied to the Antarctic region inflexibly.

The legal regimes with respect to the Arctic differ from those of the Antarctic in that no complete treaty system is in place for the former. The current legal rules concerning the Arctic can merely be employed to address some specific problems. Regrettably, no law governs the Arctic region or the Arctic Ocean as a whole. There are primarily eight States bordering the Arctic Ocean: Russia, Canada, the United States, Denmark, Norway, Finland, Sweden and Iceland. However, the coastal States of the Arctic Ocean, in a true sense, only include the so-called “Arctic Five”, namely, Russia, Canada, Denmark, Norway and the United States. Except for the United States, the other four members of the Arctic Five are States Parties to UNCLOS. Russia, Norway and Denmark have all made their submissions involving the Arctic Ocean to the Commission (Fig. 3). Russia’s submission was disapproved by the Commission in 2002 due to the lack of sufficient scientific evidence in the eyes of the Commission. Nonetheless, in the last 10 years, Russia has carried out large-scale scientific surveys in the Arctic Ocean, and it presented

its revised submission in August 2015 to the Commission, based on a great amount of geological and geophysical evidence obtained from these surveys. Noticeably, Russia claimed larger extended continental shelves in the revised submission than in the original one. The part of Norway’s submission involving the Arctic continental shelf was associated with Svalbard. This submission has been approved by the Commission. Likewise, Denmark made two submissions in respect of the northeastern and northern continental shelves of Greenland. Particularly, in the submission in respect of the northern continental shelf of Greenland, submitted in December 2014, the outer limits of the continental shelf claimed by Denmark

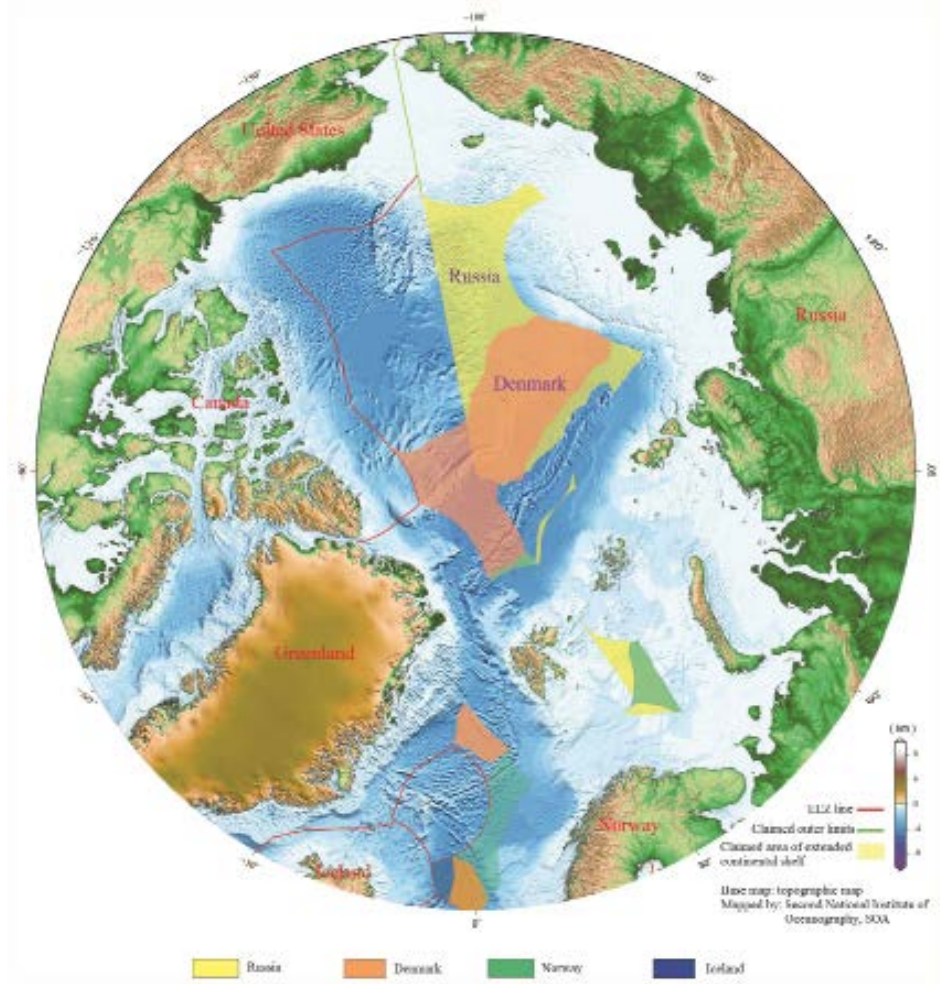


Fig. 3 The Situation Concerning the Delimitation of Extended Continental Shelves in the Arctic Ocean

extended to the 200 nm line of Russia through the North Pole. Additionally, Canada alleges that it has completed the preparation of its submission with respect to the Arctic Ocean and will forward it to the Commission in the near future, when the time is right. Although the United States has not yet ratified or acceded to UNCLOS, it absolutely will not renounce the rights to extend its continental shelves. Under this circumstance, accompanying the filing of submissions by the members of Arctic Five, the scramble for extended continental shelves in the Arctic Ocean would be increasingly fierce.

D. The Ridge Rule Is the Most Complex Issue in the Delineation of Extended Continental Shelves

Sea floor highs are extensively spread across many deep sea basins and continental margins, accounting for more than 33% of the total area of the oceans. As stated above, when defining continental shelf, UNCLOS, after considering all kinds of ridges and their relationship with shelf area, sub-classed these ridges into three types – oceanic ridges of the deep ocean floor, submarine ridges and submarine elevations, and provided for their entitlement to continental shelves. Due to the diversity of ridges and their complex geological features, as well as the lack of a precise and scientific definition for the three terms above or an explicit method to identify them under UNCLOS, the issue of ridges becomes the most complex one in the actual delineation of extended continental shelves. It also gives a coastal State opportunities to maximize its own interests by invoking the ridge rule. In all of the submissions filed, the overwhelming majority of submitting States have treated all kinds of ridges with various geological origins, like oceanic ridges, submarine ridges, rises, seamounts and plateaux, as submarine elevations that are natural components of the continental margin, intending to extend their continental shelves to the maximum extent, even to the area that is the component of the international seabed area. However, this act will jeopardize the common interests of humankind.

Currently, the application of the ridge rule has been widely discussed in academic circles, and preliminary consensus on this issue has been reached. Nonetheless, in practice, how to define the nature of ridges still involves complex issues. When considering submissions, the Commission always takes a case-by-case approach to deal with the parts associated with ridges, and the principles it adopts to identify all kinds of ridges are not completely consistent. The

results of the consideration of submissions by CLCS reveal the following facts: microcontinents broken off from main continental masses, by virtue of their ancient continental crusts, are considered submarine elevations, regardless of their sizes; mid-ocean ridges formed by sea-floor spreading are generally recognized as oceanic ridges of the deep ocean floor, since they are oceanic crusts in nature. However, the identification of complex ridges with various geological origins is much more complicated and controversial, especially the ridges and accreted ridges along the convergent continental margins. In addition, when examining the entitlement to continental shelf for different types of ridges, the Commission also took into account the geological and geomorphological features of ridges and their geological nature, along with available geological and geophysical evidence. With respect to ridges with obvious crustal nature and sufficient geological evidence, the Commission would first consider the geological continuity of the ridges; however, for ridges with complex crustal compositions and origins, the Commission often only chooses to consider the continuity in morphology. On the whole, the Commission has adhered to the basic rules under UNCLOS and been compatible with the original purpose of UNCLOS, to provide different entitlements to continental shelf for different types of ridges. Also, it has conducted strict examinations in each phase of its work so that justice and equity, as well as international stability, are maintained and the interests of international seabed area are protected, which would definitely have far-reaching influence on future maritime delimitation in the world.

VI. Conclusion

The delineation of continental shelves beyond 200 nm means to draw the outer limits of the continental shelves of the coastal States, by invoking the regime of continental shelf under UNCLOS, which involves a convergence of science and law. The complex geomorphology and geological feature of the global continental margin, along with the different historical and legal relations between coastal States, gave rise to the complicated and diverse submissions that have been filed to the CLCS. At present, to delineate the outer limits of its extended continental shelf, is a pretext or great opportunity that a coastal State may use to legally expand its jurisdiction in accordance with UNCLOS. A close look at the submissions made in the last 15 years shows that the majority of coastal States have tried their utmost to expound and extend the meaning of the relevant rules and articles under the

UNCLOS, pursuing to maximize the areas of their continental shelves. Therefore, new scientific and legal issues emerged one after another during the consideration of submissions, particularly concerning the application of the ridge rule.

State practices, with respect to continental shelf delineation and the Commission's consideration of submissions, are essential in addressing scientific and legal issues pertaining to the delineation of extended continental shelf. The basic rules, primary methodology, supporting data and evidence, and other materials used by coastal States in their submissions, together with the main principles adopted, the critical issues reviewed, and the recommendations and reasons given by the Commission, could provide references and a legal basis for future delineation of continental shelf and consideration of submissions. Hence, bigger efforts should be invested in the study of relevant scientific, technical and legal issues, and the latest developments regarding the theories and practice of the continental shelf regime should be learned and summarized in a timely manner, which could be used for reference by China in the delineation of its extended continental shelf, or when China's maritime rights and interests are undermined by other States' claims of continental shelf.

Translator: XIE Hongyue

Editor (English): Hewitt Ashley Nicole