The application of international law principle in practice of the delimitation on continental shelf

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DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

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ABSTRACT

Title of Dissertation:

The Application of International Law Principle in Practice of the Delimitation on Continental Shelf

Degree: MSc

The dissertation is based on the characteristics and development of geology and geography to start the analysis of international conventions such as ‘UNCLOS’ and other legal documents concerning delimitation of the continental shelf in the legal system with combining various theories from both China and international scholars, and will have a systematically study over origins and current legal status of continental shelf, as well as its basic principles of delimitation method in practice. Meanwhile, by illustration the effectiveness brought by international political, diplomatic, economic development to the natural resource exploitation, and discussion of Chinese continental shelf delimitation practice, the article will finally form some rational suggestions as the reference and theoretical support for the settlement of the controversial problem between China and her neighbors.
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CCS Convention on the Continental Shelf


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FIGURE 1 Continental Shelf
INTRODUCTION

Ocean is abundance with natural resources and energies. The development of the science and technology make the exploitation of marine resources and energy even possible. Meanwhile, because of continuous improvement of industrialized society, human turn to the marine resources due to its shortage inland. Therefore, as the resource origin, the continental shelf is undeniably become the key issue in regard of facilitating the exploration and the political and economic effects it may bring.

Since the advent of legal concept over the continental shelf is rather late, its related system is inadequate. Although United Nations Convention on the Law of the Sea (UNCLOS 1982 there in after) provides delimitation standards, its principles and methods of delimitation between States, different interpretations on legal principles and rules about continental shelf have brought disputes over counties. International Court of Justice and other international arbitration institutions have been pushing forward the theory and practice development of continental shelf delimitation in recent years.

China is a coastal state with a long coastline and her surrounding continental shelf is rich with natural resources. In recent years, many disputes appeared between China and her maritime neighbors over this issue. The delimitation of the continental shelf problems facing many challenges because these disputes will not only affects the
relationship between China and her sea neighbors, but will also affect China's
development and her utilization of marine resources as well as the long-term
overall state strategy. Therefore, the research and study of legal issues on the
delimitation of the continental shelf is really necessary and urgent, with the target of
searching for practical methods to solve delimitation disputes in China.

The dissertation is based on the characteristics and development of geology and
geography to starts the analysis of international conventions such as ‘UNCLOS” and
other legal documents concerning delimitation of the continental shelf in the legal
system with combining various theories from both China and international scholars,
and will have a systematically study over origins and current legal status of
continental shelf, as well as its basic principles of delimitation method in practice.
Meanwhile, by illustration the effectiveness brought by international political,
diplomatic, economic development to the natural resource exploitation, and
discussion of Chinese continental shelf delimitation practice, the article will provide
some rational suggestions as the reference and theoretical support for the settlement of
the controversial problem between China and her neighbors.

The detailed objectives are as follows:
To illustrate the present international conventions, regulations and proposals on
continental shelf by analysis of its back-ground and development process; To analyze
the natural prolongation principle in continental shelf by comparing it with the other
key point of “200 nautical miles” in the definition; To introduce the idea of
equidistance principle and its current status compares with equity principle by
analyzing some real cases in recent years; To examine the equity principle by
presenting the process of its development which has finally become the basic
principle of delimitation over continental shelf; To compare China’s delimitation principle over Yellow Sea, East China Sea, and South China Sea, as to illustrate the relevant political and economy issues over these areas and discuss the future trend of relevant national policy; and finally to make proposals and recommendations in carrying out international principles of delimitation so as to help to peacefully resolve the controversial issues.

There are three chapters in the dissertation:

"In chapter I, it studies the definition of continental shelf in the theory of geographic and geology, as well as the related article of the Convention on the Continental Shelf 1958 (CCS 1958) and the United Nations Convection on the Law of the Sea (UNCLOS 1982), and gives the brief introduction over the China’s dispute on the outer continental shelf. The purpose is to provide theoretical reference in both theory and the practice experience so as to solve for me the delimitation of the continental shelf dispute reference to provide the theory and the practice experience"

In Chapter II, it illustrates the concept of the basic principles and methods in the delimitation of the continental shelf, including the principle of natural prolongation principle of equidistance (middle line rules), the principle of equity, the rules of proportional inspection, and through the analysis of real case from the International Court or arbitration institutions over delimitation of continental shelf delimitation, it further analyses the relationship and status between the principles and rules.

The chapter III studies the delimitation principle that will be suitable for China by analyzing the delimitation cases of the Yellow Sea, the East China Sea, and the South China Sea respectively. In each of the part, it explains the situation of the
delimitation problems and combines with the theory mentioned in the first two chapter, it finally concludes the author's reasonable advices in each issue.

The relevant literature will be widely reviewed and analyzed, including appropriate IMO documents and circulars, international conventional such as UNCLOS, government reports and publications, conference and seminar dissertations, articles from contemporary journals, books and remarks, and the information from websites. Besides, the current China national policies, and practical procedures and relevant studies in this regard will be deeply analyzed.

Contacts will be made with the China Maritime Safety Authority, Ministry of Transportation and Ministry of Energy and Ministry of Foreign Affairs, Dalian Maritime University, China Classification Society and collect information on the current situation and future policies. A literature review will be undertaken to examine the legislative position, International & National, and to examine how the court and other countries react and propose from their point of views in real cases.
Chapter I  Continental shelf

1.1 The Geographic Definition of Continental Shelf

1.1.1 Definition

The idea of continental shelf stems from the concept of geology, geography and oceanography, according to a general definition, continental shelf is the edge of a continent that lies under the ocean. Continents are the seven main divisions of land on Earth. The average slope of continental shelf is only 07°, with an average depth of 133 meters, and average width is 75 km. According to statistics, the total area of continental shelves worldwide is about 27.50 million square kilometers, which takes 7.6% of the total area of the oceans. (Figure 1) (Continental shelf)

Figure 1 Continental Shelf
1.1.2 The Geographical Concept of Continental Shelf is The Foundation of Legal Concepts

The historical function of international law of the sea and has been long thought to be committed to how to achieve balance between the exclusive special requirements of coastal states and the inclusive demand of other countries. The track of history seems to be quite familiar, long ago the oceans of the world are claimed as exclusive possession by few countries, but with the world getting more attention to marine interests; it finally succeeded in establishing the idea that the ocean should be unimpeded as humans’ common heritage. (Boggs, 1951) So as to knowledge, the coastal state has never given up their exclusive and comprehensive governance rights over coast areas adjacent to coast. With the interaction of several centuries, especially those special request and the international community ‘s accept or reject, a set of principles and decision making process of developed gradually reached compromise between the coastal and non-coastal States, effectively adjust the area which accounts for 2/3 of the earth’s ocean. (Mouton, 1954)

The ancient Greeks and Romans used to take the sea as "derelict", but the ancient Rome philosopher Gaius and Justinian was put forward the theory of "common property". As early as ninth Century, the Byzantine put forward jurisdiction over fisheries and sea salt, and many countries according to their own maritime strength put forward their ideas, in 1493-1494, Spain and Portugal, according to Pope Alexander VI’s instructions, carve up the world ocean. Then as the maritime power rise of Britain and Holland, their idea has constantly pounding the conservative closed ocean view. In 1609 the Grotius published the "freedom of the seas”, in 1635 John Selton published sea enclosed theory, on the basis, many countries have
accepted the equivalent of 3 nm is a common boundary coastal state jurisdiction, thus forming a nearly two hundred years of relative stability. (Mounton, 1954)

From 1945 to 1982, it is an important stage for the development of international law regarding the continental President Truman issued a proclamation, in 1945 which illustrating rights to explore and exploit the oil and gas resources of the continental shelf outside of the 3 nm territorial sea. In 1958, international conventions were concluded in Geneva on the territorial sea, contiguous zone and continental shelf. The concept of a fishery conservation zone was born in another Truman Proclamation but Congress did not enact laws regarding a 200 nm fishery conservation zone until 1976. (Johnathon Gharney, 1994) This evolved into a zone whereby a coastal nation had exclusive control over all economic exploration and exploitation of the natural resources off its coast. By 1982, the custom of asserting a 12 nm territorial sea, 24 nm contiguous zones, and 200 nm EEZ was codified in the United Nations Convention on the Law of the Sea (UNCLOS, 1982).

1.2 Definition of Continental Shelf from CCS 1958 (Convention on Continental Shelf 1958)

The legal concept of continental shelf is different with the same name under geologists' concept of the natural phenomenon. Although the concept of law is derived from natural phenomena, it has its own development process. The definition term of article 1 of the "Convention on the continental shelf" 1958, as it has considered the International Law Commission's proposal, that geologists have different opinions over continental shelf, and at the time, it is hard to tell which is
right and which is wrong, so just to give up to the point of geology as the law basis. In order to avoid conflict, "Convention on the continental shelf" 1958 at the same time took two criteria: the depth of the sea and the possibility of exploration. Thus it can be seen that although the concept of continental shelf in international law of the Sea originates from the natural geography, but the two concepts are different, concept of the continental shelf in law covers wider range than geography concept, as it includes seabed area.

The definition of Continental Shelf in " Convention on Continental Shelf" 1958 includes article 1: (a) to the seabed and subsoil of the submarine areas adjacent to the coast but outside the area of the territorial sea, to a depth of 200 meters or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the natural resources of the said areas; (b) to the seabed and subsoil of similar submarine areas adjacent to the coasts of islands. Article 6 of CCS 1958 regulates about the delimitation of continental shelf: 1. where the same continental shelf is adjacent to the territories of two or more States whose coasts are opposite each other, the boundary of the continental shelf appertaining to such States shall be determined by agreement between them. In the absence of agreement, and unless another boundary line is justified by special circumstances, the boundary is the median line, every point of which is equidistant from the nearest points of the baselines from which the breadth of the territorial sea of each State is measured.

2. Where the same continental shelf is adjacent to the territories of two adjacent States, the boundary of the continental shelf shall be determined by agreement between them. In the absence of agreement, and unless another boundary line is justified by special circumstances, the boundary shall be determined by application of the principle of equidistance from the nearest points of the baselines from which the breadth of the territorial sea of each State is measured.

3. In delimiting the boundaries of the continental shelf, any lines which are drawn in accordance with the principles set out in paragraphs 1 and 2 of this article
should be defined with reference to charts and geographical features as they exist at a particular date, and reference should be made to fixed permanent identifiable points on the land."

'The CCS 1958 sets out rules on the notion, limits and regime of the continental shelf. The basic concept of the sovereign right of the coastal State as regards resources of an area of the seabed beyond the external limit of the territorial sea had emerged in State practice only since 1945”. (Akehurst, 1977)

Objectively speaking, the CCS 1958 is consistent with the global ocean technology and the actual situation of the development of submarine interests, and has cooling down many countries on the political marine disputes over a long period of time. The secret of success lies in the convention, not only established a principle of continental shelf which gains wide acceptance , at the same time it adopted flexible boundary words, such as fuzzy words as "contiguous" and "development" , which has greatly reduced difficulties in setting up a legal system for the sea area outside the jurisdiction of the nation. However, because of this, the Convention is also doomed to be unable to end up the dispute of the ocean (Buzanpu, 1981).

1.3 Definition of Continental Shelf in UNCLOS 1982

The Article 76 of UNCLOS could be simply interpreted that continental shelf includes all the natural coastal land territory; its coverage shall extends to the continental margin. If measuring from the baseline, in case the width of continental shelf is less than 200 nautical miles (hereinafter refer to as nm), usually it can be extended to 200 nm, if the shelf over 350 miles, the continental shelf can be expanded to 350 nm, and also, according to the provisions of exclusive economic zone (hereinafter refer to as EEZ), “The exclusive economic zone shall not extend beyond 200 nautical miles from the baseline which the breath of the territorial sea is
measured” (UNCLOS 1982), so there might be an overlap in scope of space for continental shelf and EEZ.

The definition of continental shelf which states in UNCLOS 76 is based on science and technology, distance and concept as well as the geological and geomorphologic features. It abandoned the standard of depth of the 1958 "Convention on the continental shelf", and establish the concept of continental shelf with natural prolongation as its core, and adopts a method of continental shelf delimitation which comprehensively comprises distance, firstly, it puts forward the overall principle to determine the outer limits of the continental shelf, which is based on the concept of geology and geography as a fundamental legal concepts, and at the same time it make a balance for countries with narrow continental shelf or no continental shelf, by confirming that such continental shelf can be extended to 200 nm, which seems to imply a question, i.e. when a state’s continental shelf which is confirmed based on the natural prolongation of its land overlap with the opposite coast states, continental shelf which could be extended to 200nm, then who will be priority on rights issues. (Johnathon Gharney, 1994)

1.3.1 Comparison of CCS 1958 and UNCLOS 1982 over continental shelf

As it has been mentioned, the definition of continental shelf in CCS 1958 focus on the depth of 200 meters, while in UNCLOS 1982 the definition clarifies further in article 76 and article 83.

The content of Paragraph, 4, 5, 6 of article 76 is to determine a series of standard of continental shelf boundary, all these standards are the related to natural and geographical factors, such as sea bed and subsoil character, ocean ridge, the
thickness of sedimentary rocks, continental slope, etc., which indicates the continental shelf in law is based on the concept of geology and geography. Regard of the legal system of the continental shelf, the provisions of the Convention has its revolutionary aspect, also has defects with it. In the draft process of the convention, it might have the awareness of possible global “ocean land revolution", especially nowadays, the struggles among states over the issue of island, reef, and continental shelf have been transformed from hidden to public. Because of this, the Convention of delimitation has compromised diverse principles, methods, & standard, and the provisions which includes the delimitation of the continental shelf, are vague and general, which set the scene for today’s enormous disputes over coastal states.

In article 83, which regulates 'Delimitation of the continental shelf between States with opposite or adjacent coasts' for the first time have clarified that agreement will be the very priority in such case. In paragraph 2 of

1.3.2 Comparison and Correlations between Continental Shelf and EEZ

Although there is an overlap in the space, whereas the continental shelf and EEZ are two distinct legal system. “The exclusive economic zone shall not extent beyond 200 nautical miles from the baseline which the breath of the territorial sea is measured”, ‘When a coastal state's natural prolongation of continental shelf is less than 200 nm, it should extend to 200 nautical miles’. In such case, the outer edge of the continental shelf and the EEZ is a coincidence. When the continental shelf of a coastal state’s a natural prolongation is beyond 200 nm, the outer edge is different. Coastal states can only claim 200 nm for the EEZ, while its outer edge could be out to 350 miles, or even farther. (UNCLOS , 1982)
In modern international law, the two systems of continental shelf and EEZ are interrelated. Although there are continental shelves without EEZ, there can’t be an EEZ without continental shelf. This does not mean that the concept of continental shelf has been weakened by that of EEZ, but it does mean than more important meanings should to be given to the common element of the two concepts of EEZ and continental shelf. The continental shelf and EEZ are both the resource-related sea areas under the jurisdiction of state.

The coastal states’ rights that exercise over the EEZ and the continental shelf are basically in common. Whereas the Convention has specifically illustrates that the seabed and subsoil of the EEZ rights should be exercised according to the related provisions of the continental shelf. Countries with coasts of adjacent or opposite, need to delimitate over EEZ and continental shelf. The delimitation of EEZ and the continental shelf between these countries could be done either by one single boundary, or it can also be done separately.

Although there were some doubts in previous times that whether the emergence EEZ will make the concept of continental shelf unnecessary, obviously the EEZ does not absorb continental shelf, because in fact the 200 nm sea area from the baseline of the coastal state, both continental shelf and EEZ are on different base of coast states’ right, so the two concept can coexist. (Akehurst, 1977)
1.4 Outer Continental Shelf

1.4.1 Background of Dispute Issues over Outer Continental Shelf

According to relevant data, the area of continental shelf and exclusive economic zone, accounts for about 30% of the total area of the sea. In 2000, the production of marine oil was 1.23 billion tons, and 650 billion cubic meters of natural gas. The deep-water oil and gas field is mostly distributed on continental shelf area that beyond 200 nm and natural gas hydrate resources at present are found mainly in the continental shelf beyond 200 nm regions. The outer continental shelf Sea Mountains also contains rich cobalt, manganese, nickel, copper, and cobalt nodule resources of huge economic value and polymetallic nodule deposit. Therefore, delimitation of 200 miles beyond the continental shelf provides hitherto unknown opportunities for coastal States to share this deep-sea resource so as to promote the development of the national economy, which directly associated with the coastal economic interests. At present, delimitation issue of the continental shelf beyond 200 miles has become a new burning question in the field of law of the sea. (Gerald Blake, 1987)

1.4.2 Definition of Outer Continental Shelf

According to paragraph 1 and 5 of Article 76

It could be simply interpreted that continental shelf includes all the natural coastal land territory; its coverage shall extends to the continental margin. If measuring from the baseline, in case the width of continental shelf is less than 200 nautical miles (hereinafter refer to as nm), usually it can be extended to 200 nm, if the shelf over 350 miles, the continental shelf can be expanded to 350 nm. (UNCLOS)
The UNCLOS 1982 does not explicitly put forward the concept of the outer continental shelf, just a "continental shelf" beyond 200 nm. The Convention referred to the concept of outer continental shelf from 200 to 350 nautical miles, and provisions of the related economic rights. But the Convention does specify delimitation of the outer continental shelf explicitly, thus to create disputes over this issue. The outer continental shelf is the continental shelf area of those coastal states with wide continental shelf. Coastal States enjoy sovereign rights over the sea-bed and the subsoil beyond 200 nautical miles. The broad continental shelf could extend beyond 200 nautical miles, can also be extended for not more than 350 nautical miles, or should not exceed 100 nautical miles from the 2500 meter isobaths. (Galo Carrera, 1999)

1.4.3 Current Situation over Dispute Issues of Continental Shelf

In order to control the unlimited expansion of coastal States, whether a country has outer continental shelf and the size of it should be under the jurisdiction of the Commission on the Limits of the continental shelf, according to article 76, paragraph 8, “information on the limits of the continental shelf beyond 200 nautical miles from the baselines from which the breath of the territorial sea is measured shall be submitted by the coastal state to the Commission on the limits of the continental shelf set up under Annex II on the basis of equitable geographical representation. All these submissions shall be done with the scientific evidence before May 13, 2009, and will be reviewed by the committee. For those states with difficulties in such cases, primary information is allowed before the formal submission cases are ready. (UNCLOS, 1982)

According to 1, article 77 (UNCLOS, 1982): the coastal state exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its
natural resources. In annex II of the convention, it specifies function of the Commission on the Limits of the continental shelf.

According to the authoritative statistics, there are more than 150 coastal states in the world, and around 70 states entitled to submit the case of outer limits of the continental shelf. All the main marine countries in the world have the problem of outer continental shelf. By the deadline of May 13, 2009, 50 cases of outer continental shelf delimitation were individually or jointly submitted, and 39 preliminary information were individually or jointly submitted, including the Brazil case in 2004, and France, Ireland, Spain, the UK and France jointly submitted case in 2005, Norway case in 2006, Mexico case in 2007, Indonesia, Japan, Mauritius and the Seychelles case in 2008. Vietnam and Malaysia submitted a joint submission 2009. Burma, Philippines and China have submissions respectively. It means almost all of the states have submitted. According to the expert Mr. Haryhalen, Larsen from secretary department of the Commission on the Limits of the Continental Shelf, there are many overlaps among cases from those states and just minority cases where overlap does not exist. (United States Department of the Interior, 2012)

1.4.4 News Update

China has made a presentation on its Partial Submission Concerning the Outer Limits of the Continental Shelf beyond 200 nautical miles in the East China Sea to the Commission on the Limits of the Continental Shelf (CLCS) under the United Nations Convention on the Law of the Sea (UNCLOS 1982) (China to submit outer limits of continental shelf in East China Sea to UN, 2012)
China said the natural prolongation of the continental shelf of China in the East China Sea extends to the Okinawa Trough and beyond 200 nautical miles from the baseline from which the breadth of the territorial sea of China is measured.

According to the UNCLOS and its relevant provisions, if the continental shelf of a coastal state extends beyond 200 nautical miles from the baselines from which the width of the territorial sea is measured, information on the limits of the continental shelf beyond 200 nautical miles shall be submitted by the coastal state to the CLCS under the UNCLOS.

China presented its Partial Submission Concerning the Outer Limits of the Continental Shelf beyond 200 nautical miles in the East China Sea to the CLCS on Dec. 14, 2012. (Yuanyuan, 2012)
Chapter II The Basic Principles and Methods of Delimitation of Continental Shelf

The UNCLOS 1982 and 'the convention on continental shelf 1958, as well as a large number of boundary agreement and the arbitration decision, especially all the important legal files of ICJ, reflect the legal principles of delimitation of continental shelf, but demarcation of the Continental shelf is between adjacent or opposite coast states did not reach a unifying principle. (Charney, 1984)In the delimitation of the continental shelf, roughly following delimitation principles or methods are proposed: principle of natural prolongation principle of equity, equal distance (middle line) method, proportion method and Principle of negotiation.

2.1 Principle of Natural Prolongation

2.1.1 Concept of Principle of Natural Prolongation

The principle of natural prolongation, is one of the principle of delimitation of continental shelf, paragraph 1, article 76 of the 1982 regulates that" The continental shelf of a coastal State comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or 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. Visible, natural prolongation is basic report for the national sovereign rights over the continental

The article mainly includes 3 aspects: (1) reflects the legal concept of the continental shelf, continental shelf is coastal land territory under the sea of natural extension; (2) is the only basis for the coastal state claim rights over the continental shelf; (3) each parties could possibly to get all the parts of the coastal land with natural territorial prolongation, without infringing another a country territorial 'natural prolongation. However, due to the principle of natural prolongation focus too much on decisive role of natural prolongation of the coastal mainland under the sea, which also limits the scope of its application

2.1.2 Attitude evolution of ICJ on the principle of natural prolongation

Some legal rules explained by ICJ without any controversy in the 1969 North Sea continental shelf case, has become the authoritative interpretation of the principle of natural prolongation. First of all, the most important part of all these continental shelf of the rules is article 1 of "Convention on the continental shelf 1958": For the purpose of these articles, the term “continental shelf” is used as referring (a) to the seabed and subsoil of the submarine areas adjacent to the coast but outside the area of the territorial sea, to a depth of 200metres or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the natural resources of the said areas; (b) to the seabed and subsoil of similar submarine areas adjacent to the coasts of islands. From the opinion of the ICJ this right is the coastal state's inherent right, but justice and equity are still different. In addition, in
the case of the ICJ took the rule of "the land to dominate the ocean" as the general rule and believes that since the land territory is the legal sources for each country to exercise sovereign rights, the country can also exercise the rights on the land territory which extends to the sea area, as long as the fact shows that the region has characteristics of such extension.

ICJ has confirmed the principle of natural prolongation in 1969 after the North Sea continental shelf case in the delimitation of the continental shelf, and focus on the coastal geographical features, so no wonder of all countries in the after cases have focused in the earth science and technology data research in regard of its continental shelf. (ICJ, 1969)

The 1977 Anglo/French (Case concerning the Delimitation of the Continental Shelf between the United Kingdom of Great Britain and Northern Ireland, and the French Republic,, 1979) (hereinafter Anglo-French continental shelf delimitation case, the arbitral tribunal questioned the natural extension rules, and believed that the delimitation problems are aroused when two or more than two national territory are adjacent to a single shelf, it can be taken as the geographical natural extension of each relevant countries, so to take the principle of natural prolongation as a primary validity principle is not convincing.

The ICJ in the case of Libya/ Tunisia case (Continental Shelf(Tunisia/Libyan ArabJamahiriya), 1982) also think that, it is the court decision in the 1969 case, the "natural prolongation" has become one of the popular word in terms of international law of the sea. However, it must be remembered that in that case, geological and
other natural environment were different with this case. The whole area of North Sea is a continental shelf composed of water with depth of less than 200 meters. Secondly, it should also be remembered that, as the courts expressed, the practice of a country is also important. Therefore, the concept of a natural prolongation must be placed as concept of customary law and state practice of the past and for the moment. Although the word of "natural prolongation" can be taken as a novel in 1969, but the content that have given to the word has become part of customary law as well as the basis of the coastal state 's sovereign rights. ICJ will take the concept to play a certain role in the delimitation of continental shelf, as long as the geological conditions apply. However, although the concept of natural prolongation confirm the coastal states' territory sovereignty of all natural range in a broad sense, its exact range itself isn't sufficient or even cannot be properly determining a country's rights with respect to a neighboring rights. In other words, the natural extension can only determine the scope of the rights of coastal states in a broad sense, when deciding a country and its neighboring countries rights of the exact limit, it may not be sufficient, even may not be appropriate. In delimitation of continental shelf, the principle of equity and principle of natural prolongation cannot be mentioned in the same breath. (Prescott and C. Schofield, 2005)

The large number of cases and their delimitation practice development in the late 70's of last century to a large extent have indeed weaken the importance and relevance of natural prolongation principle in the delimitation of the continental shelf. In 1982 Libya / Tunisia's case, the ICJ decides that distance in some cases is the right basis of the coastal state, and get rid of the idea that the natural extension is the only basis. In this case, the ICJ formally replace the principle of natural prolongation with the standard of distance as decisive basis the of the continental shelf rights within
200 nautical miles, and stated that the claim of within 200 miles, could only base on the distance as measured from the coastal country coastline in the delimitation, and irrelevant with regional geological or geomorphological features of the delimitation area. In the case, Libya claimed that the continental shelf of a submarine fault is natural boundaries between the two countries, but ICJ stated that for area within 200 nautical miles offshore, rights should be completely depends on the distance of the country, the regional geological and geophysical characteristics played no substantive role. (Johnathon Gharney, 1994)

Although the status of principle of natural prolongation in continental shelf delimitation is weakened, it is still an important principle in the continental shelf delimitation. First of all, the concept of the continental shelf confirms that the right basis is coastal states' the natural extension of its coherent territory, which is an inherent right without the help of any legal proceedings or legal rights. In other words, the principle of natural prolongation is the basis on which the legal system of the continental shelf built up on.

Finally, in regard of continental shelf within the 200 nm, even the natural prolongation principle has gradually been replaced by distance standard, but ICJ has never made the conclusion of completely negate the principle of natural prolongation. On the contrary, in Libya / Malta case ICJ even emphasized that, although within 200 nautical miles of the continental shelf shall be borne by the distance criterion to decide, but this does not mean that the concept of natural prolongation is replaced by concept of distance, it simply means that in the continental margin within 200 nautical miles from the coast baseline, the adoption of natural prolongation is limited.
The principle of natural prolongation and the concept of distance are the two important factors in legal concept of continental shelf; the relationship between the two factors is not opposite but complementary. (Faraj Abdullah Ahnish, 1993)

2.2 The Principle of Equidistance

2.2.1 The Essence of Is a Specific Method of Demarcation

The "Equidistance" concept was originated in article 6 of "Convention on the continental shelf"1958, i.e. 1. Where the same continental shelf is adjacent to the territories of two or more States whose coasts are opposite each other, the boundary of the continental shelf appertaining to such States shall be determined by agreement between them. In the absence of agreement, and unless another boundary line is justified by special circumstances, the boundary is the median line, every point of which is equidistant from the nearest points of the baselines from which the breadth of the territorial sea of each State is measured. The Equidistance principle does not simply emphasize the midline, but there are three layers of relationship, one is the agreement, the second is a special circumstances, the third is the distance. In other words, the premise is only if there are no protocol and special circumstances, distance can be directly applicable as method of demarcation on the other hand, the function of social circumstance is to ensure the equity of delimitation by that the equidistance method, which shall comply with the principle of equity. Regarding the customary law in the continental shelf delimitation, what ICJ and arbitration institutions emphasized repeatedly is that there is no single mandatory demarcation method. Distance is not a mandatory method, it does not have any
superiority, and whether this method is adoptable is dependent upon if could help to achieve the equitable delimitation.

2.2.2 Equidistance is Just Method, not A Principle

Equidistance principle is not a principle of law, at least just a simple method and way of easy operation, because there is no single method of mandatory for demarcation in international law, in the particular case what delimitation method should apply is determined by the relevant circumstances. There is no need for ICJ to test effect of the equidistance method in each step of delimitation, because the legal principle of equidistance is not mandatory, and it does not have the priority. Whether the other specific method or equidistance method can realize the purpose of justice in continental shelf delimitation, often depend on geography and relevant information of each particular case (Charney, 1984)

2.2.3 The Equidistance Principle and the Undivided the Special Circumstances

In 1953, the International Law Commission absorbed "special circumstances" as draft articles of the convention on the delimitation of the continental shelf of, but did not give an specific explanation for what is meant by "special circumstances", and just referred to the three situations in the review of the appendix: coast of special shape; existing islands and the existing navigable waterways. And countries have explained "special circumstances" in the delimitation of the continental shelf from their vantage such as the right to fish as well as marine resources exploitation right.
1969 the North Sea continental shelf case, Denmark and Holland as the two controversial states parties request the ICJ to deny the "depression coast" as "special circumstances" regulated by article 6 of the "Convention on the continental shelf"1958, and directly take the equidistance line as the demarcation line. While the other parties of Germany states that such delimitation will lead to unfair. The ICJ believes that the article 6 of "Convention on the continental shelf"1958 is not applicable to this case, even equidistance principle in this clause has denied also, and the principle is not accept as general rules of customary law. In this case, the ICJ in a large extent has created the principle of equity by itself.

2.2.4 Relationship between the Principle of Equidistance and Natural Prolongation

Due to legal and practical reasons, the distance criterion is applied to the continental shelf and exclusive economic zone, but this does not mean it has replaced the principle of natural prolongation, it means that where the continental margin does not extend to 200 nautical miles from the coast, no matter how natural prolongation has evolved from original natural state into a legal concept of more and more complex in the entire history of the development, part of its content is determined by the coast, and with no relation to the natural characteristics of the seabed and subsoil. Thus, the principle of natural prolongation and the principle of equidistance are two concepts of not contradictory but complementary, both of which are essential legal concepts of continental shelf.
2.2.5 ICJ ’S Attitude toward The Principle of Equidistance

It has also been mentioned in Anglo/French delimitation of the continental shelf case that although the equidistance method is refused to be recognized a rule of customary law, while at the same time, its value as the demarcation method has never been underestimated. Real practice of s State shows that, up to now, the equidistance method is the most suitable method of delimitation of the continental shelf, which is not less common but the reality. However, the court also make a clear and sharp distinction between opposite or adjacent geographical situation of the national coasts .The most difficulties always come from the adjacent case from international law commission , while less disputes come from opposite coastal states even if use the same method of middle line. (Case concerning the Delimitation of the Continental Shelf between the United Kingdom of Great Britain and Northern Ireland, and the French Republic,, 1979)

In the Libya / Malta case, the ICJ believes that any other demarcation methods could not combine convenience of practical with certainty of application as the equidistance method does. (Continental Shelf(Tunisia/Libyan ArabJamahiriya), 1982)

In 1969 North Sea continental shelf case, ICJ has stated bluntly, the principle of equidistance itself contains equity. Even if in some cases the equidistance method will produce some abnormal or unreasonable results, such result can be avoided by special circumstances. (Rear Admiral D. C. Kapoor I, N. (Reted.) & Captain Adam J. Kerr, 1986)
At the same time, the ICJ refused to give equal distance method of demarcation of any special status. In the court's view, even as the initial or temporary steps in the delimitation of the continental shelf, the court cannot accept the equidistance method as suitable method that must be taken, or a method should be used to test the effect of delimitation from the beginning of delimitation.

Therefore, the equidistance method is a simple and effective methodology that can truly solve the delimitation of the continental shelf delimitation problem, and it can also achieve a rather fair demarcation results by implement certain conditions. But whatever the delimitation of the continental shelf method finally be taken, whether the equidistance method or other methods, its target is to properly reflect the specific conditions of geography and other special circumstances in each case of boundary delimitation, is fully to reflect the principle of equity in the continental shelf delimitation, so the principle of equidistance cannot be separated from the guidance of principle of equity, and the essence of equity is to confirm the natural characteristics of the continental shelf in the first place, and ensure that the characteristics and requirements to be implemented in the continental shelf delimitation practice. Any demarcation that ignores the geographical features of the continental shelf and the simply pursuit of quantity equally, is not really fair demarcation. In addition, the equidistance principle has never been evaluated as the principle of delimitation in the course of the development of international law, it only affiliate to the principle of equity, and is a specific rule or method of under principle of equity in the delimitation. Although in practice, the principle of equidistance/special circumstance is being used frequently, it itself does not mean
legal mandatory without any special legal status. The principle of equidistance cannot be put on a par with the principle of equity neither in regard of position and effect. (Johnathon Gharney, 1994)

2.3 The Principle of Equity

2.3.1 Origins of The Principle of equity

A widely recognized principle of delimitation the continental shelf in international scope, also known as a principle of international law applicable to the delimitation of the continental shelf, officially stated in paragraph 1 of article 83 of UNCLOS 1982: *The delimitation of the continental shelf between States with opposite or adjacent coasts shall be effected by agreement on the basis of international law, as referred to in Article 38 of the Statute of the International Court of Justice, in order to achieve an equitable solution.*

The principle of equity refers to not only the demarcation methods of fair must be taken, the more important is to achieve an equitable demarcation result, thus to resolve the demarcation problem with a fair solution.

2.3.2 Attitude of ICJ and Tribunal toward the Principle of Equity

In 1969, Sweden and Norway submit to its permanent court of arbitration the Griess Bataan delimitation case may be the first time in maritime delimitation all the methods or principle be applied only in accordance with the principle of equity, such as the principle of natural prolongation, equidistance principle and proportion method, that could concretely apply to the equitable principle in this case. In this
case, the court with particular emphasis on real facts, put forward two "The real environment "factors, one is the court noted Griess Bataan sea area is enriched with lobster, and the actual number of Swedish fishermen in the region is far higher than that of in Norway; secondly, the practical activities of Sweden in this region are far more than that of Norway, such as in the setting of lighthouse as well as ocean exploration etc. .On the basis of the environmental fact, the Court acknowledged that the Swedish special historic rights over Griess Bataan area. Finally, the court based on coastal geographical shape, and delineate a coast line perpendicular to the general trend of the coast line as the boundary line for demarcation in the disputed area, and states that the area of Griess Bataan that belongs to Sweden. Although in this case the court did not directly explain the principle of equity, but the court has taken the consideration all relevant factors to test the fairness and reasonable of demarcation results, and it has become an important case in the legal system of maritime delimitation. (Faraj Abdullah Ahnish, 1993)

In 1969 North Sea continental shelf case, the ICJ thought of the principle of equity, and grant the principle with lofty position "but the court did not to make a clear explanation, just suggest that countries should concern in accordance with the principle of equity and consider all relevant circumstances through agreement: general structure of the coast, geological structure of the continental shelf, results of the delimitation of the continental shelf area should belong to the scope of the coastal state, and in accordance with the general direction of the coast shoreline a reasonable proportion of the length of coastline. The North Sea continental shelf case is the first case resolved through international judicial procedures for the delimitation of the continental shelf. In this case, the ICJ proposed the concept of considering all relevant circumstances according to the principle of equity to resolved disputes by
agreement, has gained multiple support and recognition in the after legal later judicial practice. It can be said that the principle of equity has achieved significant status in the delimitation of the continental shelf as the forming customary rule. The decision of ICJ, has far-reaching impact on the delimitation of the continental shelf for the after practice, made important contribution for the development of maritime delimitation decision in law. Since that, relevant countries have signed more than 20 delimitation treaty, and "these treaties most clear applicable or are not explicitly stated but actually apply the principle of equity" (Malcolm D. Evans, 1989)

Since the principle of equity as the basic principle of delimitation of continental shelf has been established after North Sea continental shelf case, some international practice such as the continental shelf, Tunisia/Libya continental shelf case, Libya/Malta continental shelf case, like the case of North Sea, the ICJ or international arbitral tribunal unanimously stressed the principle of equity is of universal guidance for the delimitation of the continental shelf

The 1978 Anglo/French continental shelf arbitration case is another important case after North Sea case ICJ ‘s believed that, the principle of equity with considering all relevant circumstances a rule of customary law in the delimitation of the continental shelf. 1958 ' Convention on the continental shelf ' has established a principle which combines the principle of equidistance with the special circumstances. And such rule as the same target as principle of equity in delimitation of continental shelf. Another important point from ICJ was that the principle of equidistance should be applied under special circumstances, when the circumstances have been proved as special; the equidistance method should under adjustment of
principle of equity, in order to correct the unfair results. The Court pointed out specifically that, regardless of the equidistance method or any other method, the aim was to properly reflect the specific conditions of geography and other relevant information, in order to achieve the purpose of "equitable delimitation".

2.3.3 Special Circumstances in Applying the Principle of Equity

The difficulty lies in the delimitation of the continental shelf is that each specific delimitation of the continental shelf case have special circumstances, and from the perspective of international law cannot cover all the geographical factors, so to create a demarcation standard that could be applicable everywhere is unrealistic. In in the activity of the delimitation of the continental shelf the most important is how to examine the special circumstances of each case. Although each maritime delimitation case is different from another, but only by clearly reflect the principle of equity, can make the appropriate measure for these conditions, and in accordance with the general requirements of international law, to achieve the purpose of justice. The situation in addition to geological and geomorphological factors, including presence and interests of other countries in the region, when the existing and future delimitation issues with other party states, location of land boundary, relevant states' behavior, historic rights and economic factors. (Malcolm D. Evans, 1989)

Coast geographical feature is closely related to the delimitation of the continental shelf. Processing of different case depending on the specific circumstances, and to give a set of rule of delimitation of specific or guidance is very difficult. However,
from the previous international court case some useful enlightenment can still be found, one of the most useful enlightenment is ICJ has returned to the track of the cornerstone "fair results", as long as the features can help to get the fair results of delimitation, especially the geographical features of demarcation region, will all be considered by the ICJ, such as geography the coast, length of coastline and general direction of the coastline. The geographical factors have become the most important and the most fundamental factors in the delimitation of the continental shelf. ICJ and other international arbitration institutions greatly depend on geographical factors of demarcated area to get a fair line.

In the Romania / Ukraine case, The Court, in considering the issue in dispute, would recall two principles underpinning its jurisprudence on this issue: first, that the “land dominates the sea” in such a way that coastal projections in the seaward direction generate maritime claims (North Sea Continental Shelf (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands), Judgment, I.C.J. Reports 1969, p. 51, para. 96); second, that the coast, in order to be considered as relevant for the purpose of the delimitation, must generate projections which overlap with projections from the coast of the other party. Consequently “the submarine extension of any part of the coast of one Party which, because of its geographic situation, cannot overlap with the extension of the coast of the other, is to be excluded from further consideration by the Court” (Continental Shelf (Tunisia/Libyan Arab Jamahiriya), Judgment, I.C.J. Reports 1982, p. 61, para. 75). The Court therefore cannot accept Ukraine’s contention that the coasts of Karkinits’ka Gulf form part of the relevant coast. The coasts of this gulf face each other and their submarine extension cannot overlap with the extensions of Romania’s coast. The coasts of Karkinits’ka Gulf do not project in the area to be delimited.
Therefore, these coasts are excluded from further consideration by the Court. The coastline of Yahorlyts’ka Gulf and Dnieper Firth is to be excluded for the same reason.

2.3.3.1 Geological and Geomorphological Factors


2.3.3.2 The Islands and the Low Tide Elevations

The island's presence has a significant impact on decision of coast general shape and calculation of the length of coastline. The coastal islands means vitally to confirm the country's territorial sea baseline determination, and will further affect the range area of coastal waters as well as continental shelf and exclusive economic zone.
Therefore, in the practice of continental shelf delimitation for adjacent or opposite countries, the relevant islands and reefs' location and status are decisive factors in the demarcation. Not only in the establishment of the provisional equidistance line needs to consider the position and status of islands and reefs, after delineating provisional equidistance line, according to the location of the islands and reefs, coast landform and other relevant circumstances will decide whether to adjust the provisional equidistance line.

Effect of islands in continental shelf delimitation is affected by many factors, such as geographical location, area, population, politics and economy, so in the bilateral or multilateral delimitation treaties of the continental shelf, as well as in the continental shelf delimitation cases by ICJ, it always shows different results. The closer the distance from the islands to their home coast; the longer the distance from the island to the equidistance line, the lesser the island's influence to the delimitation, so as requirements are lower for factor of area and population, the greater the probability of obtaining full effect. In international law the so-called central islands, means island located within or near the equidistant line 12 miles nm, and in international delimitation of the continental shelf, such central islands were classified into three categories, namely, give full effect, part effect and zero effect.

2.3.3.3. Resource Protection and Equal Utilization
In the North Sea continental shelf case, the ICJ pointed out those natural resources that the known or easy to identify are factors that should be considered in the delimitation negotiations.

in the case of the Gulf of Maine (Delimitation of the Maritime Boundary in the Gulf of Maine Area (Can. v. U. S.), 1984)(Hereinafter Gulf of Maine) the chamber considered that if sentence complete George beach completely into one party country may have a significant impact on the economy or the other country, so the court deuced the disputes in the delimitation result: the north of George beach to Canada, South to the United States, and leave adequate leeway on either side of the exploration of mineral resources of the subsoil.

In 1993 the Greenland / Jan Mayen case, (Johnathon Gharney, 1994) ICJ for the first time take the fair use of resources as relevant factors. The Tunisia / Libya case shows that, oil wells of the delimitation region, according to the facts may be a factor to be considered with all other factors involved to achieve a fair result.

2.3.3.4. Other Factors

A.’s Previous Activity

Each particular case is monotypic and is different with other cases in the final analysis, and the most suitable standards and best fit method for the spirit of the law or other various methods of integrated can only be determined from the particularity
of each particular case. In the continental shelf delimitation, it will always involve the previous behavior of party counties, especially the declaration agreement or memorandum, etc.

b. The Political Factors

State practice shows that, any international maritime boundary delimitation will involve three aspects of politics, law and technology of the party country. In some cases it seems the political factor has become one of the relevant circumstances in the delimitation of the continental shelf. As in the continental shelf case of Anglo/French, the arbitration tribunal has reduced the effect of island in the channel is because the island is not a sovereign state. As part of a British territory, the island cannot obtain the continental shelf rights such as France. In the Libya / Malta case, ICJ also believes that if Malta is not a sovereign state, so the line will be extended to the north and in favour of Libya.

c. Historic Rights -- Position Uncertainty

Historic Bay concept came from 1910 "North Atlantic coast fisheries arbitration", historic Bay In international law, is a bay over which there has been an exclusive assertion of sovereignty by a coastal nation, and an acquiescence by foreign (i.e., other) governments. The geographic requirements for a juridical bay, as set out in Article 7 of the 1958 Convention and LOSC Article 10.
According to a 1962 United Nations Commission "international historic waters, legal system including of" historic Bay", to obtain a historic waters rights is a process of the original legal owners are substituted by coastal states, three conditions must be satisfied: (1) the state claims for the historic bay exercise its rights over the waters; (2) the rights being continuous running over a period of time; (3) the exercised right have acquiescence of other countries. The so-called acquiescence is different from recognition, as recognition is either express or implied action, while acquiescence is usually simple no action, The concept of historic rights or historic waters and the concept of the continental shelf is dominated by the laws and regulations of different in customary international law. The first concept system take obtain or occupation as the basis, and second kinds of concept system is "according to the facts and the 'rights exist from beginning ' as the basis, which may sometimes be partially or entirely accidental coincidence. But in the delimitation of the continental shelf case, historic rights never seem to be confirmed as special circumstances to be considered.

d. The Safety Factor

Safety factor is also another factor reflected in many of continental shelf delimitation case. In the continental shelf of Anglo/French, the arbitration tribunal although did not specifically explain whether security interests of the Channel Islands mentioned by France have an impact on the demarcation, but the final decision seems to have considered the factor of France. The Tribunal believes that that the voyage, defense and security interests should be given equal consideration, but they cannot be regarded as a decisive influence factors on the delimitation. They can support, strengthen but cannot deny any conclusions have been marked by the court's
verification of local geographical, political and legal circumstances; they tend to prove the main interests of France in the southern English Channel.¹ However, in the later cases, ICJ did not acknowledge the impact of security factors on delimitation. In the Libya / Malta case, the court ignores Malta's claims that the boundary has a potential threat to its safety. In Greenland / Yanmar case, the ICJ did not adopted the idea of safety factor that put forward by Norway

e. Economic Factors -- From Positive to Negative

In the Gulf of Maine case, International Chamber of the court have summarized economic factors base on their influence to the delimitation, according to the view, a country country's activities with the target of fisheries, shipping or defense, or even different activities engaged in oil exploration, cannot be regarded as the special circumstances. Even if considering those factors, is also as a fair standard for determining the demarcation line. Even a fair demarcation result obtained through the applicable standards and equiratio method, if the relevant factors showed that the delimitation will result in the serious unfairness, and will bring about a disastrous impact on the country's resident population and economic activities, the chamber will then take such factors as one of the legal factors for consideration in obtaining the ultimately delimitation results.

¹
2.4 Development Trend of Principle of Equity

2.4.1 Unceasingly Enriched Factors of "Special Circumstances"

In 1969, the ICJ in the North Sea continental shelf case first put forward the "the principle of equity" and summarized it as "principles and rules of international law". But in fact, the countries' practice in the continental shelf delimitation and judgments from ICJ and other arbitral tribunal constantly enrich and substantiate the "special circumstances" under principle of equidistance. As in the case of Anglo/French, the arbitration tribunal pointed out, whether principle of equidistance or any other method is suitable for the purpose of achieving equitable delimitation result depends on the specific circumstances of geography and other relevant information. Therefore, the selection of one or several delimitation methods in any particular case should refer to these circumstances. In the Tunisia / Libya case, the ICJ pointed out that in certain cases, whether the result is a reasonable and fair for particular cases depends on the "special circumstances", and should not apply excessive principles and rules of continental shelf, each case must be according to their own special circumstances to consider and judgment, and pay attention to its particularity. The ICJ especially emphasized in Libya / Malta case that the judgment should be in accordance with the principle of equity and take into account all relevant circumstances, in order to achieve a fair result.

2.4.2 Favored of Equiratio Delimitation

Proportional delimitation or equiratio delimitation, refers to the in delimitation of the continental shelf, a party country obtained relevant boundary area in accordance with
a reasonable proportion of based on length of coastline of the adjacent sea, which reflects is a coastal state's sea right to its adjacent coast, its foundation is still "the land dominates the sea" principle. Proportional method is the specific method to evaluate the rationality of a result of continental shelf delimitation.

The essence is to give geographical factors into consideration in the application of the principle of equity. Certainly, proportional method has notable characteristics as such: (1) applied under the principle of equity, possibly ensure that relevant countries areas in accordance with the reasonable ratio on their respective length of coastline (2) is one of the specific choice of delimitation method in the process to test whether the results of the delimitation is equitable; (3) a method of delimitation of continental shelf that can't be used alone, need to combine with other specific delimitation method; (4) is closely connected with the length of coastline, closely related to the geographical characteristics along the coastal; (5) with digital ratio to reflect the proportional relationship.

The concept of "proportional" is first put forward in the Anglo/French case. The arbitral tribunal considers it is the inherent concept according to principle of equity; therefore it becomes a factor in understanding the equidistance or any other appropriate methods of delimitation. But the real function of proportional method is to, when different coast length in a case, proportion should be considered to avoid demarcation results to be disproportionate and unfair. In the case, in the proportional method has become the last step in testing the equity of delimitation. It is used to view whether the demarcation line is formed after comprehensive consideration of the many other factors, as well as whether the final results in accordance with UNCLOS 1982 is fair.
2.4.3 Single Boundary

At present the theory and practice of international law have shown the tendency of continental shelf and exclusive economic zone demarcates with a single boundary, therefore it is necessary to link the research of continental shelf and exclusive economic zone demarcation together, and it is also advancing with the times. In order to avoid the defects inherent with multiple delimitation method, more and more states parties will request the single delimitation, on the one hand it is because of the actual jurisdiction convenience, and on the other hand, it can avoid the jurisdictional disputes. Such as in the of 1984 Gulf of Maine case, the party country clear asked for a single boundary for both the continental shelf and the fishing. Because the single line should cover all aspects of jurisdiction of the party state, including not only the right under the current jurisdiction of international law, but also the future jurisdiction of international law.

In 1985, the arbitration tribunal was required to divide marine territorial boundaries between two states, Guinea and Guinea Bissau (Johnathon Gharney, 1994), but the court believes should be used with a single boundary for of demarcation. All cases of after this, in the demarcation of disputed overlap region, the ICJ or the arbitration tribunal has always been committed to the single delimitation, even if one party opposition on it. In 1999, the permanent arbitration institute was required for maritime delimitation between Eritrea and Yemen, the arbitral tribunal considers the boundary should be an omnidirectional single boundary. In the Cameroon / Nigeria case, ICJ was requested to make a single boundary in a restricted area from point G.
to the overlap waters under jurisdiction. From the view of the court, the tendency of coordinating legal system has inevitably created another development; the existence of single delimitation is to avoid the practical difficulties in delimitation of overlapping areas. (Cameroon v. Nigeria: Equatorial Guinea Intervening), 2002)

2.4.4 The Convergence of Continental Shelf Delimitation Principles

The international courts and arbitral institutions are widely criticized due to excessive flexibility, how to transfer from emphasizing the particularity of each case to certainty of law, generally accepted watershed is the 1985 Libya / Malta case. In 1993 the Jan Mayen case, the ICJ stressed that the law shall have a certain degree of certainty and predictability, or even recognize that common law and the article 6 of "Convention on the continental shelf"1958 are all tend to assume that the middle line can reach a fair result preliminary. In the cases of opposite coasts, equidistance/special circumstances principle and principle of equity/relevant circumstance might lead to the same results as the demarcation (Continental Shelf (Libyan Arab Jamahiriya/Malta, 1985)

Modern maritime delimitation tends to be simple, standardized and scientific, based on the coast structure and length of coastline, instead of the traditional marine geological survey and research. However, when the legislator realizes that various changes of unpredictably factors will be unable to formulate appropriate rules, which can only meet on some general guidance, while leave the principle of equity for the judge to apply in specific cases. However, the ICJ transform continental shelf delimitation law system from the flexibility to determination, the typical
characteristic the gradually fusion of principle of equity/relevant circumstances and principle of e quidistance/ special circumstances, so as trying to change the status quo that the continental shelf delimitation law rules are too flexible and its adverse consequences.

Chapter III China Issues

3.1 Background

China is considered to be a comparatively geographically disadvantaged country, because the main three seas are semi enclosed sea, which is of semi closed status by the land and islands of her neighboring countries. Therefore, China have to determine the boundary waters together with neighbors, but there are problems lie in the existence of serious disagreement between China and its neighbors in many problems on the delimitation of the continental shelf, such as the principle of delimitation, baseline determination, the specific boundaries and the ownership of the island, which led to China Sea Boundary perplexing conflicts continuously. According to "UNCLOS 1982, China should own more than 170 square kilometers of territory sea, and sea area of under Chinese jurisdiction should be about 3 million square kilometers. However, due to some historical, military or economic reasons, China avocation of marine rights are still concentrate in her territorial waters, and a far cry from rights and interests which is conferred by UNCLOS 1982". To change this situation, it is a long-term, arduous tasks. In a world, from the marine geographic analysis, China is surrounded by semi closed sea, and there is sharp contradiction in the maritime delimitation, the sovereignty of the islands and the development and utilization of marine resources between China and her marine neighboring countries, the situation is extremely grim. (Sharma, Surya P., 1989)
3.2 Legislation of China on Continental Shelf

On June 26, 1998, China announced and implemented "Law on the Exclusive Economic Zone and the Continental Shelf of the People's Republic of China ". The law with particular attention to the cohesion with the content of UNCLOS 1982, the similarity degree in content is as high as 80%. (htt4)

**Article 2.** The exclusive economic zone of the People's Republic of China covers the area beyond and adjacent to the territorial sea of the People's Republic of China, extending to 200 nautical miles from the baselines from which the breadth of the territorial sea is measured. The continental shelf of the People's Republic of China comprises the sea-bed 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 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. The People's Republic of China shall determine the delimitation of its exclusive economic zone and continental shelf in respect of the overlapping claims by agreement with the states with opposite or adjacent coasts, in accordance with the equitable principle and on the basis of international law.

Article 13 supplementary regulates that: The People's Republic of China exercises, in accordance with international law and other relevant laws and
For the exclusive economic zone, China uses "distance" standard, namely from the baselines of the territorial sea to 200 nautical miles. For the continental shelf, China combines the "distance" standard and natural prolongation, and for the first time emphasizes the continental shelf should be the extending of all the natural land territory, if the baselines of the territorial sea is of less than 200 nm is then it should extend to 200 nautical miles. As for the delimitation of the continental shelf, the law advocates to reach agreement under the principle of equity.

As we could see, P.R. China's attitude over the delimitation of the continental shelf is rather clear. What it emphasized on the first place is the principle of agreement, which means that the delimitation should be resolved by the parties to reach an agreement through friendly negotiation, and any unilateral action should not be imposed to the other. The delimitation should be under the principle of equity combined with external factors considered. China has repeatedly stressed that the principle of distance or the middle line is only a specific method of demarcation, only to ensure that the principle of equity to be implemented, and demarcation method of distance or the middle line could only be used when the agreement parties confirmed to agree it could be applied.

3.3 China Issues over the Three Sea Area

China has a coastline of more than 18,000 km, the total area of coastal islands is of 80,000 square kilometers, and the number of the island with permanent residents is
as many as 433. China has a closed sea Bohai Sea, and also has three semi enclosed sea which are the Yellow Sea, East China Sea and South China Sea, with the total area of 4.73 million square kilometers. According to incomplete statistics, the continental shelf area which can be obtained by China should rank No.14 in the world. According to Chinese geographical conditions, China need to settle marine boundary demarcation with some neighboring countries as follows: for the Yellow Sea, China has demarcation problem with North Korea (the Democratic People's Republic of Korea, DPRK), and South Korea (the Republic of Korea, ROK); and for the East China Sea; China has demarcation problem with Japan; in the South China Sea, China has demarcation problem with Japan; Philippines, Malaysia, Indonesia, Brunei and Vietnam. All these problems relates to the delimitation of the continental shelf. So far, only in the northern Bay area, China has reached the agreement with Vietnam in regard of territorial sea, exclusive economic zone and continental shelf delimitation.

3.4 The Delimitation of the Continental Shelf in the Yellow Sea

3.4.1 Background

The east side of China Yellow Sea is toward the Korean Peninsula, west to China Bohai and Shandong and the north coast of Jiangsu, north to Liaodong Peninsula, south to Yangtze River's north estuary which is of the same latitude of South Korea Jeju Island, and the demarcates with East China Sea. The whole area the Yellow Sea is covered by China land and the Korean Peninsula, with north-south length of 470 nm, east-west width of 360 nm, sea area of about 380000 square miles, and an average water depth of 44 meters, 140 meters of deepest, and a total of 60,000 square
miles of the sedimentary basin, which has a good prospect of oil and gas resources in the South part of it. According to statistics, the Yellow Sea has 12 fisheries, and is one of the world's few four seasons fishing waters. China faces the problem of demarcation with North and South Korean waters in the Yellow Sea area, basically with the connecting line between Bailing Island and Chengshan Mountain as demarcation line (the Yellow Sea).

Figure 2. China Yellow Sea (the Yellow Sea)

3.4.2 Demarcation between China and North Korea

North Korea has not formally announced its the continental law system, but from the country's speech in the Third United Nations Conference on the law of the sea as
well as other international activities, North Korea claims idea that the continental shelf is the nature extension of territory land, and the coastal state should enjoy the right to determine the limits of the continental shelf according to specific geographic conditions of their own. The demarcation of continental shelf between coasts states with adjacent or opposite coast should determine the demarcation according to the agreement, the suitable demarcation method such as equidistance line or the middle line should also be applied based on the agreement.

China and North Korea in the Yellow Sea have three classes of demarcation, which are territorial waters, the continental shelf and exclusive economic zone. The two counties coast are adjacent in the north, but the opposite pattern formation in the south. According to the coast of measurement general direction, China's coastline is about 688 kilometers; North Korea is about 414 km long, the ratio of 1:0.6. If demarcates with the equidistant line, then sea area the ratio of China and North Korea is 1:0.57. In the Yellow Sea, there are 834 islands belonging to China, and 422 islands belong to North Korea. Due to the vast majority of island is along coast, so the effect of islands will not become the focus of dispute in the bilateral delimitation of, only the Haiyang island which is 43 miles to China Liaodong Peninsula may be controversial, the island has a distance of 90 nautical miles to South Korea's Bailing Island, an area of about 180000 square kilometers, with 5000 residents, should have some effect when in the delimitation. Overall, both the territorial sea, continental shelf and exclusive economic zone demarcation are relatively easy to be solved between China and North Korea, there are no serious obstacles. But China and North Korea failed to reach any agreement, since the 1996 when start of maritime delimitation consultations, but on December 24, 2005". The "Agreement of
Sino-Korean Governmental Maritime Joint Development of Petroleum "was signed. (the Yellow Sea)

3.4.3 Demarcation with South Korea

On March 14, 1983 South Korea signed the UNCLOS 1982 ", and on January 29, 1996 approved to become the first of East Asia, and the world's twenty-sixth unilateral expansion of marine jurisdiction. In August 1996, South Korea promulgated "Exclusive Economic Zone Act" and came into effect on September 10th of the same year. The bill did not mention any principle of delimitation, only generally sub in the second clause "should be on the basis of international law, and under national agreement".

In view of the special geographical condition of South Korea, South Korea adopted different principles of delimitation. In the delimitation of the continental shelf in the Yellow Sea with China, South Korea applies to the middle line method, and for the delimitation of the continental shelf in the East China Sea with Japan, South Korea applies to the principle of natural prolongation. On January 1, 1970, South Korea promulgated the "Seabed Mineral Resources Development Act", of which 7 undersea mining sets, No. 1, 2, 3 mining sets are located in the Yellow Sea, No.4 mining set is located in the north of the East China Sea, and the above 7 mining sets were basically set by the frame of the middle line between South Korea and China, but the line delineated between No7 set with Japan is based on the principle of natural prolongation. The southern point of the mining area is on latitude of 28 °36 till Okinawa trough. The nearest distance from South Korea territory to this point is 250
nautical miles, and is less of than 12 miles from the Japanese Kyushu and bird island to it. (T. SeovaZi, 2000)

in 1992, China and South Korea formally established diplomatic relations, and the two counties started negotiations on fisheries in second years, On 3rd August, 2000 the two states signed the "Fishery Agreement Between People's Republic Of China Government and The Republic Of Korea Government ". The agreement came into force on January 1, 2001. In the agreement the two countries set up 17 points of the "Provisional Measures of water" in the East China Sea and the Yellow Sea, in order to achieve the mutual maintenance and management. Article 14 of the agreement clearly stipulates that the provisions of this agreement shall not be deemed to be detrimental to the contracting parties on their own positions over the law of the sea.

According to the coastal measurement in general direction, the length of coastline of China in this area is about 820 kilometers, and of South Korea is about 660 km, the ratio is 1:0.8. According to the forecast, the prospects of oil and gas resource in the central Yellow Sea continental shelf is optimistic, if demarcation method of equidistance applied, then the oil -enriched area will be designated to the South Korean.

China and South Korea started negotiations over law of the sea in 1995. By 2010, 14 times of negotiations have been held, the focus is China advocates applying the principle of equity in delimitation in the region, while South Korea advocates the middle line method. The main legally controversial islands are Sassuksan island of South Korea and the East Island of china.
According to the recent development of international law in the continental shelf delimitation, in the waters of the Yellow Sea, to achieve a single delimitation between China, North Korea and South Korea's territorial sea, continental shelf and exclusive economic zone is preferable. Due to the disputed waters are within 400 nautical miles, so the principles of equity applies. A temporary equidistance line can be drawn first, and then combined with the adjustment of other considered elements such as length of the coastline, attitudes towards some offshore island's (semi effectiveness or zero effect), equally rights over fishery resources after delimitation, the national security strategy, these should all the elements needs to be considered in the delimitation.

3.5 The Continental Shelf Delimitation in the East China Sea

3.5.1 Background

The East China Sea is semi closed sea surrounded by China, South Korea and Japan territory, with a total area of 300,000 square miles, east-west width of 150 to 360 nautical miles, and the length from north to South is 630 miles, The East China Sea is bounded on the east by Kyūshū and the Ryukyu Islands of Japan, on the south by the island of Taiwan, and on the west by mainland China and the Asian continent. It is connected with the South China Sea by the Taiwan Strait and with the Sea of Japan by the Korea Strait; it opens in the north to the Yellow Sea. (htt5)

Figure 3 East China Sea (htt5)
A report published in 1968 on petroleum exploration potential has excited Asian tide on marine continental shelf rights conflicts. The report has specifically mentioned the rich oil and gas resources in the East China Sea, mainly concentrated in the East China Sea continental shelf sunken belt, Diaoyu Island shelf edge fold zone and Okinawa trough sunken belt. "The Amery report" is the world's first report to disclose oil resources of the continental shelf in East China Sea. Under the financial support of the United Nations Economic Commission for Asia and the Far East, geologist from the United States, Japan, South Korea and Chinese Taiwan area has detected the geology of East China Sea and the Yellow Sea, and made a conclusion from a technical point that continental shelf between Taiwan and Japan is likely to be one of the most abundant oil and gas resources in the world". 4

There are disputes between the People's Republic of China (PRC), Japan, and South Korea over the extent of their respective exclusive economic zones.
3.5.2 Dispute between China and Japan

The dispute between the PRC and Japan relates to the different application of the 1982 UNCLOS, although the two states have both ratified. China advocates the application of UNCLOS, insisting on the natural prolongation of its continental shelf, and states that the EEZ extends as far as the Okinawa Trough. (Yuanyuan, 2012) Its Ministry of Foreign Affairs has stated that "the natural prolongation of the continental shelf of China in the East China Sea extends to the Okinawa Trough and beyond 200 nautical miles from the baselines from which the breadth of the territorial sea of China is measured," (Koo M. G., 2009) which is applicable to the relevant UNCLOS provisions that support China's right to the natural shelf. In 2012, China presented a submission under the UNCLOS concerning the outer limits of the continental shelf to the UN. Japan, based on UNCLOS, proposed the Median line division of the EEZ. (Japan, 2006)

Under the United Nations' Law of the Sea, the PRC claims the disputed ocean territory as its own Exclusive Economic Zone (EEZ) due to its being part of PRC's natural extension of its continental shelf, while Japan claims the disputed ocean territory as its own EEZ because it is within 200 nautical miles (370 km) from Japan's coast, and proposed a median line as the boundary between the EEZ of China and Japan. About 40,000 square kilometers of EEZ are in dispute. China and Japan both claim 200 nautical miles EEZ rights, but the East China Sea width is only 360 nautical miles. China claims an EEZ extending to the eastern end of the Chinese continental shelf (based on UNCLOS III) which goes deep into the Japanese's claimed EEZ. (Sen)
There are big two problems in the continental shelf delimitation of East China Sea between China and Japan, one is the Diaoyu Islands Sovereignty and its effect in the demarcation, the second focus is the status of the Okinawa trough in the submission of the Sino Japanese delimitation of continental shelf in the East China Sea. According to Japan's point of view, the Okinawa trough is only occasional sag, which does not affect the two countries of continental shelf connection continuity, so that the middle line method applies, and the China advocates of nature extension principle, and insist it should be consistent from the Chinese coast line that extend to the Okinawa trough. Visibly, there are significant differences between China and Japan over the issue of judgment of Okinawa trough and to how to achieve a fairness agreement in issue of delimitation in East China Sea continental shelf. (Koo M. G., 2009)

Because Japan is a typical "narrow continental shelf coastal States whose continental margin does extend 200 nautical mile not from the baseline, so only from the coast of distance determines their claims which has no connection with geological and geomorphic features of region". While China is wide continental coastal States, whose continental margin beyond 200 nautical miles, so the basis for China to claim her right over continental shelf beyond 200 nm as well as the outer continental shelf is natural prolongation, rather than the distance criterion. In fact, in the 1985 Guinea / Guinea Bissau arbitration, the arbitration tribunal emphasized that there is no priority in the application of principle of natural prolongation and distance criteria (Gerald Blake, 1987), these are the respectively basis for right of geographical disadvantage and geography favorable coastal states that set by UNCLOS 1982.
The writer suggests that maybe China should take the advantage of what Japan has confirmed over Okinawa trough in the "Japan and South Korea Joint Development Agreement Over The Continental Shelf ", to expand its influence in the East China Sea continental shelf issue. Although China claims that the 1974 "Japan and South Korea Joint Development Agreement over the Continental Shelf" as illegal and invalid, but both of the two state's attitude and the tendency towards delimitation of the continental shelf reflected from the agreement is worth being well studied. The joint development area locates geographically completely in the equidistant line between Japanese and South Korean and closely to the eastern edge of Japan, the eastern limits lies just on the South of Okinawa trough, roughly along the deep water line. So it can be inferred that, geological factors in the Okinawa trough are fully taken into account in Japan and South Korea's consultation for agreement. In other words, Japan recognized the geological factors in the Okinawa trough, and the truth is justified. Indeed, the status of the principle of natural prolongation in the in the delimitation of the continental shelf is declined, but it is still the theoretical basis of "land dominates the ocean", and is still the expressly content of UNCLOS 1982, so China should not waver or give up easily the principle of prolongation in the issue of the East China Sea continental shelf.

3.5.3 Advised Strategies for China on the issue of East China Sea

3.5.3.1 Emphasizing the Principle of Equity

Both China and Japan are ratified states of UNCLOS 1982 , so both states should be constrained by the article83 of the Convention about continental shelf delimitation provisions, particularly be constrained by the principle of equity. Although Japan has
always advocated the 1958 "Convention on the continental shelf," the provisions of article sixth, distance method of demarcation, but neither Japan nor China are parties to that convention. As what some Foreign scholars believe, "the principle of fairness has become the international customary law for more than thirty years, it meant to negate any mandatory function from the equidistant line method which, even if it's just a starting point of demarcation, and the principle of equity allows the consideration of practical factors as well as any technical method, so as to achieve a fair demarcation results".  

The principle of equidistance is just one of the delimitation methods that might be suitable to ensure fairness in the delimitation of the continental shelf. As equiratio has become one of the important factors in the delimitation of the continental shelf, so in the East China Sea continental shelf of China should also actively advocated equiratio to delimit the boundaries. Mr. Jin Yongming believes that , according to paragraph 3, article 56 of UNCLOS 1982, which contained rights of the seabed and subsoil of the exclusive economic zone , should be exercised in accordance with the part 6( continental shelf). Visibly, regard of attribution and development activities between China and Japan on the seabed resources, continental shelf system is prior to the system of exclusive economic zone. 

Mr. Ma Ying-Jeou (President of China Taiwan) believes that, coastline length ratio of China vs. Japan should be strictly applied to evaluate the unfairness result that
some the principle of delimitation of could lead to in demarcation, or to guide the equilibrium range that equitable delimitation should reach. Nord Holt says that, south of continental shelf of East China Sea below north latitude 30 degrees the shall be determined based on the principle of equiratio. M. Bai Zhenxuan from south Korea also believes that, as the difference between the length of China and Japan in the East China Sea coast is huge, this is the relevant factors should be taken into consideration in delimitation of the continental shelf (Koo M. G., 2009)

3.5.3.2 Ignored the sovereignty of Diaoyu Islands and the Islands of Clear and Boundary Effect

In theory, the island's sovereignty and effect of islands in the delimitation of the continental shelf is of two different legal issues, sovereignty should be solved prior to delimitation. But in many cases the island sovereignty disputes and demarcation dispute comes together. As Diaoyu Islands issue that China and Japan has faced. "The less the two parties adhere to that Diaoyu Islands is defined as essential elements are in the marine demarcation, the more likely they will solve the complex continental shelf dispute. (China to submit outer limits of continental shelf in East China Sea to UN, 2012) Some countries, although on the surface to see is struggle for a certain islands sovereignty's over the islands, it actually focused on the effect value that can be brought from the continental shelf delimitation issue, more important is the vast sea economic interests the delimitation may bring. The author does not agree with the so-called proposition, that Diaoyu Island sovereignty issue should be stripped from the East China Sea delimitation issue, the because the territorial sovereignty dispute does not allow any compromise and opportunistic,
and the writer does not believe that China and Japan can easily reach any so-called ignore the effect of islands consensus.

3.5.3.3 Analysis of The Equidistance /Special conditions Principle

China should emphasize the limitation of equidistance method, and it is not a principle in the delimitation of the continental shelf shall be forced to apply. While the method of delineate a line in the middle temporarily is neither a compulsory step to take in each case of the delimitation of the continental shelf. Equidistance delimitation method is only one of many scientific methods, but it does not have any priority. No matter what specific demarcation method adopting, particularity of each case are all needed to be considered in order to achieve the purpose of equitable delimitation. Any presetting method of delimitation method is not desirable. The principle of f equity requires objective reasoning, and applicable method of demarcation should be one of the results of reasoning.

In addition, as the comments made by International Court of justice in the Libya / Malta case of equal distance lines, as the equidistance line is based on geographic proximity, so the equidistance method should only be dominated by coastal starting point, thus may lead to omission the length of the coast which should be calculated, one of the parties might be treated unjustly in the delimitation simply because the factors of coastal shapes.

\[^4\]
Considering that the Okinawa trough is located within a range of 200 nautical miles off the coast of Japan, and the International Court of justice in the Libya / Malta case has emphasized the geological and geomorphological features of the seabed and its subsoil distance within 200 nautical miles of a coast should not be given any role in the delimitation of the continental shelf. Therefore the proposed idea of with natural prolongation as based principle in issue that take the Okinawa trough as Sino Japanese continental shelf delimitation line, may face many challenges. In addition, the new trend of the international law in the delimitation of the continental shelf delimitation is single line, namely the use of a single line to the continental shelf and exclusive economic zone. But it is worth pointing out, a single line should not just benefit just one of the two goals while damage the other in the delimitation of the continental shelf and exclusive economic zone, the final demarcation method applicable must be suitable for either of them. Considering the principle of natural prolongation is only applicable for the delimitation of the continental shelf, while exclusive economic zone is completely set on the distance the standard, so for China, it might not be a blessing issue to have single line in the delimitation of continental shelf in the East China sea.

3.5.3.4 Scientific Proof of East China Sea Continental Shelf Geomorphology

From the Romania / Ukraine case, it shows that the International Court of justice getting more focus on the disputed parties 's fact proof in the delimitation of the continental shelf, it requires countries to state their views specifically with fully
expounds and should accompanied by scientific and historical evidence. Upon this trend, China should make full preparations for the might coming litigation of East China Sea continental shelf issue, especially on the historical issues as well as geological and geomorphological scientific data collection of continental shelf in East China Sea. For example in Greenland / Jan Mayen case, when the two parties were at swords points to each other, the International Court of justice composed of a mediation committee, the committee take the professional reports from the geological investigation group of Columbia University (United States) as the foundation support, in the report it confirmed that the continental shelf around Jan Mayen island is not natural prolongation of Greenland, so as to obtain the scientific support to for the fair demarcation. The International Court of justice is tending to seek professional advice as a basis for judgment over the geographical and geological problems, as for China, the early and fully judicial preparation are needed to nip in the bud in the probably coming litigation of East China Sea demarcation in future.

3.6 The Delimitation of South China Sea

3.6.1 Introduction to South China Sea

The South China Sea is a marginal sea that is part of the Pacific Ocean, includes an area from the Singapore and Malacca Straits to the Strait of Taiwan of around 3,500,000 square kilometers. The area getting so important largely because that more than 30% of the world's shipping transiting through its waters, and it is also believed to hold huge oil and gas reserves beneath its seabed. It is located south of mainland China and the island of Taiwan, west of the Philippines, north west of
Sabah (Malaysia), Sarawak (Malaysia); and Brunei; north of Indonesia; north east of the Malay peninsula (Malaysia) and Singapore, and east of Vietnam. The minute South China Sea Islands, composed an archipelago, number in the hundreds. The sea and its mostly uninhabited islands are subject to competing claims of sovereignty by several countries. These claims are also reflected in the variety of names used for the islands and the sea. (htt7)
The South China Sea lies in China's southern coast, close to the equator, but is jointly surrounded by many countries in Southeast. The South China Sea is accepted by the world and referred to as the "South China Sea" because it is located in the south of China and, but in fact a lot of country around this area has other names for it according to their own language or habits of the South China Sea, such as in Vietnam, South China Sea is called as the "East Sea", "sea east of Vietnam". Southeast Asian countries will also name many islands differently in the South China Sea according to their own language, and complex reef name itself reflects the region's unprecedented national emotion (h7).

According to statistics from energy information agency of the United States Federal Energy Department, proven oil reserves of the South China Sea area of about 7 billion barrels, output reached 2.5 million barrels per day. According investigation of the United States Geological Exploration Bureau, the South China Sea natural gas reserves should be at least doubled of oil reserves.

According to preliminary statistics of the Ministry of Land and Resources of P.R.China, the South China Sea petroleum geological reserves are roughly 23 to 30 billion tons, accounting for about the total resources in China 1/3. Therefore, the South China Sea is known as "the second Persian gulf". (Mark J. Valencia, 1995)

According to incomplete statistics, by March, 2011, oil drilling rigs were found to be up to more than 1000 in the South China Sea, and more than 200 of them are found to be contained with both Oil and gas bearing structure, and around180 of oil filed.
The involving countries include Vietnam, Philippines, Malaysia, Indonesia and Brunei. Among them, a part of Philippines exploration blocks at present have entered into the continental shelf claim of China and a considerable part of their annual production of 3.5 million barrels of oil and 1 billion cubic meters of natural gas are produced from the South China Sea; from 1986 to 2002, Vietnam had produced nearly 100 million tons of oil and 1.5 billion cubic meters of natural gas in Nansha area, with a profit of around 25 billion USD, and oil and gas development in the South China Sea has become the first pillar industry of national economy of Vietnam; by early twenty-first Century, Malaysia oil and gas fields has constructed with nearly 100 oil drilling rig in the South China Sea, with an annual output of 30 million tons of oil, almost 50 billion cubic meters of natural gas. (Mark J. Valencia, Jon M. Van Dyke, Noel A. Ludwig, 1997)

In contrast, although China has sovereignty over the South China Sea beyond all dispute, Chinese oil exploration activities in the South China Sea area is almost at a standstill. The good original intention of Chinese spirit of "shelving disputes, and common development" which meant to realize good neighborly and friendly relations as well as a win-win economic situation with countries around the South China Sea, while the political proposals in the current view is not ideal, the result is that the nations around the South China Sea meant to be "dispute aside, I develop first ". At the beginning of Dec of 2005, CNOOC has signed contracts with the United States, Canada and other 3 foreign capital company respectively for the South China Sea exploration and development, means that the South China Sea oil and gas resource exploration and development have a change to certain extend. In February of 2011, the first deep-sea drilling vessel "offshore oil 981" was delivered by Shanghai Waigaoqiao shipyard, which opened a prelude to China oil exploitation
activities by domestic-manufactured equipment in the continental shelf of the South China Sea. With global energy demand becoming more prominent, China's economic dependence on oil and gas resources intensifies the strategic value of oil and gas resources in the continental shelf of the South China Sea in China will grow with each passing day.

Thus it can be seen that essence of the South China Sea dispute is about oil resource contention, there are also reasons come from US and Japan's disturbing behind and make the dispute even aggravate. Countries around the South China Sea have a variety of means such as the actual control; domestic legislation as well as international alliances, with the aim to make the occupation of the South China Sea legalization, and internationalization and finally become accomplished facts. In fact that those activities can be generally divided into three stages: the first is to occupy forcibly by military means; and the second is to proclaim sovereignty in some way and start to grab the real interests; thirdly it is to consolidate the sovereignty, create conditions, such as domestic legislation, strengthening the administrative jurisdiction, submitting an application to the United Nations; as well as public propaganda, aiming for looking for the theoretical basis of manufacturing.

In addition to the huge oil and gas resources, the South China Sea area also contains abundant combustible ice resources. In June of 2007, the Ministry of Land and Resources of P. R. China and China Geological Survey Bureau have a statement that the combustible ice resources can be explored successfully in the northern part of South China Sea, and this resource can be expected to become the best alternative energy of oil and natural gas. South China Sea is also enriched with uranium ore.
polymetallic nodules resources, as well as thousands of species of fish and shrimp, shellfish aquatic resources etc., the annual sea fishing capacity has been up to 200-250 million tons just in Spratly Islands, the land is also known as the world's most abundant in fishery. (Mark J. Valencia, Jon M. Van Dyke, Noel A. Ludwig, 1997)

In addition, the South China Sea is the throat thoroughfare connected with India Ocean and the Pacific Ocean, is also most convenient connection of East and South Asia, Africa and Europe's international waterway, and is an extremely important strategic position. (htt7)

3.6.2 Interpretation of Island Effect

As part of the reefs of South China Sea are from the far away from mainland China in regard of geographical distance, while other countries around the South China Sea are nearer, and taking into account the island effect in the delimitation of the continental shelf should pay some attention should be paid to by China to specific geographical location islands may have effect on the delimitation of the continental shelf of the South China Sea. According to the article 7 of UNCLOS 1982, in terms of straight baseline requirements, when the coastline is very tortuous place, or if there is a series of islands along the coast, measuring the breadth of the territorial sea baseline can adopt the method of straight baselines by joining appropriate points. It also emphasizes at the same time that the general direction of baselines shall not be drawn from the coast to any significant extent, and the sea area within baseline must
be close to the land territory, dominated by the domestic water system. (Prescott and C. Schofield, 2005)

For a different effect of the of the South China Sea Islands for delimitation of the continental shelf, we should take different ways to treat: for self-owned continental shelf Island, shall follow the principle of equity, the delimitation of the continental shelf should be considered separately. for islands of no continental shelf rights, should be treated in accordance with the characteristics of its geographical location, and define a different effect; for the existence of the contested islets, should be defined first before delimitation,. For defining the reef, it shall abide by the principle of seeking truth from facts, and it should not be obscured by human factors as the demarcation of unnecessary interference. Specifically, to address the role of the South China Sea islands, the following considerations should be focused: first, for some obvious isolated island such as the Meiji reef, were given full effect, half effect or ineffective; second, some of the isolated island that close to the nearby country's coast, can be treated the "Enclave". Third, for those islands which are relatively concentrated, it can be considered as a whole, and treat with a package solution after all aspects of consideration.

3.6.3 Advised Principles/Rules on the Issue of South China Sea

3.6.3.1 Correctly Understand the Principle of Natural Prolongation

Claims from countries around the South China Sea are based on "natural prolongation" theory without any exception (Mark J. Valencia, 1995). Because the theory is closely linked to geographical and geological characteristics of the continental shelf, so as to promote the countries around the South China Sea to focus
on how the continental shelf geographical features could be used to realize the legal burden of proof, which is trying to extend a scientific point of view, that the continental shelf of the argument's claim is its land territory in nature. An unprecedented scale of study activities from some of countries around the South China Sea in recent year is obvious an "exposed ambition". For example, to complete the submissions of the delimitation of the continental shelf case to the mission in 2009, all of Vietnam's official information such as the maps, data,, appendix forms and database are involved with many authorities and research institutions including the Ministry of Foreign Affairs, Ministry of Natural Resources and Environment, Ministry of Science and Technology, Department of Marine Geology and Geography of Geophysical Research Institute, and relevant departments of the navy in Vietnam. Philippines after the so-called ocean expedition to the "Nansha trough" states that it's not geological fault layer, and the continental shelf shall extend to the danger zone of West Spratly Islands. (Matix Dixon & Robert Meorquodale, 2003)

3.6.3.2 Application of the Principle of Equity

The essence of the equity principle in the delimitation of the continental shelf is the fairness result by the consideration of relevant information, and shall not infringe the legitimate rights and interests of another country. In regard of the South China Sea delimitation of the continental shelf, fairness means that the respect of "historic rights". China should base on the history of jurisdiction as support, and adhere to the principle of equity. The jurisdiction records of China over the South China Sea Islands can be tracked back from the Han Dynasty began till today, and China's activities of development and exploration over the South China Sea has sufficient historical and geographical data to support, also has a sufficient legal basis and international recognition, the "nine segment line" reflects the basic trend of China border in the South China Sea Although the relationship between the legal status of
the UNCLOS and China's current territory line is always on continuous debate, but it should be clear that, the UNCLOS Convention cannot replace the existed rights of China over the South Sea which has been last for a long time. In a word, China should enjoy sovereignty rights over the territorial waters within the baseline; have the Sovereignty rights over South China Sea Islands and reefs, as well as those islands and reefs which meet provisions of UNCLOS could enjoy the rights of the exclusive economic zone and continental shelf; and to the sea area where beyond the exclusive economic zone but within he Nine Segment line”, China should enjoy of the rights over natural resources.

3.6.3.3 Application of the Proportional Rule

In addition, China shall adhere to the principle of equiratio of the South China Sea, so as to obtain the exclusive economic zone and continental shelf of the full effect of islands under article 121 of UNCLOS. And to achieve a fairness result of delimitation with countries around the South China Sea coast with the method of equiratio of the length of coast.

In order to avoid further complex of sea delimitation, China should advocate single maritime boundary delimitation to coherent with trend of current international law of maritime delimitation, also in line with the national strategy of china.

3.6.3.4 Desalination Proposal of "Putting Aside Disputes, Common Development" "", Strengthening the Administration and Effective Control"

Regard of getting rid of "putting aside disputes, common development", first of all, from the current situation, this proposition almost mean nothing. China cannot put aside the dispute of sovereignty over the South China Sea Islands, and further to that,
China has never successfully persuaded or coerced the countries around the South China Sea to develop the South China Sea oil and gas resources together with China. Ironically, the surrounding countries act recklessly to take unilateral action, to obtain rich resources within China's territory of sovereignty. The proposition of "Putting aside disputes, common development" in the South China Sea, did not succeed, and in the foreseeable future it does not show any hope of success. Secondly, the idea of "putting aside disputes" is not a final solution, China has avoided and endure the South China Sea issue for too long, thus to have encouraged the countries around the South China Sea to turn a blind eye to it, if China continuously insist to the idea as the instruction, it will lead to loss of control of the South China Sea issue, let the countries around the South China Sea to form an established fact and gain more international recognition.

Base on the above analysis, a prudent action would be more desirable. Such as the China sending fishing and administration boats in the South China Sea for cruise management, the escort action to highlight the sovereignty over the South China Sea is a proactive wise method. This is in one way to avoid the might cause "China Threat Theory" sensitive from countries around the South China Sea by sending military ships, and reached the target of actual display of sovereignty in the South China Sea. In addition to the fishery administrative cruising, China should have plans to have maritime and military ships to start cruise and escort activities in waters of the South China Sea, including the expansion of the South China Sea military Fleet's, if necessary, with an aircraft carrier to safeguard the interests of the state. Only the actual administrative jurisdiction and control could have helped China to find the basis in international law theory. At the same time, how to integrate
China be split forces in marine law enforcement at present, will also be positive significance to solve the problems of the South China Sea.

From May 31, 2010 to July 18, 2010, manned submersible "the dragon" which was designed and independently integrated for the first time by China has finished 17 times of dive tasks to the deep of 3000 meters in the South China Sea, in one of the successful task of dive, the diver has planted a Chinese flag through manipulator in the South China Sea, which positive symbolic significance meaning to highlight the Chinese sovereignty. (http7)

In addition, in the negotiations process with the countries around the South China Sea over demarcation, as the issue of sovereignty in the South China Sea involves the country's core interests, it cannot be negotiated even or compromised with other countries. At the same time, the domestic legislation over ocean boundaries should be speed up, to confirm the South China Sea Islands, continental shelf and exclusive economic zone, and form a complete maritime legislation and proclaim to the world, so as realize to have law to obey. Since China has not yet officially announced the Zengmu reef in the South China Sea as the most south point of China territory sea, and has not announced that the point is to determine the baseline points, and not in further to confirm the division of the territorial sea, exclusive economic zone and continental shelf. Similarly, China has not announced the base points and baselines of other Spratly Islands. Indeed, the main concern in China today is to consider the accordance conflict, of the idea of traditional sea boundary line and UNCLOS provisions of the territorial sea, exclusive economic zone and continental shelf delimitation, and also worries that this will further intensify and opposition of the countries around the South China Sea. Despite these concerns, even though most of
the reefs in Spratly Islands are not under China's actual control and jurisdiction, China should still get ready for the relevant maritime legislation so as consolidate claims in the South China Sea from a legal perspective.
CONCLUSION

The dissertation is based on the characteristics and development of geology and geography to start the analysis of international conventions such as ‘UNCLOS' and other legal documents concerning delimitation of the continental shelf in the legal system with combining various theories from both China and international scholars, and will have a systematically study over origins and current legal status of continental shelf, as well as its basic principles of delimitation method in practice. Meanwhile, by illustration the effectiveness brought by international political, diplomatic, economic development to the natural resource exploitation, and discussion of Chinese continental shelf delimitation practice, the article will finally form some rational suggestions as the reference and theoretical support for the settlement of the controversial problem between China and her neighbors.

The first chapter starts from the concept of geographic and legal system of the continental shelf, illustrated with the relevant technical data and charts, focuses on the analysis of the historical background and the formation as well as the development process of the continental shelf system, especially point out that the advent of continental shelf is closely and undividedly with the human’s marine knowledge and development technology improvement. From the "Truman declaration", to 1958 "Convention on the continental shelf" has been issued, and then to 1982 "Convention on the law of the sea"(herein after refer to UNCLOS1982)’s compromise and innovation, the author is trying to define the driving force behind
the formation of the continental legal system with deductive method in detail (Akehurst, 1977). In addition, in continental law system discussion, the focuses were on differences between the delimitation of the continental shelf principles and delimitation methods in real world, that the principle of delimitation refers to which could be and could only be able to resolve political and legal problems on the basis of law, and demarcation method refers to detailed technical methods and means. Specifically, the principle of delimitation is legally binding for the delimitation of countries, which is able to determine, adjust and regulate the specific delimitation method. While the delimitation method could only solve disputes in the framework of the principle of delimitation from a technical point of view, it does not have any functions legal norm, and therefore it does not have any legally binding power that delimitation countries must follow.

The outer continental shelf is becoming the new focus of international law and international society. The coastal state submit either their delimitation cases or preliminary information is to the exercise of their rights empowered by the Convention and is also to fulfill the international obligation as ratified states. In this storm surge of continental shelf expansion, many countries are making full use of the Convention, to maximize their own interests in the ocean. The confirmation of the out edge of the continental shelf means that the maximum range of the coastal waters under the jurisdiction also means to identify the international seabed area that belongs to the common heritage of mankind's. It will be sure to bring a profound impact on the pattern of the world ocean political continental shelf and geography.
In the second chapter, three principles of delimitation and methods have been introduced respectively.

In first part of principle of natural prolongation, by extending the analysis of concept and origin of natural prolongation principle, points out that the natural prolongation is the evidence of national sovereign rights over the continental shelf. Since late 70's of last century, a large number of cases and the delimitation practice were of a large extent indeed that have weakened the importance of natural prolongation principle in the delimitation of the continental shelf. For example, in 1982 the Libya / Tunisia case, the International Court of Justice judged that distance in some cases could be considered as the foundation of the state’s right, which has been derived from the uniqueness of natural prolongation principle. The International Court of Justice in 1985 Libya / Malta case, officially take the distance criterion instead of natural extension as the basis of the continental shelf rights within 200 nautical miles, and points out that the 200 nautical miles of claims, could only be decided from the measurement of coastal country’s coast distance, and it had nothing to do with the geological features of the region. However, the author believes that although natural prolongation principle’s status of in the delimitation of the continental shelf has been weakened, it is still an important principle in the delimitation. A natural prolongation is not replaced by a distance of 200 nautical miles, both of which are the basic elements of the continental shelf in legal regime.

In second part of principle of equidistance, it illustrates that, despite the distance theory is a simple and effective method to solve the delimitation problem, and it can also be processed in certain conditions to implement the fair demarcation, whatever the equidistance method or other methods were finally taken in the delimitation of the
continental shelf, it was in order to properly reflect the specific geography conditions and other special circumstances in each case of delimitation, which has fully reflected the equity principle of in the delimitation of the continental shelf, and so the equidistance principle cannot be separated from guidance of equidistance. The essence of equity principle is to positively confirm continental shelf’s natural characteristics, and ensure that the characteristics and requirements were fully considered in the continental shelf delimitation practice. Any delimitation that disregard of continental shelf geographical features while simply pursuit of quantity equity is not really fair demarcation. In addition, the equidistance principle never has been promoted as principle of delimitation in the, development process of international law is, it is always subordinate to the principle of equity, and controlled by the principle of equity as a specific method of delimitation or. Although the practice of equidistance / special circumstances principle has been frequently used in practices, but it itself does not have any legal enforcement, or any special legal status. The equidistance principle cannot put on a par with the principle of equity in continental shelf delimitation, neither in legal position nor effect.

In the part of the equidistance principle in delimitation of the continental shelf. It starts from the formation and concept of equidistance principle, combined with the international customary law and real case practice, points out that the equidistance principle is not a principle of international customary law. It introduced the principle’s connotation as well as the its process of cognition by the ICJ, and points out that the principle of equity is the basic principle of continental shelf delimitation, and is the principle that throughout the whole process of on the delimitation of the continental shelf.
Through 40 years’ practice of more than a dozen cases, the ICJ and arbitral tribunal’s recognition over the applicable law principles, demarcation method and range of ‘need being considered factors’ have been relatively tend to be stable in the case of the of the continental shelf delimitation. While in some specific cases, what factors need to be considered as well as what role these factors play can is still unclear. In this dissertation, combined with a serious of continental shelf, delimitation cases since 1969, the agreement duty, principle of natural prolongation, principle of equidistance and equity will be analyzed respectively. The dissertation will focus on the new trend of delimitation principle in ICJ and other arbitration institutions and concludes that the ICJ’ attitude toward principle of natural prolongation has been changed, the principle of natural prolongation has been weakened, principle of equity is still the core of the delimitation of continental shelf, as proportion delimitation has been used more frequently; equidistance principle and principle of equity has shown the trend of integral application.

The third chapter studies the delimitation principle that will be suitable for China by analyzing the delimitation cases of the Yellow Sea, the East China Sea, and the South China Sea respectively. Among these cases, as for Yellow Sea delimitation, the delimitation with South Korea, the principle of equity should be emphasized, together with the facts of in proportion to the coastline as supplementary to against the principle of equidistance. In the case of the East China Sea delimitation with Japan, China should insist on the principle of natural prolongation and principle of equity. The article has scientifically analyzed the morphological characteristics in the Okinawa trough to negate the saying that “China and Japan are of the same continental shelf”, so as to apply negatively the application of principle of equidistance in delimitation of the East China Sea. Under the premise of Chinese
sovereignty over the Diaoyu Island, China could try the way of ignoring the effect of continental shelf in equivalence conditions, so as to seek find out a breakthrough in China and Japan negotiations, and at the same time, more research information of geological data of continental shelf of the East China Sea should be collected in order to present as the complimentary of coastline proportion. In the case of South China Sea, principle of equity should be insisted, and neglected the principle of natural prolongation, and the South China Sea islands should be classified flexibly in order to adapt to different effect of demarcation. The author is not affirmative with China’s current strategy of “shelving differences and seeking joint development” with regard to the South China Sea, and advocates to strengthening administrative jurisdiction and promote resource exploration and development activities, and all these measures have to be guarded with the development of military force.
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