

**Brief introduction of
Marine International Cooperation
between China and ASEAN Countries
around the South China Sea**

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Department of International Cooperation

State Oceanic Administration

Manila, the Philippines 6 April, 2016

Outlines

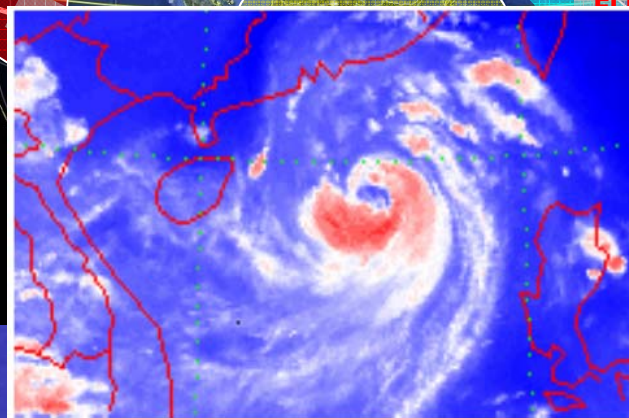
1. Environmental challenges in the SCS
2. Recent Cooperative Activities by countries around the SCS
3. Challenges and the way forward

The South China Sea receives much attention due to not only its geopolitical complex, but also its unique features to climate change and the role of influence on global ocean and regional social and economic development



key area for Asia climate variation

Key Channel for Pacific -- India Ocean Throughflow



Natural and anthropogenic hazards

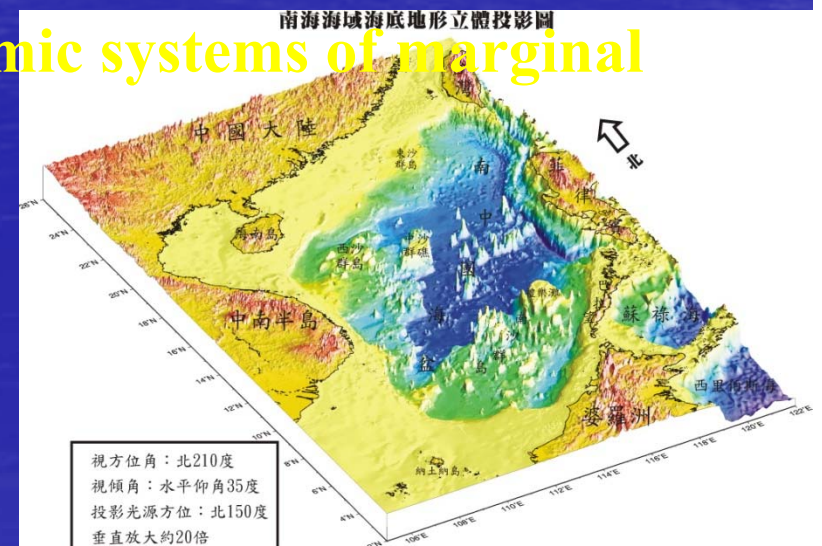
Key area for Asia climate variation

- Locating in the Joining Area of Asia and Indian-Pacific Ocean (AIPO), and as one of the area with strongest tropical convection and the maximum water vapor content, the SCS has strong air-sea interaction on earth. **With the SCS monsoon, East Asia Monsoon and Australia Monsoon converge together, the SCS is the origin of Asia summer monsoon, it has great influence on the route of typhoons, and is the Key area for Asia Climate Variation**



The best natural Lab. on the earth

- As the largest marginal sea in the Western Pacific, the SCS locates in the Eurasian plate, Pacific plate, and the India-Australian plate convergence zone, it experienced a complex geological evolution with variety geological phenomena, **SCS is “the Best natural Lab. on Earth” to study interactions between different plates and dynamic systems of marginal sea formation and evolution.**

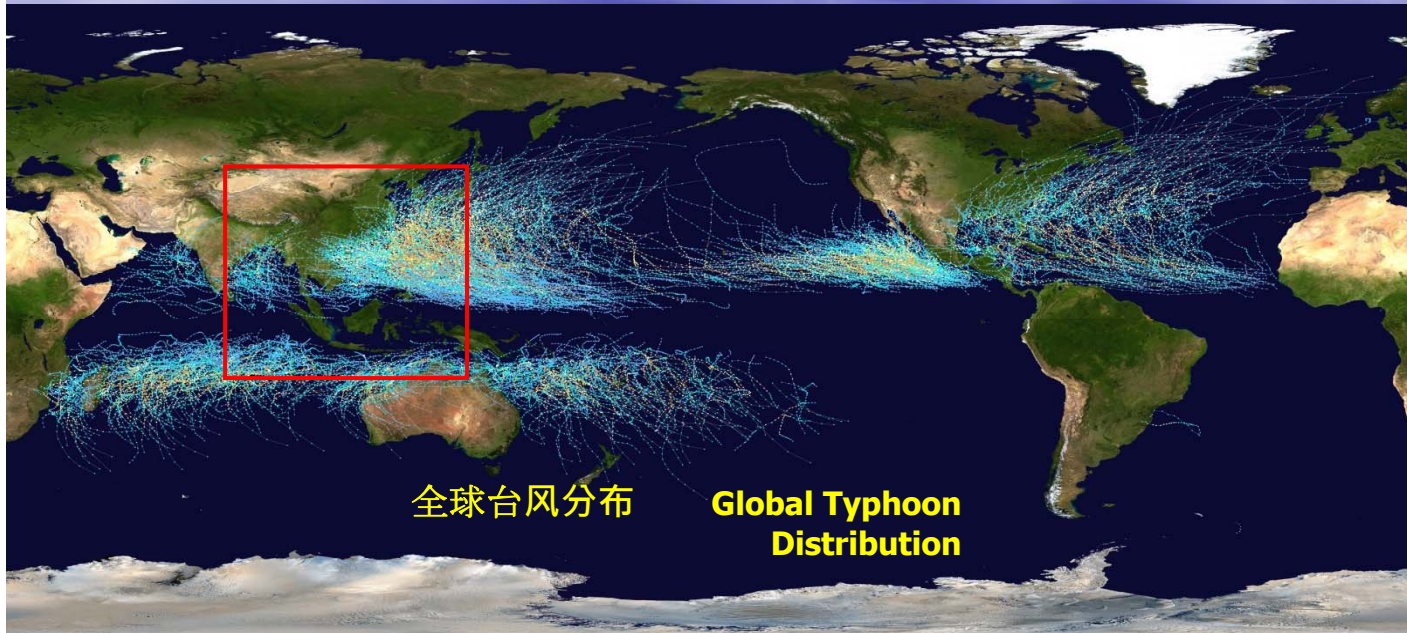


Natural and anthropogenic hazards

- Under the background of global climate changes, with the development and utilization of the SCS, Natural and anthropogenic hazards occur every year.
- The frequency and intensity of typhoons, Tropical cyclones and Storm surges increased significantly, sea level rise rate accelerated, marine disasters occurred frequently.

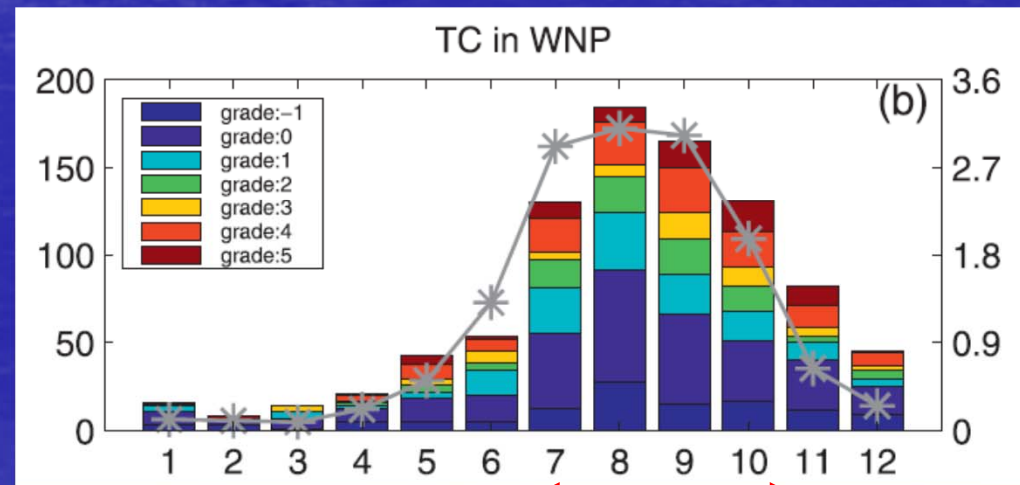
Typhoon: 南海和西太, 全球台风发生频率最高的海域

SCS, and Western Pacific region are the regions mostly heavily hit by typhoons.



Countries around SCS are **vulnerable to typhoon disasters**, particularly:

- Poor observing system
- Weak alerting system
- Poor skill in predicting system



西太台风逐月活动

Peak season (7-10月台风盛期)

Some examples of droughts and floods



More than two thousand people killed and two million inhabitants badly affected in Bangladesh as a result of the strong monsoon precipitation in 1987.



Over fifty million residents in Thailand and Southwest China severely hit by the drought in 2010 due to the 30 day delay in monsoon onset.



Challenge: poor skill and data in seasonal climate prediction in the region of Southeast Asia.

Outlines

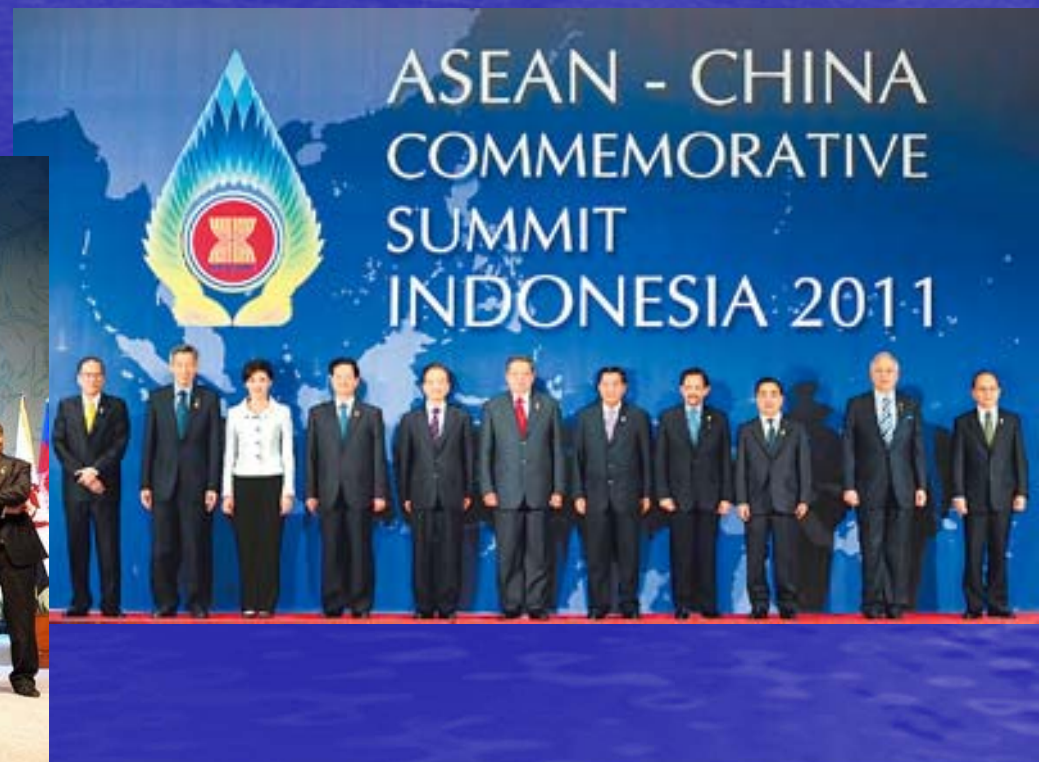
1. Environmental challenges in the SCS
2. Recent Cooperative Activities by countries around the SCS
3. Challenges and the way forward

1. Leaders consensus

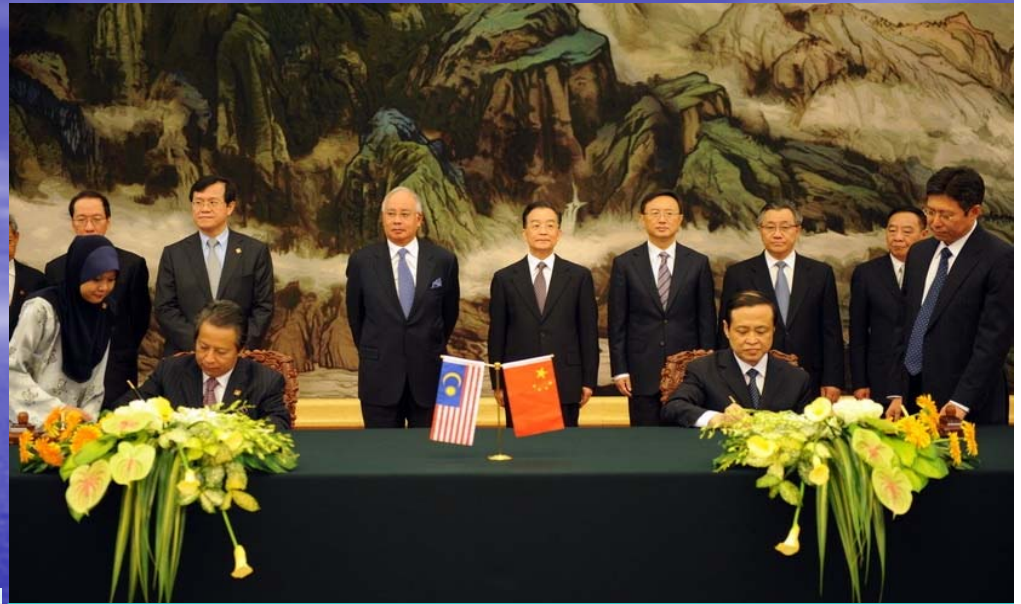
In Nov. 2011, Premier. Wen Jiabao proposed to carry out tangible maritime cooperation, and to found **China-ASEAN Maritime Cooperation Fund** to promote and support marine collaboration.



DOC in 2002



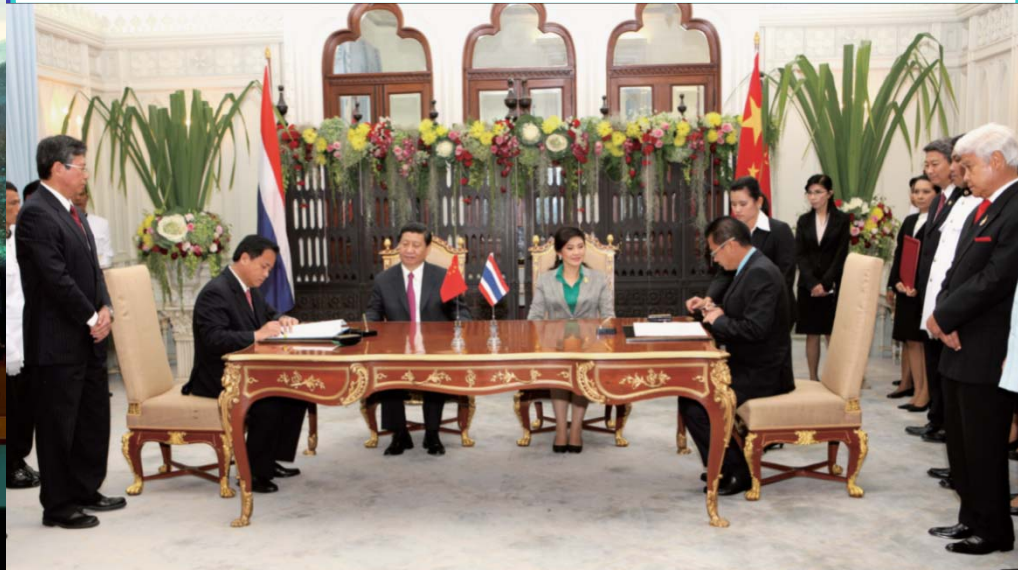
2. Signing MOU on Maritime Cooperation. China has signed MOU with about half of ARF Colleagues.



China – Malaysia (2009)



China – Indonesia (2007, 2012)



China – Thailand (2011, 2012)

China-Pakistan



THE PROTOCOL ON ESTABLISHMENT OF CHINA-PAKISTAN JOINT MARINE SCIENTIFIC RESEARCH CENTER BETWEEN THE SOA OF THE REPUBLIC OF CHINA AND MINISTRY OF SCIENTIFIC AND TECHNOLOGY OF THE ISLAMIC REPUBLIC OF PAKISTAN

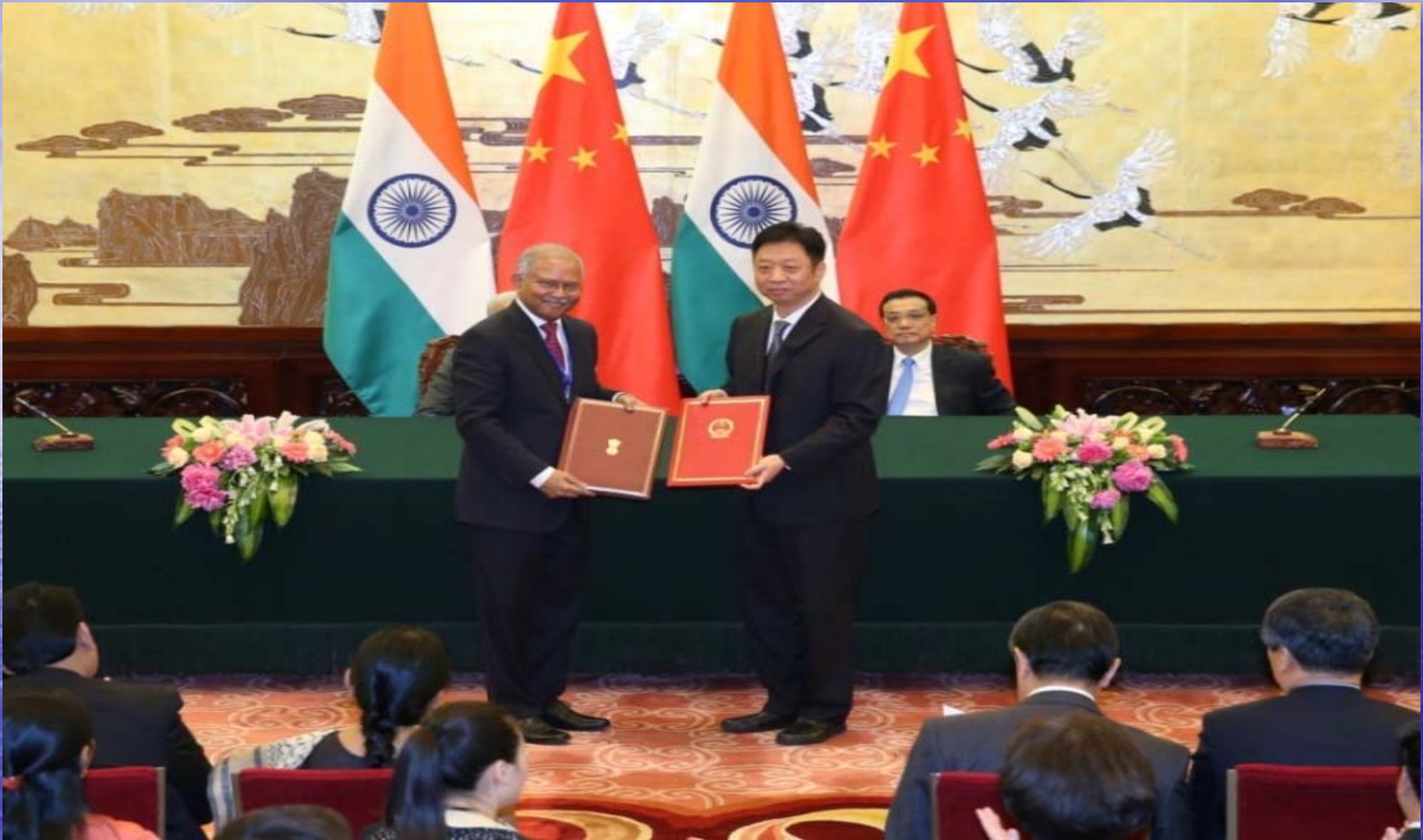
Pakistan, April 2015

China-Thailand



**The 4th Joint Committee Meeting On marine cooperation
Thailand, July, 2015**

China-India



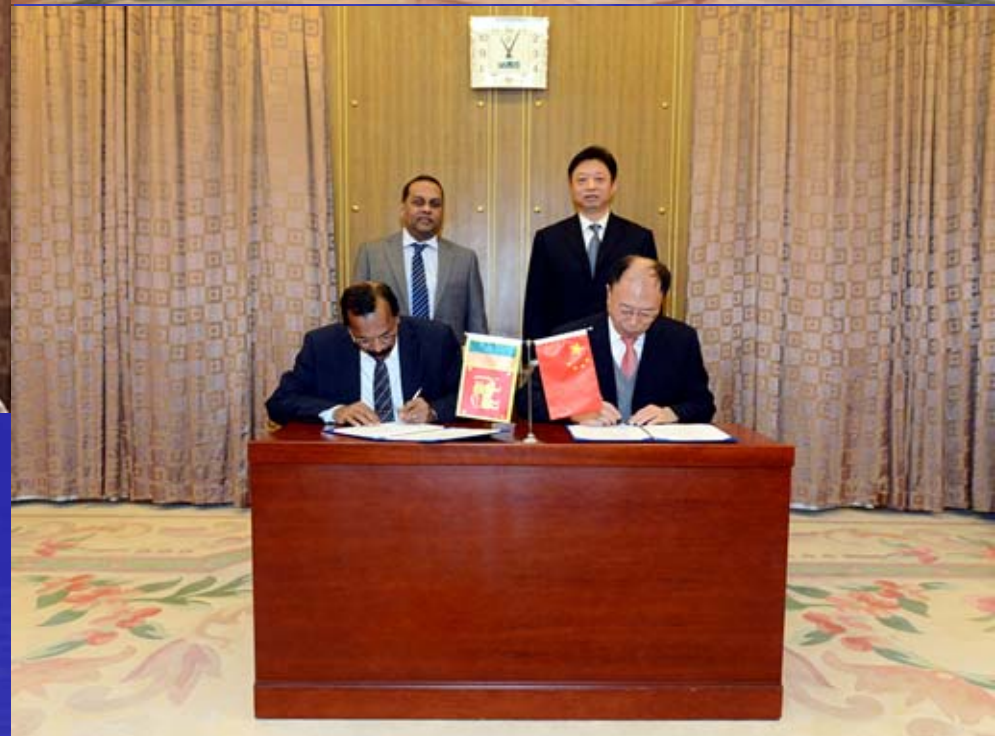
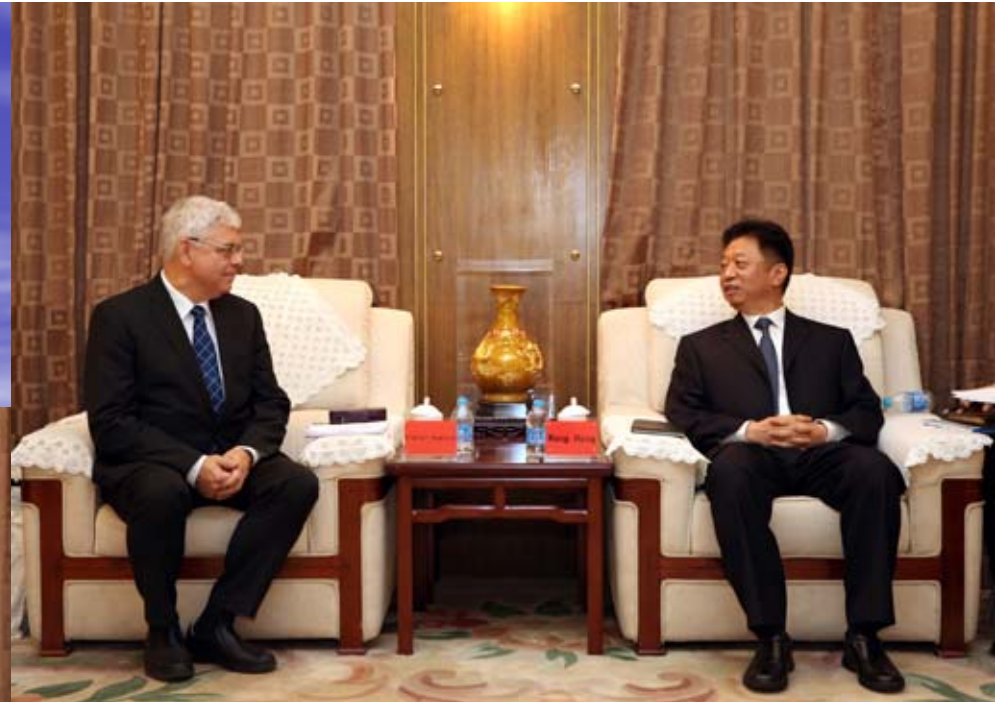
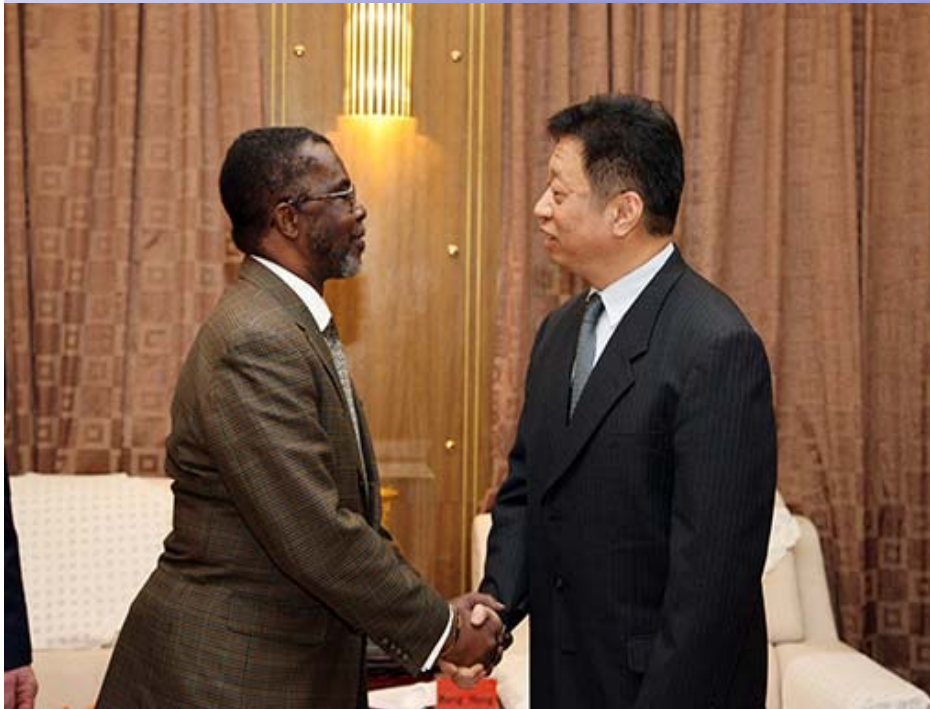
MOU between the SOA of the People's Republic of China and Ministry of Earth Sciences of the Republic of India on cooperation in the field of Ocean Sciences, Ocean Technology, Climate Change, Polar Science and Cryosphere
China, May 2015

China-Australia



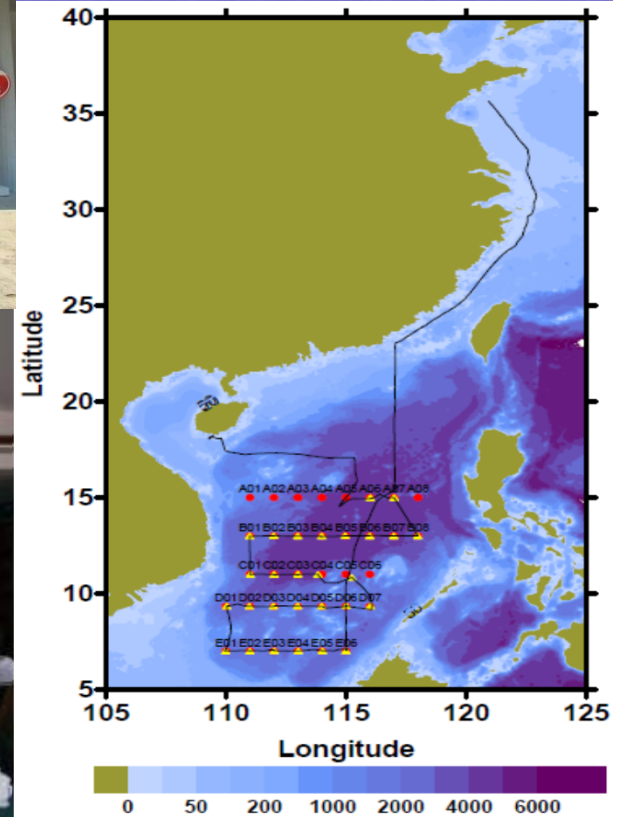
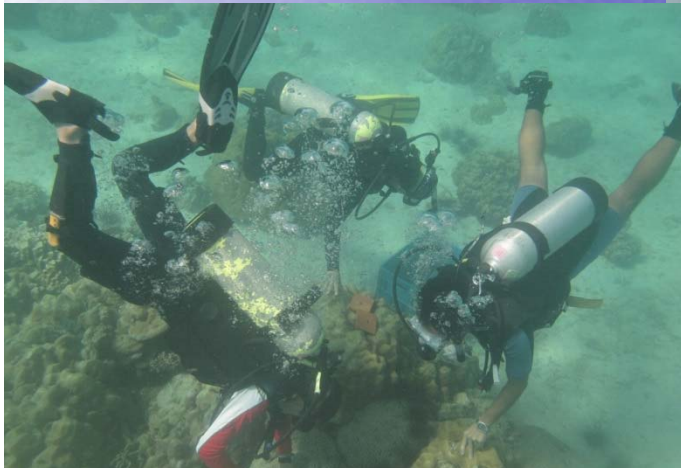
The 1st Joint Committee Meeting On Antarctic and Southern Ocean Cooperation
Australia, February, 2016

3. Mutual visit and Joint Committee Meetings



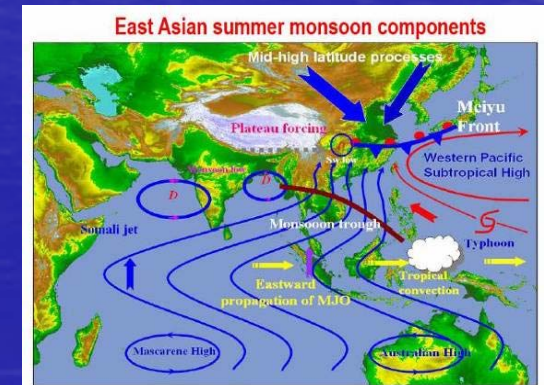
4. Cooperative activities

Jointed field work



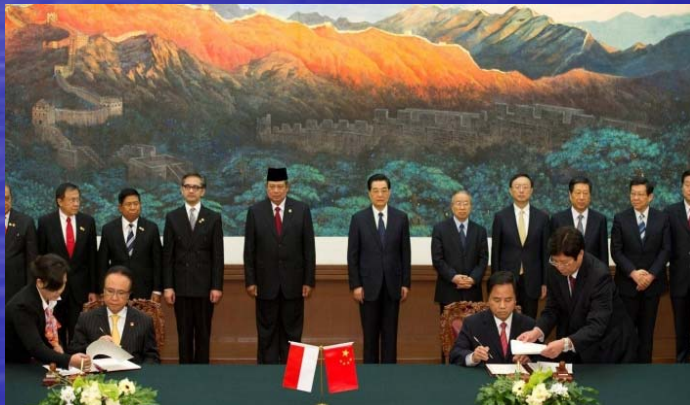
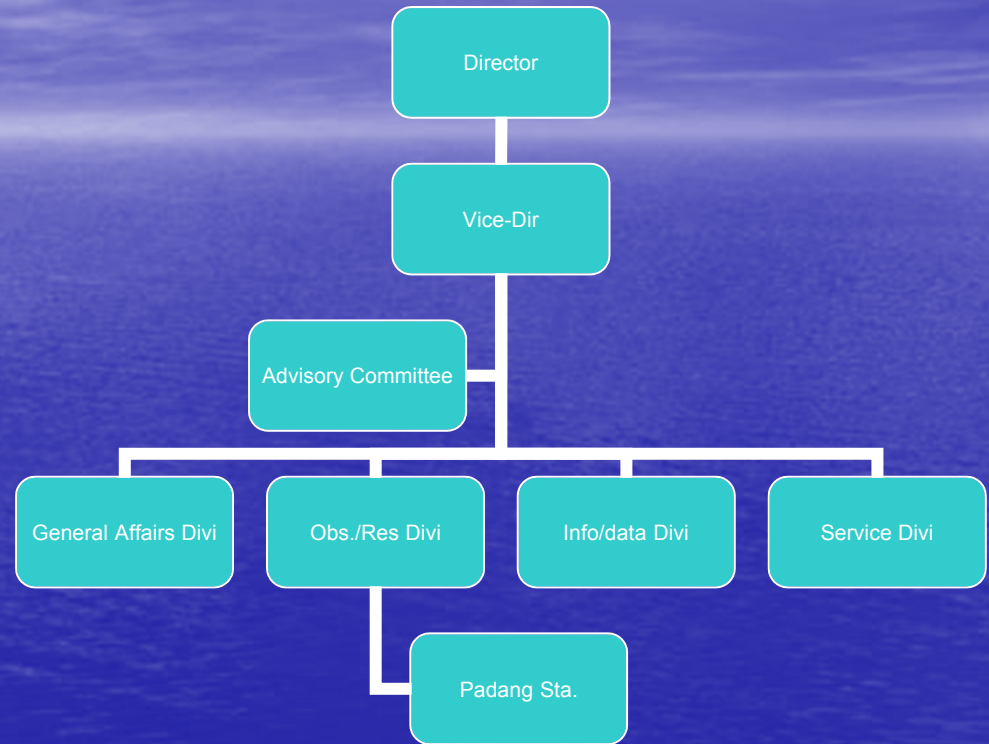
China-Indonesia

- Research Projects
 - South China Sea-Indonesia Sea Water Transport/Exchange
 - Java Upwelling Variation and its Impact on Seasonal Fish Immigration
- 30 cruises, 300 trainees, 8 Workshops



Indonesia-China Ocean and Climate Center

- Function:
 - Secretariat
 - Training center
 - Info/Data Center
 - Observation



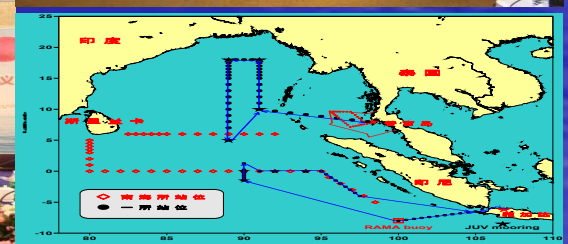
China-Indonesia- Padang Joint Ocean Observation Station

Apr. 27 2011, opening ceremony for Padang Station



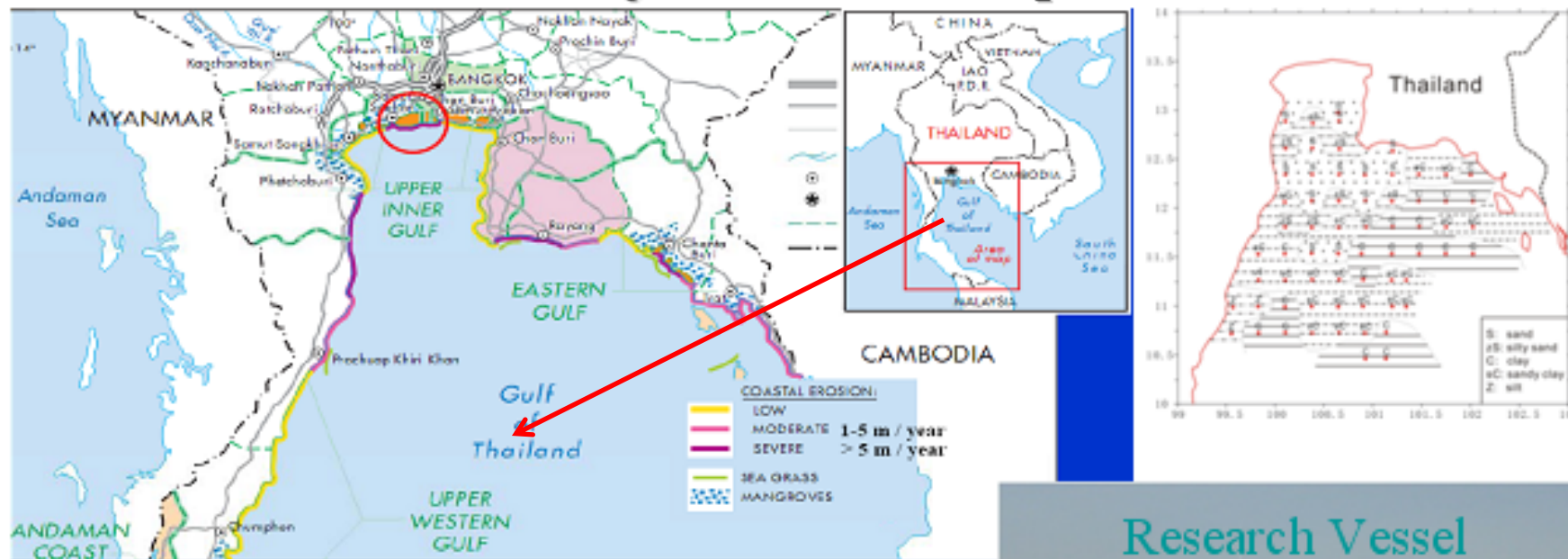
China-Thailand

- **Projects**
 - Monsoon Onset Monitoring over Andaman Sea and its Social Impact Study
 - Vulnerability of the Coastal Zones of the Gulf of Thailand
 - Geology and Ecology of the Andaman Sea
- **8 cruises, 170 trainees, 6 Workshops.**



China-Thailand

Coastal Vulnerability Research Cooperation

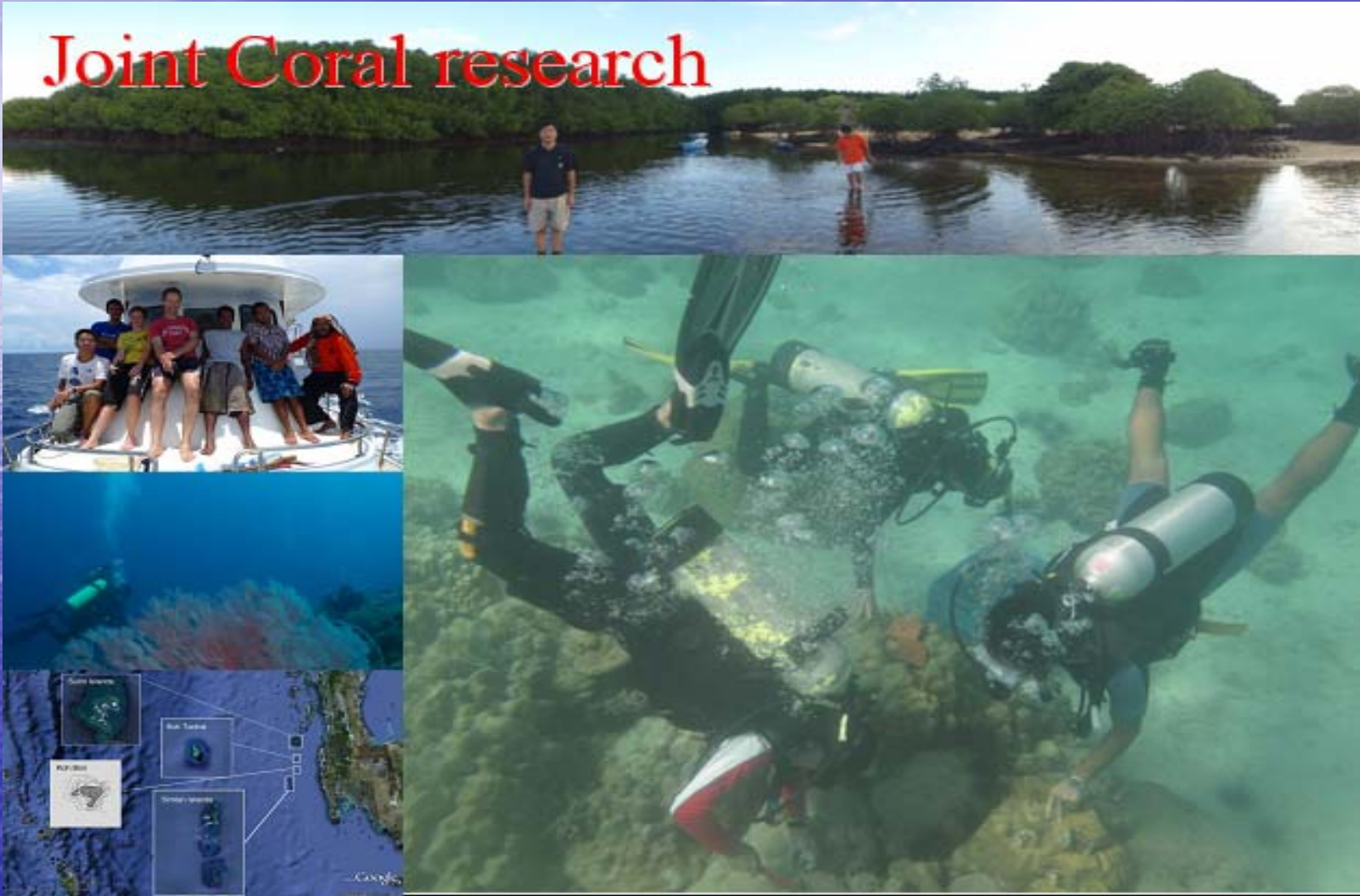


First Joint Geology Field work in Gulf of Thailand. Mae Klong River, Tha Chin River, Chao Praya River, Bang Pakong River and coastal area were covered.

Research Vessel

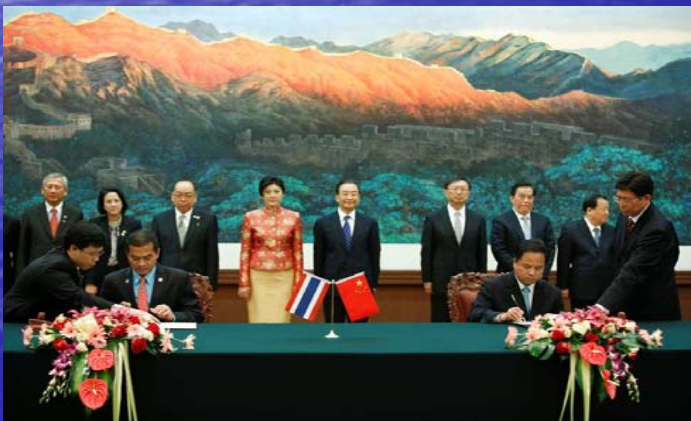
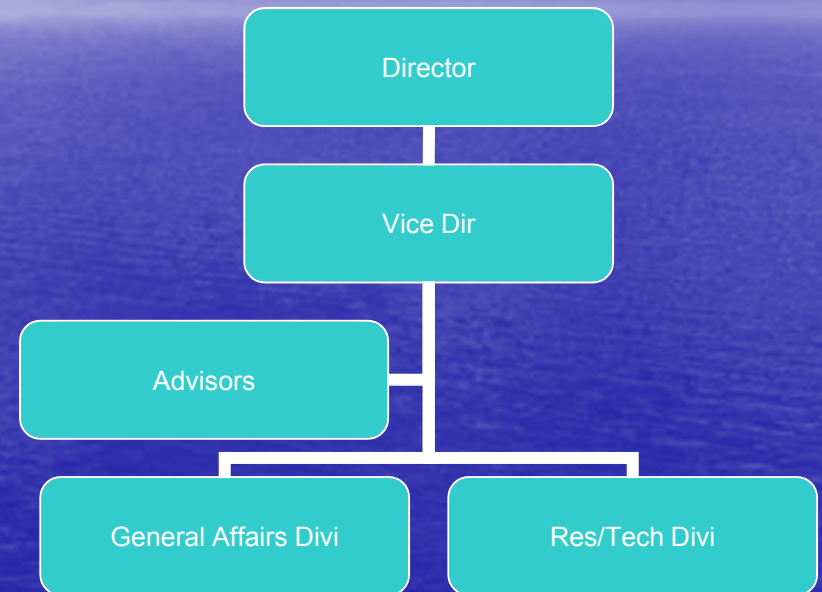


China-Thailand



China-Thai Joint Laboratory on Climate and Marine Ecosystem in 2013

- 5-year Maritime Cooperation Plan(2014~2018) was signed in 2013

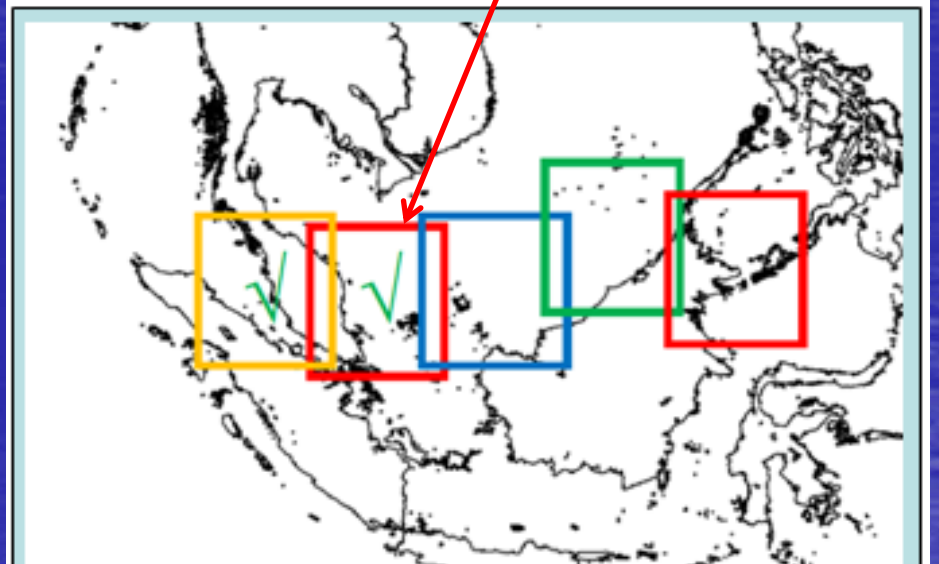
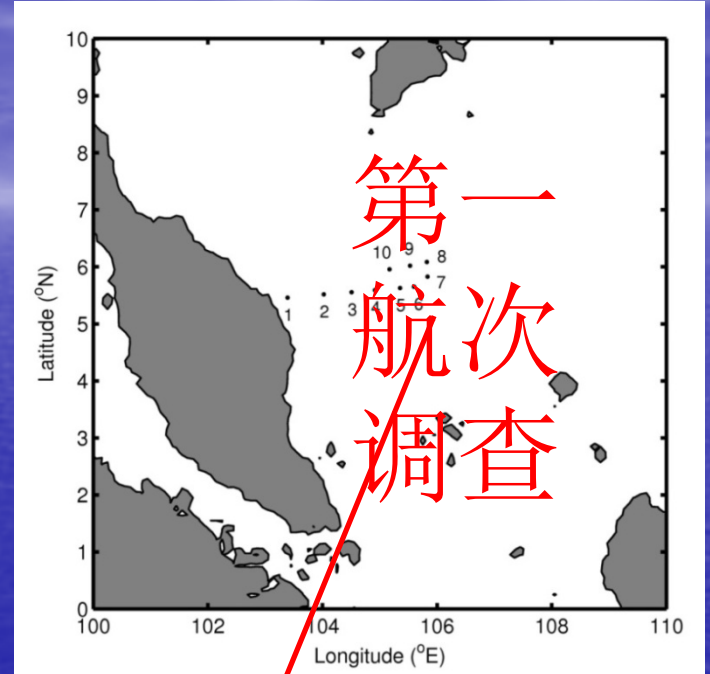


China-Malaysia

- FIO-UKM LOI for Collaboration, in 2009
- Research Projects
 - Operational Ocean Forecasting System
 - Sources-Sink Process in the Southern Part of SCS
- 3 cruises, 80 trainees, 2 workshops

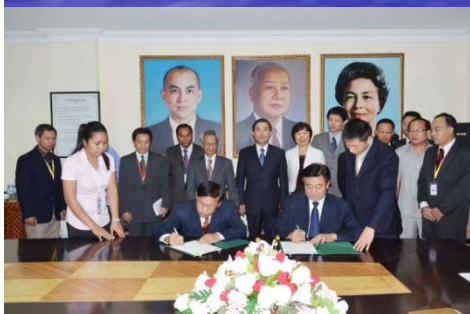
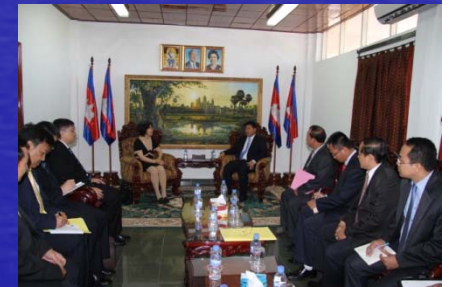


Ocean Forecasting System



China-Cambodia

- China-Cambodia Workshop on Marine Affairs Cooperation (Qingdao, 2012)
- Priorities on marine science cooperation between China-Cambodia (2014~2017)
 - Coastal vulnerability and coastal management
 - Marine biodiversity and MPA
 - Marine governance



China-Myanmar

- Proposal:
 - MOMSEI
 - OFS
 - Estuary dynamics and upwelling



China-Brunei

Exchange and cooperation on Oil spill monitoring and evaluating

China-Vietnam

Cooperation on Marine environment management in Beibu Bay (Tonkin Gulf) in 2013



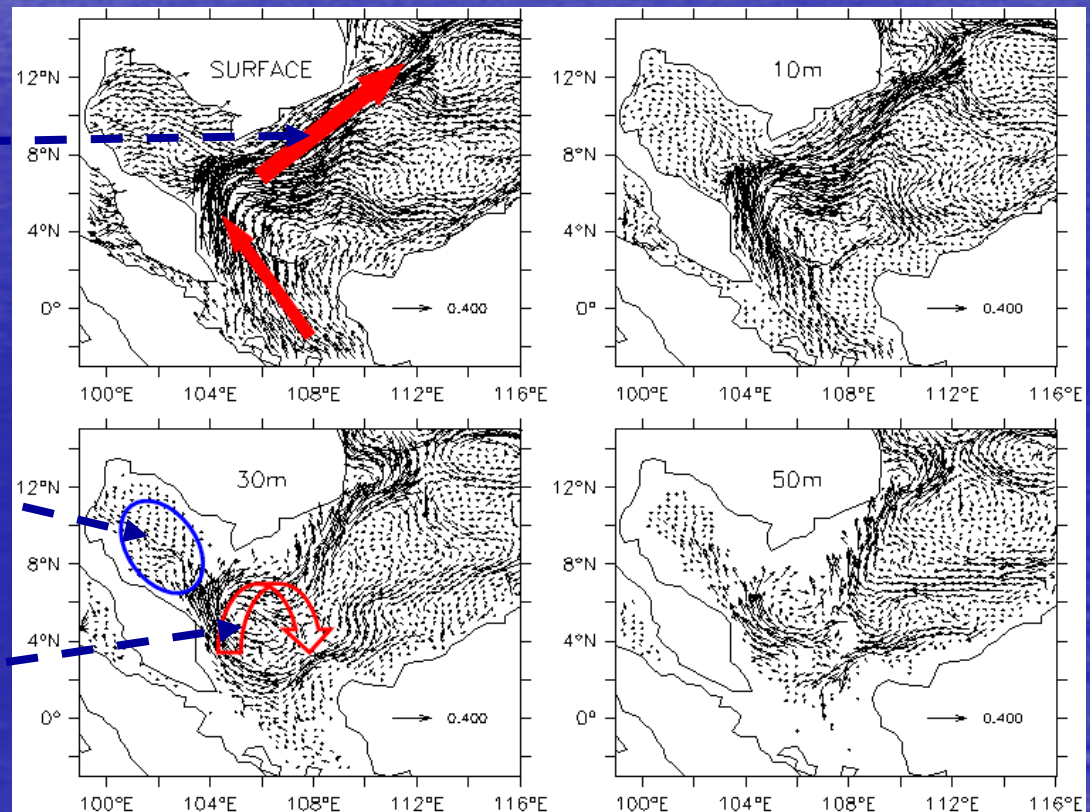
China-Thailand-Malaysia project- OFS

Ocean Forecast Demonstration System in the Southeast Asian Seas started in 2010

coastal current

current in Gulf of Thailand

subsurface eddy



1st ASEAN-China Workshop on Marine Science and Technology Cooperation



- ① Ocean/climate change
- ② Ocean forecasting system/observation
- ③ Marine environment/biodiversity
- ④ Marine records on environment/climate
- ⑤ Change
- ⑥ Ocean economy and marine policy.

- ◆ Organizer: SOA, MMAF, MFA
- ◆ 10+1, 79
- ◆ Bali, Indonesia, in November 2013



Recommendations of the Workshop

Recommendations of the ASEAN – China Workshop on Marine Science and Technology Cooperation Bali, Indonesia, 21-22 November 2013

1. ASEAN – China Workshop on Marine Science and Technology Cooperation was held in Bali, Indonesia on November 21 – 22, 2013 as part of the Work Plan of the Implementation of the Declaration on the Conduct of Parties in the South China Sea (DOC) for 2013-2014. This workshop was hosted by State Oceanic Administration (SOA) China, Ministry of Marine Affairs and Fisheries (MMAF), Indonesia, Ministry of Foreign Affairs (MFA), Indonesia and organized by the First Institute of Oceanography, the Agency for Marine & Fisheries Research and Development, Ministry of Marine Affairs and Fisheries of the Republic of Indonesia (MMAF), and the Directorate General for ASEAN Cooperation of the Ministry of Foreign Affairs of the Republic of Indonesia (MFA). This workshop was also co-partnered by the Intergovernmental Oceanography Commission Sub-Commission for the Western Pacific (IOC-WESTPAC). It was attended by representatives of ASEAN Member States and China, including invited resource speakers, scientists and scholars. The list of participants appears as **Annex I**.

2. The workshop provided a forum for discussion among researchers, experts and government officials of ASEAN Member States and China to discuss five topics namely: ocean and climate change, ocean forecasting system and observation, marine environment and biodiversity, marine records on environment and climate change, and ocean economy and marine policy. The abstracts of presentations appear as **Annex II**.

3. The workshop shared common interests and concerns among others: ocean forecasting system (OFS) and disaster mitigation, marine endangered species and ecosystem conservation, climate change, ocean based economic development, and marine pollution and rehabilitation. It underscored the importance of promoting collaborative research and development activities in marine science and technology between ASEAN Member States and China. It is believed that better scientific understanding of the aforementioned challenges will promote better understanding among ASEAN Member States and China especially in ocean related issues and support the economic development in the Southeast Asia region and China.

4. In the spirit of enhancing Marine Science and Technology Cooperation, the workshop:

a. encouraged to develop marine cooperation initiatives to strengthen marine knowledge including capacity building, service and innovation for next decade, promote partnership to mainstream marine cooperation, improve communication to share policy and knowledge, enhance protection to conserve ecosystem, provide services to meet the needs of community, and develop ocean economy through sustainable and social capital innovation. This can be done in consultation with China and relevant ASEAN led mechanisms and bodies.

b. expected further collaborative research and development activities on marine science and technology among ASEAN Member States and China, including the making use of the ASEAN China Maritime Cooperation Fund.

c. noted China's suggestion to establish partnership mechanism among marine research institutes and universities to evaluate collaborative research and development activities in marine science and technology cooperation among ASEAN Member States and China.

d. welcomed the proposal to convene regular workshops among ASEAN Member States and China to promote ocean research and development related issues in consultation with ASEAN Member States.

5. It is agreed that the next workshop will be hosted by **Thailand** and the following workshop will be hosted by **Malaysia**.

2nd China-ASEAN Countries Marine Cooperation Forum

- Organizer: DMCR/FIO
- 7+1, 131
- In Phuket, Thailand, in December 2014

- ① Ocean/climate change
- ② Ocean forecasting system/observation
- ③ Marine environment/biodiversity
- ④ CZM and coastal erosion
- ⑤ Blue economy and marine policy.



Recommendations of the Workshop

Recommendations of The 2nd China-ASEAN Countries Marine Cooperation Forum Phuket, Thailand, 15-17 December, 2014

Following the recommendations from the 1st ASEAN-China Workshop on Marine Science and Technology Cooperation in Bali, Indonesia, during 21–22 November 2013, the 2nd China-ASEAN Countries Marine Cooperation Forum was held in Phuket, Thailand, during 15–17 December 2014, sponsored by the Ministry of Natural Resources and Environment, Thailand, the State Oceanic Administration, China, and the UNESCO/IOC Sub-Commission for the Western Pacific, and organized by the Department of Marine and Coastal Resources, Thailand, the First Institute of Oceanography, China, and the Thailand-China Joint Laboratory for Climate and Marine Ecosystem. There are 124 participants from Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Vietnam, Thailand, and China, including invited speakers, scientists and scholars. The list of the participants is attached as Annex I.

The Forum featured the theme, “Strengthen the Southeast Asia – China Marine Science and Technology Cooperation, Promote the Sustainable Development of Southeast Asia”, with five sessions conducted, namely: 1) ocean and climate change, 2) ocean forecasting systems and observations, 3) marine environment and biodiversity, 4) coastal zone management and coastal erosion, and 5) blue economy and marine policy. The abstracts of the presentations are attached as Annex II.

The Forum underscored the importance of promoting collaborative research and development in marine science and technology among ASEAN countries and China. The Forum highlighted the essential role of marine scientific knowledge in addressing aforementioned challenges to sustainable development, and further stressed the need to develop collaboration among ASEAN countries and China, especially in ocean related issues including blue economy in the Southeast Asia

region and China.

To further promote the ASEAN-China Strategic Partnership for Peace and Prosperity, to contribute to the development of the Maritime Silk Road of the 21st Century, and to enhance the implementation of the Declaration on the Conduct of Parties in the South China Sea (DOC) for peace, stability, and prosperity in the region, the Forum made the recommendations below:

- (1) The cooperation should be enhanced and strengthened in the implementation of the two projects, namely: 1) Joint Study on Marine Endangered Species among China and ASEAN Countries, and 2) the Development of Marine Environmental Forecasting and Disaster Early Warning System for Southeast Asia, both of which are financially supported by the China-ASEAN Maritime Cooperation Fund;
- (2) The Action Plan for China-ASEAN Countries Marine Cooperation should be developed, serving as one key building block for future cooperation;
- (3) Priority should be accorded to capacity building in the development and implementation of collaborative programs with a view to building knowledge-base, sharing experiences and promoting the transfer of technology for sustainable development of marine and coastal resources;
- (4) Partnerships should be strengthened with the UNESCO/IOC Sub-Commission for the Western Pacific, the competent international organization for marine science in the region;
- (5) The relevant information on the mechanism for calling for proposals be further disseminated, as far as possible, in order to engage wider scientific communities in ASEAN countries into the Cooperation;
- (6) The China-ASEAN Countries Marine Cooperation Forum should be continuously organized on a regular basis;

The Forum noted with great appreciation the kind offer by the Malaysian delegates to host the 3rd China-ASEAN Countries Marine Cooperation Forum in 2015, with logistic support provided by relevant institutions, including the University of Malaya (UM), the National University of Malaysia (UKM), and

ARF Workshop on Regional Cooperation on Offshore Oil Spill

◆ **Maritime Security Workshop on Marine Environmental Protection Cooperation: *Preparedness and Response to Pollution Incidents Involving Hazardous and Noxious Substances***

Honolulu Hawaii, 4-5 March 2014

◆ **ARF Seminar on the Regional Cooperation on Offshore Oil Spill**

Qingdao Shandong, China 27-27 March, 2014



2014/03/05



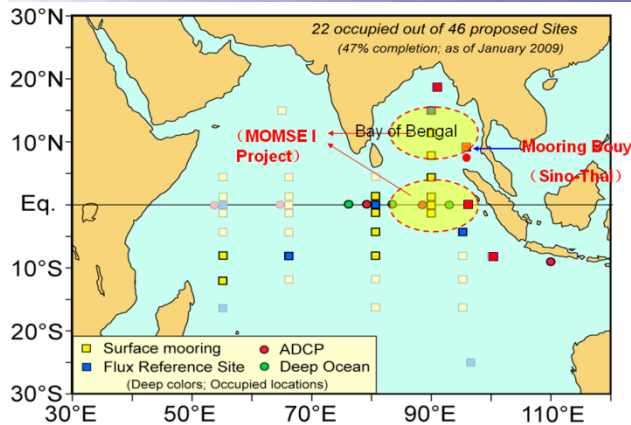
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IOC Sub-Commission for the
Western Pacific
(WESTPAC)

IOC/WESTPAC-MOMSEI

Monsoon Onset Monitoring and its Social and Ecosystem Impact



Objectives

- i) understanding and forecasting of Asia monsoon and its multi-scale variability at a regional scale through developing and carrying out air-sea observations,
- ii) analyzing the preconditioning role of ocean in the monsoon onset since the Asian Summer Monsoon onsets firstly take place.

IOC/WESTPAC-MOMSEI

Ocean observation;
Meteorology observation;
Ocean-atmosphere heat flux observation;
Air CO₂ partial pressure observation;
Topography observation at the location
of expected buoy deployment.



The First MOMSEI cruise, 22-28
November 2010.

The second MOMSEI cruise, 11-17
March 2011, onboard PMBC R/V
Chakratong Tongyai



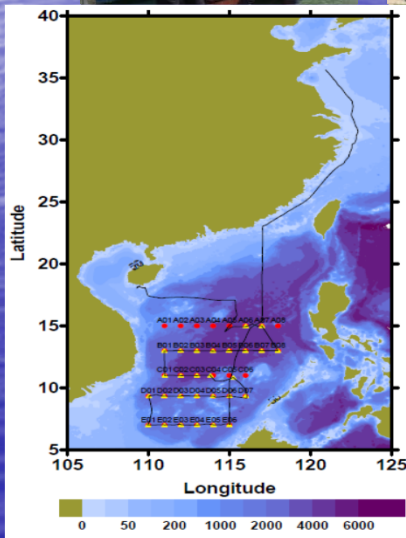
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IOC Sub-Commission
Western Pacific
(WESTPAC)

IOC/WESTPAC-ROSE

Responses of Marine Hazards to Climate Change in the Western Pacific



Objectives

- improve the understanding of the physical processes of marine hazards and their response mechanisms to climate change by means of observations, dynamic analysis and numerical methods;
- quantify the trends of the typical marine hazards

IOC/WESTPAC-ROSE

Five Workshops of ROSE.

- Nov. 25-28, 2008, Qingdao, China, First Scientific workshop
- Dec. 5-6, 2009, Qingdao, China, Second Scientific workshop
- Mar. 28-30, 2011, Busan, South Korea, Third workshop





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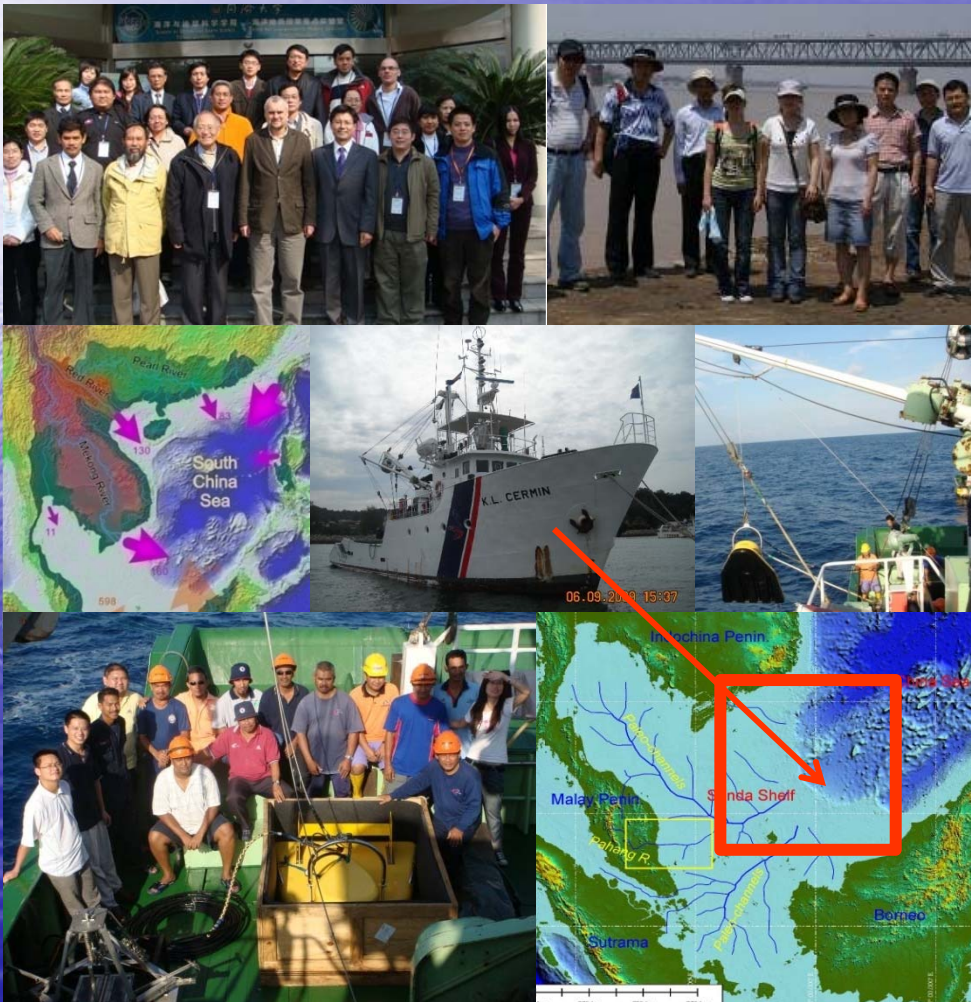
IOC Sub-Commission for the
Western Pacific
(WESTPAC)

IOC/WESTPAC-Fluv

Fluvial Sediment Supply to the South China Sea: Anthropogenic and Natural Aspects

Objectives

- i) Investigate source and transport of fluvial sediment discharge to the South China Sea over geological past: fractionating anthropogenic influence from natural trend
- ii) predict the future sediment discharge.





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IOC Sub-Commission
Western Pacific
(WESTPAC)

IOC/WESTPAC- CorreCAP

Coral reef under Climate and Anthropogenic Perturbation



Topic	Day 1	Day 2	Day 3	Day 4	Day 5
Registration	08:00-18:00	08:00-18:00	08:00-18:00	08:00-18:00	08:00-18:00
Opening Ceremony	09:00-10:00				
Plenary Session	10:30-12:00	10:30-12:00	10:30-12:00	10:30-12:00	10:30-12:00
Workshop	13:00-18:00	13:00-18:00	13:00-18:00	13:00-18:00	13:00-18:00
Poster Session	18:30-21:00	18:30-21:00	18:30-21:00	18:30-21:00	18:30-21:00
Networking					
Closing Ceremony					18:00-21:00

2nd Asia Pacific Coral Reef Symposium 2010 (19-21) 1183 800 - Wireless Internet Explorer

2nd Asia Pacific Coral Reef Symposium 2010 (19-21) 1183 800 - Wireless Internet Explorer

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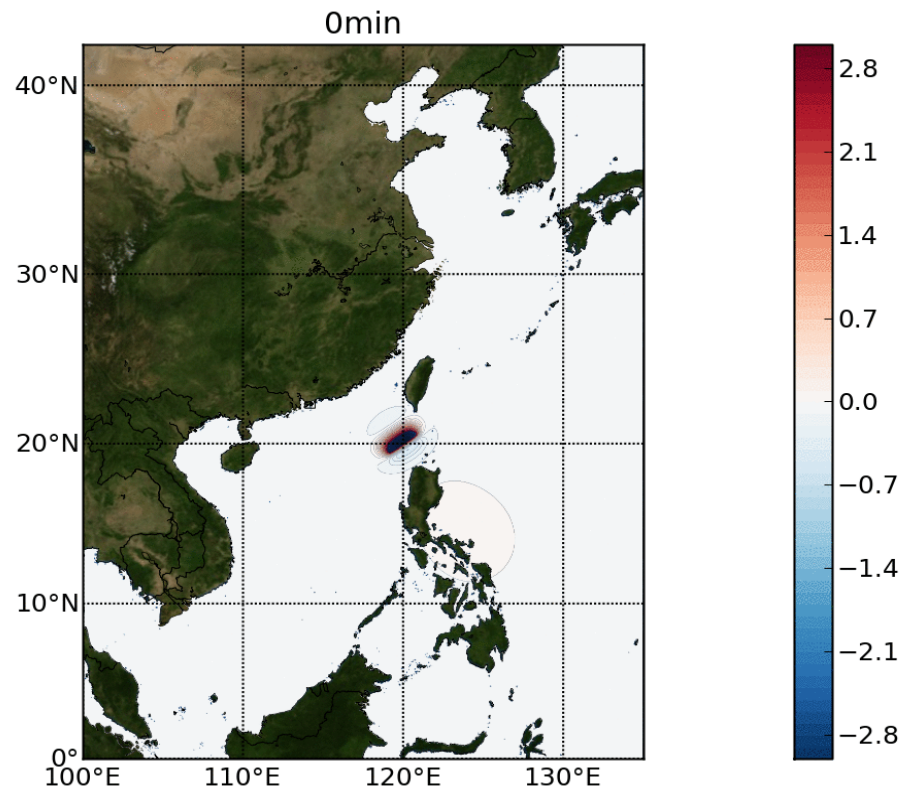
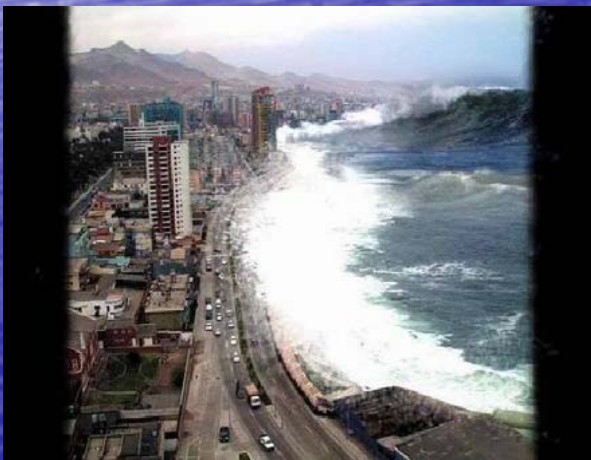
2nd Asia Pacific Coral Reef Symposium 2010 (19-21) 1183 800 - Wireless Internet Explorer

Objectives:

- i. understand the biogeochemical and ecological nature of coral reefs in WESTPAC;
- ii. evaluate the consequence of impact of climate change and other human activities on the health of coral reefs and their sustainable use;
- iii. promote capacity building in areas related to research on coral reefs

IOC/PTWS -- SCSTWS

South China Sea Tsunami Warning System (SCSTWS)

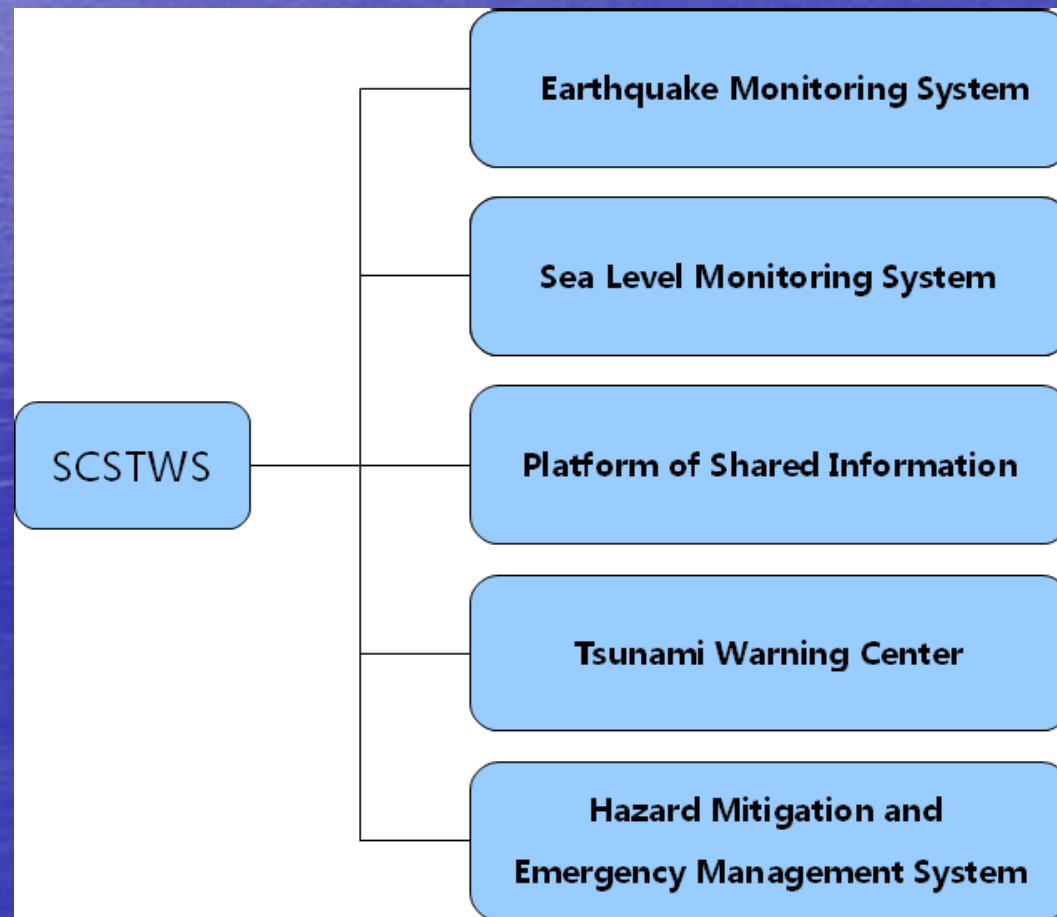


南海假想地震海啸模拟动画

——震中（20N，120E），震级8.5，震源深度20千米

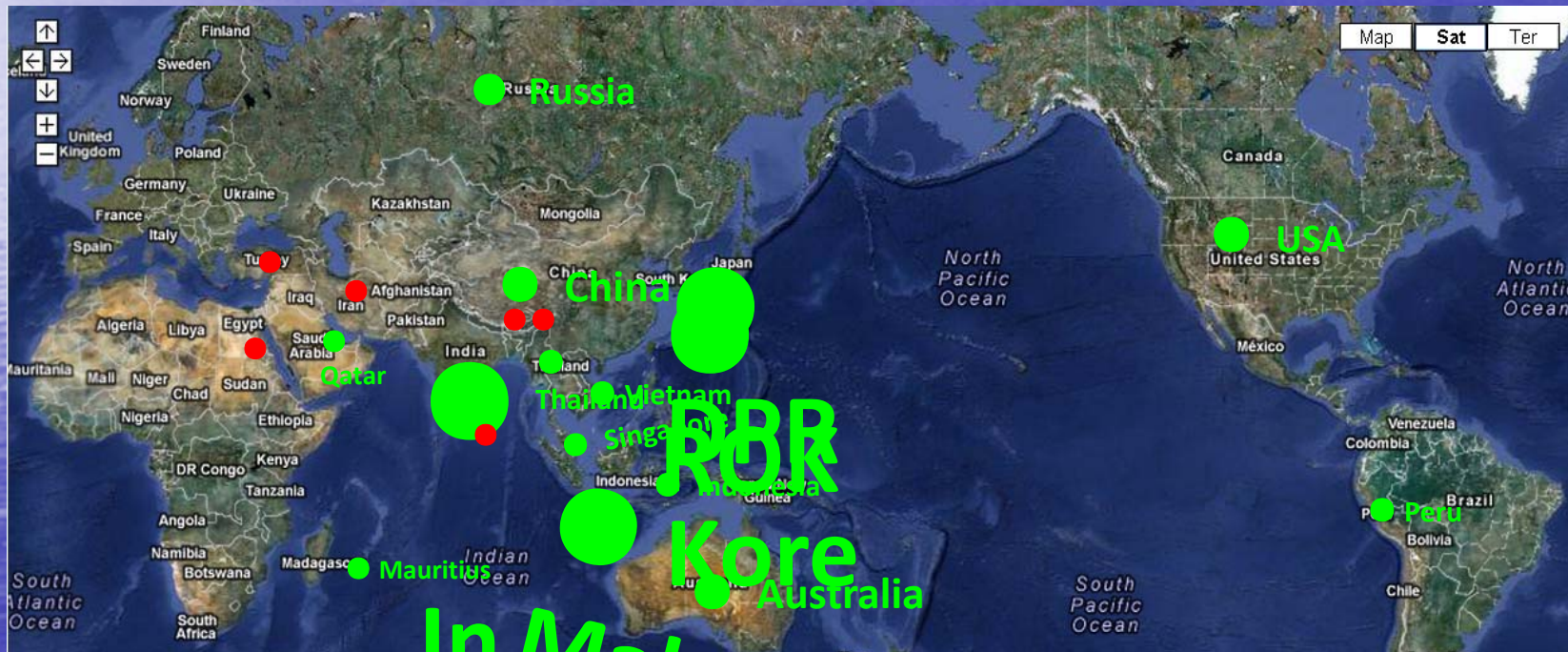
SCSTWS

Composition of the **S**outh **C**hina **S**ea **T**sunami **W**arning **S**ystem (SCSTWS)



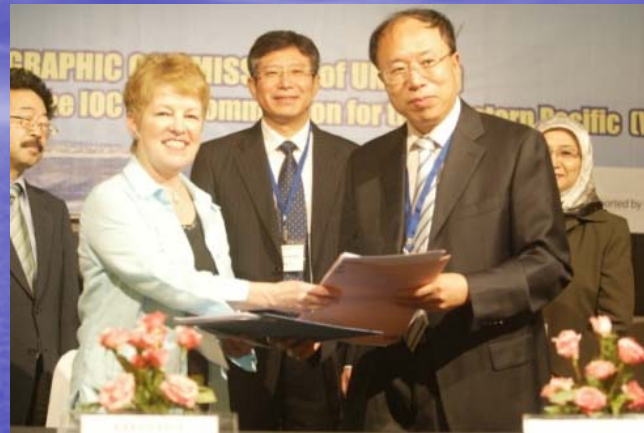
UNESCO/IOC Regional Training and Research Center on Ocean Dynamics and Climate

- 169 trainees from 26 countries.



Capacity Building – ODC Training Course

The first UNESCO/IOC Research and Training Centre was founded in 2010 in Bali, Indonesia.



69 students from 10 countries

Capacity building



Marine ecology training



Marine biotechnology training



3rd MOMSEI training course



UNESCO/IOC ODC training course



2nd ICCOC training course

Marine Scholarship of China

- Established jointly by SOA and MOE of China in 2012. It was designed for young scholars from developing countries to pursue their PhD or master degrees in China's leading universities.
- 35 students were enrolled each year since 2012



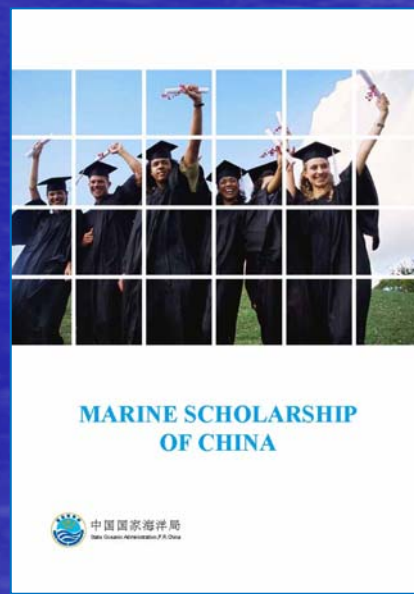
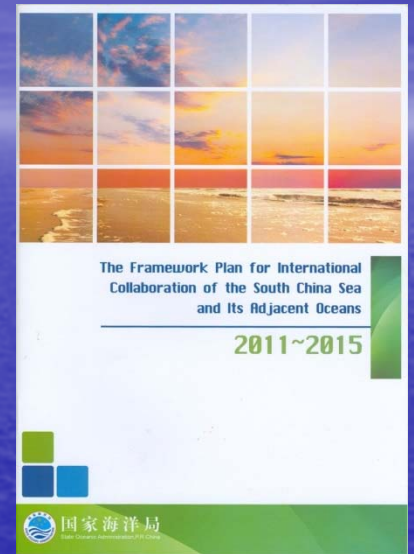
Anna from Indonesia received her PhD in 2012.



**MARINE SCHOLARSHIP
OF CHINA**

Collaboration Fund

- China-ASEAN Maritime Cooperation Fund.
- China-Indonesia Maritime Cooperation Fund.
- The Framework Plan for International Cooperation in the South China Sea and its Adjacent Oceans(2011-2015).
- Marine Scholarship of China.
- Other sources.



Outlines

1. Environmental challenges in the SCS
2. Recent Cooperative Activities by countries around the SCS
3. Challenges and the way forward

Challenges

- ◆ Political concerns and mutual trust affect the marine cooperation even in the area of low sensitivity.
- ◆ Some cooperation activities are limited into workshops and mutual visits, concrete cooperative projects and joint cruises needs to be developed.

The way forward

- Strategic Plan on Construction of 21st Century Maritime Silk Road
- The Framework Plan for International Cooperation in the South China Sea and its Adjacent Oceans(2016-2020).
- China-ASEAN Maritime Cooperation Fund.
- China-Indonesia Maritime Cooperation Fund.

Cooperative areas

Marine and Climate Change

Marine Environment Protection

Prevention and Mitigation of Marine Disaster

Regional Oceanography

Marine Policy and Management

**Looking forward to
cooperating with you**



Thanks