



United Nations
Educational, Scientific and
Cultural Organization

Organisation
des Nations Unies
pour l'éducation
la science et la culture

Organización
de las Naciones Unidas
para la Educación
la Ciencia y la Cultura

Организация
Объединенных Наций по
вопросам образования
науки и культуры

- Intergovernmental
Oceanographic
Commission
- Commission
océanographique
intergouvernementale
- Comisión
Oceanográfica
Intergubernamental
- Межправительственная
океанографическая
комиссия

WESTPAC/SEAGOOS: PROJECTS/ACTIVITIES

*Dr Somkiat Khokiattiwong, Chairperson
IOC Sub-Commission for the Western Pacific (WESTPAC)
Intergovernmental Oceanographic Commission, UNESCO
GEO meeting, Tokyo, Japan*

Structure

MAY 2015 – MAY 2017

WESTPAC Session

WESTPAC Office, Bangkok

WESTPAC Advisory Group

WESTPAC International Scientific Symposia

Ocean Observations & Services

Marine Science & Applications

Capacity Development

Working Groups

NEAR-GOOS

SEAGOOS

Air-Sea Interaction in the Kuroshio Extension

Upwelling Studies

IPOVAI

IPON

Marine & Coastal Biodiversity and Conservation

Coral Reef under Climate & Anthropogenic Perturb.

DNA Taxonomy & Recruitment Monitoring of Coral Reef Marine Organisms

Marine Toxins & Seafood Safety

Harmful Algal Blooms

Ocean Remote Sensing

Marine Endangered Species

SCS Fluvial Sediments

Training & Research Centers

Specific trainings under projects

WESTPAC Best Young Scientist Award

WESTPAC Young Scientist Travel Grant

IOC RTRC on ODC

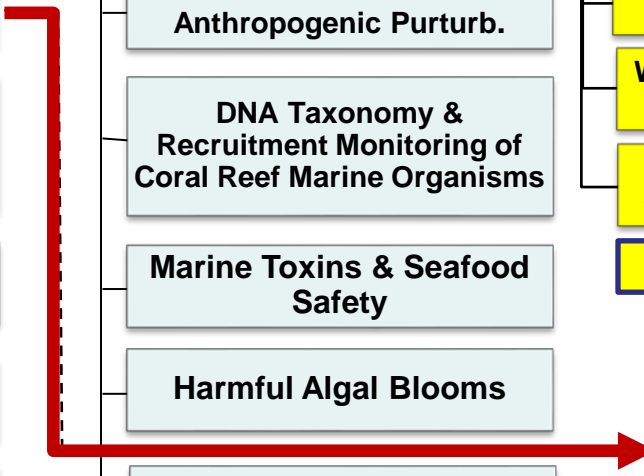
WG 003: Mapping the Harmful Jellyfishes

WG 004: Marine Renewable Energy Technology

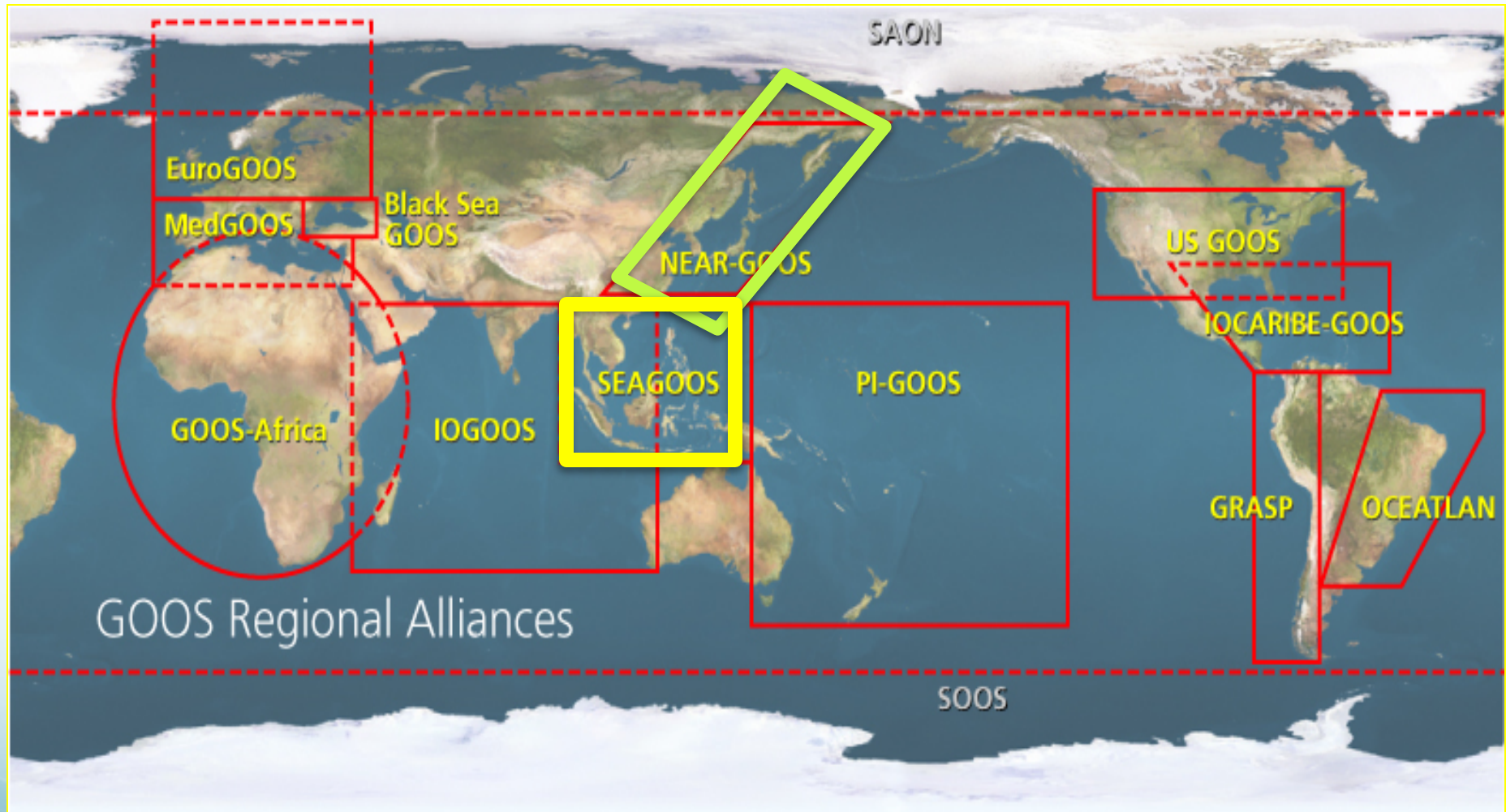
Ocean Forecasting System

MOMSEI

Ocean Acidification



IOC GOOS Regional Alliances



GOOS have come into being in February 1991

Develop, strengthen
sustainable ocean observations and services
underpinning sustainable development

**Southeast Asian Global Ocean Observing System
(SEAGOOS)**

Monsoon Onset monitoring and its Social & Ecosystem Impact (MOMSEI)

Ocean Forecasting System (OFS)

Regional Ocean Acidification Monitoring Network



South East Asian Global Ocean Observing system (Pilot Project)
**Monsoon Onset monitoring and its
Social & Ecosystem Impact (MOMSEI)**

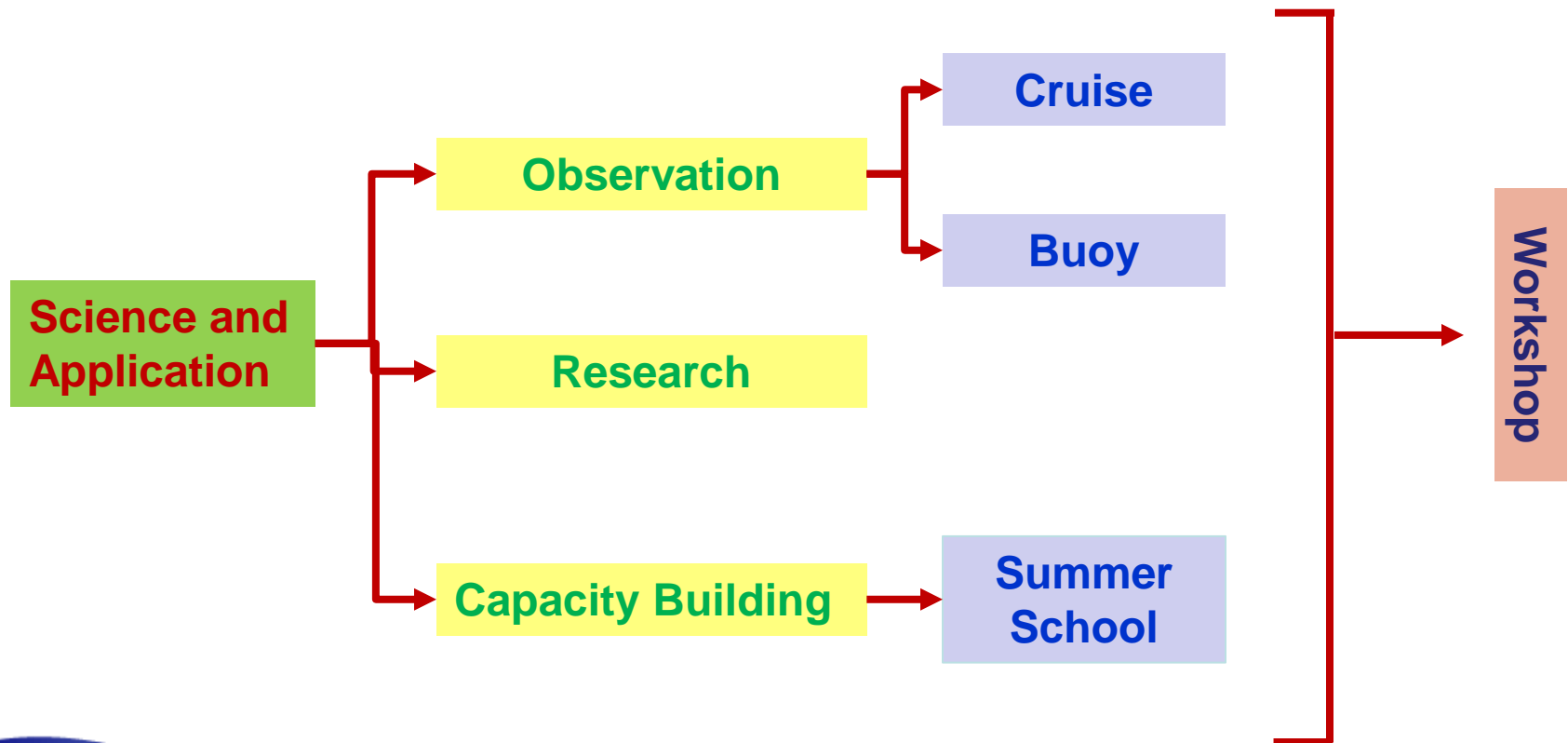


IOC

South East Asian Global Ocean Observing system (Pilot Project)

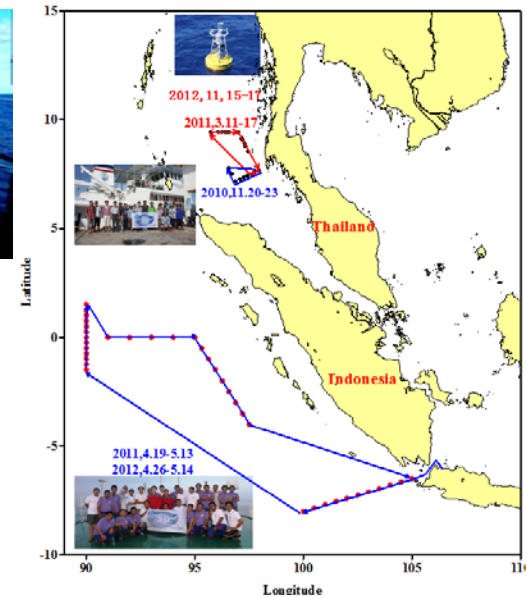
Monsoon Onset monitoring and its Social & Ecosystem Impact (MOMSEI)

Roadmap of MOMSEI Implementation



South East Asian Global Ocean Observing system (Pilot Project) Monsoon Onset monitoring and its Social & Ecosystem Impact (MOMSEI)

Joint cruises and buoy deployment



Regional consultations (Workshop)

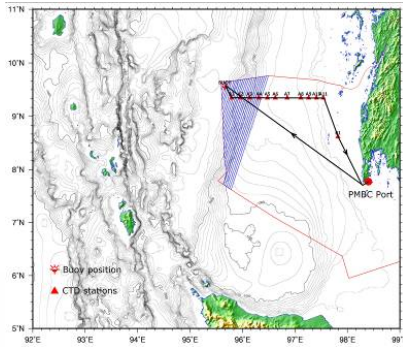


MOMSEI Summer School for young scientists

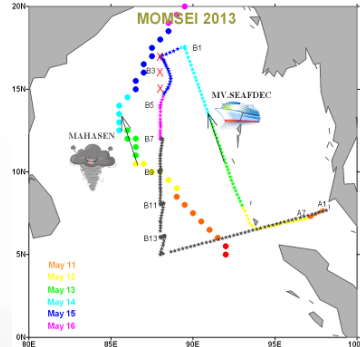


South East Asian Global Ocean Observing system Monsoon Onset monitoring and its Social & Ecosystem Impact (MOMSEI)

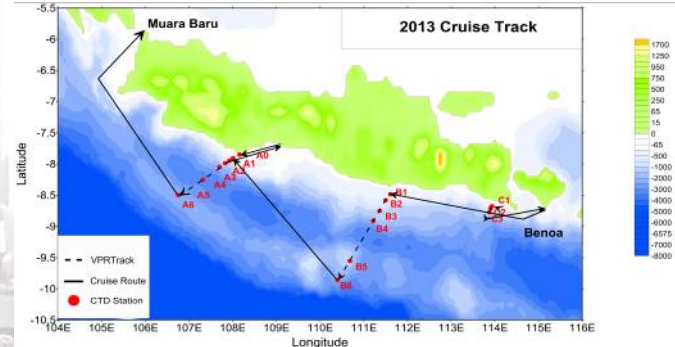
Joint cruises and buoy deployment



Andaman Sea Cruise
Nov 15-18, 2012
May 11-17, 2014



Bay of Bengal Cruise
May 11-23, 2013



South Java Upwelling Cruise
Sep 22 – Oct 2, 2013



South East Asian Global Ocean Observing system Monsoon Onset monitoring and its Social & Ecosystem Impact (MOMSEI)

Regional consultations

- 6th MOMSEI Expert Workshop in Sep. 10-12, 2012
- 7th MOMSEI Expert Workshop in Nov. 4-5, 2013



MOMSEI Summer School for young scientists



3rd MOMSEI Summer School in Aug. 6-10, 2012



4th MOMSEI Summer School in Aug. 19-23, 2013



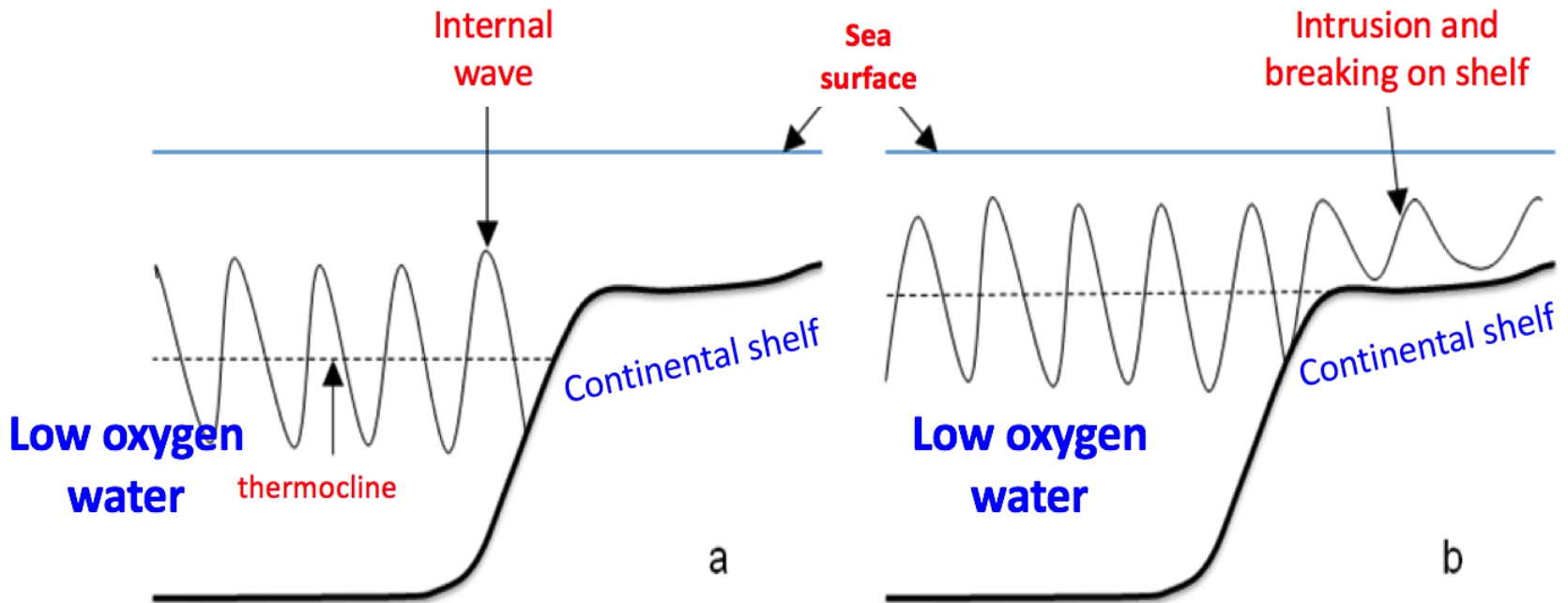
5th MOMSEI Summer School in Sep. 9-13, 2014



6th MOMSEI Summer School in Oct. 26-30, 2015

South East Asian Global Ocean Observing system

Monsoon Onset monitoring and its Social & Ecosystem Impact (MOMSEI)



Deep thermocline case

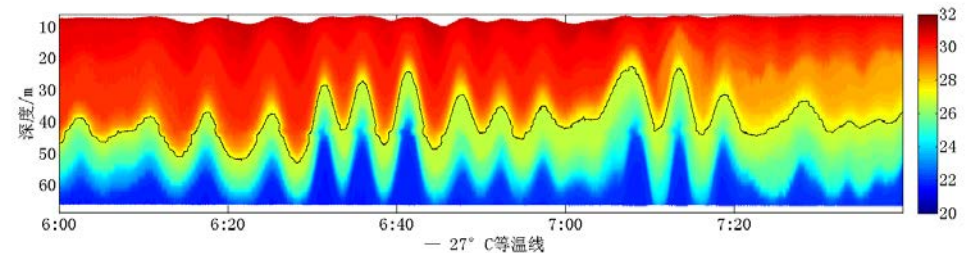
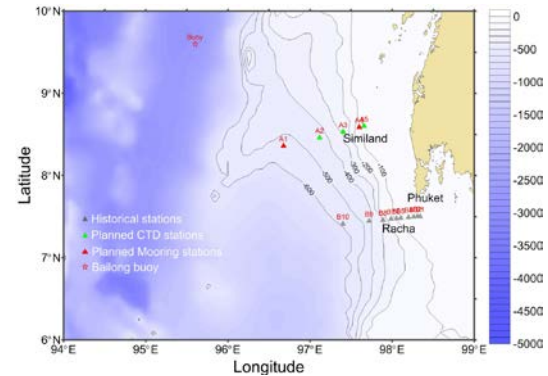
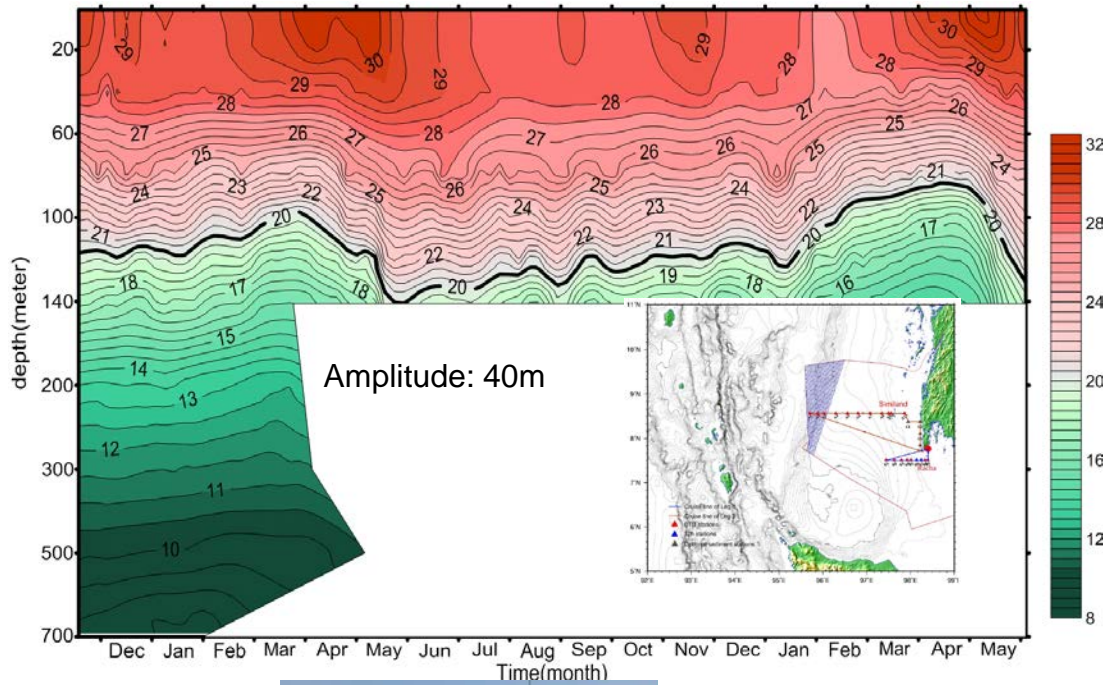
SW-M

Shallow thermocline case

NE-M

South East Asian Global Ocean Observing system

Monsoon Onset monitoring and its Social & Ecosystem Impact (MOMSEI)



South East Asian Global Ocean Observing system
Ocean Forecasting System (OFS)



IOC

South East Asian Global Ocean Observing system Ocean Forecasting System (OFS)

The Chronology of IOC-WESTPAC / SEAGOOS Ocean Forecasting Demonstration System



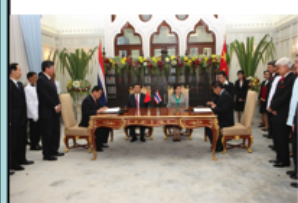
Prof. Tangang's visit to FIO in 2009 – **transforming friendship into a regional project**



FIO's visit to UKM in 2009 and signing of UKM-FIO Letter of Intent – **institutional supports**



Meeting on Malaysia-China MOA, 2010 --- **country support**



Thailand – China MoU --- **country support**

OFDS Establishment
8th IOC-WESTPAC in Bali, Indonesia

Before OFDS establishment



Operational OFDS Website

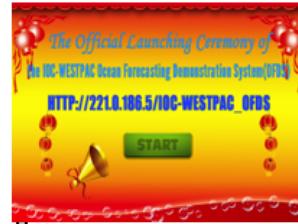
Joint cruise



Installing & training



Launching of OFDS Web portal



Launching of OFS in Thailand July 2015



5/2010

1/2012

5/2012

2012 -2013

7/2015

8/2015

South East Asian Global Ocean Observing system Ocean Forecasting System (OFS)

UNESCO/IOC ODC Ocean Modeling Training at FIO, QingDao, China

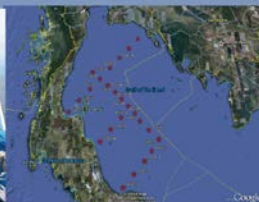


June 10-16, 2011



July 12-22, 2012

Joint Cruises between member countries



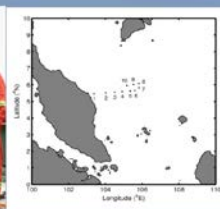
Meeting and workshops



Sep 30-Oct 1, 2010, Phuket

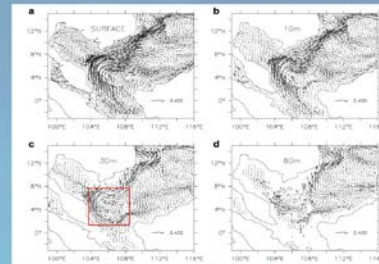


March 5-6, 2013, Jakarta

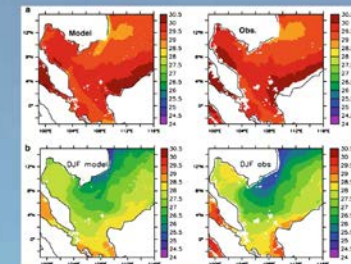


Sep 13-15, 2011, Joint Cruise between FIO, UKM & UMT

Model Development



Tangang et al. 2011 (Ocean Dyn.)



Tangang et al. 2011 (Ocean Dyn.)

OFS Website



http://221.0.186.5/IOC-WESTPAC_OFDS/

Future focus.

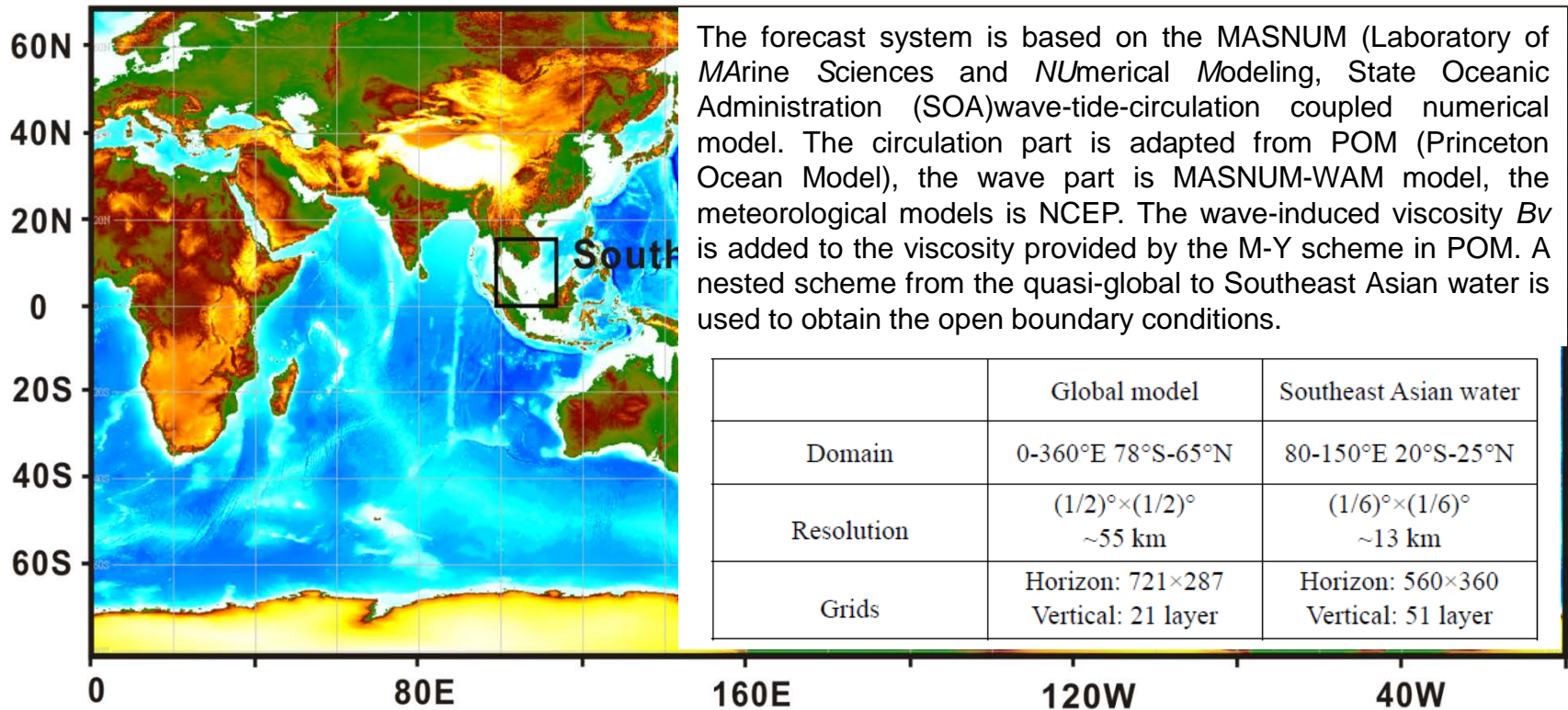
1. extension of OFS to the region of ((20S-20N, 80E-145E);
2. Development of Higher-Resolution OFS in Sub-domains
3. Engagement of operational agencies and Capacity Building



IOC

South East Asian Global Ocean Observing system Ocean Forecasting System (OFS)

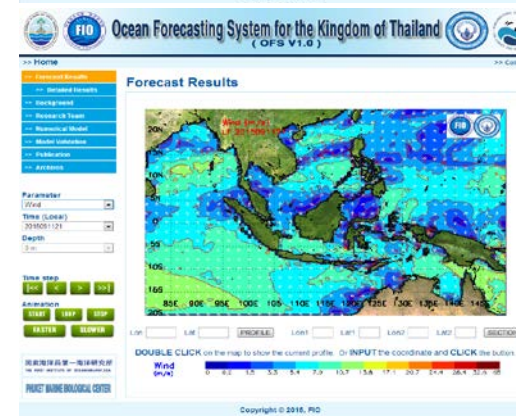
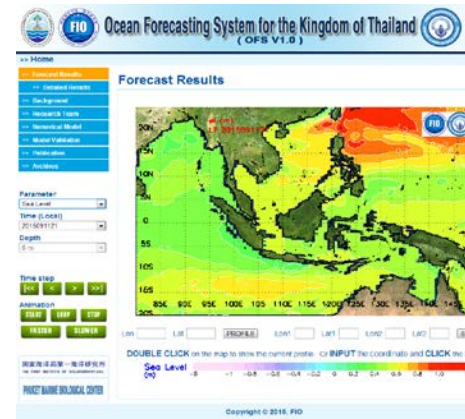
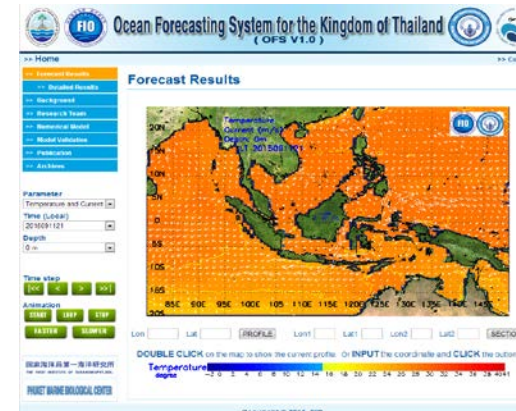
Focused area



(20S-25N, 80E-150E)

Ocean Forecast System for the Southeast Asia Areas (OFS)

Installation and operation in Thailand with strong technical support from FIO



- >> Home
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- >> Background
- >> Research Team
- >> Numerical Model
- >> Model Validation
- >> Publication
- >> Archives

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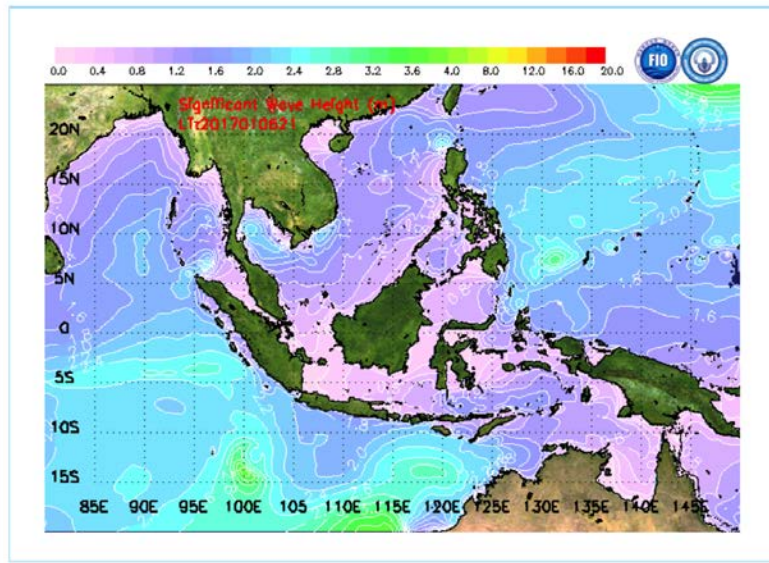
>> Contact

Archives

Year Month Day

 **DOWNLOAD**

Parameter
Wave Hight



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Joint workshop on technology collaboration Thailand

7th Thailand-China joint science and technology exchange, Bangkok, Thailand.

Wong was selected as a member of the steering committee, 2015 in Paris

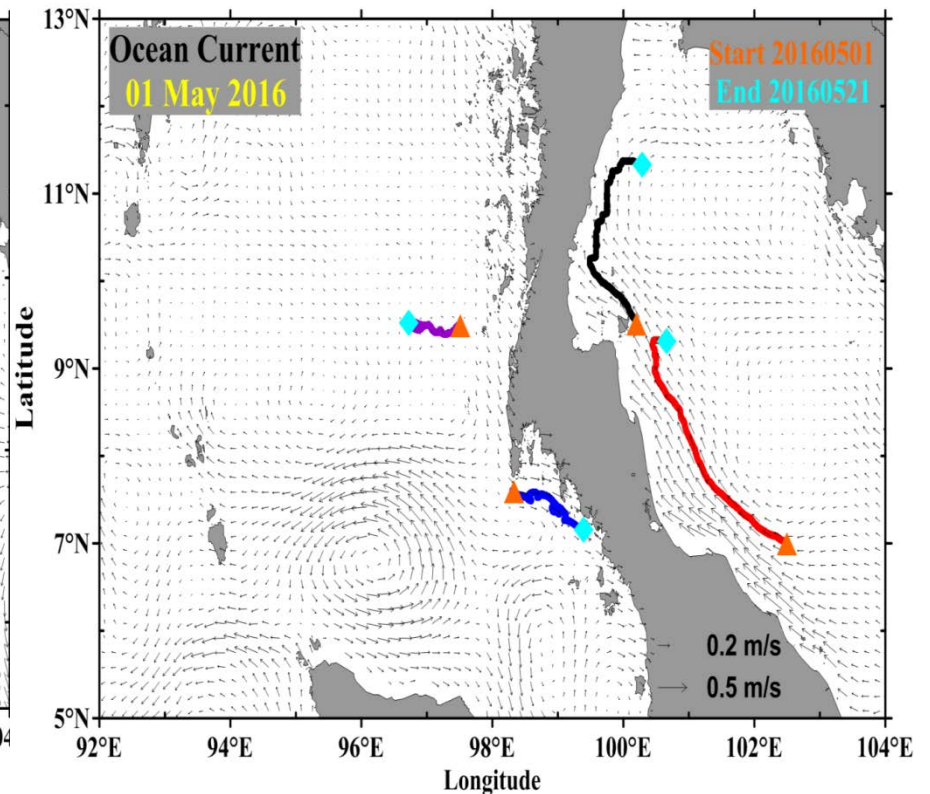
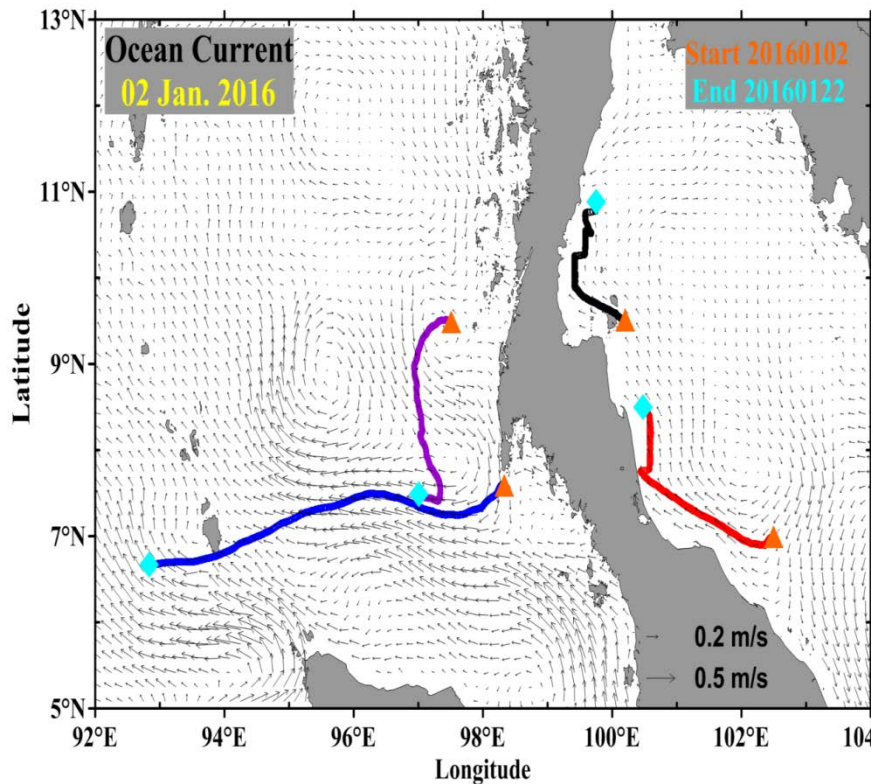
Wong, one of the steering committee members and the chair of the steering committee, was elected as vice-chair of IOC during the 14th annual meeting in Yeosu, Korea.

Member of the Scientific and Technical Commission for the Western Pacific

http://221.0.186.5/ioc-westpac_ofds/
<http://61.90.186.190/thailand/results.jsp>

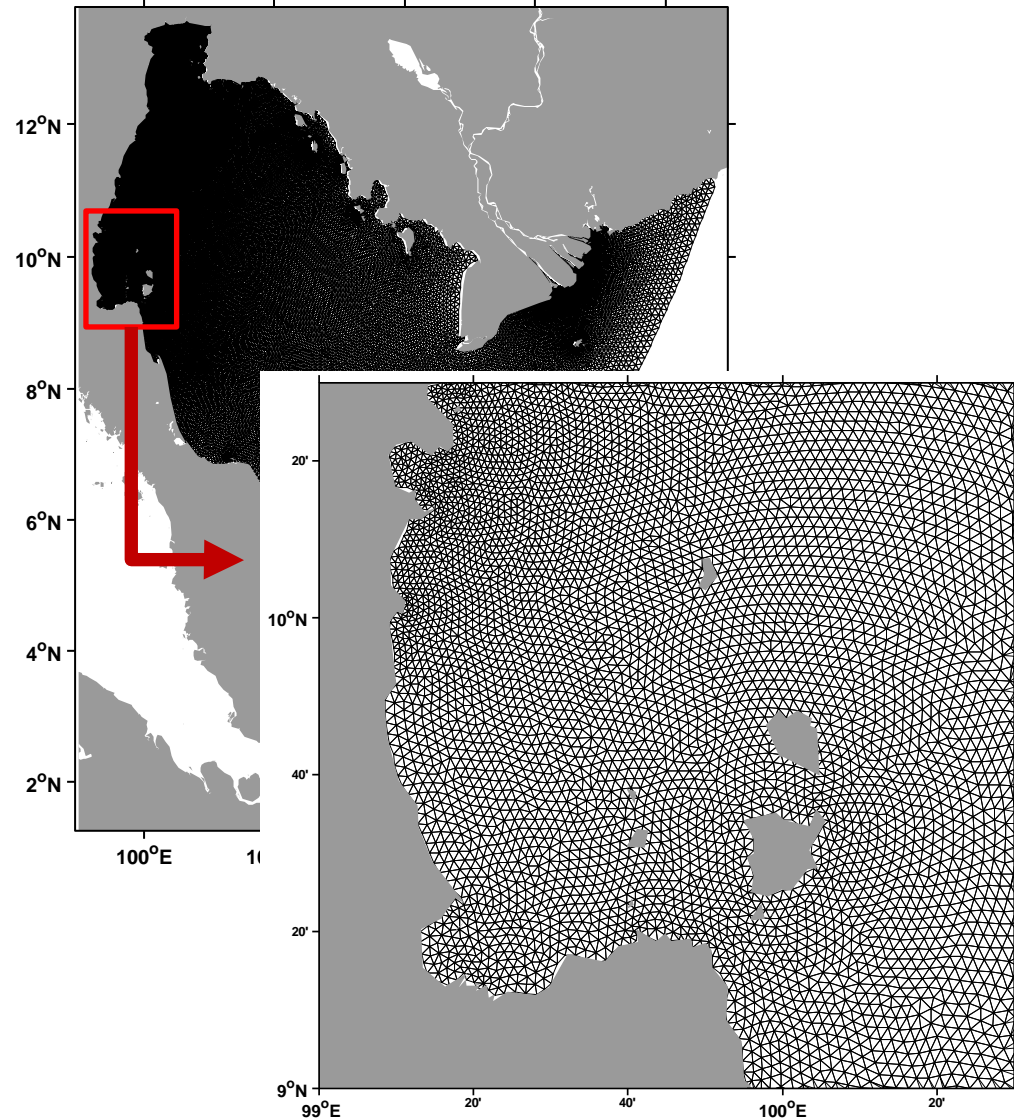
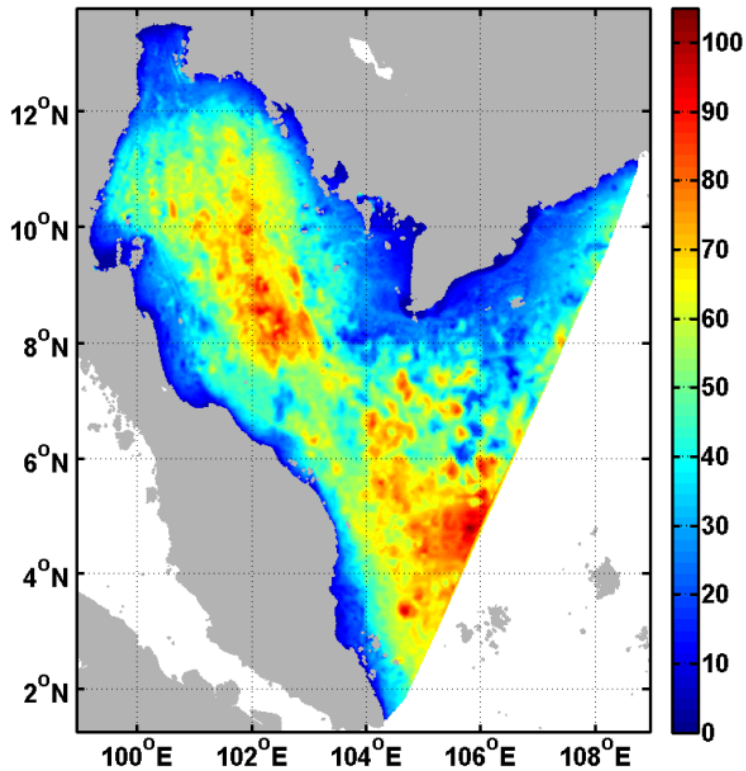
South East Asian Global Ocean Observing system Ocean Forecasting System (OFS)

Model Application at Andaman Sea and Gulf of Thailand



South East Asian Global Ocean Observing system Ocean Forecasting System (OFS)

The High resolution regional model
in gulf of Thailand (GOT) and
adjacent waters



Topography of Model, Data
from measured scatter data
and GEBCO 30 arc-sec



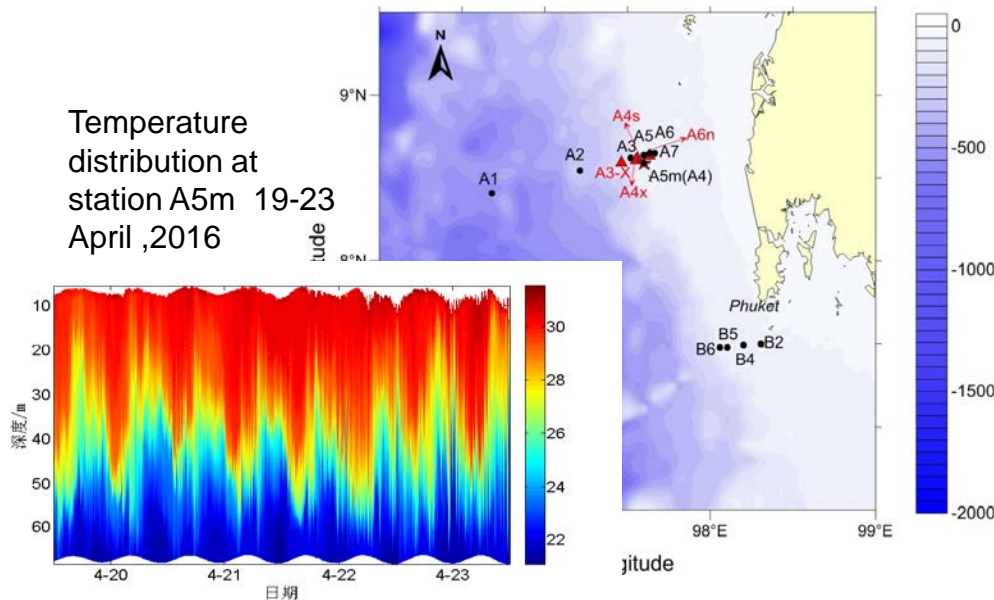
IOC

South East Asian Global Ocean Observing system Ocean Forecasting System (OFS)

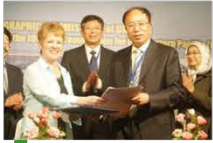
Joint Cruise

- *Joint cruises* between China and Thailand in the Andaman Sea were carried out between 18~24 April, 2016 and 12~15 July, 2016 separately.
- The number of survey stations during the first cruise is 15, survey contents are
- physical oceanography, Marine meteorology, biological and chemical oceanography.
- 2 subsurface buoys were deployed.
- 10 sets of Ground Wave Radar were deployed along the Gulf of Thailand

Temperature distribution at station A5m 19-23 April, 2016



Overview of UNESCO/IOC-ODC Center



On 11 May 2010, a signing ceremony was held during 8th Intergovernmental Session of the Sub-commission for the Western Pacific (WESTPAC-VIII) in Bali, Indonesia, on the establishment of UNESCO/IOC-ODC center in China.



On May 10, 2012, Dr Wendy Watson-Wright, Executive Secretary of Intergovernmental Oceanographic Commission, Assistant Director-General of UNESCO, issued Certificate of Appointment as the director of UNESCO/IOC-ODC to Prof. Fangli Qiao during the WESTPAC-IX, 9-12 May 2012, in Busan, Republic of Korea.



On 30 October 2013, Dr. Wendy Watson-Wright, Assistant Director General and Executive Secretary of UNESCO Intergovernmental Oceanographic Commission (IOC/UNESCO) had visited UNESCO/IOC-ODC center.



June 9, 2011: the first UNESCO/IOC Regional Training and Research Center of UNESCO/IOC-ODC was launched at the host institute, First Institute of Oceanography, State Oceanic Administration of China.



During 10-16 June 2011, the first Training Course of UNESCO/IOC-ODC Center on Ocean Modeling



During 16-22 July 2012, the second training course of UNESCO/IOC-ODC Center on Ocean Dynamics.



During 12-23 2013, the third Training Course on Air-Sea Interactions and Modeling



During 3-14 November 2014, the 4th Training Course UNESCO/IOC-ODC Center on Climate Models.

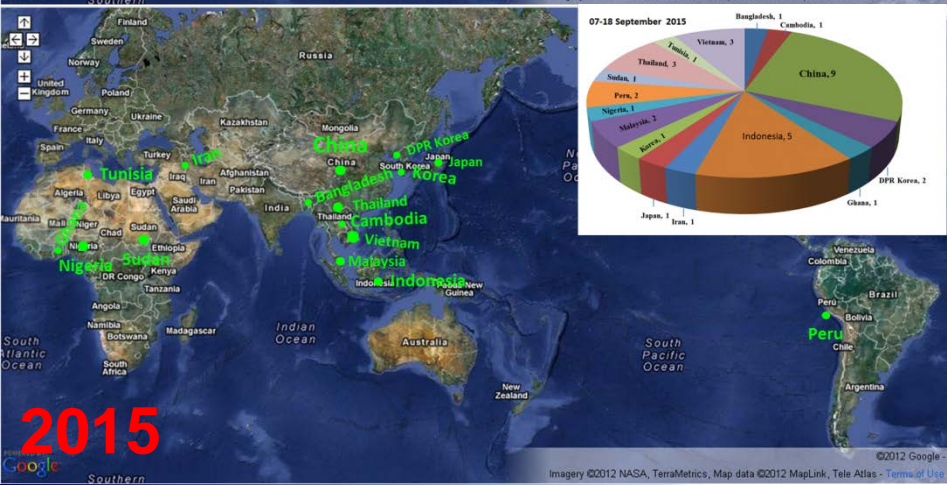
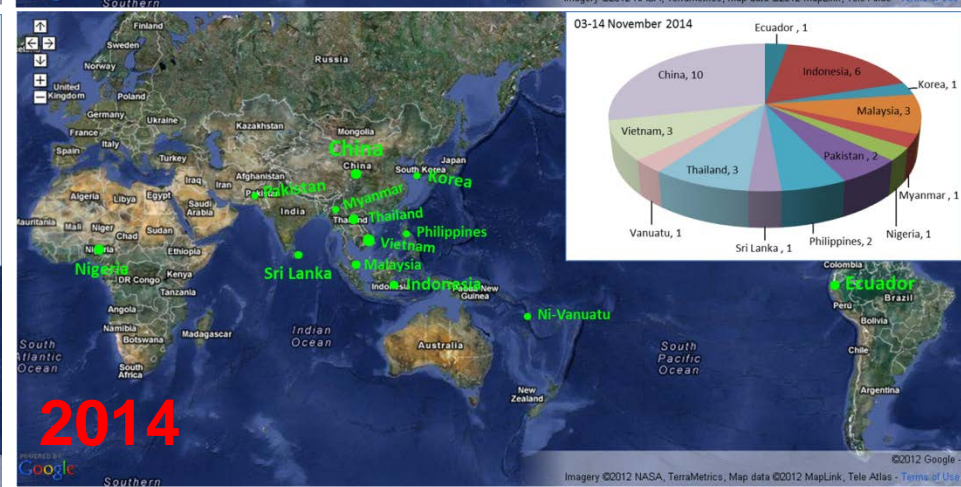
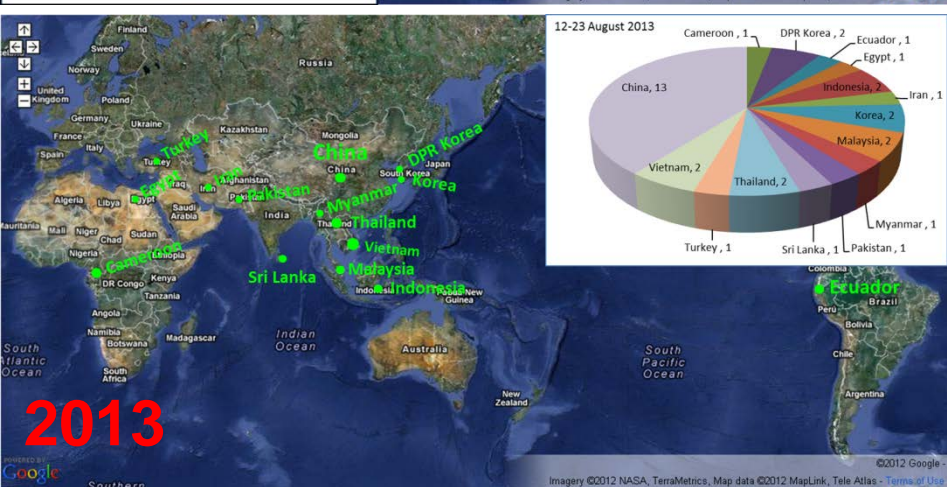
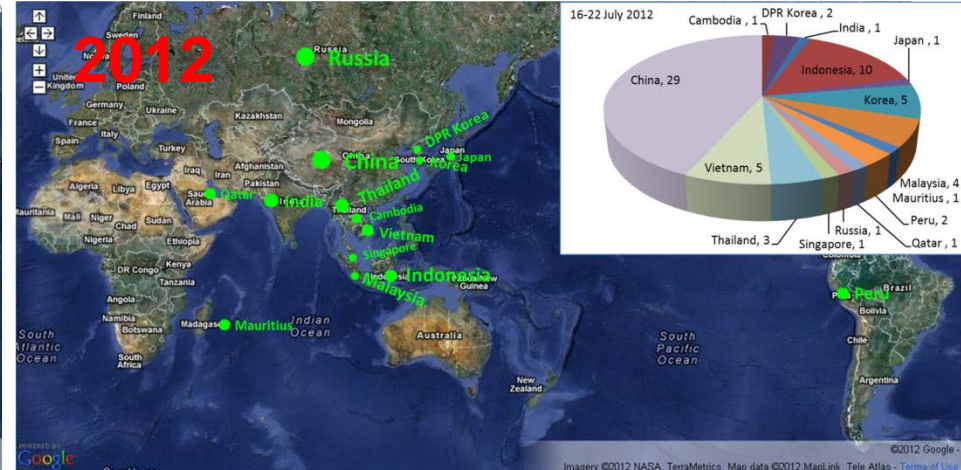
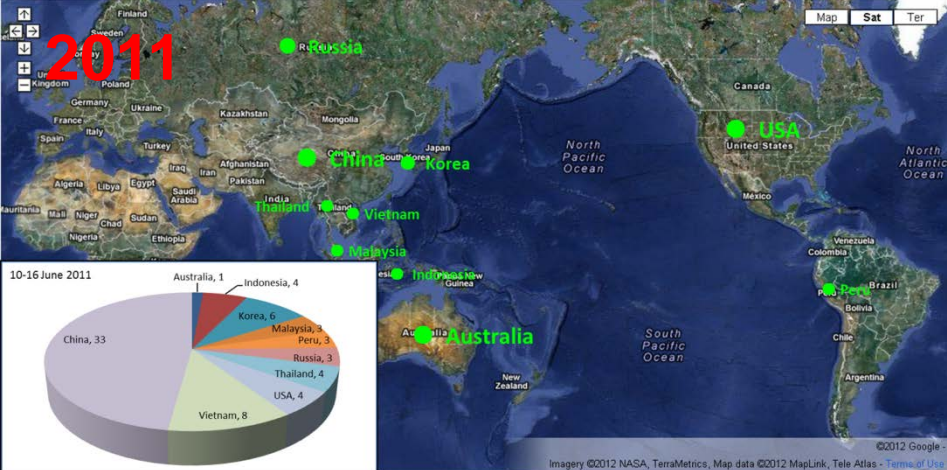


During 7-18 September 2015, the 4th Training Course UNESCO/IOC-ODC Center on Climate Change.

- Plan of Next Five Year**
- 2016:** Ocean dynamics and multi-scales interaction
 - 2017:** Development of coupled regional ocean models
 - 2018:** Ocean forecast system
 - 2019:** Climate dynamics and air-sea interaction
 - 2020:** Development and application of coupled climate models

11/2010 6/2011 2011 6/2011 5/2012 7/2012 8/2013 10/2013 11/2014 9/2015

Brief History of UNESCO/IOC-ODC Center



Totally , **239** trainees from **33** countries attended these training courses and **36** lecturers from **7** countries.

Regional Ocean Acidification Monitoring Network

Objectives

- To establish a regional research and monitoring network on ocean acidification in the Western Pacific and adjacent regions, and
- To develop a regional program to monitor the impacts of ocean acidification on coral reef ecosystems.





Thank You !