



我们测量海洋的脉搏
We take the pulse of Ocean



Integrated Indo-Pacific Ocean Observing Initiative

in support of the regional climate
service

Weidong Yu

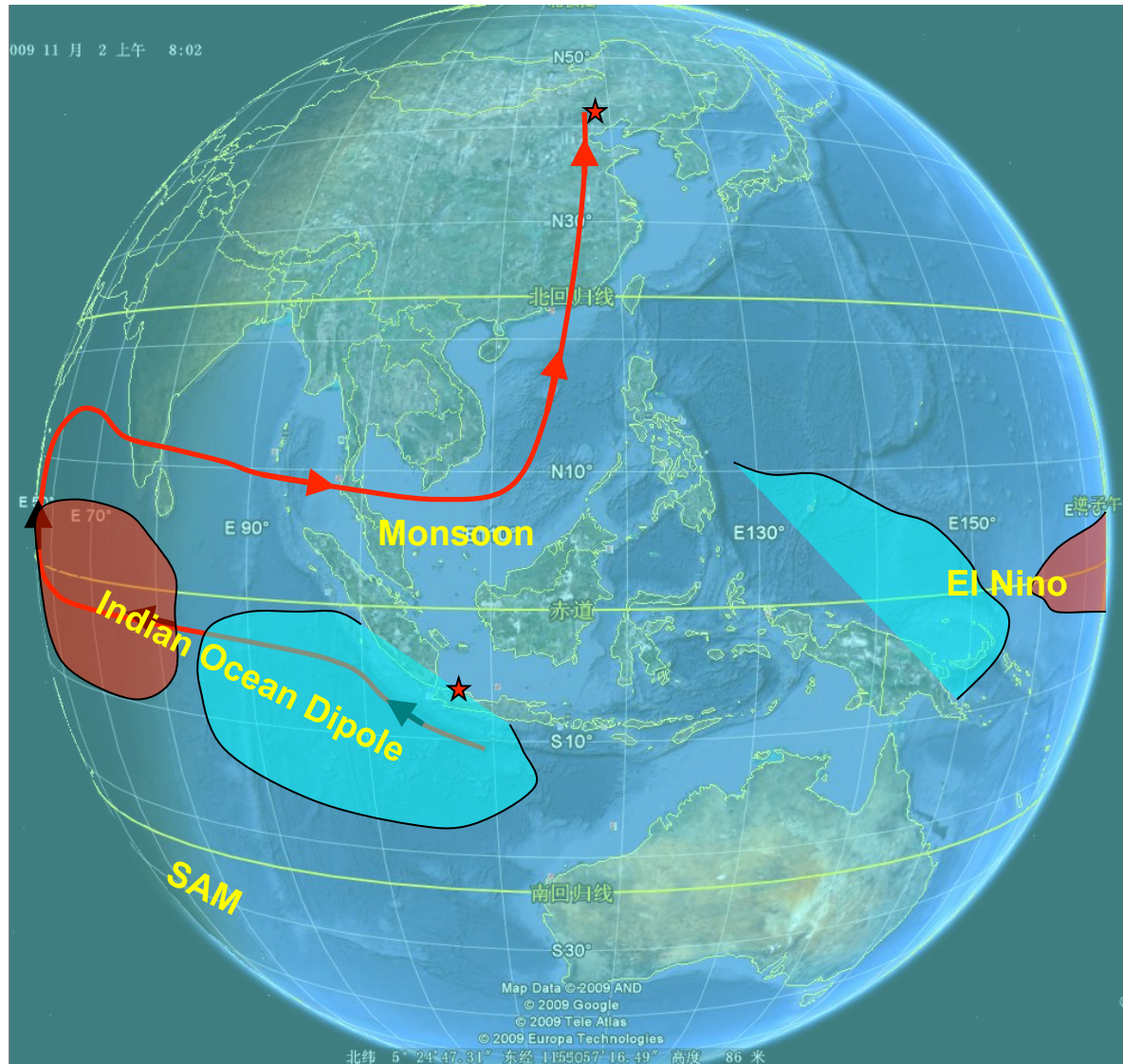
Center for Ocean and Climate Research (COCR)

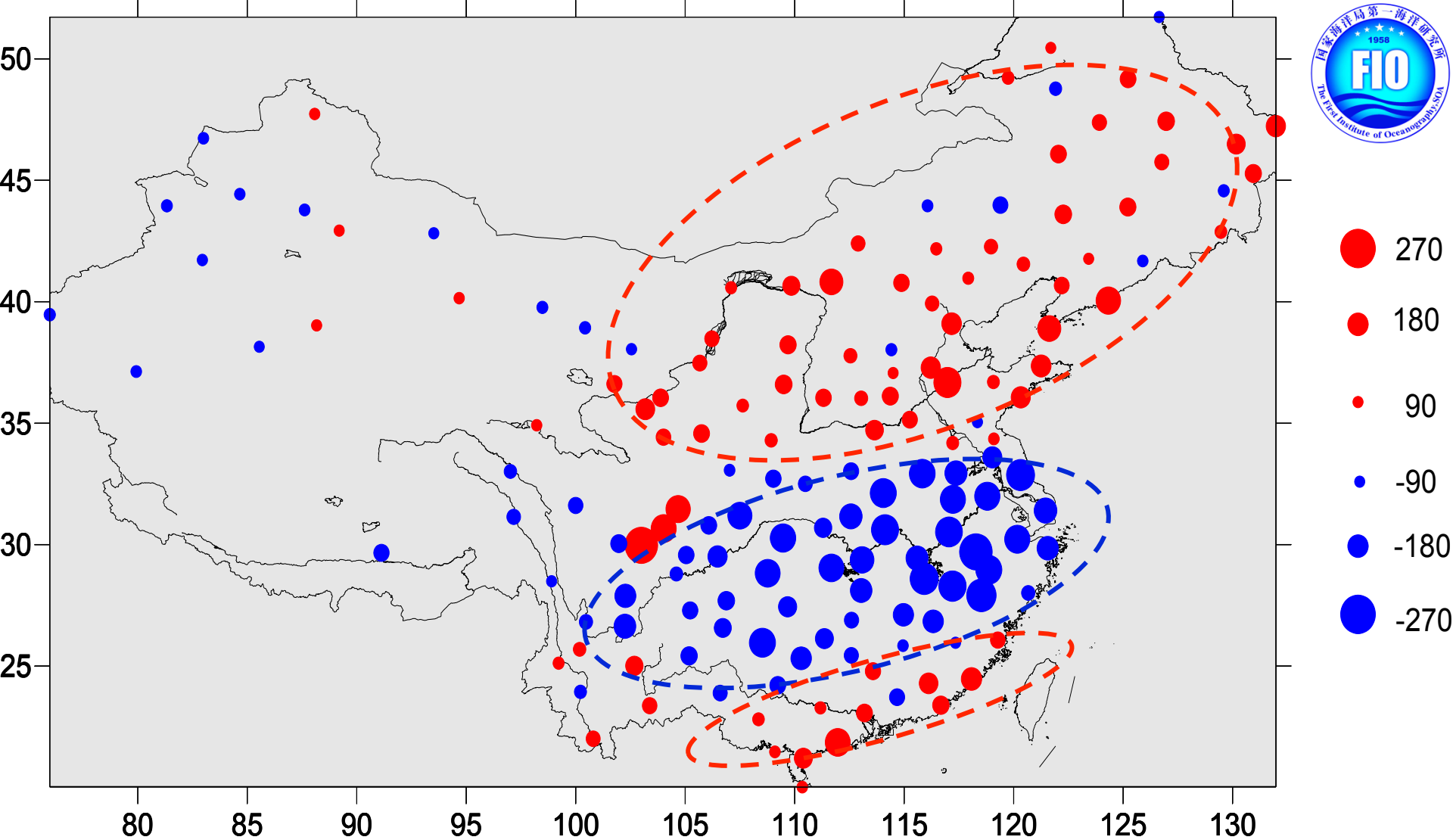
First Institute of Oceanography (FIO)

SOA, China

AND CLIMATE
YOU CARE, WE TRY
ALL BENEFIT

Scientific Driving for FIO's Indian Ocean Concern





Rainfall difference between strong and weak monsoon years

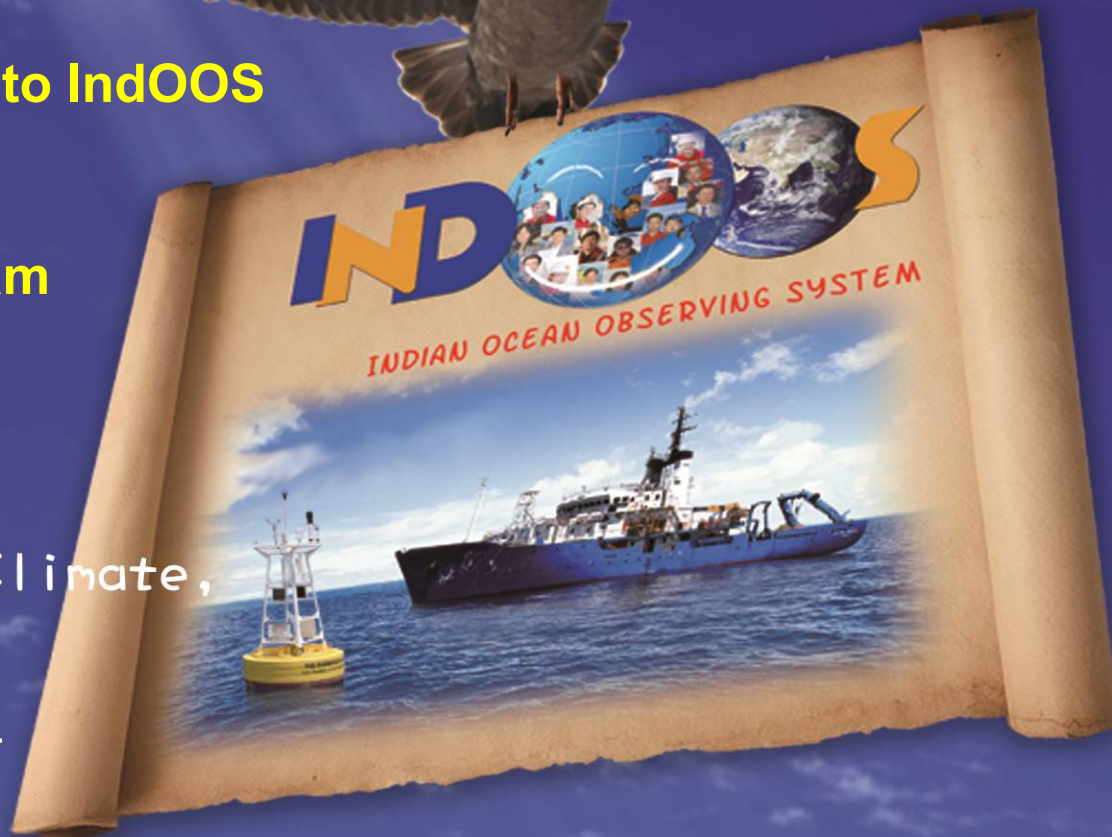
COCR

海洋与气候研究中心
Center for Ocean and Climate Research

FIO contribution to IndOOS

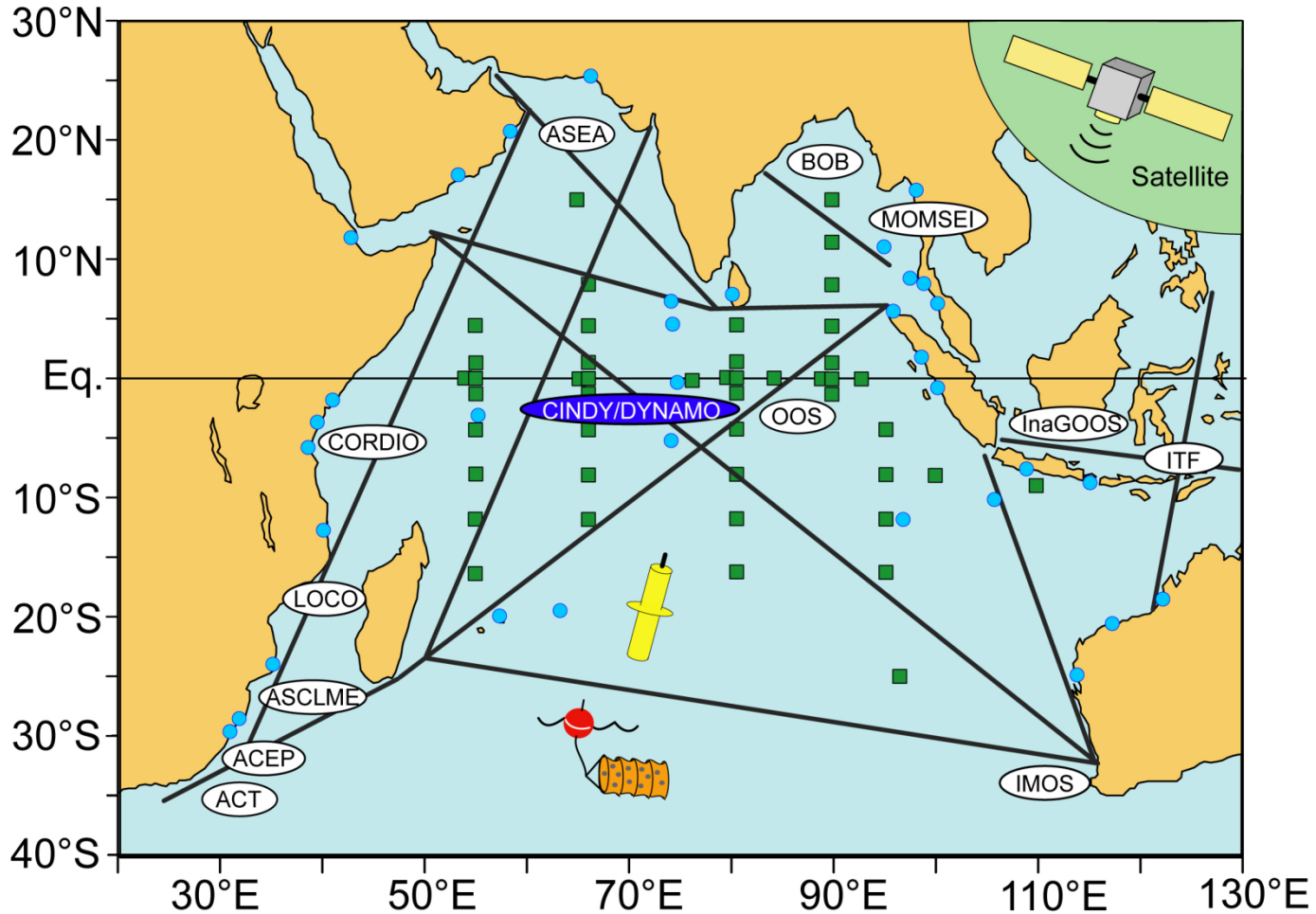
- Time Series
- Regional Program

Ocean and Climate,
You care,
We try,
All benefit



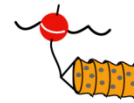
Indian Ocean Observing System (IndOOS)


---- under coordination of CLIVAR-GOOS IOP



■ RAMA

— XBT/XCTD lines

 Surface drifting buoy array

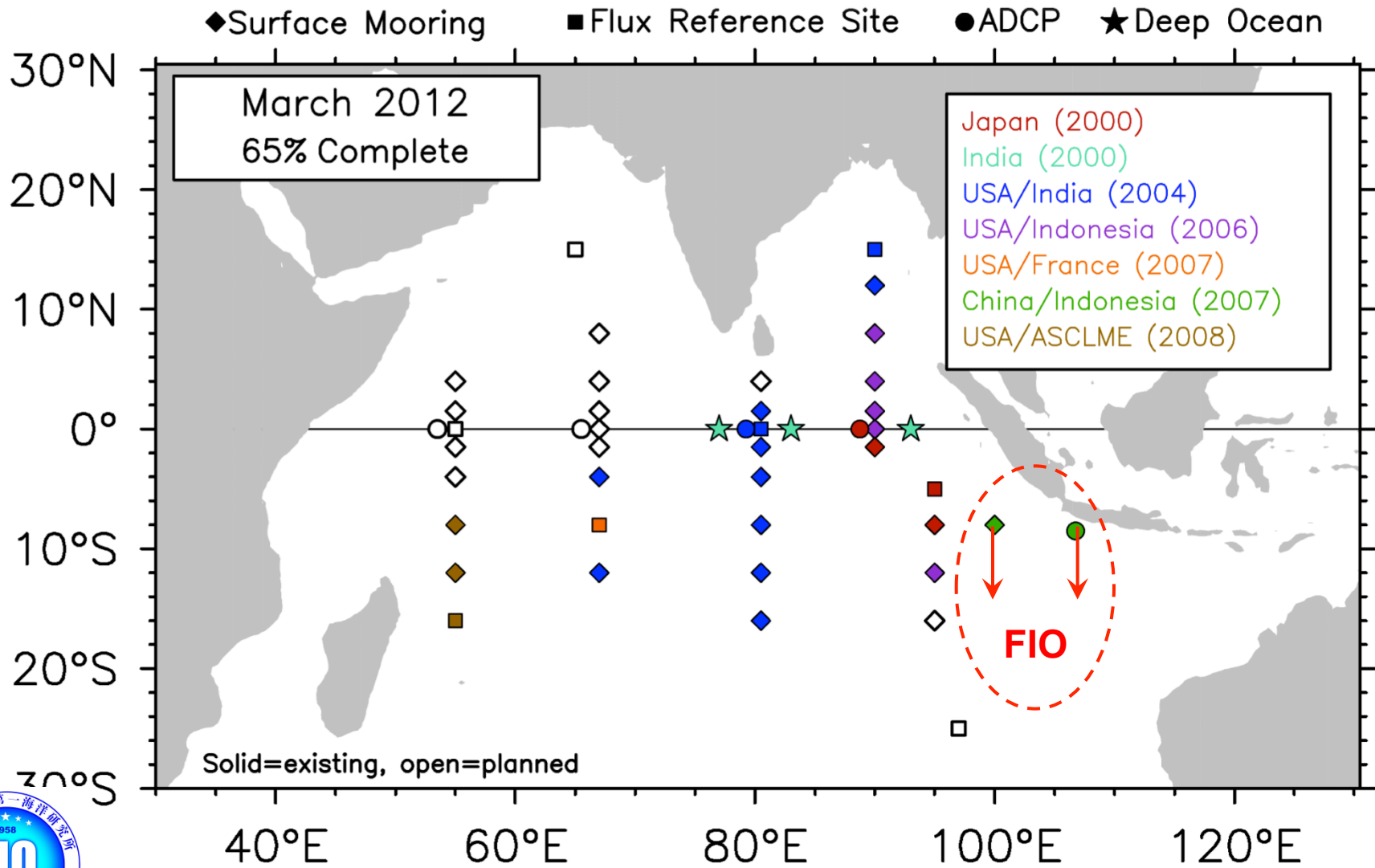
 ARGO float array

● Real-time and near real-time tide gauge network
(including the tsunami buoy network)

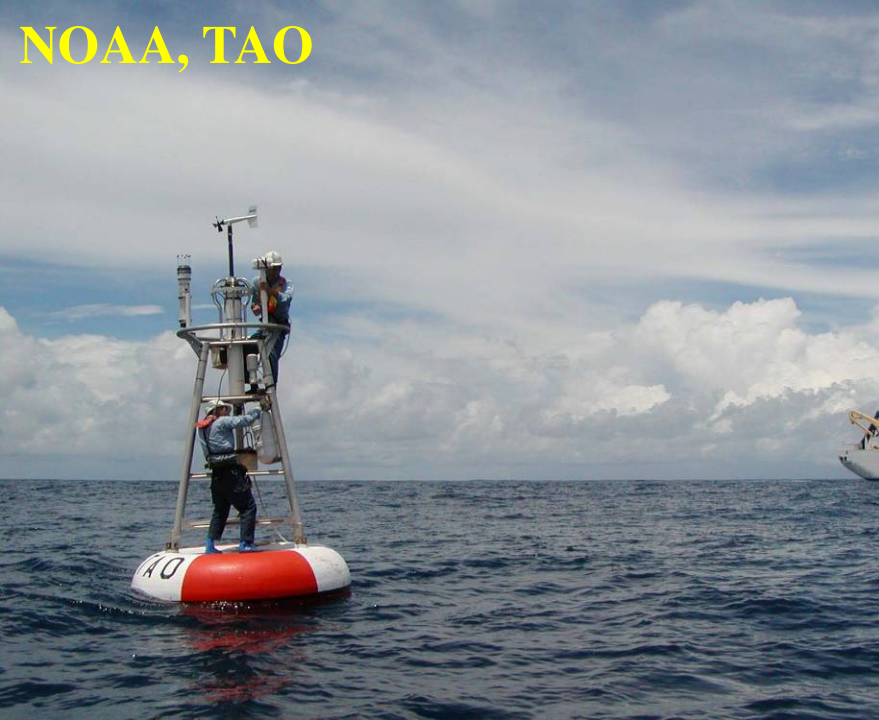
PS Process Studies

ROOS Regional Ocean Observing Systems

Research Moored Array for African-Asian-Australian Monsoon Analysis and Prediction (RAMA)



NOAA, TAO



JAMSTEC, Triton



Buoys in the Indian Ocean

COCR

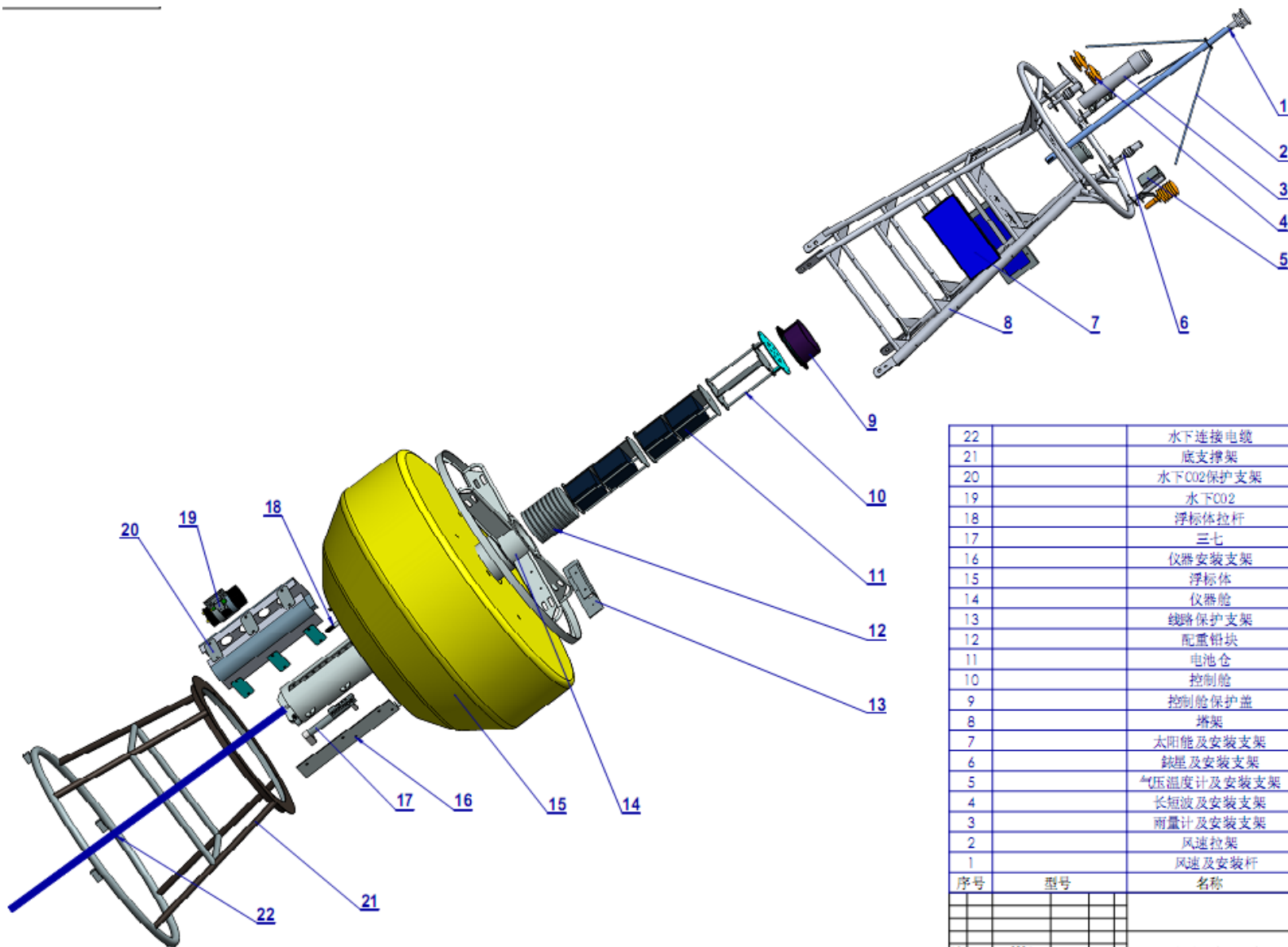
海洋与气候研究中心
Center for Ocean and Climate Research



FIO, Bailong, since 2010



FIO's Technical Development



22	水下连接电缆	1		
21	底支撑架	1		
20	水下CO2保护支架	1		
19	水下CO2	1		
18	浮标体拉杆	4		
17	三七	1		
16	仪器安装支架	1		
15	浮标体	1		
14	仪器舱	1		
13	线路保护支架	1		
12	配重铅块	8		
11	电池仓	2		
10	控制舱	1		
9	控制舱保护盖	1		
8	塔架	1		
7	太阳能及安装支架	2		
6	钛尾及安装支架	2		
5	气压温度计及安装支架	1		
4	长短波及安装支架	1		
3	雨量计及安装支架	1		
2	风速拉架	3		
1	风速及安装杆	1		
序号	型号	名称	数量	备注
A1	2324	深海气象浮标		
**				
**				

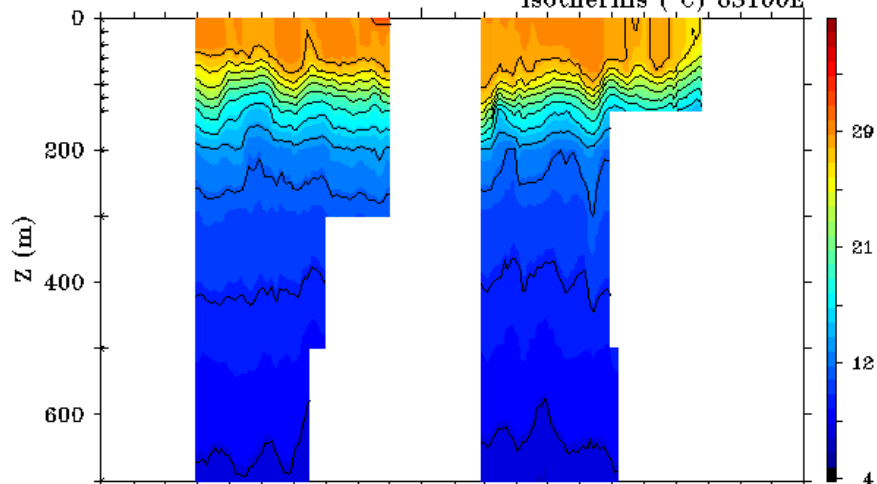
Real time data available from NOAA RAMA Web:

<http://www.pmel.noaa.gov/tao/rama/>

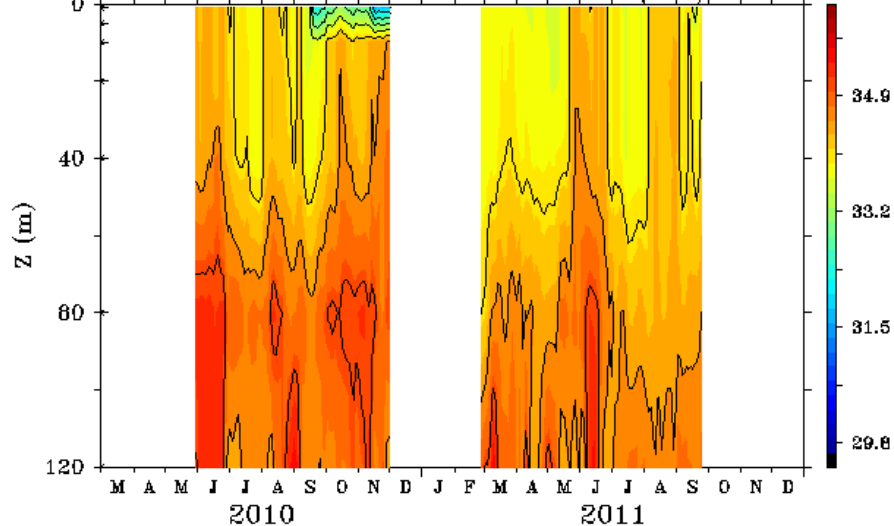


Five-Day Data

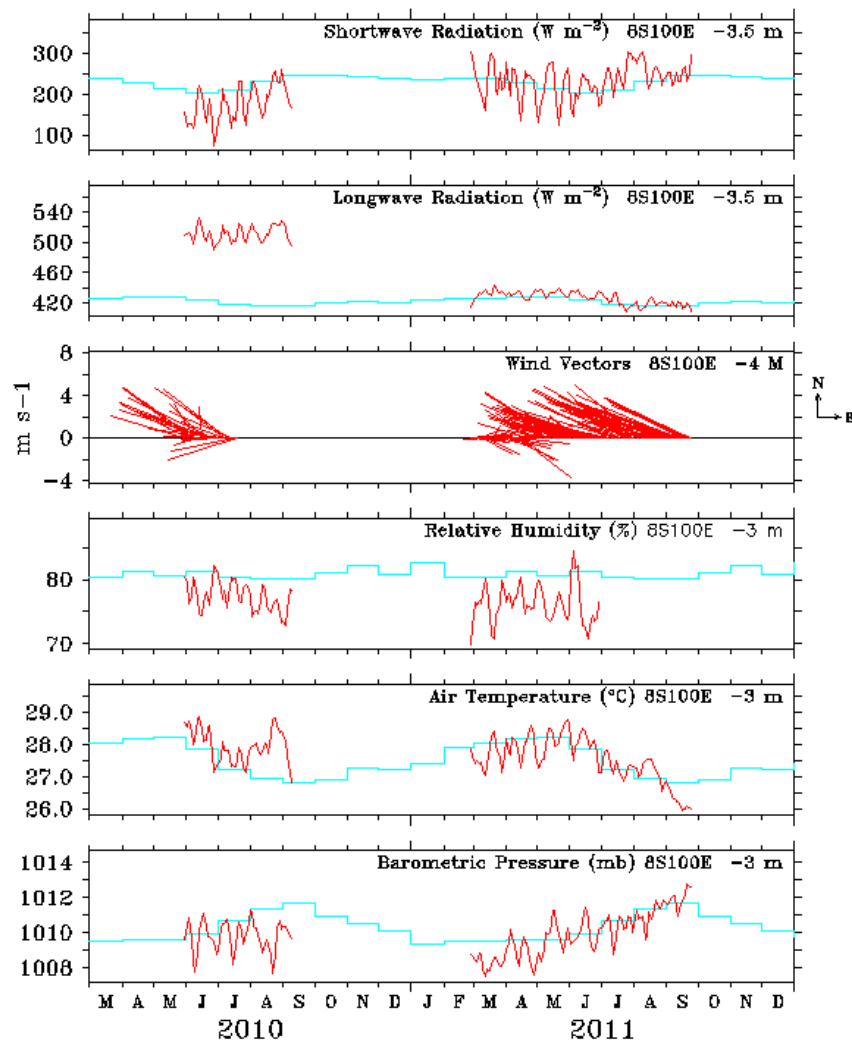
Isotherms (°C) 8S100E



Isohalines (PSU) 8S100E



Five-Day Data

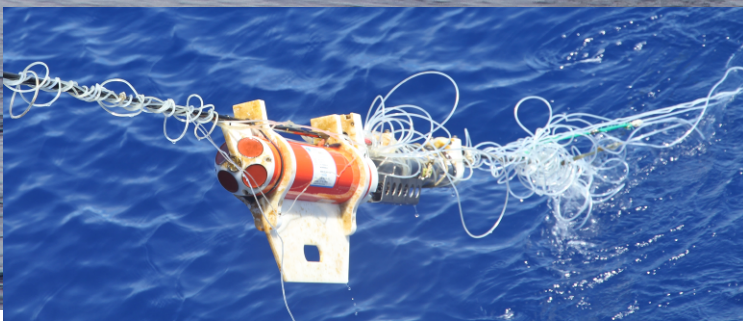




Vandalism

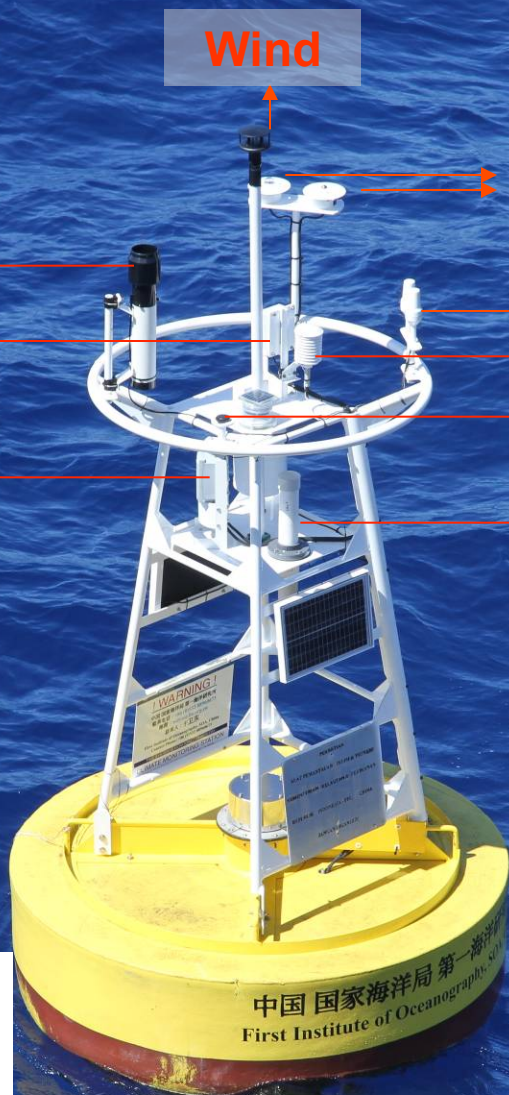
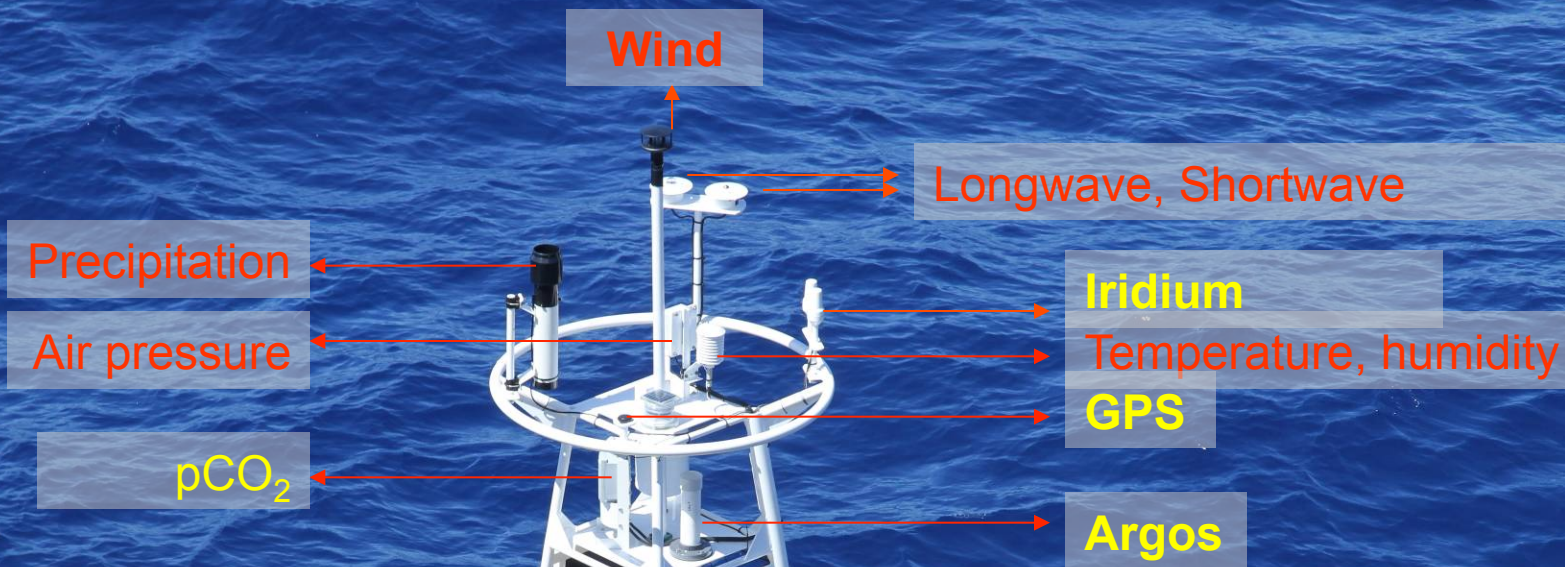


Recovery in Feb. 2011

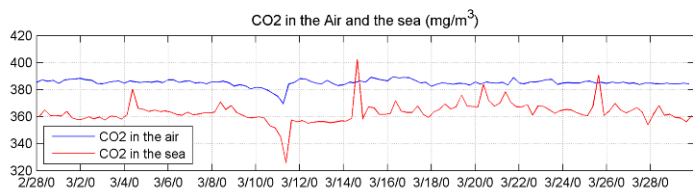


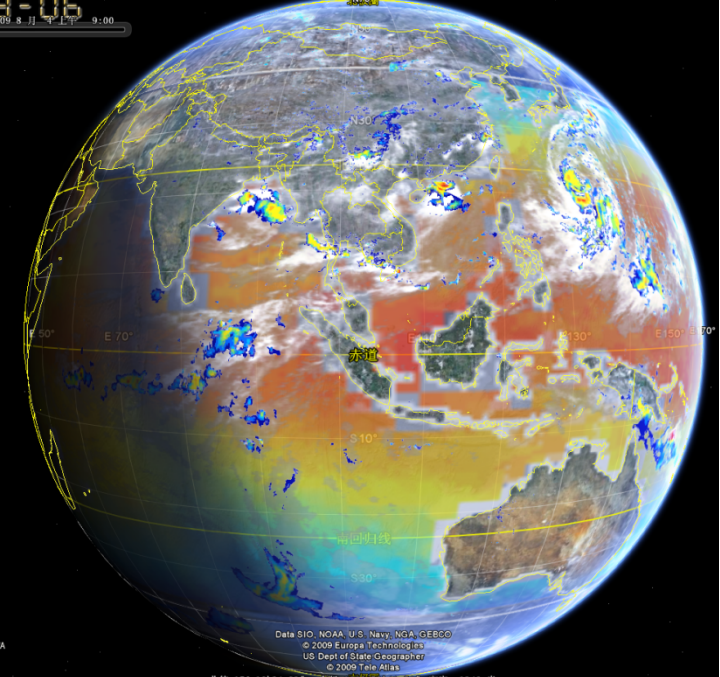
Feb. 2011: New deployment with CO₂ enhancement

---- in collaboration with SIBER/IMBER



pCO₂ in air and water





United Nations
Educational, Scientific and
Cultural Organization

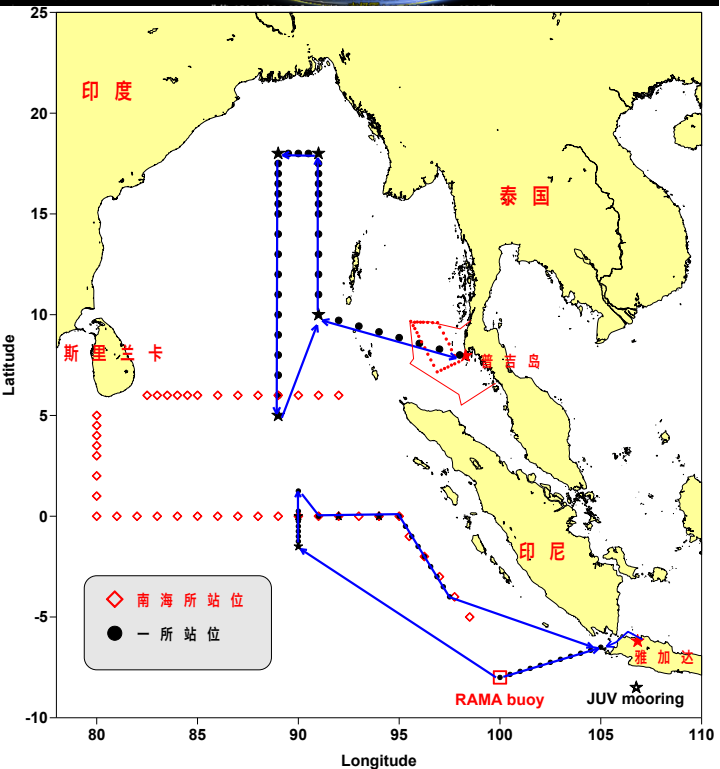


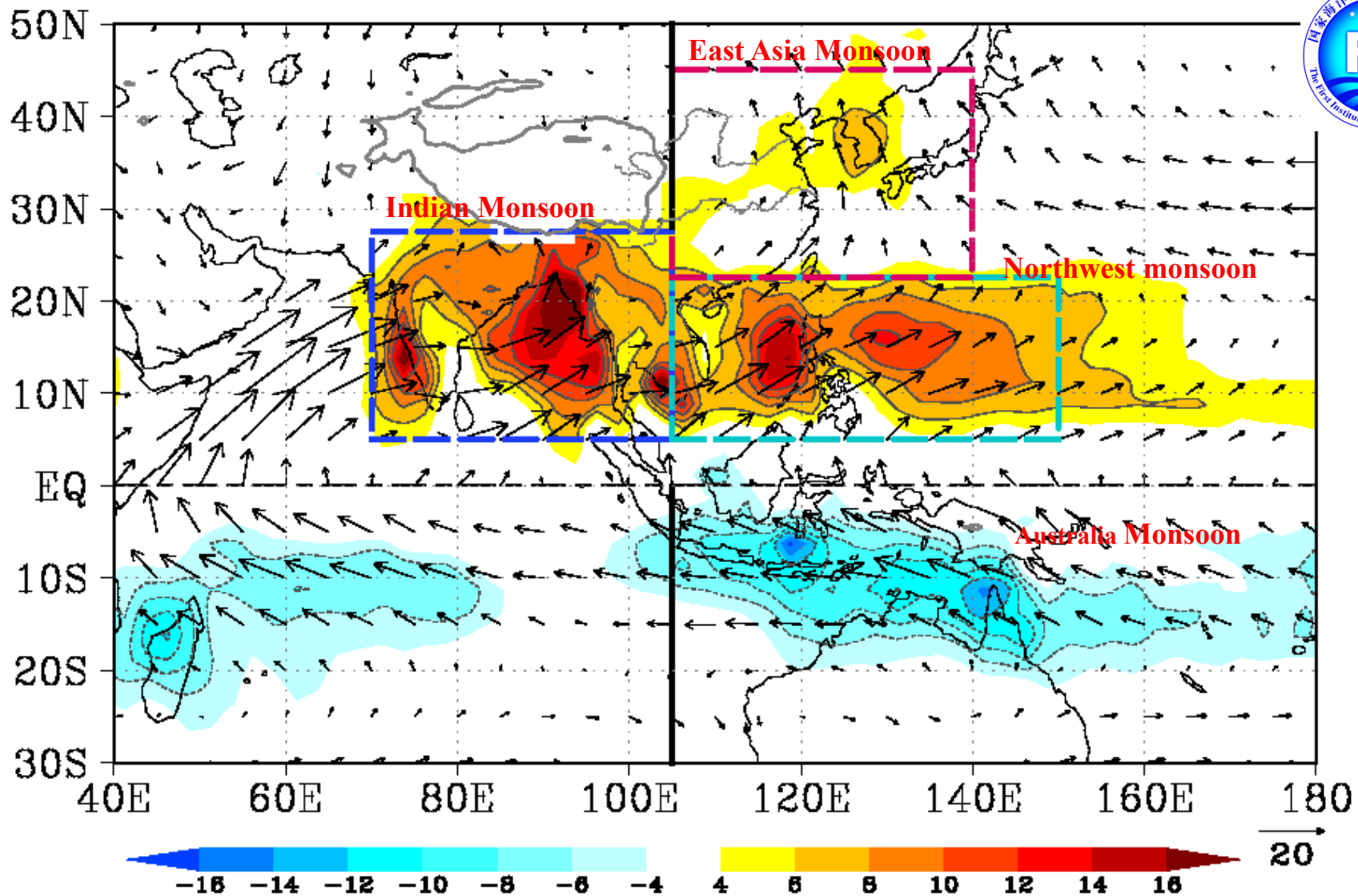
IOC Sub-Commission for the
Western Pacific
(WESTPAC)

Monsoon Onset Monitoring and its Social and Ecosystem Impacts

(MOMSEI)

---- *SEAGOOS Pilot Project*



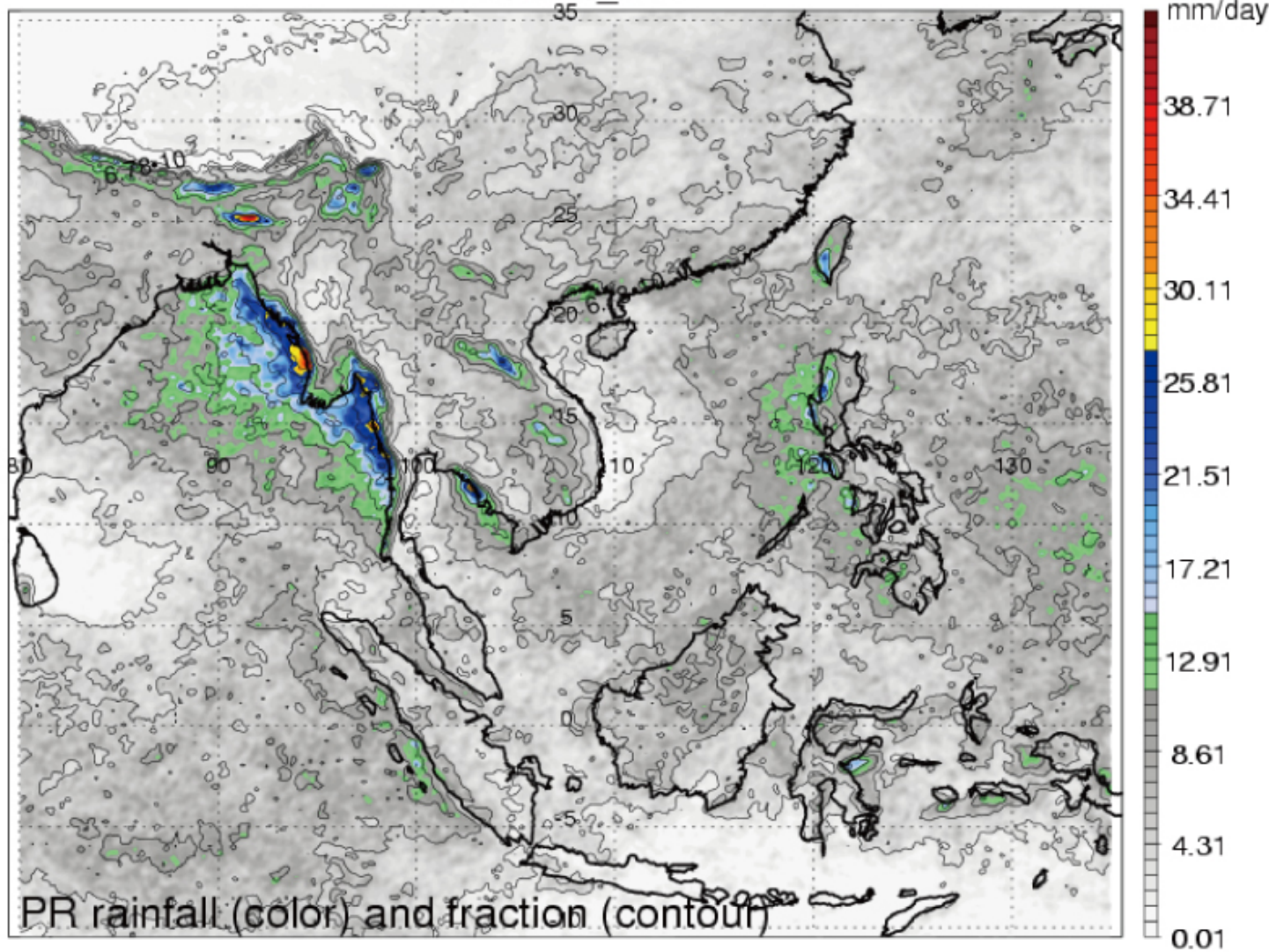


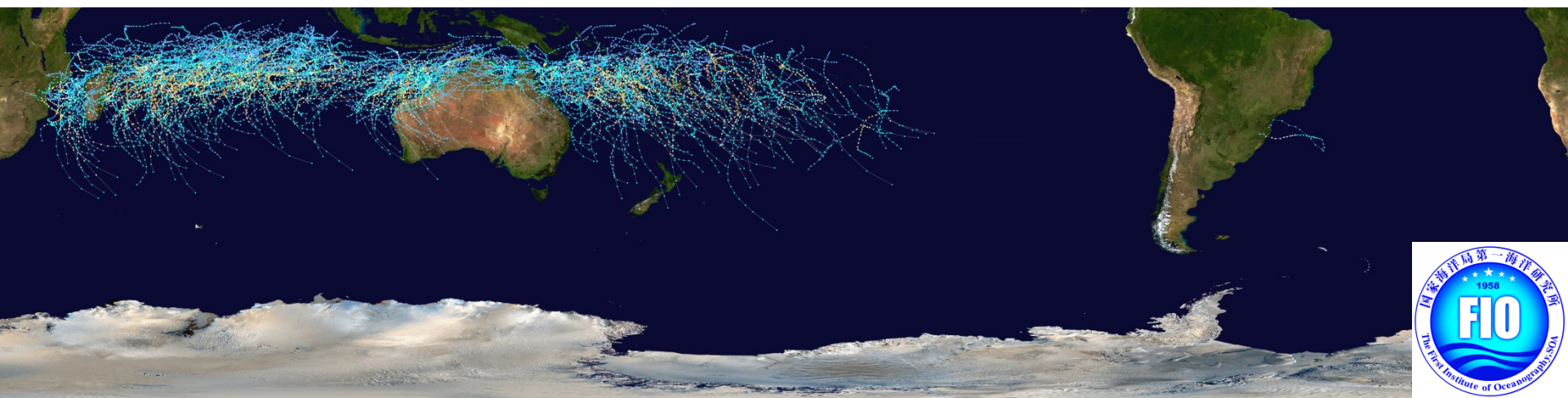
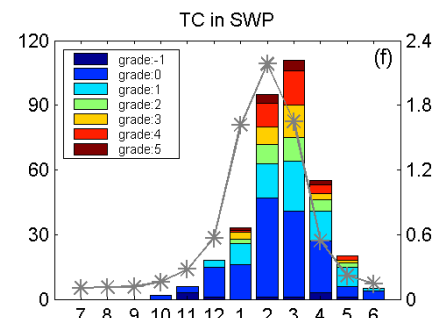
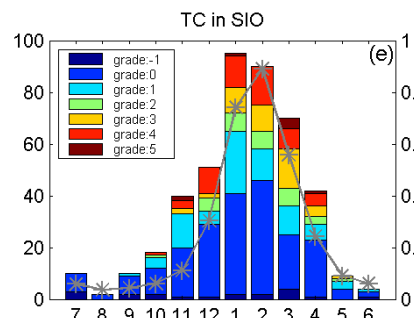
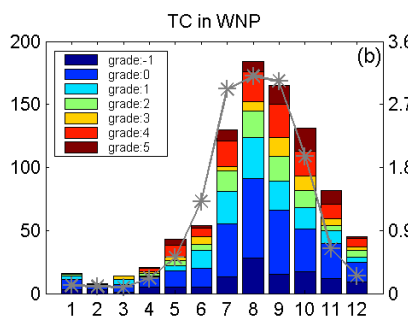
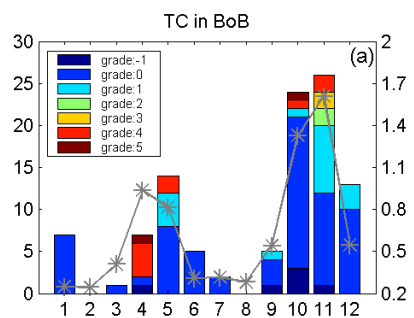
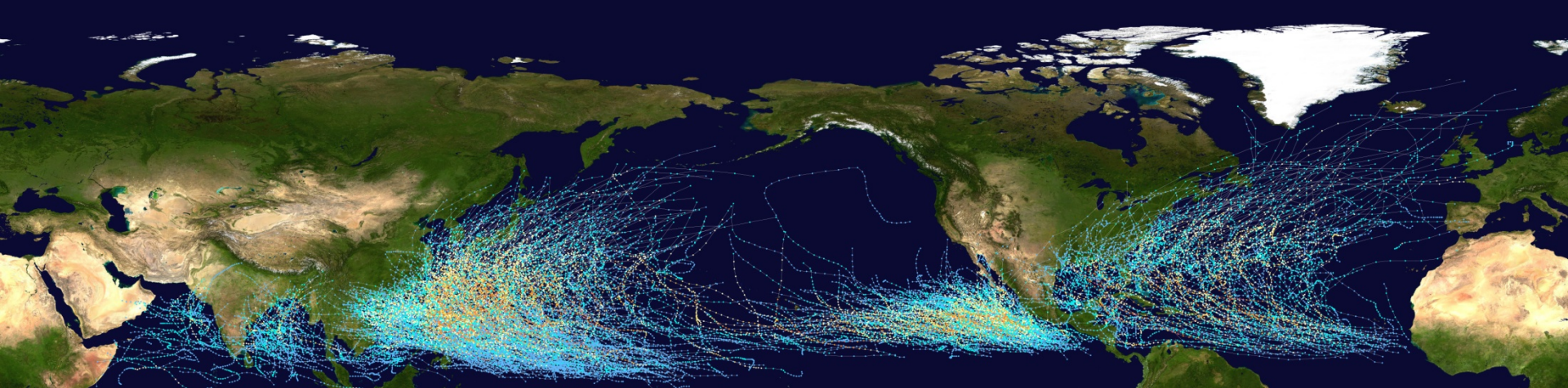
Asian Monsoon System and its Components

Social Application of monsoon:

It brings rainfall to continent and guarantees social sustainability.

seasonal_JJA







United Nations Educational, Scientific and Cultural Organization



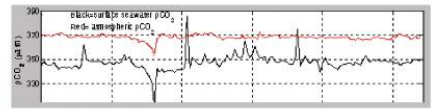
IOC Sub-Commission for the Western Pacific (WESTPAC)

国家海洋局第一海洋研究所

泰国普吉海洋生物中心

MONSOON ONSET MONITORING OVER ANDAMAN SEA AND ITS SOCIAL IMPACTS

安达曼海季风爆发监测及其社会影响研究



Thai PI, Dr. Somkiat Khokiatwong from PMBC 泰方首席科学家 Somkiat Khokiatwong 博士

Andaman Sea locates on the pathway of Asian Monsoon circulation and water vapor transportation. Monitoring the air-sea interaction over Andaman Sea plays the critical role in understanding the monsoon onset and improving the seasonal outlook skill of monsoon rainfall.

Realizing the poor ocean observing capability in Andaman Sea, PMBC and FIO is trying to deploy an advanced Bailing climate buoy, which can record the surface meteorology and subsurface parameters and transmit them in real time to the users. Furthermore, the pCO2 system is mounted to enhance its climate application in assessment of air-sea CO2 flux.



中国国家海洋局 第一海洋研究所 First Institute of Oceanography, SOA, China



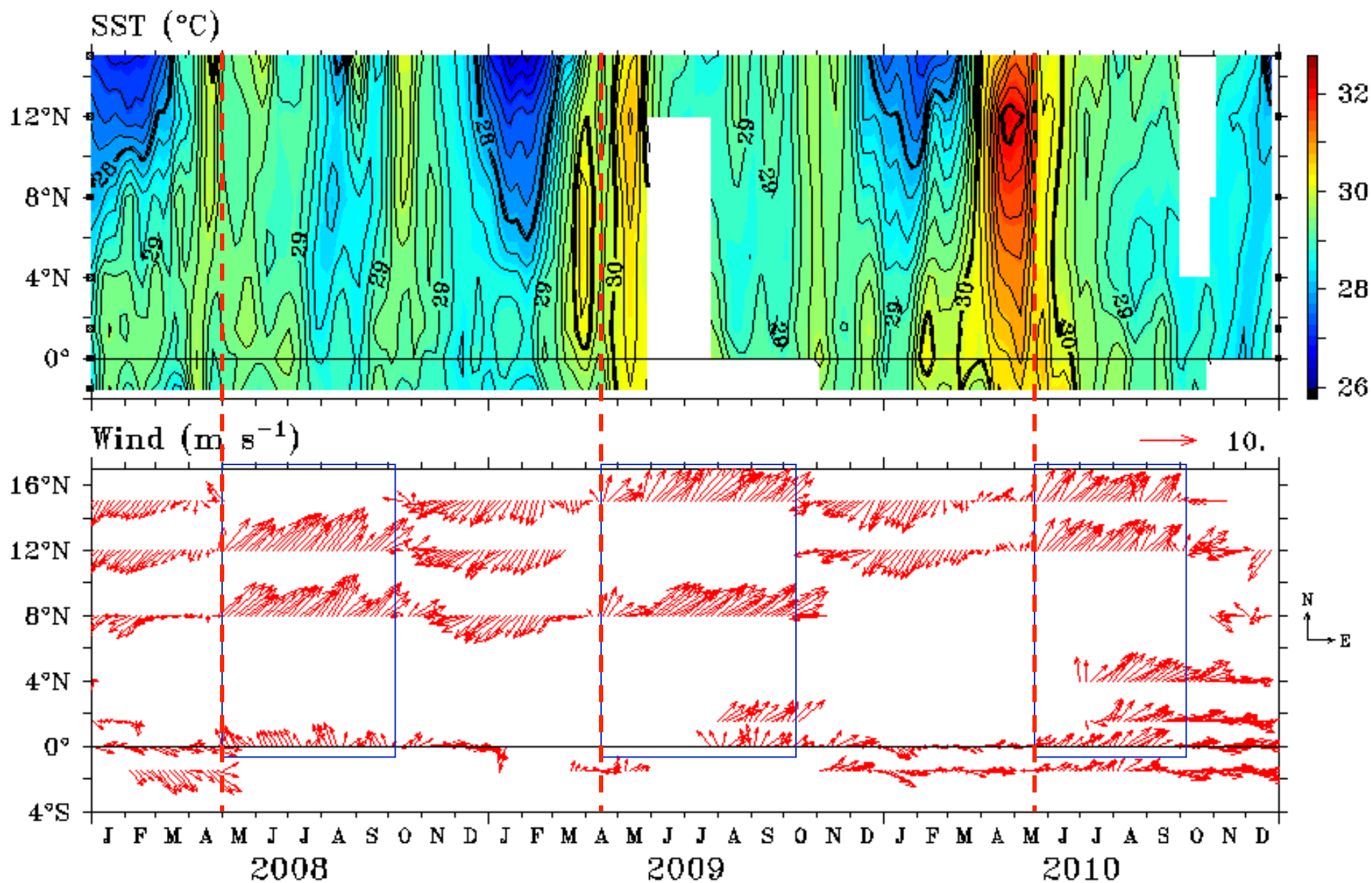
Chinese PI, Dr. Weidong Yu from FIO 中方首席科学家于卫东博士

安达曼海是亚洲季风风水气输送的重要通道，在监测整个亚洲季风爆发、预警泰国和中国汛期降水异常等方面具有重要价值。认识到安达曼海地区海洋和气候监测能力的薄弱现状，海洋一所与普吉海洋生物中心联合开展了安达曼海季风爆发的监测和影响研究。双方计划在安达曼海布放一套气候观测浮标系统，观测海面气象要素（温、压、风、湿、长短期辐射）和海洋要素（0-100米的盐度剖面、0-700米的温度剖面和一个深度上的海流）。同时，为了研究该海域的海气界面CO2通量，也将在浮标上面加装pCO2测量系统。

Scientific foci:

1. Ocean-atmosphere interaction during monsoon onset
2. Interannual variations of monsoon onset and social impacts (flood/drought, coral)

Five Day SST and Wind at 90°E



Mar. 2011



MOMSEI Cruise Plan

(20 Apr.-10 May)



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Cultural Organization

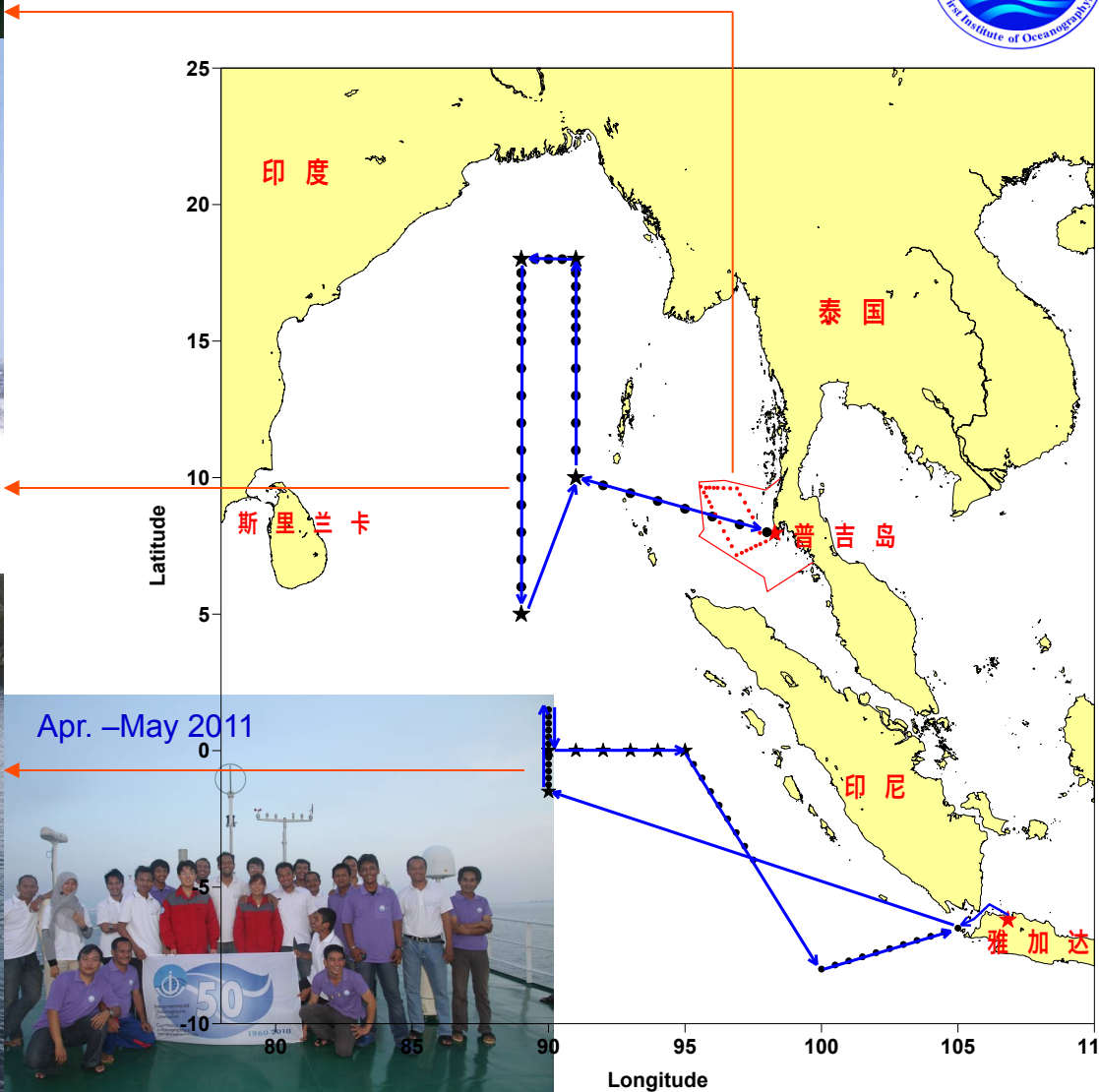


IOC Sub-Commission for the
Western Pacific
(WESTPAC)



R/V Chakratong Tongyai
PMBC, Thailand

SEAFDEC Vessel



R/V Madidihang
AMFR, Indonesia

MOMSEI Workshops and Summer Schools

国家海洋局第一海洋研究所

泰国普吉海洋生物中心

MOMSEI PROGRESS

项目进展

MOMSEI PROMOTES THE SCIENTIFIC COMMUNICATION IN THE REGION

MOMSEI项目积极推动区域的科学交流

MOMSEI项目第二次暑期培训班 (泰国普吉, 2011年8月15-19日)
2th MOMSEI Summer School,
Phuket, Thailand, 15-19 August 2011



MOMSEI项目第五次专家组会议 (印尼日惹, 2011年9月28-30日)
5th MOMSEI Workshop in Yogyakarta, Indonesia, 28-30 September 2011



Dr. Nor Aieni Hj. Mokhtar, Director of NOD, Malaysia is awarding a medal to Mr. Wenxi Zhu, Head of IOC-WESTPAC Secretariat during the 4th MOMSEI Workshop held in Melaka, Malaysia on 27-29 Dec. 2010



Ms. May Khin Chaw, Assist. Director, Dept. Meteor. and Hydr., Ministry of Transportation, Myanmar, and her colleague Ms. Htay Htay Mon from Univ. Mawlamyine, Myanmar, at the 2nd MOMSEI Workshop on 25-26 Nov. 2009 at Manila, Philippine

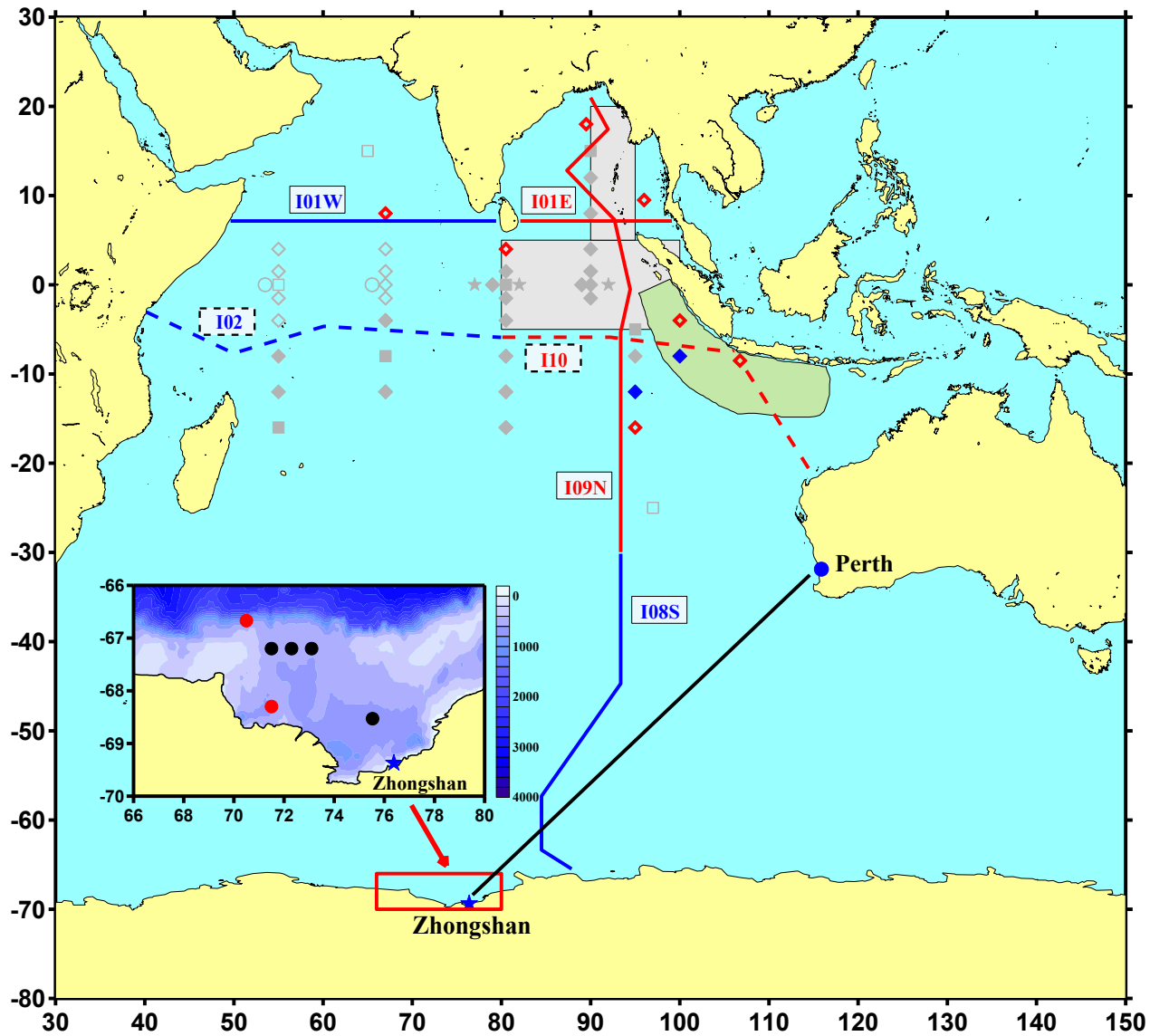


Dr. Somkiat Khokiatwong from PMBC, Dr. Weidong Yu from FIO, at the 4th MOMSEI Workshop



Mr. Wannakiat Thubthimsang, PMBC Director, at 2nd MOMSEI Workshop on 8-9 Aug. 2009 in Qingdao, China

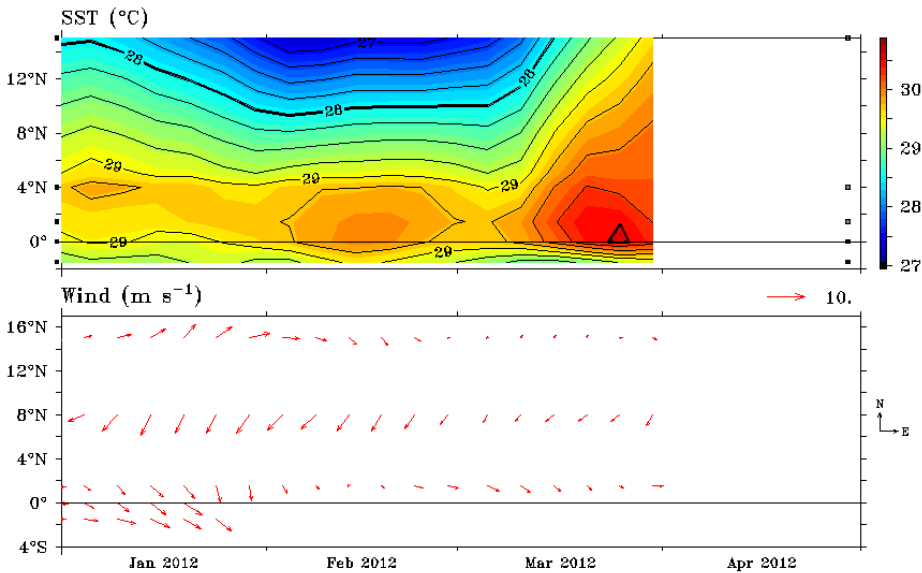
Indian Ocean – Southern Ocean Observations under planning



Climate Service based on the Indian Ocean observations

FIO participates the seasonal outlook organized by CMA

Five Day SST and Wind at 90°E



TAO Project Office/PMEL/NOAA

Apr 2 2012

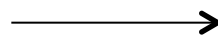
East Asian Monsoon



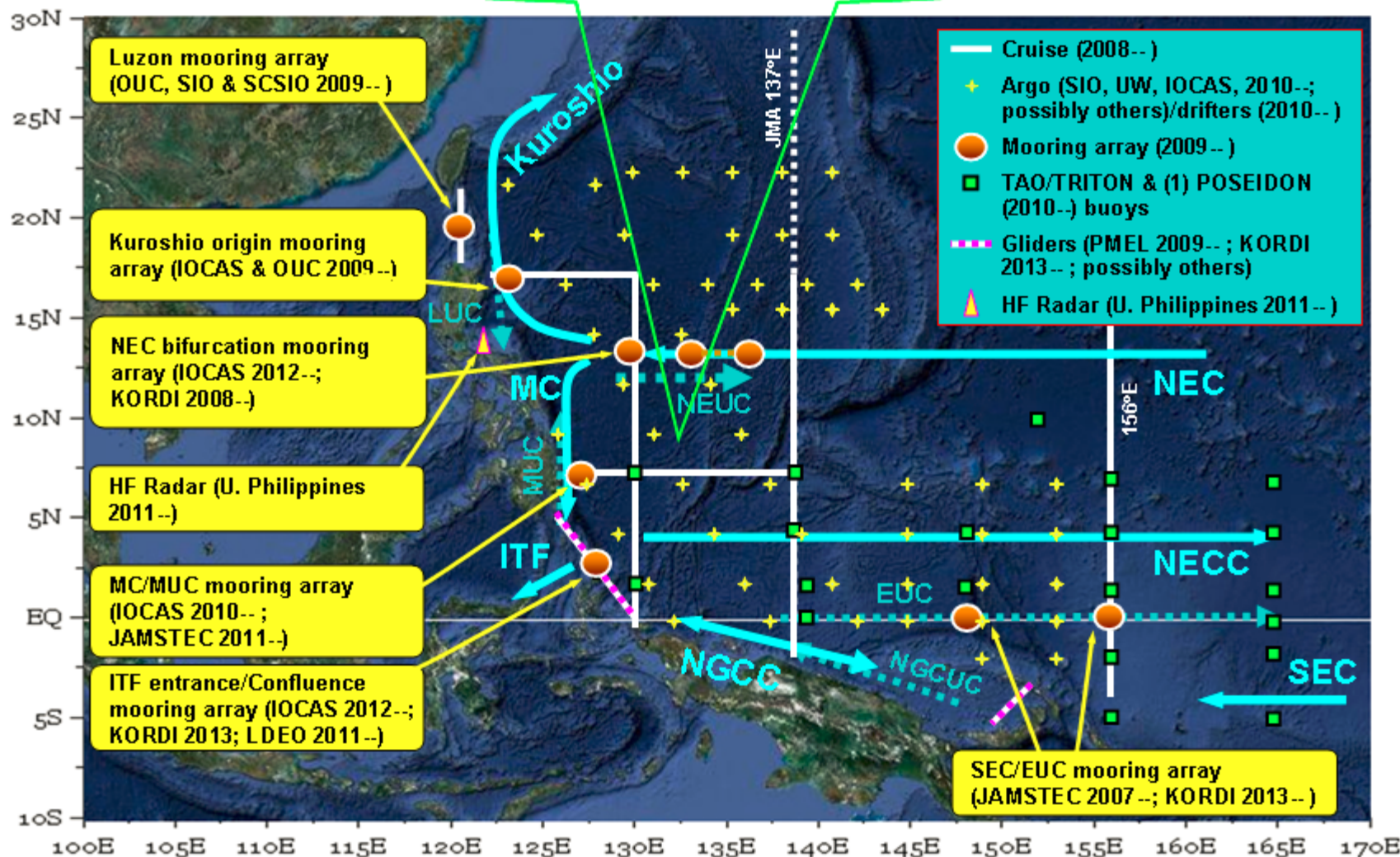
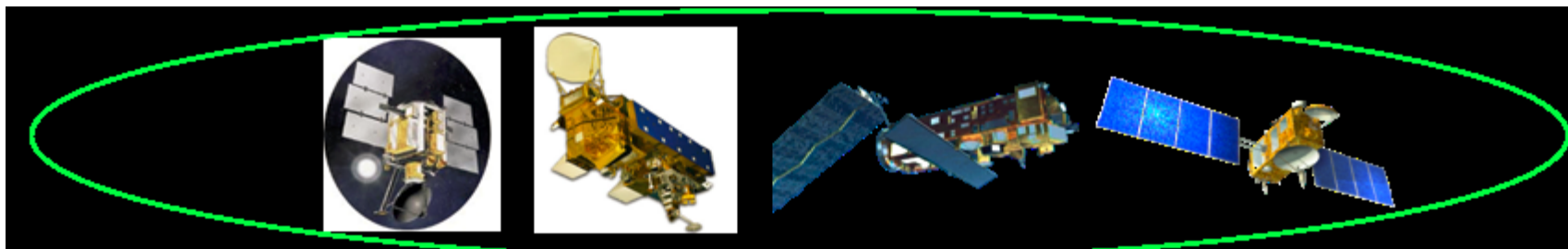
Preconditioning of South China Sea monsoon onset



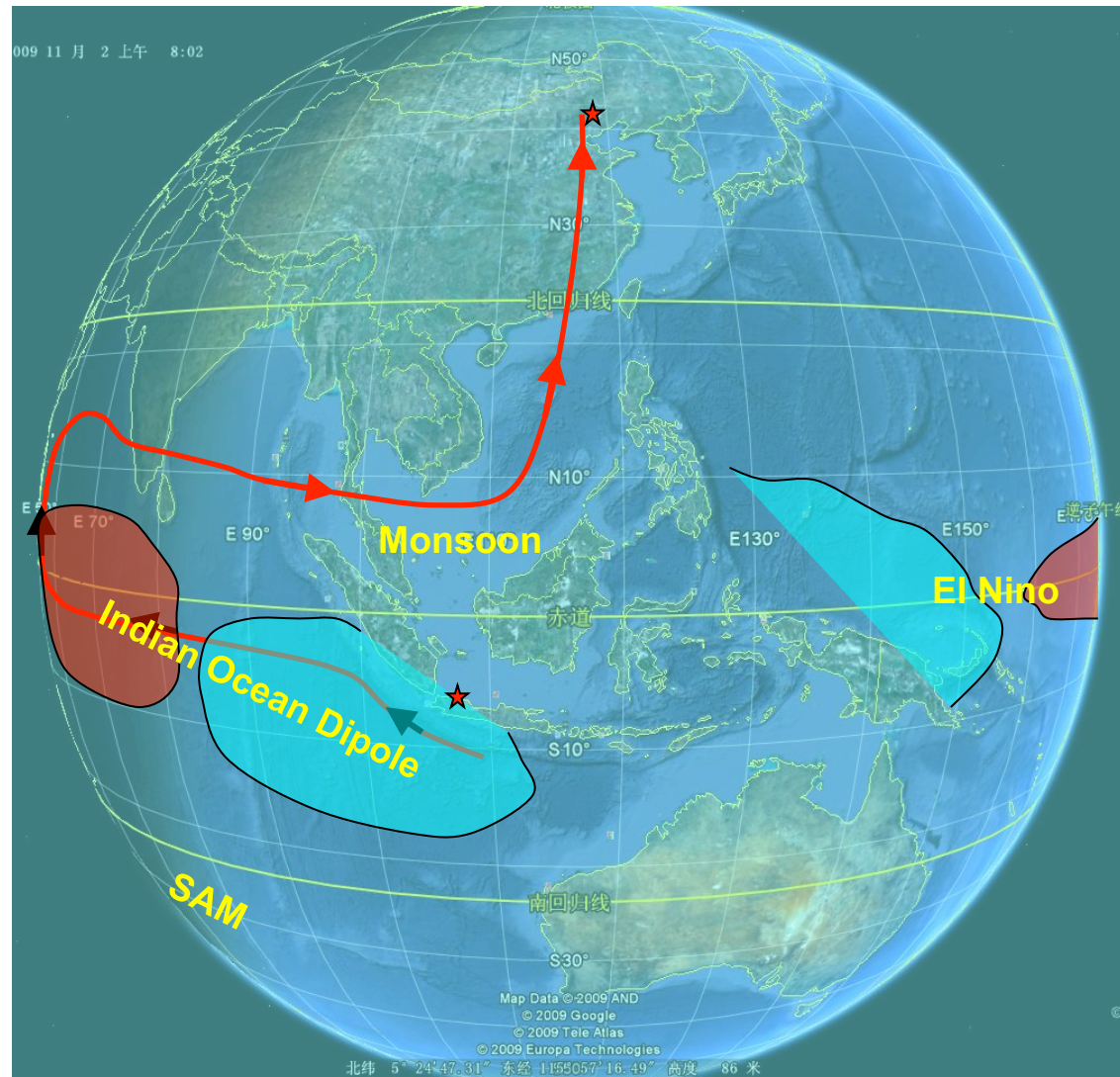
Monsoon onset monitoring over Bay of Bengal

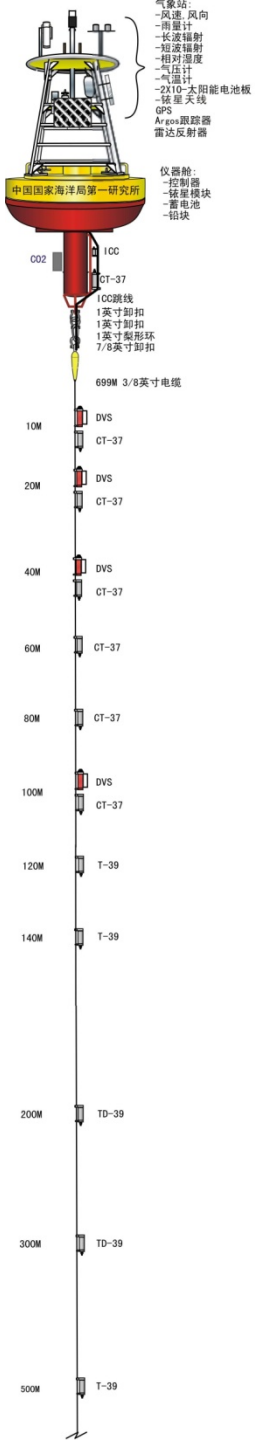


Terminating of the dry/hot season in southwest China and Indo-China Peninsula



Can we build the optimal Indo-Pacific Ocean Observing System to support the climate service? (at least for seasonal forecast)





海洋与气候研究中心

Center for Ocean
and Climate Research



Let's
work
together
!

Thanks!

