

Dr.-Ing. Widodo S. Pranowo
Research Scientist

Research & Development Center for Marine & Coastal Resources
Agency for Marine & Fisheries Research & Development
Ministry of Marine Affairs & Fisheries of the Republic of Indonesia
Email: widodo.pranowo@kkp.go.id, www.p3sdlp.litbang.kkp.go.id



Research Activities on Ocean-Climate Variability Impact to Marine & Fisheries Sector

United Nation/Indonesia International Conference on Integrated Space Technology Application to Climate Change

@Hotel Borobudur, Jakarta, 03 September 2013

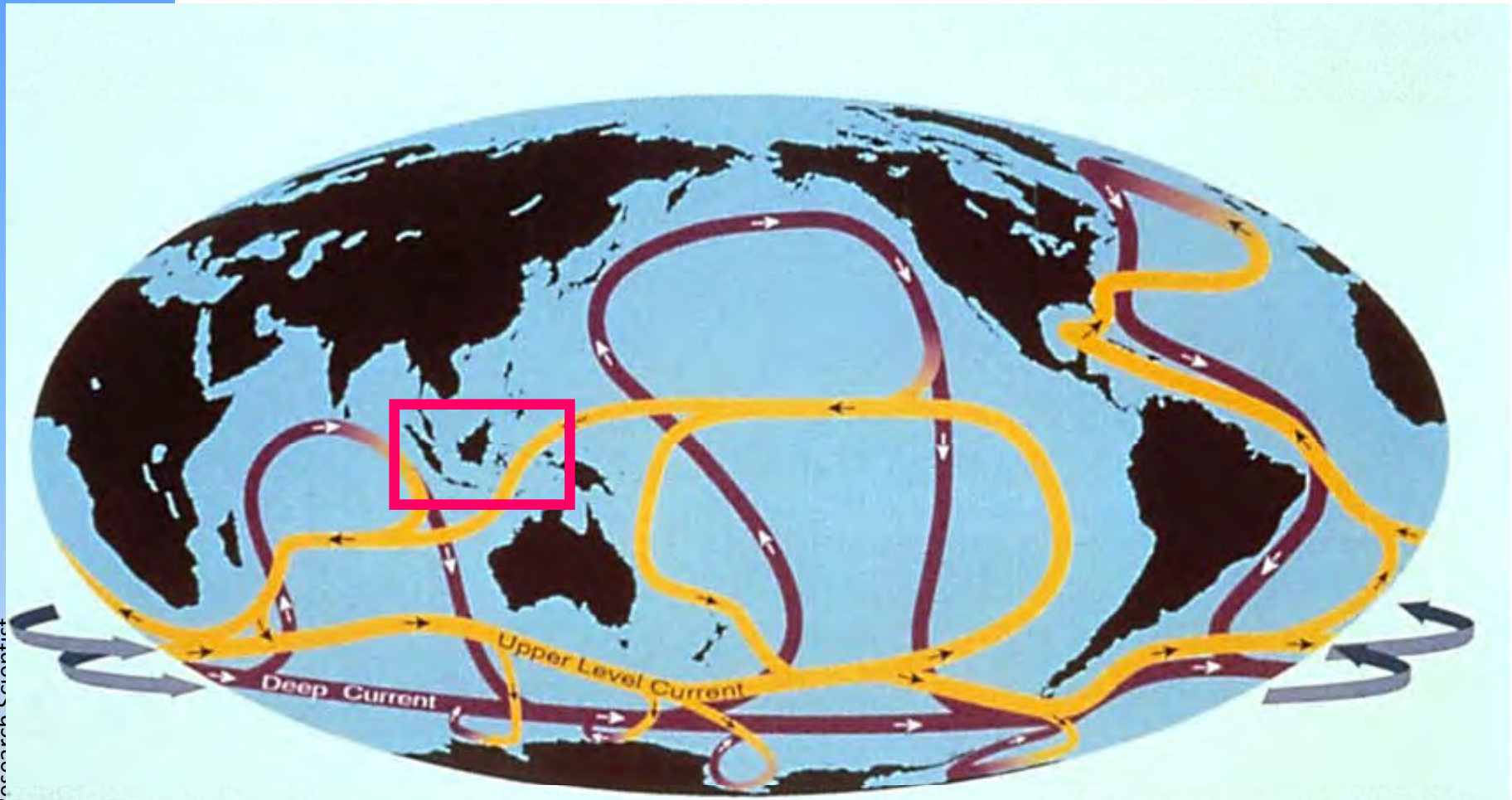
Widodo S. Pranowo^{*)}, Tukul R. Adi, Anastasia Tisiana, & Budi Sulistiyo

****) Head of R & D Group on Climate Change Policy***

Research & Development Center for Marine & Coastal Resources

Acknowledge contributions:

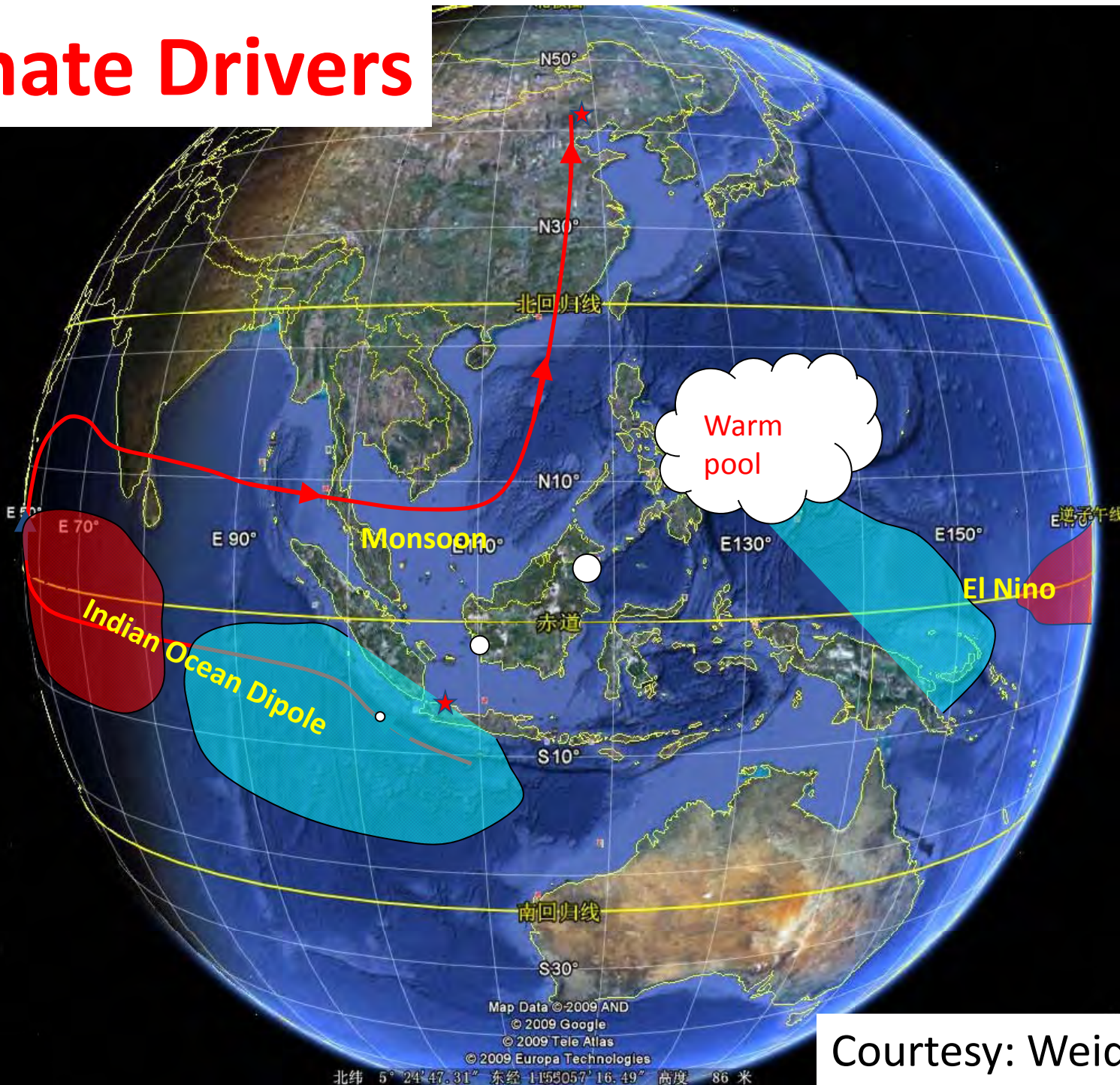

Weidong Yu, Huiwu Wang, Li Zhi, Wenxi Zhu, Zhang Xulei, Anastasia Kuswardhani, Salvienty Makarim, Rizki A. Adi, Candra D. Puspita, Herlina Ratnawati, Danie Saepuloh, Novi S. Adi, August Daulat, Erish Widjanarko, Gunardi Kusumah, Nia Hasanah, LP. Savichitra, Agus Supangat, Nurhayati, Andika, Somkiat Khokiattiwong, & Fredolin Tangang.



The global ocean "Conveyor Belt" System

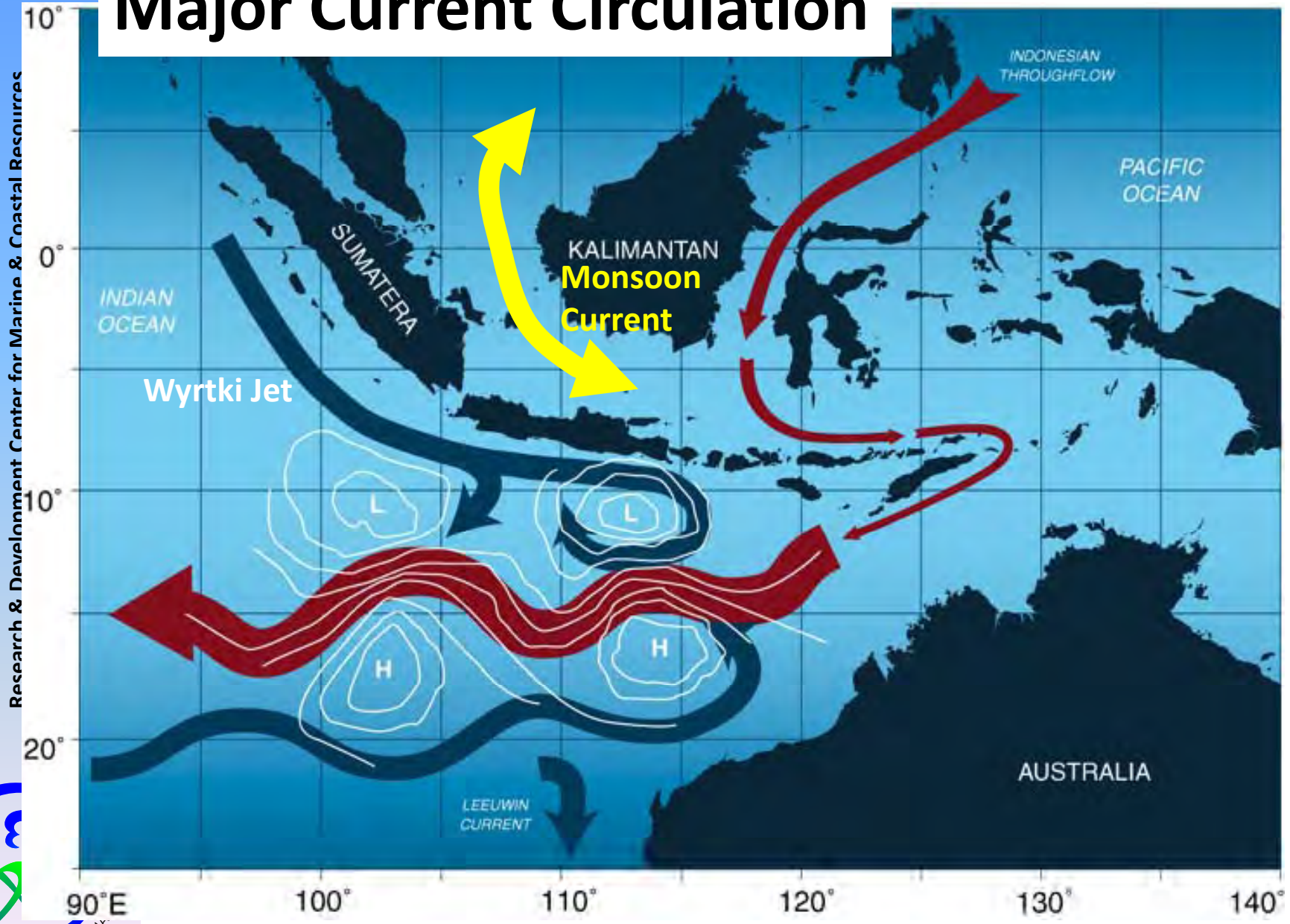
Climate Drivers

Dr.-Ing. Widodo S. Pranowo
Research Scientist
Research & Development Center for Marine & Coastal Resources
Agency for Marine & Fisheries Research & Development
Ministry of Marine Affairs & Fisheries of the Republic of Indonesia



Courtesy: Weidong YU

Major Current Circulation



Dr.-Ing. Widodo S. Pranowo
Research Scientist
Research & Development Center for Marine & Coastal Resources



(Wijffels, 2005)



Dr.-Ing. Widodo S. Pranowo
Research Scientist

Research & Development Center for Marine & Coastal Resources
Agency for Marine & Fisheries Research & Development
Ministry of Marine Affairs & Fisheries of the Republic of Indonesia
Email: widodo.pranowo@kkp.go.id, www.p3sdip.litbang.kkp.go.id

Indonesian Region

- Tropical Seas → High primary productivity to absorb massive Carbon dioxide, but in short period.
- Warm Sea Surface Temperature → Tend to be source of Carbon.
- Coastal Peatland in several area → Tend to be source of Carbon.
- Coastal ecosystem (Mangrove & Seagrass) → Potential to be a Carbon sequestration (Blue Carbon).
- Coastal & Marine Ecosystem – Climate has a dynamic interaction.

Target for GDP – MP3EI

Vision:

the vision of the acceleration and expansion of Indonesia's economic development is to create a self-sufficient, advanced, Just, and prosperous Indonesia.



Financial and Planning System
Law No. 25 Year 2004 -
Law No. 17 Year 2003

RPJPN 2005 – 2025

RPJMN
2010 – 2014

RKP/RAPBN

Dinamic Change

- Global Condition (Economic Crisis in 2008, BRICS, etc.)
- International Commitment (G20, APEC, FTA, ASEAN, Climate Change)
- Domestic Socio-Economic Development

To Accelerate National
Economic Transformation

Masterplan of Acceleration
and Expansion of Indonesia
Economic Development

Action Planning/Project

NAP – Mitigation
(GHGs Reduction)

RAN-GRK → REDD
RTRWN

Private Investment
and PPP

NAP on
Climate Change
Adaptation
(RAN-API)

1 Development adaptation, integration, and acceleration: FOCUS and CONCRETE

National Action Plan for the GHG's reduction (RAN-GRK)

Ministry of Marine and Coastal Resources
Development
the Republic of Indonesia

4 Research Programme of AMFRD
are mentioned being supporting activities in the
Presidential Regulation No. 61/2011 for RAN GRK
signed at 20 September 2011

Dr.-Ing. Widodo S. Pranowo

No.	Action Plan	Activity/Target	Period	Location
1	Marine Research Carbon in Indonesia	5 Research Packages	2010 - 2014	Indonesian coastal zone & Coral Triangle Initiative area
2	Study Marine Hazard Response to Climate Change in Southeast Asia Region	2 Research Packages	2010 - 2014	South China sea & Karimata strait
3	Implementation of the Indonesia Global Ocean Observing System (INAGOOS)	2 Research Packages	2010 - 2014	Jakarta, Bali & Indonesian seas
4	Implementation of the Indo-China Ocean & Climate Research Centre	3 Research Packages	2010 - 2014	Sunda strait, Indian Ocean, & Karimata strait



National Action Plan for the Climate Change Adaptation (RAN-API)

Ministry of Marine Affairs and Coastal Resources Development
of the Republic of Indonesia

3 Research Programme of RDCMCR
are mentioned being parts of the main streaming activities in the
RAN API for Food Security
Status draft of 22 January 2013

Dr.-Ing. Widodo S. Pranowo

No.	Action Plan	Activity/Target	Period	Location
1	Kajian Perubahan Monsun di Perairan Indonesia (MOMSEI)	2 Research Packages	2013 – 2016	East Indian Ocean, South of Java
2	Penerapan kebijakan ekonomi biru dengan pendekatan daya dukung perairan di Sumatera Barat sebagai Sentra Tuna	2 Research Packages	2013 - 2019	East Indian Ocean, Western Sumatra
3	Pembuatan Peta Wilayah Pengelolaan Perikanan (WPP) yang terintegrasi	1 Research Packages	2010 - 2014	Indonesian seas



Kajian Perubahan Monsun di Perairan Indonesia (MOMSEI) (Study of Monsoon Variability in Indonesia Seas - MOMSEI)



Coordinator: Dr.-Ing. Widodo S. Pranowo

Activities Plan:

1. Development of Science Plan for MOMSEI (Partner Prof. Dr. Weidong Yu – FIO) → March - May
2. Development & Signation of IA MOMSEI → May – Jun
3. Clearances process → Jun-Jul
4. South Java Cruise for capturing of Upwelling Signal → Aug
5. Labs & data analysis → Oct - Nov

Dr.-Ing. Widodo S. Pranowo

Marine & Coastal Data Laboratory

Research & Development Center for Marine & Coastal Resources

Agency for Marine & Fisheries Research & Development

Ministry of Marine Affairs & Fisheries of the Republic of Indonesia

Email: widodo.pranowo@kkp.go.id; Website: www.p3sdlp.litbang.kkp.go.id



Kajian Variabilitas Laut, Iklim dan Monsun di Perairan Indonesia (Study on Ocean Climate Variability of Indonesian Seas)



coordinator & PI: Dr. Anastasia Rita Tisiana Dwi Kuswardani

Activities Plan:

1. Development of Science Plan for “The Transport, Internal Wave & Mixing in The ITF Regions (TIMIT) & Impacts on Seasonal Fish Migration” (Partner Prof. Dr. We Zexun – FIO);
2. Development & Signation of IA TIMIT;
3. FGD on research have been done in ITF region;
4. Labs & data analysis.

Dr.-Ing. Widodo S. Pranowo

Marine & Coastal Data Laboratory

Research & Development Center for Marine & Coastal Resources

Agency for Marine & Fisheries Research & Development

Ministry of Marine Affairs & Fisheries of the Republic of Indonesia

Email: widodo.pranowo@kkp.go.id; Website: www.p3sdlp.litbang.kkp.go.id



Research project on Marine Resources (2013)

Analisis Sumberdaya Kelautan di WPP 717 dan WPP 718 dalam Rangka Pengelolaan Sumberdaya Kelautan dan Perikanan
(Development of Marine Resources Information for Fisheries Manag. Area)



Coordinator: Rizki Anggoro Adi

WPP (Full region) PC/Offline System
Developed by Dr. Ifan R. Suhelmi (2011-2012)



Adopted to
WEB ARCGIS SYSTEM &
P3SDLP DATABASE SERVER



Published via
P3SDLP's WEBSITE
<http://www.p3sdlp.litbang.kkp.go.id>

Dr.-Ing. Widodo S. Pranowo

Marine & Coastal Data Laboratory

Research & Development Center for Marine & Coastal Resources

Agency for Marine & Fisheries Research & Development

Ministry of Marine Affairs & Fisheries of the Republic of Indonesia

Email: widodo.pranowo@kkp.go.id; Website: www.p3sdlp.litbang.kkp.go.id



Monsoon Onset Monitoring & Its Social & Ecosystem Impacts - 2014

FIO - SOA

- **Monsoon Onset**

AMFRD

- **Marine Environment** (RDCMCR - Dr. Anastasia Kuswardhani)
- **Blue Carbon** (RDCMCR- Dr. Andreas Hutahaean)
- **Salt Production** (RDCMCR – Dr. Ifan Suhelmi)
- **Coastal Vulnerability** (RDCMCR – Gunardi Kusumah, M.Sc)
- **Fisheries** (P4KSDI – Dr. Duto Nugroho/Dr. Renny Puspasari)

- CTD observations
- Meteorology observation
- Ocean-atmosphere heat flux
- Ocean-atmosphere CO₂ flux
- Zoo-/Phito-plankton Net
- Water sampling with CTD with rosette bottles
- Secchi disk depth (water transparency)
- Echo intensity (Backscattering) / Fish finder
- Trawl

Dr.-Ing. Widodo S. Pranowo
Head of R & D Programme

Research & Development Center for Marine & Coastal Resources
Agency for Marine & Fisheries Research & Development
Ministry of Marine Affairs & Fisheries of the Republic of Indonesia
Email: widodo.pranowo@kkp.go.id, www.p3sdlp.litbang.kkp.go.id



Institutes & facilities

Dr.-Ing. Widodo S. Pranowo

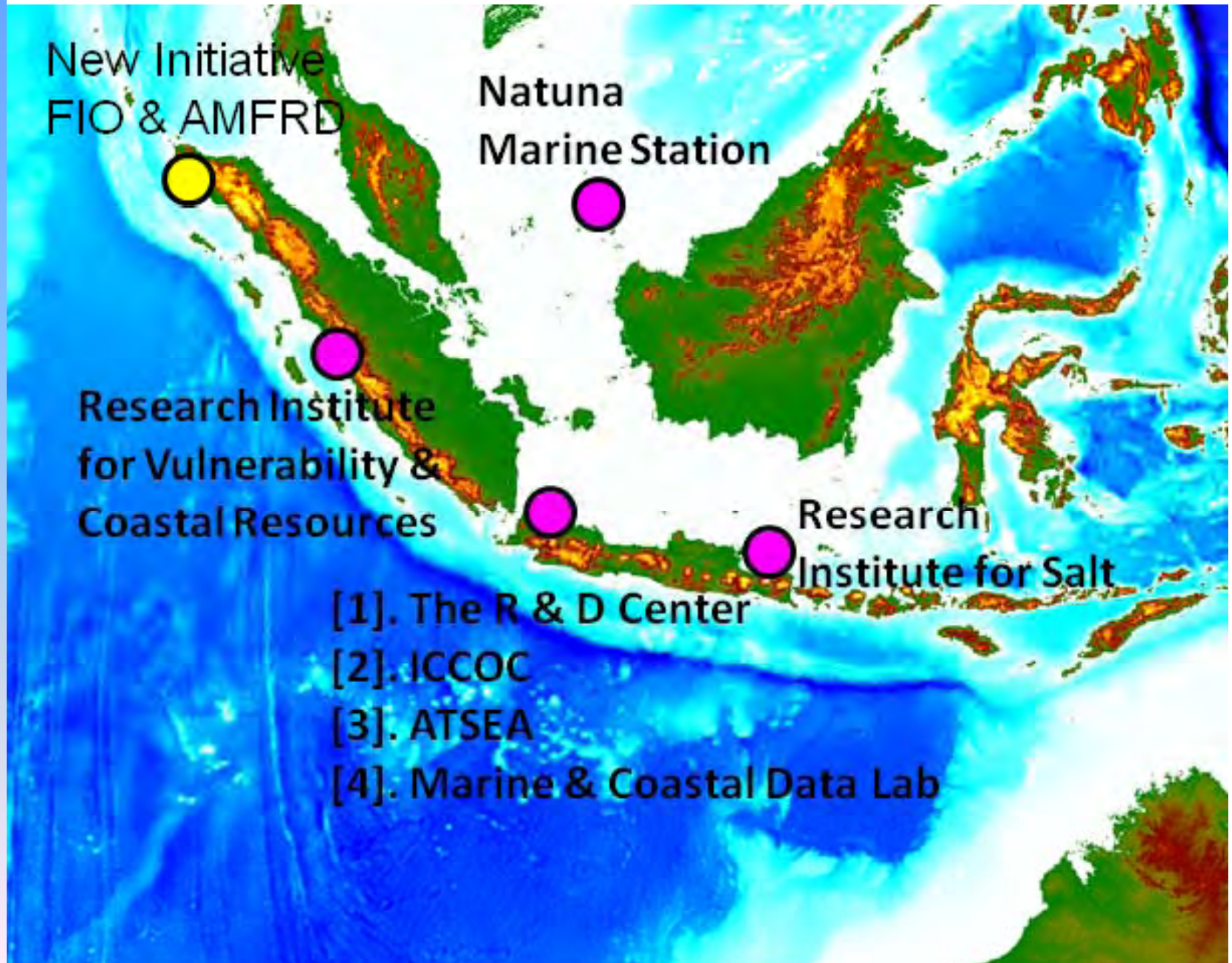
Research Scientist

Research & Development Center for Marine & Coastal Resources

Agency for Marine & Fisheries Research & Development

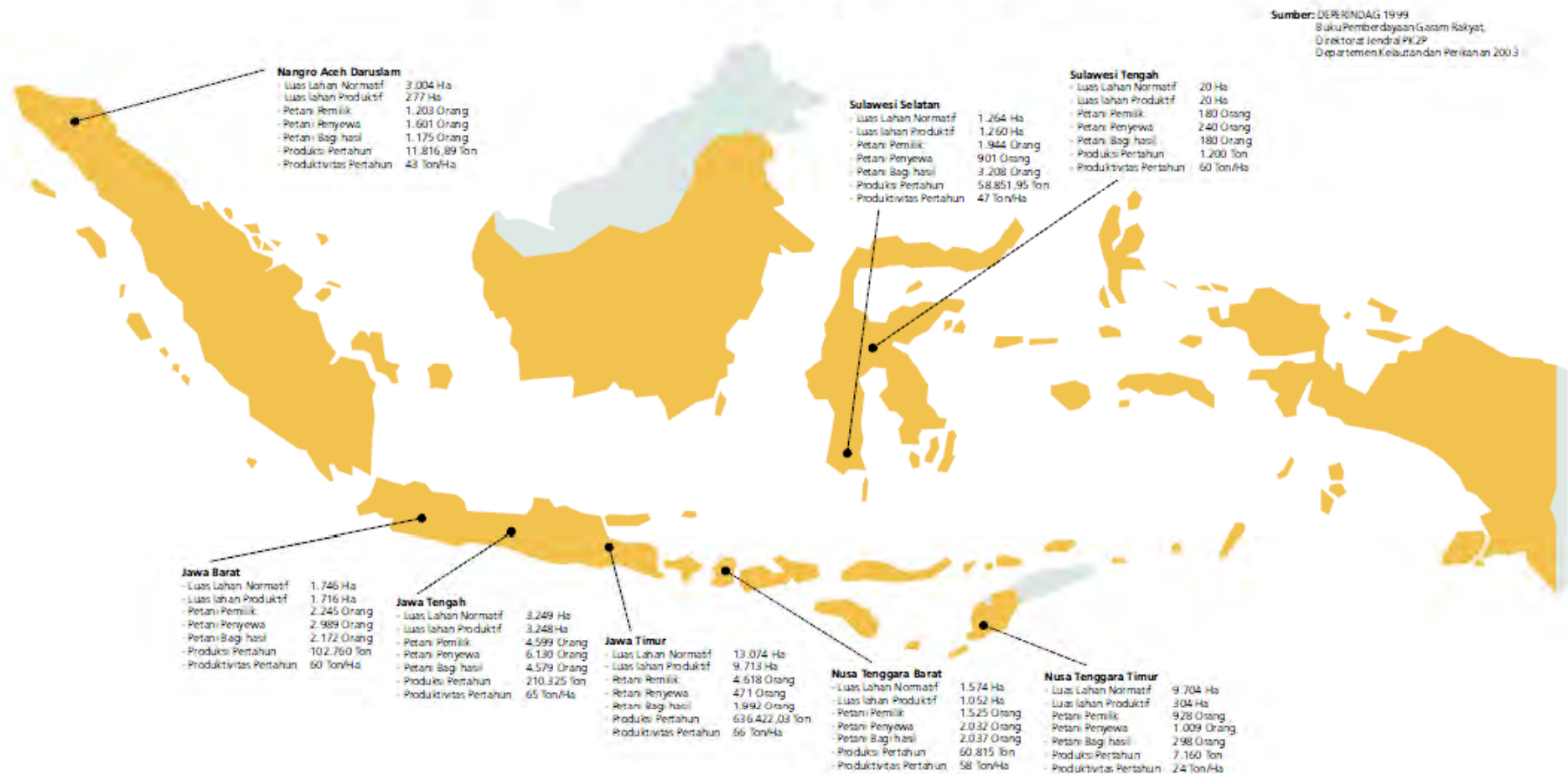
Ministry of Marine Affairs & Fisheries of the Republic of Indonesia

Email: widodo.pranowo@kkp.go.id, www.p3sdlp.litbang.kkp.go.id



Sea Salt Production Area

Gambar 1 Peta sentra garam rakyat.



Indonesian Longline Tuna Vessels Location (Source: BRKP, 2003)

Dr.-Ing. Widodo S. Pranowo

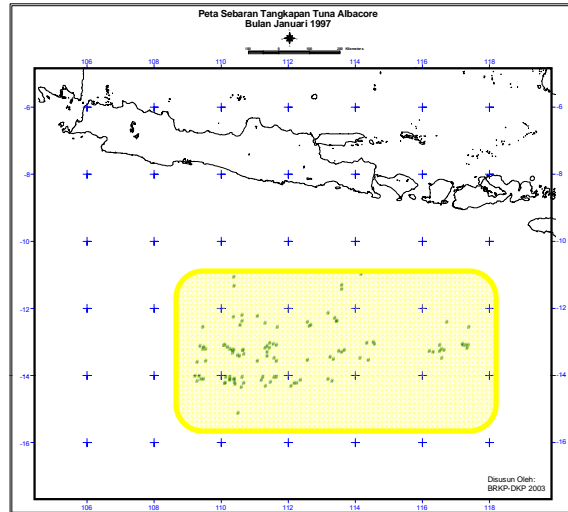
Research Scientist

Research & Development Center for Marine & Coastal Resources

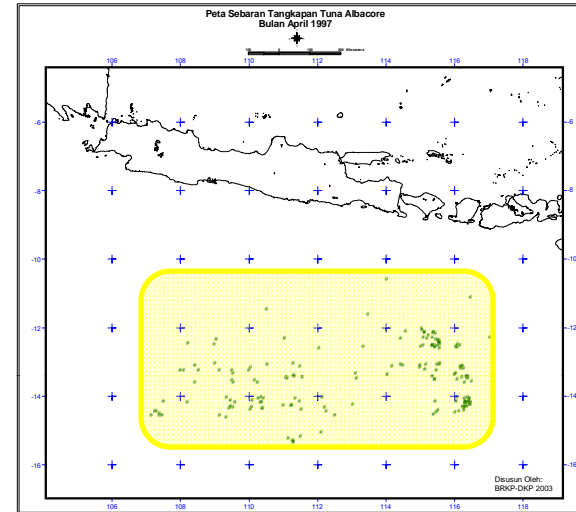
Agency for Marine & Fisheries Research & Development

Ministry of Marine Affairs & Fisheries of the Republic of Indonesia

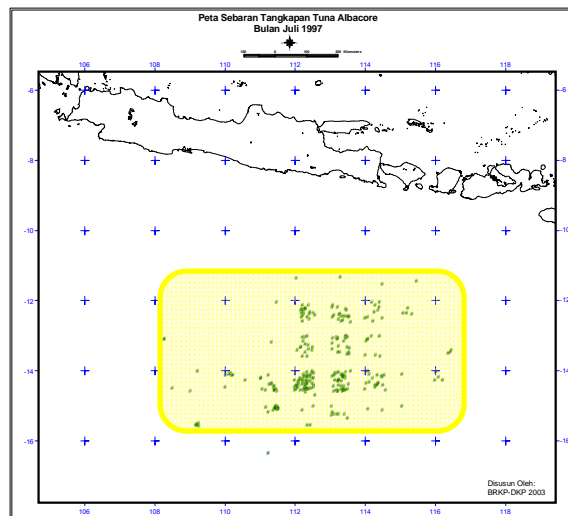
Email: widodo.pranowo@kkp.go.id, www.p3sdlp.litbang.kkp.go.id



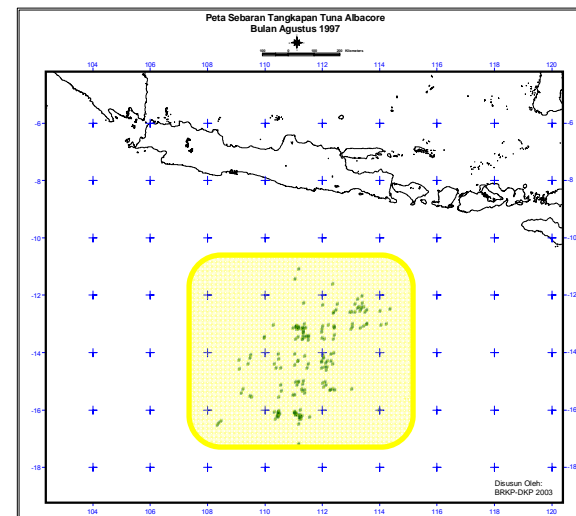
January 1997



April 1997



July 1997



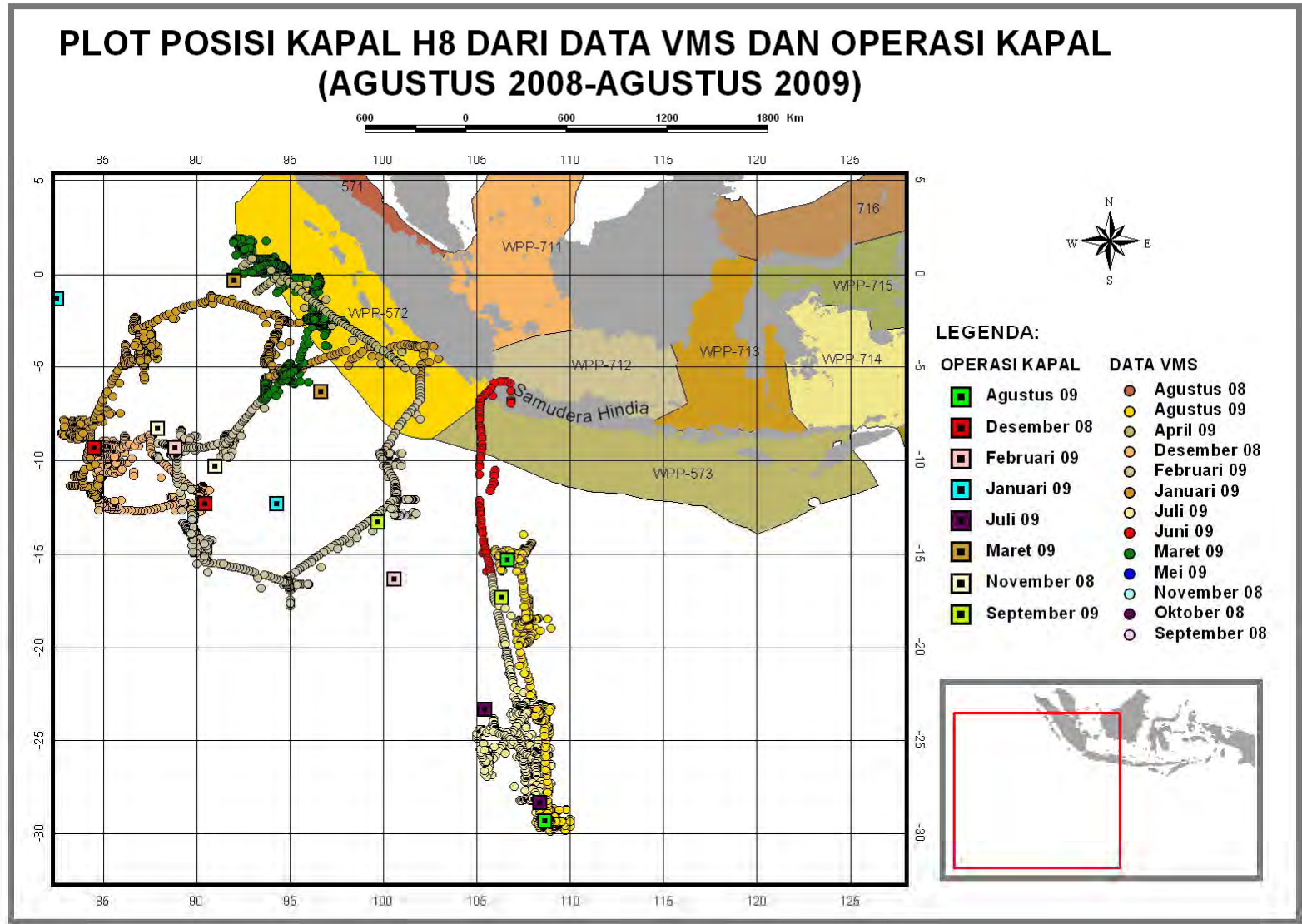
August 1997

Indonesian Longline Tuna Vessels Location

(Source: Balitbang KP, 2012)

Dr.-Ing. Widodo S. Pranowo
Research Scientist

Research & Development Center for Marine & Coastal Resources
Agency for Marine & Fisheries Research & Development
Ministry of Marine Affairs & Fisheries of the Republic of Indonesia
Email: widodo.pranowo@kkp.go.id, www.p3sdlp.litbang.kkp.go.id



Indonesian Longline Tuna Vessels Location (Source: Balitbang KP, 2012)

Dr.-Ing. Widodo S. Pranowo

Research Scientist

Research & Development Center for Marine & Coastal Resources

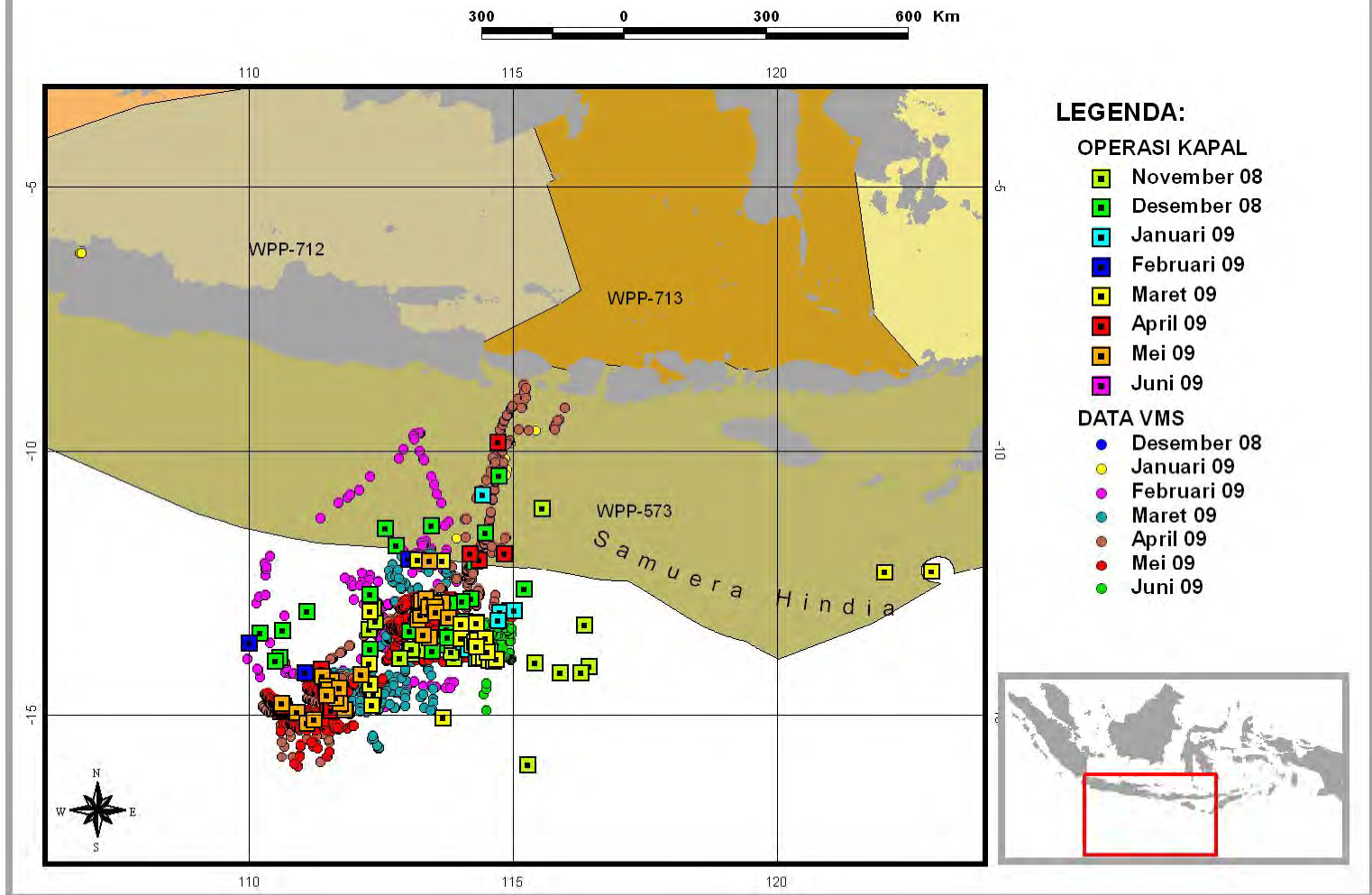
Agency for Marine & Fisheries Research & Development

Ministry of Marine Affairs & Fisheries of the Republic of Indonesia

Email: widodo.pranowo@kkp.go.id, www.p3sdlp.litbang.kkp.go.id



PLOT POSISI KAPAL S43 DARI DATA VMS DAN OPERASI KAPAL (AGUSTUS 2008-AGUSTUS 2009)



Indonesian Longline Tuna Vessels Location 2011 & 2012

(Source: Balitbang KP, 2012 for IOTC)

Dr.-Ing. Widodo S. Pranowo

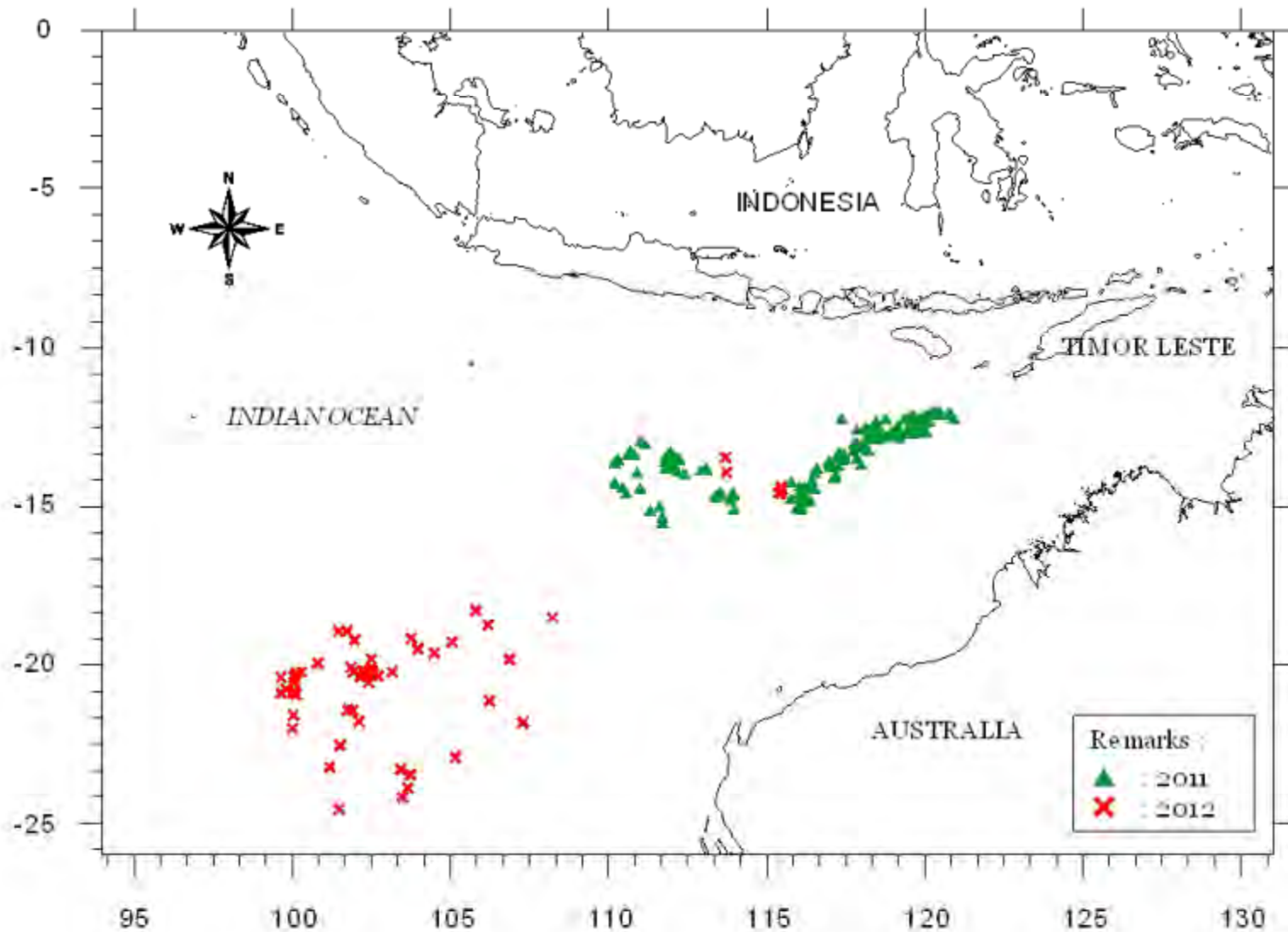
Research Scientist

Research & Development Center for Marine & Coastal Resources

Agency for Marine & Fisheries Research & Development

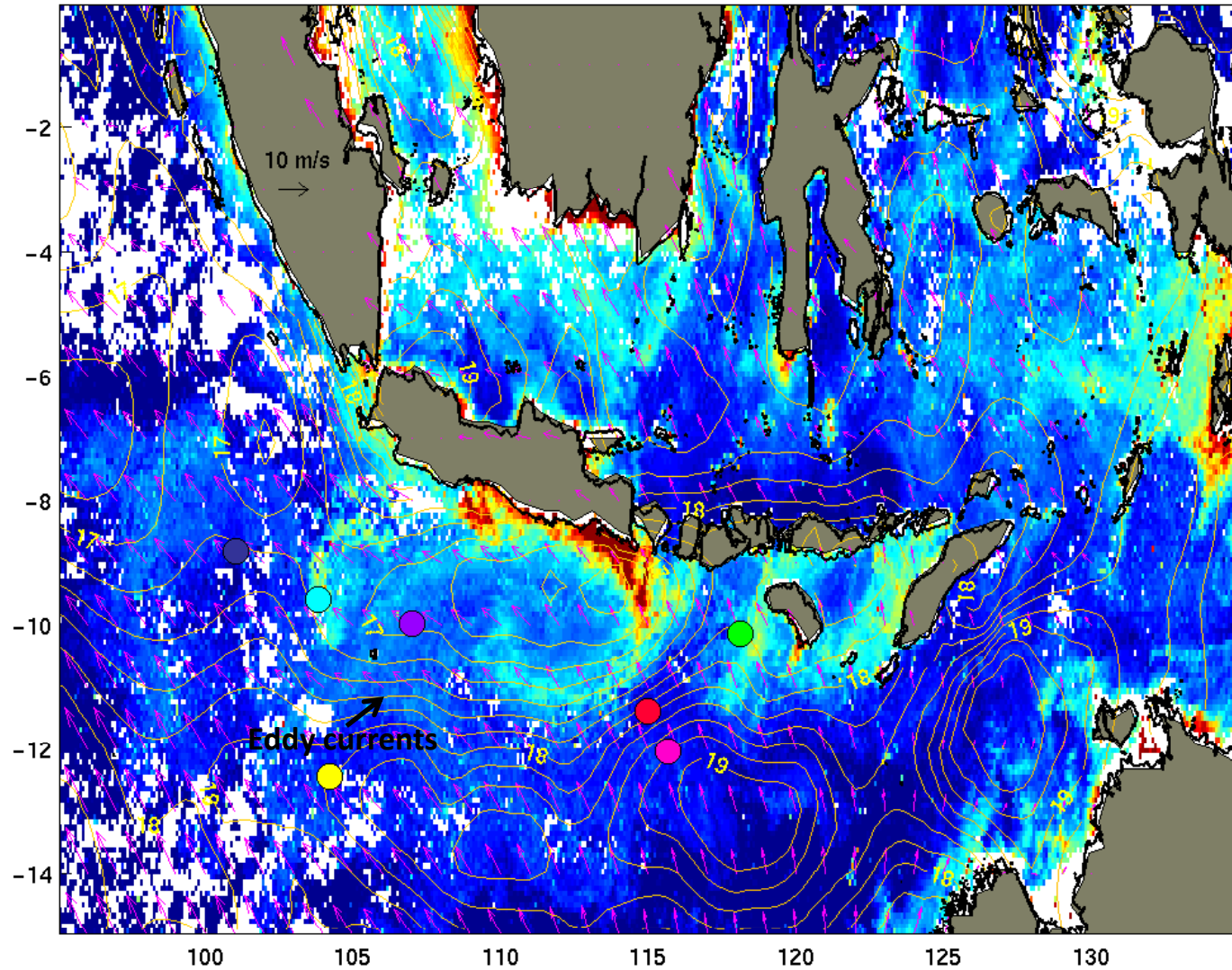
Ministry of Marine Affairs & Fisheries of the Republic of Indonesia

Email: widodo.pranowo@kkp.go.id, www.p3sdlp.litbang.kkp.go.id



Satellite → Chlorophyll, Wind, SSH, Argo Floats

2003 8 23



Dr.-Ing. Widodo S. Pranowo

Research Scientist

Research & Development Center for Marine & Coastal Resources

Agency for Marine & Fisheries Research & Development

Ministry of Marine Affairs & Fisheries of the Republic of Indonesia

Email: widodo.pranowo@kkp.go.id, www.p3sdlp.litbang.kkp.go.id



J. Segara, Vol. 2, 2006, p.63-66

Correlation of OPP & Temperature

Dr.-Ing. Widodo S. Pranowo

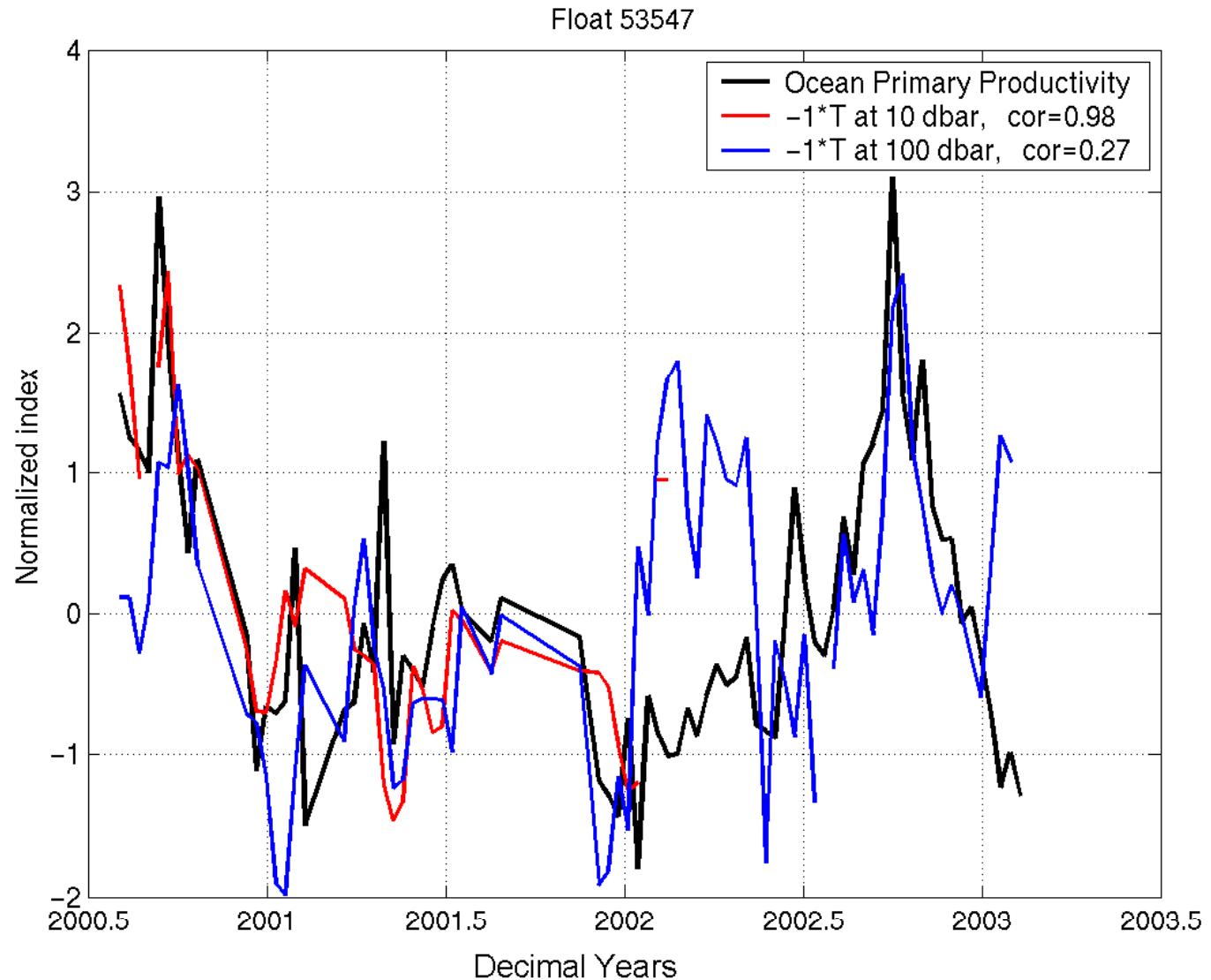
Research Scientist

Research & Development Center for Marine & Coastal Resources

Agency for Marine & Fisheries Research & Development

Ministry of Marine Affairs & Fisheries of the Republic of Indonesia

Email: widodo.pranowo@kkp.go.id, www.p3sdlp.litbang.kkp.go.id

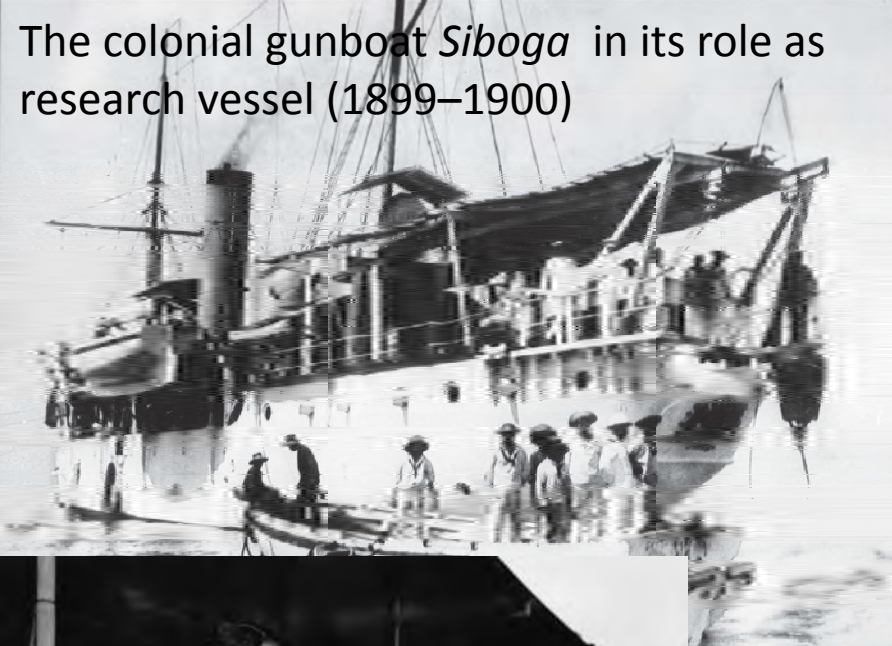


J. Segara, Vol. 2, 2006, p.63-66

Expedition to investigating Marine-Climate characteristic of Indonesian Seas

Has been done by International and national scientists since Dutch Colonial

The colonial gunboat *Siboga* in its role as research vessel (1899–1900)



The naval survey ship *Willebrord Snellius* (1929-1930)



(Courtesy: H.M. Aken & Weidong Yu)



A seminar, attended by a 12-man American scientific team from the U.S. Oceanographic vessel ARGO, was held jointly with scientists of the Indonesian Council for Sciences at the latter's headquarters, Djalan Medan Merdeka Selatan, Djarkta. Principles of the seminar are left to right: **Mr. Taufik, of the Indonesian Council for Sciences**; Dr. Robert L. Fisher, of the University of California's Scripps Institution of Oceanography; **Capt. Lumanau, Chief of Navy Hydrography and Mr. Radhie, Head of Division for General Affairs of the Indonesian Council for Sciences.** Date:1963-01-23 .

Sources: Scripps Institution of Oceanography Library Archives

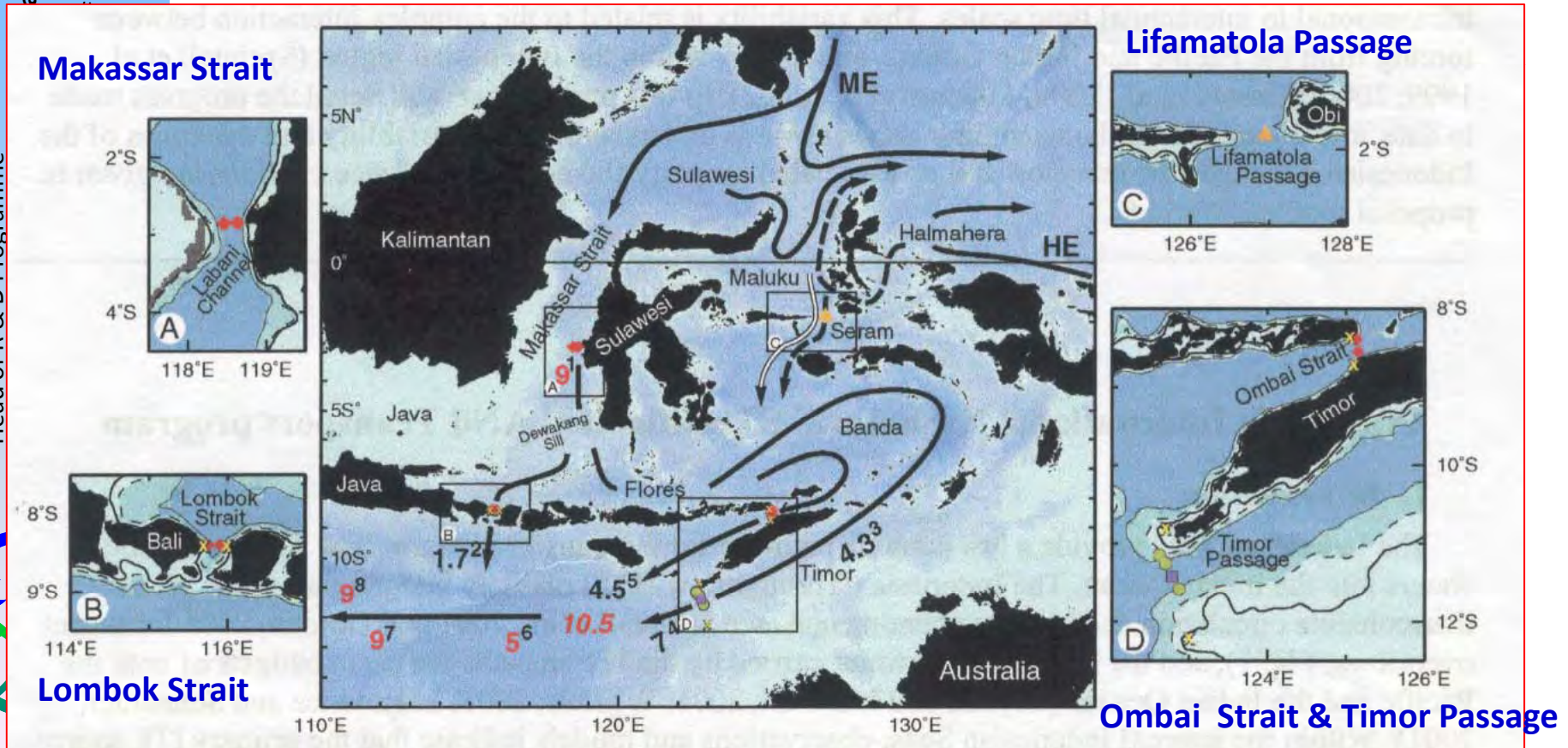
International Nusantara Stratification & Transport (2003-2011)

Marine & Coastal Resources
& Development
the Republic of Indonesia

(1st deployment: Dec 24, 2003 – Feb 1, 2004; rotation @ 1 years; finished 2006)

- Instrument Deployment:
 - Current Meter (Pengukur Arus)
 - Sensor Temperatur dan Salinitas
 - Shallow Pressure Gauges (Pengukur Tekanan Paras Laut)

Dr.-Ing. Widodo S. Pranowo
Head of R & D Programme

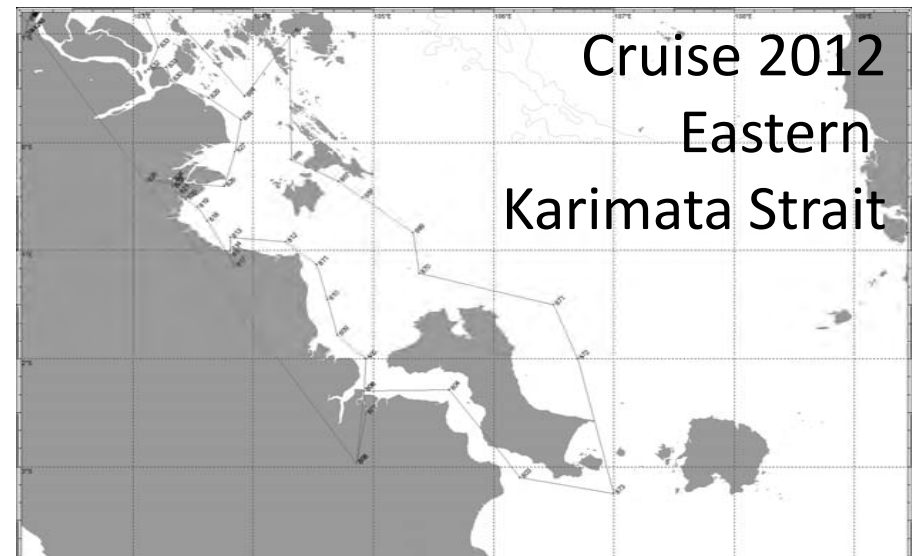
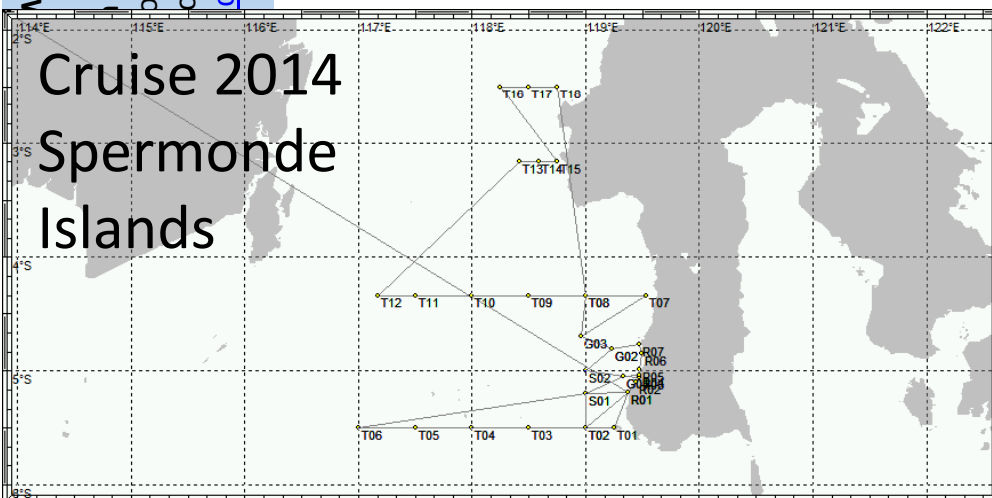
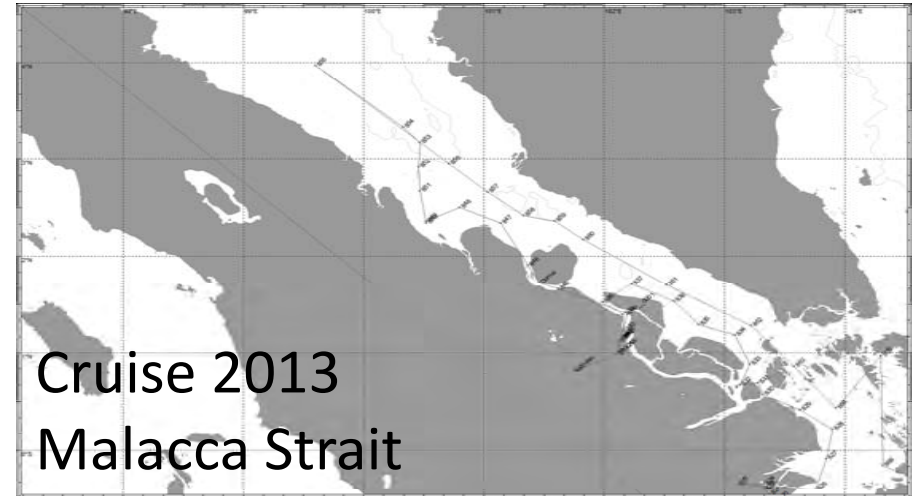


Indonesia – German SPICE III (2012 -2015)

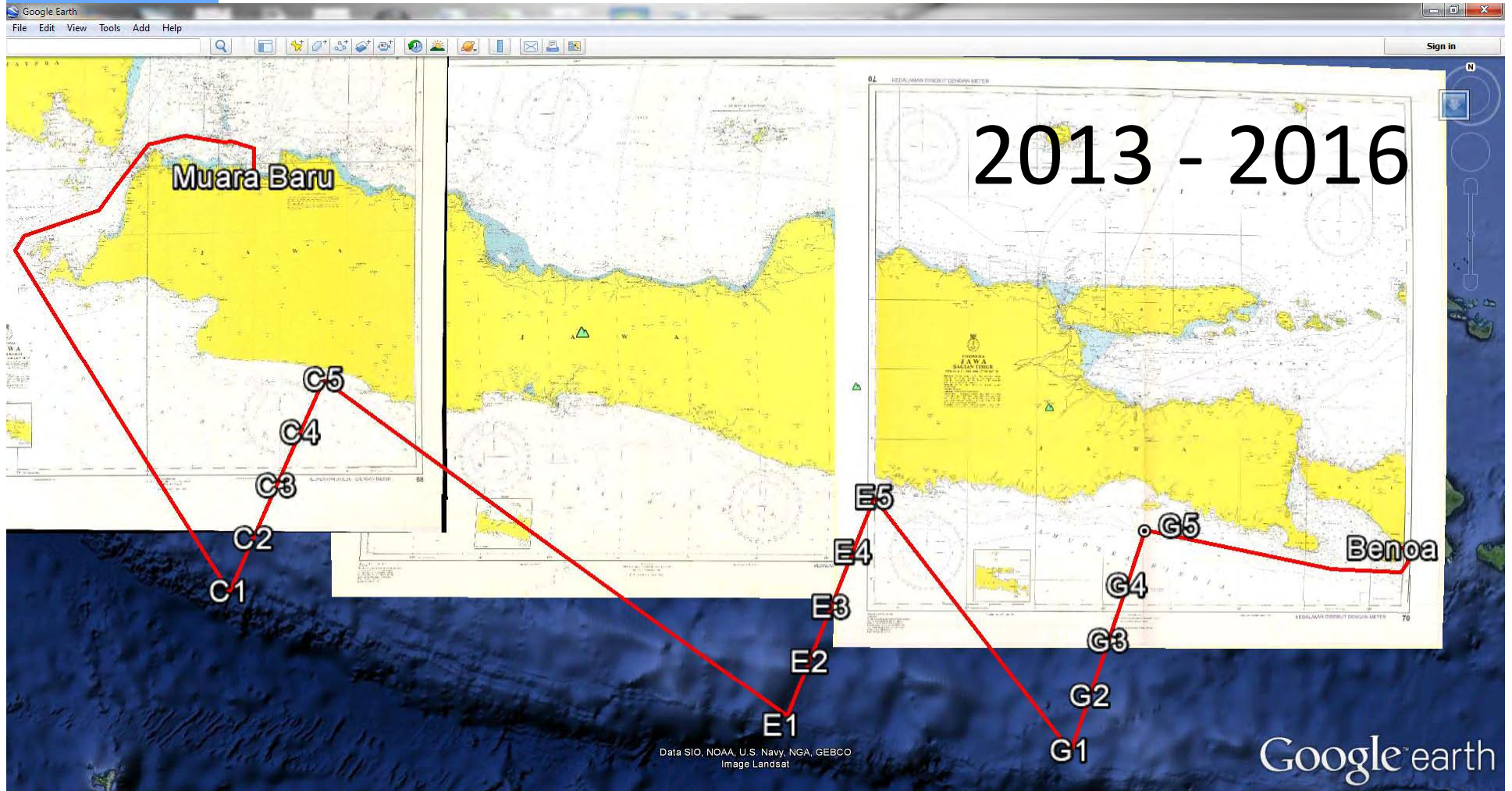
Carbon Sequestration in the Indonesian Seas and Its Global Significance: Generation of Scientific Knowledge for Formulating Strategies For Adaptation to Climate Change

resources

indonesia
kcp.go.id



Kajian Perubahan Monsun di Perairan Indonesia (MOMSEI)



Cruise Plan 20 s/d 29 Agustus 2013, menggunakan Kapal Riset Baruna Jaya VIII dengan rute Muara Baru – Benoa Bali dengan 15 titik sampling station C1-C5, E1-E5, G1-G5



The Transport, Internal Waves and Mixing in the Indonesia Throughflow regions (TIMIT) and Impacts on Seasonal Fish Migration – (2014 – 2017)

Dr.-Ing. Widodo S. Pranowo

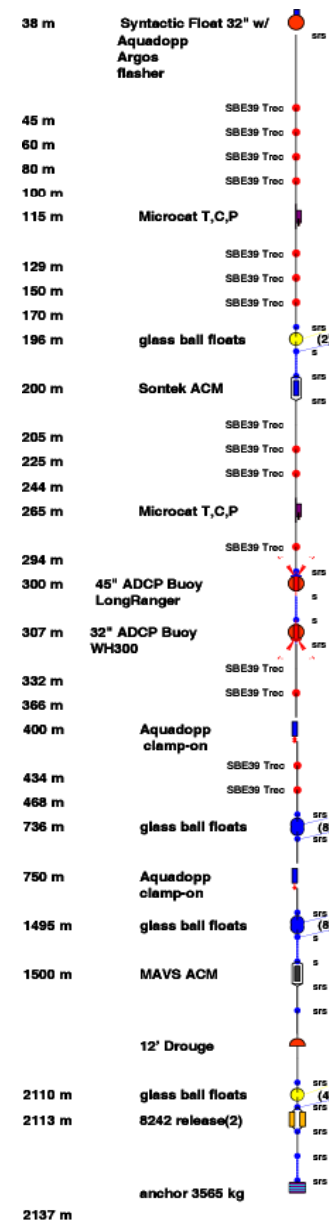
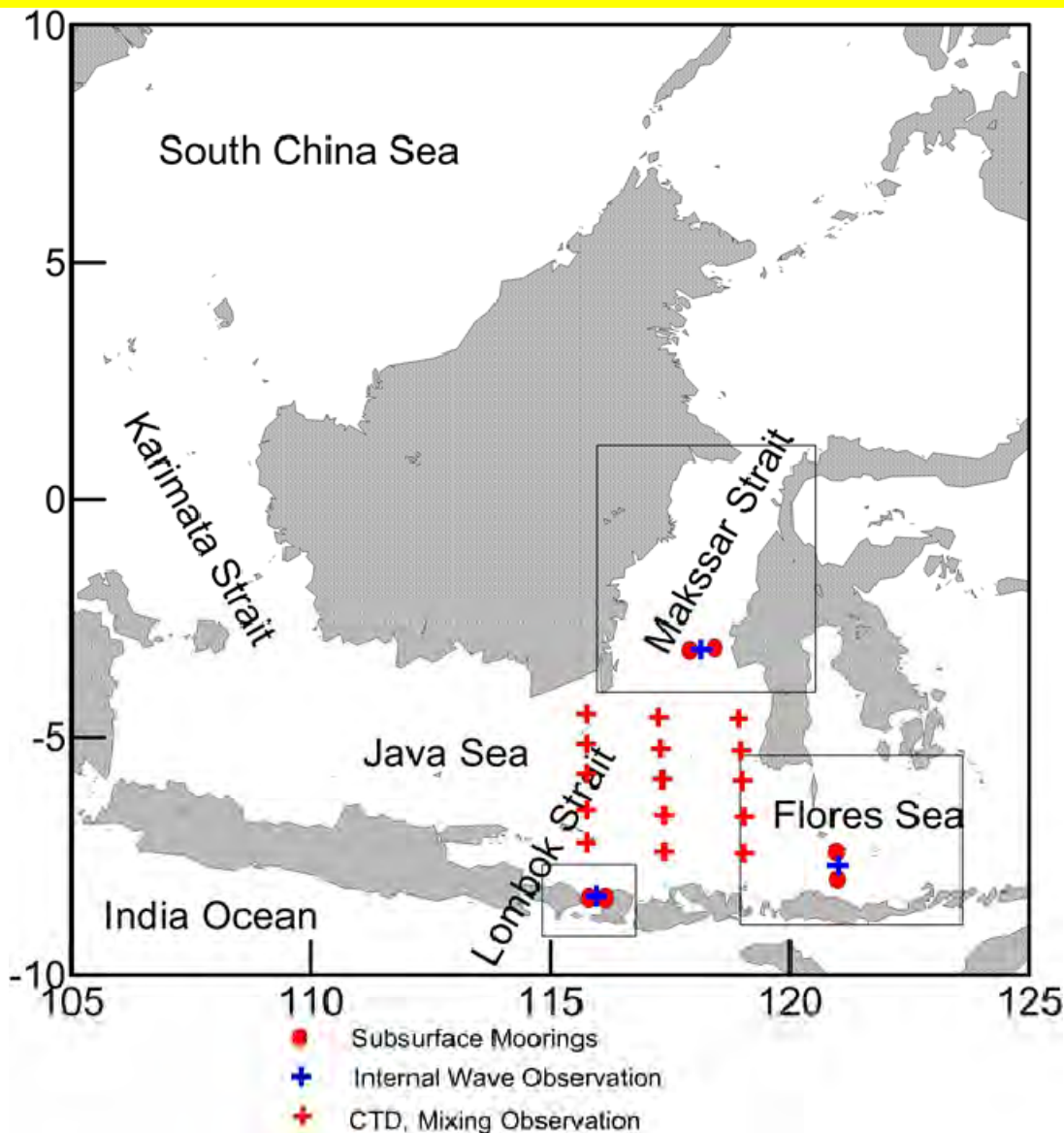
Research Scientist

Research & Development Center for Marine & Coastal Resources

Agency for Marine & Fisheries Research & Development

Ministry of Marine Affairs & Fisheries of the Republic of Indonesia

Email: widodo.pranowo@kkp.go.id, www.p3sdlp.litbang.kkp.go.id



RESEARCH OUTCOME 2011-(2013)

Dr.-Ing. Widodo S. Pranowo

Research Scientist

Research & Development Center for Marine & Coastal Resources

Agency for Marine & Fisheries Research & Development

Ministry of Marine Affairs & Fisheries of the Republic of Indonesia

Email: widodo.pranowo@kkp.go.id, www.p3sdlp.litbang.kkp.go.id



- Intermediate outcomes
 - Oceanographic Dataset including CO₂ Data and Fisheries parameters.
 - Report on Chlorophyll-a and Marine Productivity Development Algorithm Study (LAPAN – Indonesia Aerospace Agency).
 - Report on Fisheries Oceanographic Data Analysis.
 - Young scientists sent Summer School 2012 & 2013.
 - Students: 3 Bachelors graduated.
 - Development of Marine Ecoregion (E.L.01).
 - Ph.D Student will be start April 2013 @ Xiamen Univ.
- (Plan for) Publications
 - Scientific Papers on Fisheries Oceanography, Blue Carbon and Fisheries
 - Other (*outreach*) publications → Mooring buoy response Storm, Tsunami/ Earthquake signal.



Dr.-Ing. Widodo S. Pranowo

Marine & Coastal Data Laboratory

Research & Development Center for Marine & Coastal Resources

Agency for Marine & Fisheries Research & Development

Ministry of Marine Affairs & Fisheries of the Republic of Indonesia

Email: widodo.pranowo@kkp.go.id; Website: www.p3sdip.litbang.kkp.go.id



Thank you
Terima Kasih