



# THE INDONESIAN AGENCY FOR METEOROLOGY CLIMATOLOGY AND GEOPHYSICS

## NATIONAL REPORT INDONESIA PMO ACTIVITIES

Presented by : Bayu Edo Pratama, M.Si



The 5th Workshop Port Meteorological Officer,  
Vina Del mar – Chile, July 20 -24 2015



# OUTLINE

## ➤ **NETWORK STATION**

Marine weather observation

## ➤ **OBSERVATION**

Implementation VOS / Support activities

## ➤ **PMO ACTIVITIES**

Network PMO Offices / PMO activities

## ➤ **MARINE INFORMATION AND SERVICES**

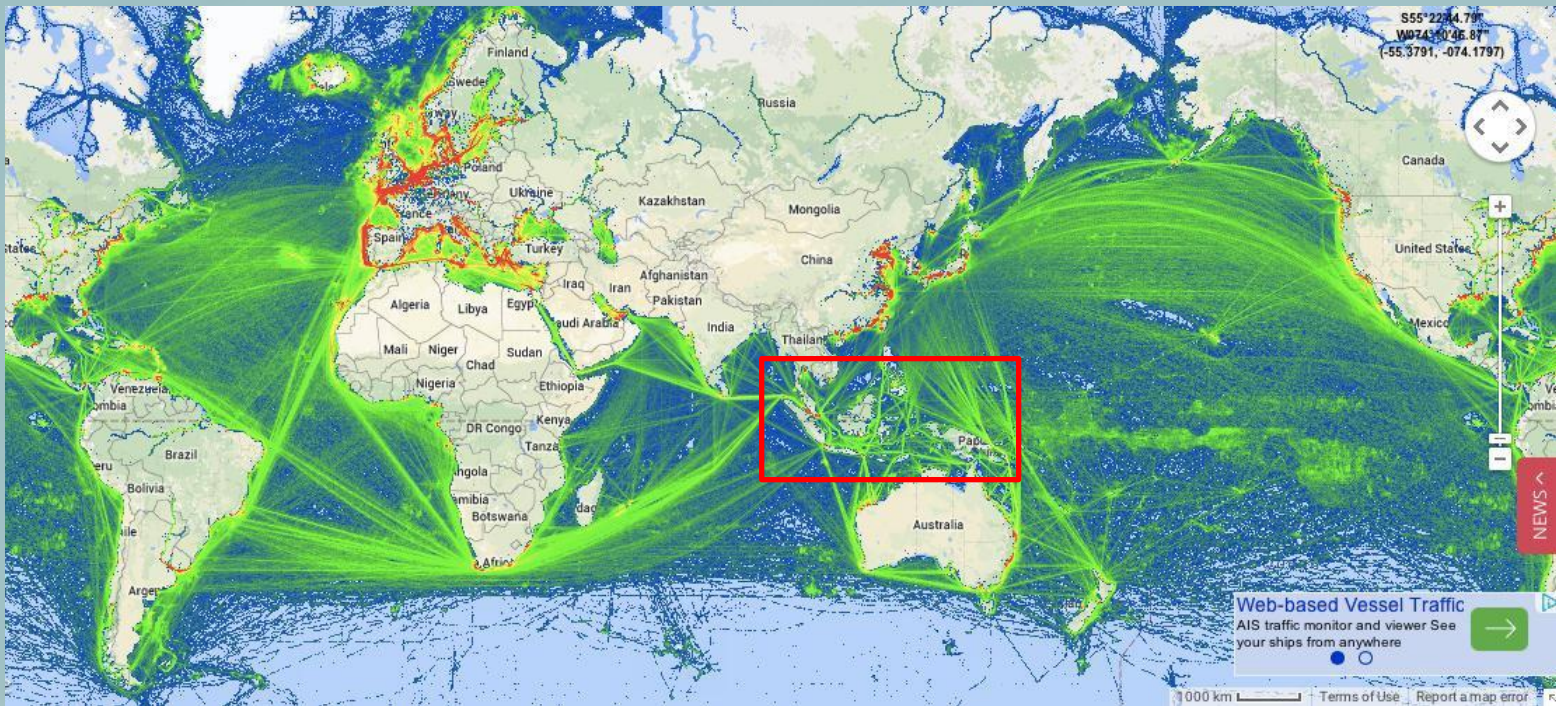
Nearshore Wave model / CIFDP / MIDAS





# GOOD TO KNOW

# INDONESIA as GLOBAL MARITIME AXIS!



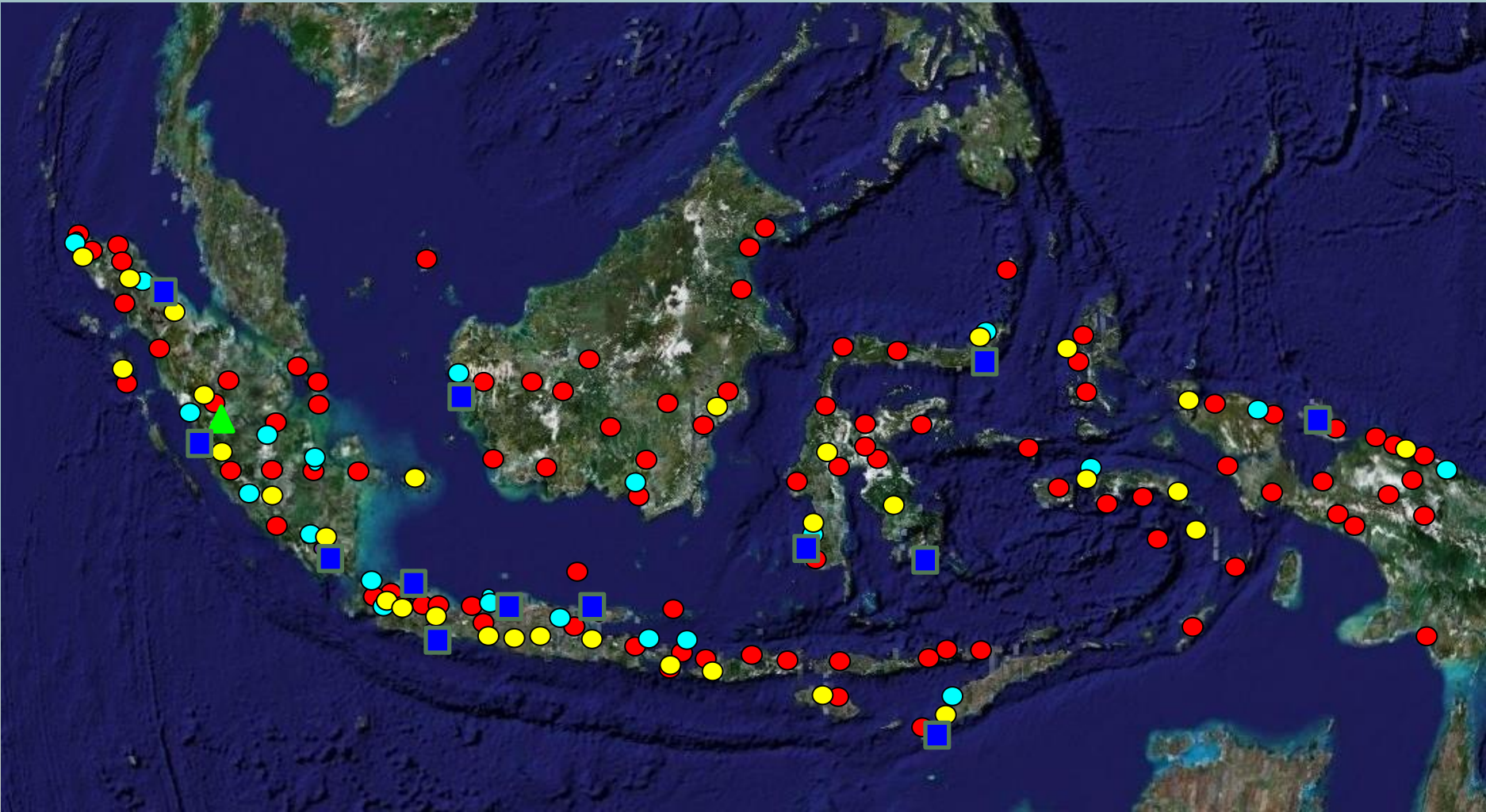
<https://www.marinetraffic.com> [7 April 2015]






- ✓ Indonesia is an archipelagic island country in Southeast Asia;
- ✓ Indonesia has strategic location astride or along major sea lanes from Indian Ocean to Pacific Ocean.





# NETWORK STATION OBSERVATION



-  PMOs Sta. (13)
-  GAW (1)
-  Synoptic Sta.(120)
-  Geophysic Sta.(31)
-  Climatology Sta. (21)

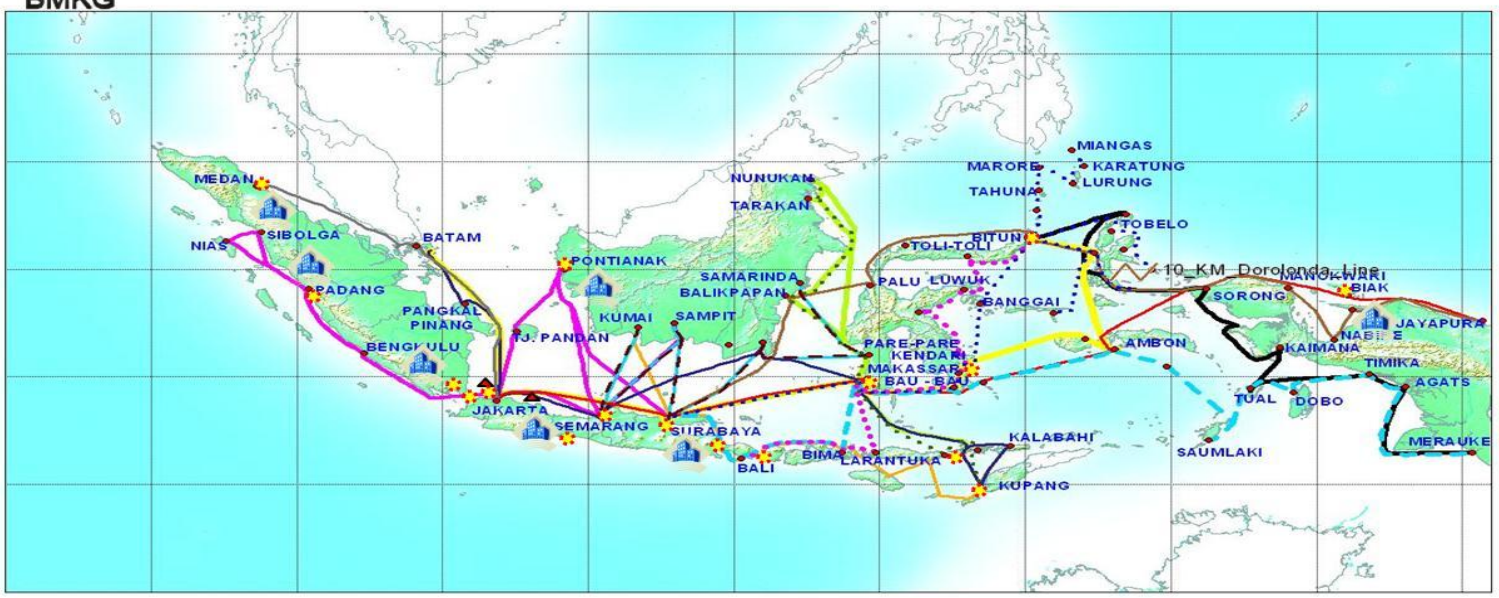


# MARINE NETWORK OBSERVATION



## Marine Observation System BMKG (Stasiun - Kapal/VOS - Platform/Rig - Maritim/Pelabuhan)

BMKG



- Stasiun Meteorologi Maritim (13)
- AWS Platform/ Rig (2)
- AWS Maritim/Pelabuhan (16)

### AWS Kapal/ VOS (15)

- 01\_KM\_Dempo\_Line
- 02\_KM\_Lawit\_Line
- 03\_KM\_Awu\_Line
- 01\_KM\_Sangiang\_Lane
- 02\_KM\_Tilongkabila\_Lane
- 04\_KM\_Tidar\_Line
- 05\_KM\_Tatamailau\_Line
- 06\_KM\_Bukitraya\_Line
- 03\_KM\_Kelimutu\_Lane
- 04\_KM\_Bukit Siguntang\_Lane
- 07\_KM\_Sirimau\_Line
- 08\_KM\_Kelud\_Line
- 09\_KM\_Lambelu\_Line
- 10\_KM\_Dorolonda\_Line
- 05\_KM\_Binaiya\_Line





# OBSERVATION

## IMPLEMENTATION OF VOS PROGRAMME

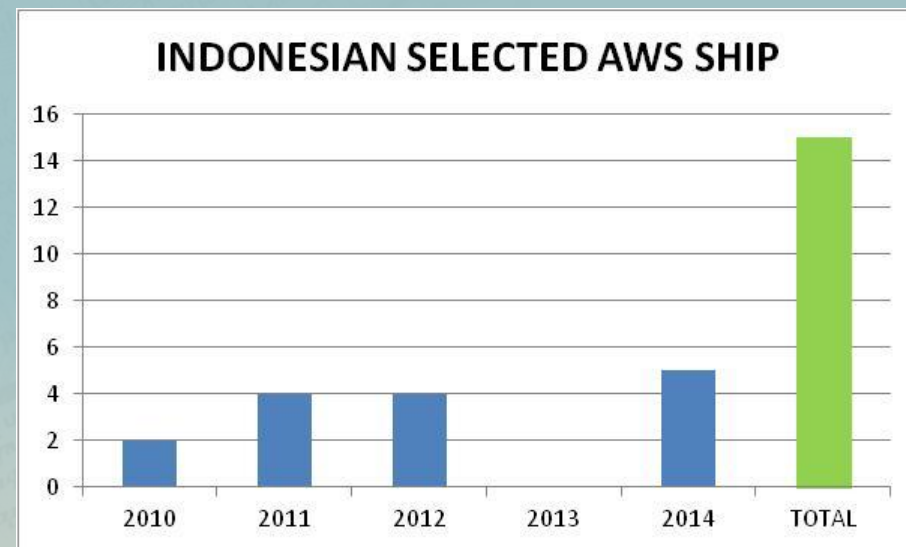
### Indonesia VOS Fleet Network

End of 2014 : Indonesian VOS fleet was made of **15 VOS**

- 10 Integrated AWS and Turbowin (2010 – 2013)
- 5 AWS BATOS (2014) ~ Project BMKG and MFI (France)

Plan 2015 : 3 VOS ~> BATOS

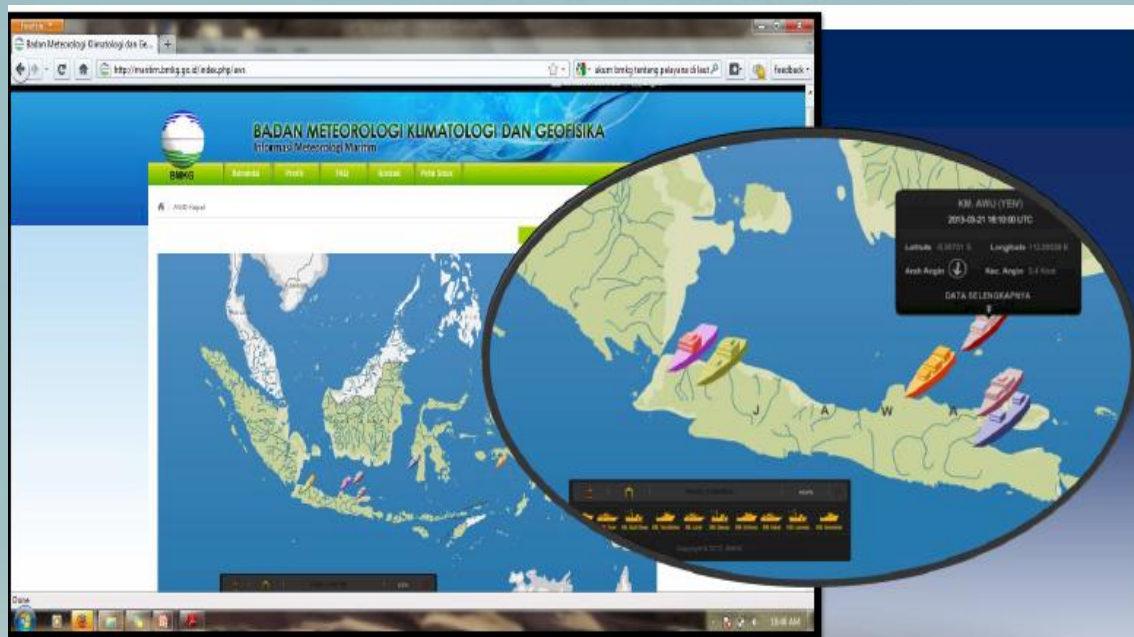
Vessel Type : Passenger Ship  
(National Shipping company)





# INDONESIA VOS FLEET

To increase the quantity of observations at Indonesian Sea, BMKG installs AWS at some commercial ships, resulting in real time observational data.



*Existing Indonesian VOS data is not available on the GTS but displayed on HQ Server.  
(<http://maritim.bmkg.go.id/index.php/aws>)*

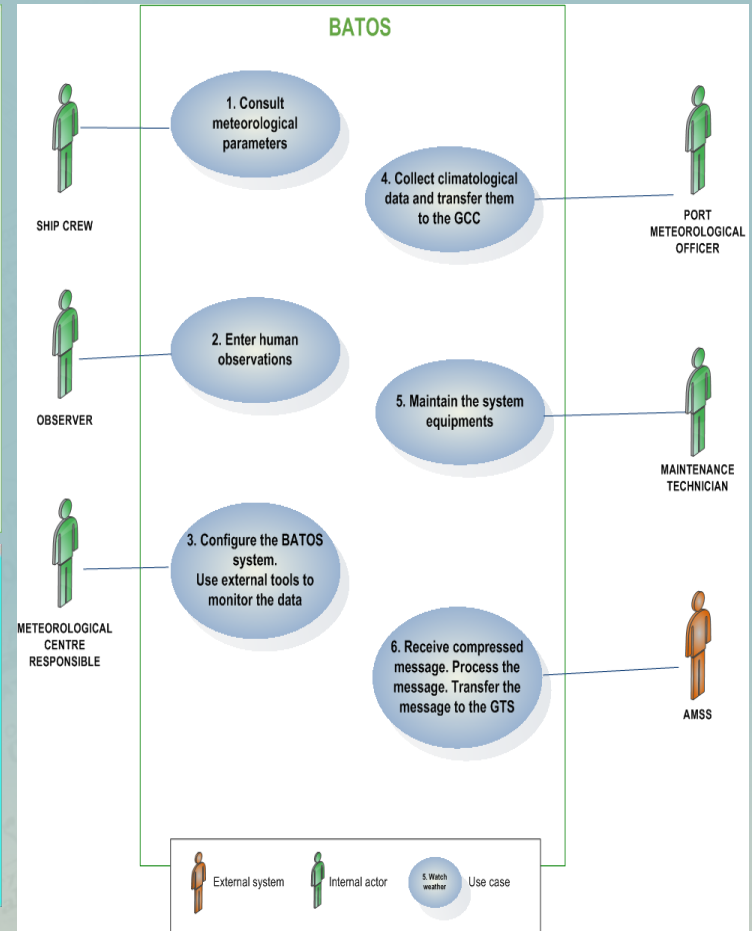
Currently 10 VOS Integrated AWS :

- ✓ Wind, Temp, Humidity, Pressure, Rainfall ~> Multisensor Vaisala WXT520
- ✓ Data Acquisition and Storage ~> Techsense

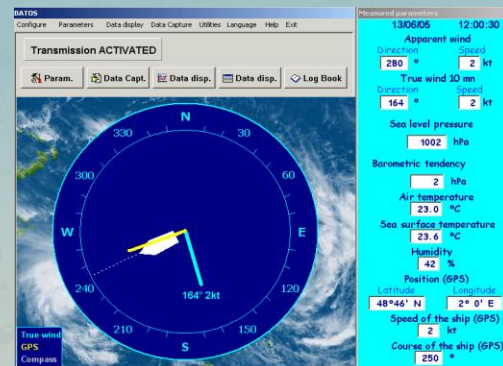


# CONFIGURATION INDONESIA VOS FLEET ~ BATOS

- BATOS → Joint Project 2014 BMKG & MFI (France) at 5 VOS



Technical Visit on Board, Bukit Siguntang  
With Mr. Jean baptiste Cohuet



Display PC on Board





# INSTALLATION INDONESIA VOS FLEET ~ BATOS



Sensor of wind, T, RH, P



PC Display

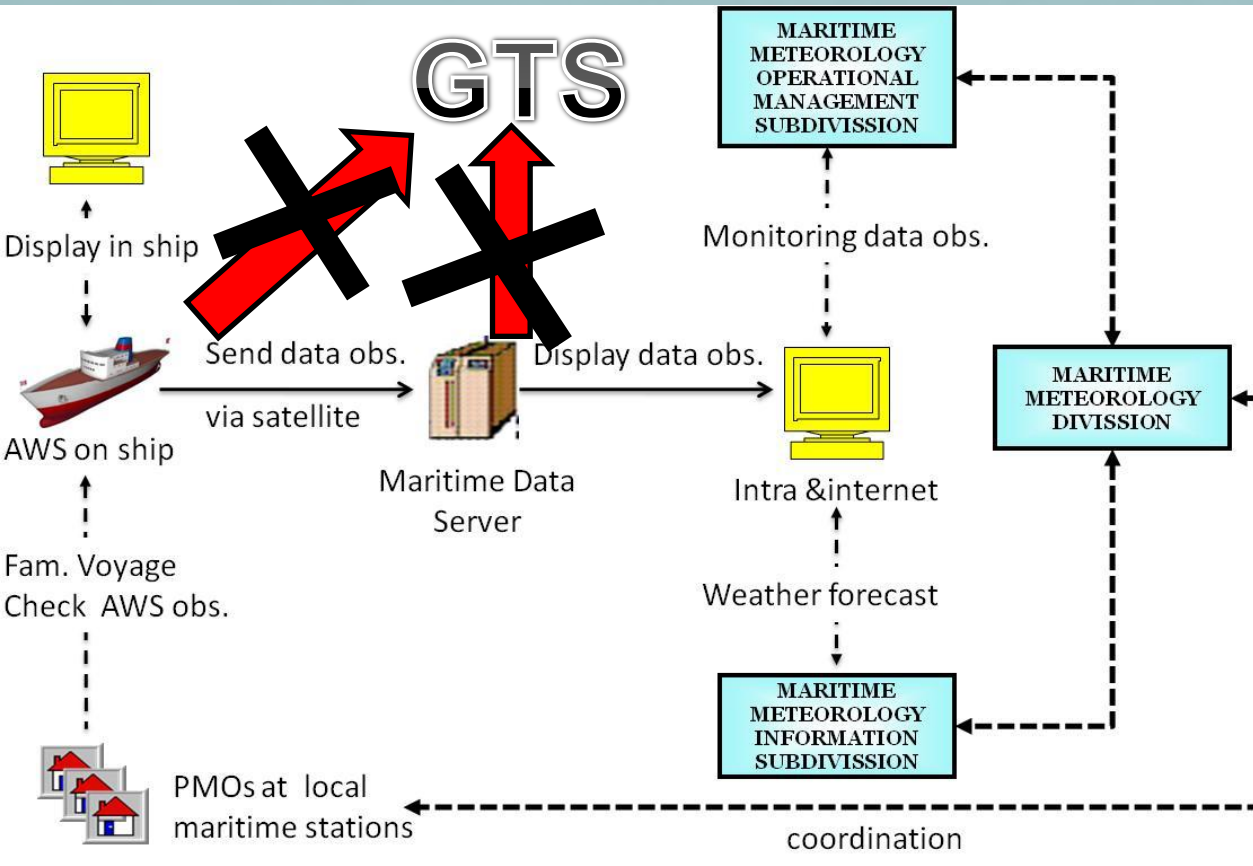


Sensor of SST





# INDONESIAN VOS DATA = NIL?



*We need assist from SOT, how to send this data to GTS? How the procedures?*

*Now, VOS data not sent to GTS only to HQ data server*





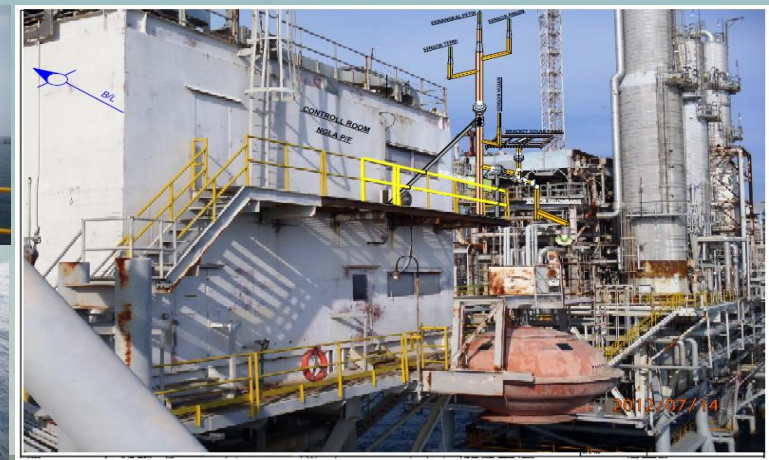
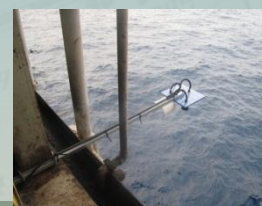
# SUPPORT ACTIVITIES ~ AWS ON PLATFORM (RIG OFF-SHORE)

- + BMKG cooperate with national oil gas company → installation AWS rig off shore end of 2014 = 2 AWS
- Procedure installation is so difficult because safety prioritize.
- Data is not available on GTS.
- ? How to registered this site and contribute to GTS exchange data?



Northern of Java island

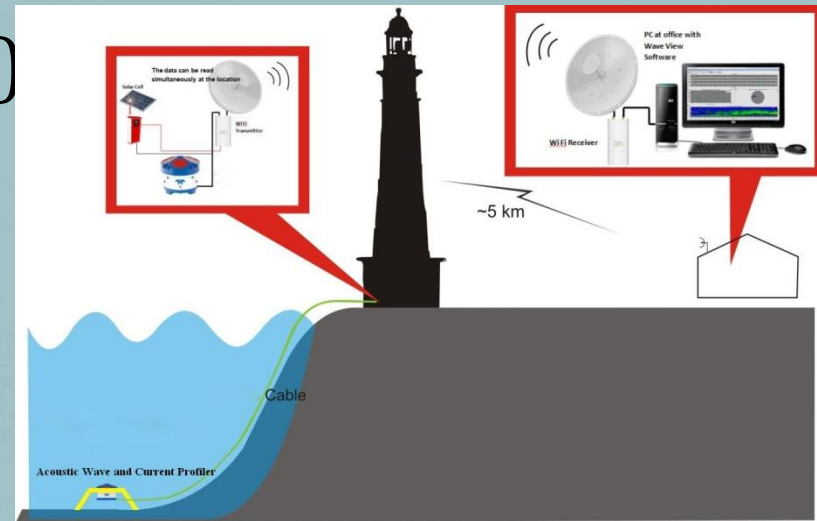
AWS-OFFSHORE RIG										SITE INFORMATION: Location: 107°38'E-6.825'S	
DATE	TIME (UTC)	WAVE		WIND 10M		HUMIDITY	PRESSURE	TEMPERATURE			
		SG	WAKI	DIRECTION	AIR Speed			WAKI	SEA SURFACE	AIR	
		metres	metres	deg	m/s	m/s	%	hPa	°C	°C	
Thu, 09-07-2015	09:18:25	0.286	n/a	↻	4.75	4.9	67.83	1008.17	27.41	28.43	
Thu, 09-07-2015	09:53:15	0.348	n/a	↻	4.5	4.9	68.54	1006.1	27.48	28.34	
Thu, 09-07-2015	08:48:30	0.286	0.57	↻	4.91	4.3	68.94	1005.68	27.53	28.34	
Thu, 09-07-2015	08:53:25	0.365	0.497	↻	4.12	4.3	67.83	1005.67	27.43	28.52	
Thu, 09-07-2015	08:18:12	0.307	0.553	↻	3.73	3.4	68.83	1005.68	27.25	28.63	
Thu, 09-07-2015	08:03:10	0.318	0.585	↻	3.25	3	68.45	1006.21	27.01	28.69	
Thu, 09-07-2015	07:48:10	0.291	0.562	↻	2.8	3.6	64.16	1006.33	26.82	28.57	
Thu, 09-07-2015	07:28:30	0.308	0.583	↻	2.56	3.2	65.63	1006.37	26.7	28.33	
Thu, 09-07-2015	07:03:25	0.328	n/a	↻	2.87	n/a	67.52	1006.55	26.63	28.14	
Thu, 09-07-2015	06:48:15	0.317	0.621	↻	2.54	3.5	68.34	1006.72	26.63	28.08	
Thu, 09-07-2015	06:33:30	0.323	n/a	↻	2.43	3.1	68.34	1006.87	26.65	27.96	
Thu, 09-07-2015	06:18:15	0.322	n/a	↻	2.4	n/a	69.08	1007	26.65	27.87	
Thu, 09-07-2015	06:03:25	0.316	0.562	↻	2.32	3.2	69.5	1007.23	26.66	27.82	
Thu, 09-07-2015	05:48:15	0.325	n/a	↻	2.32	n/a	69.5	1007.46	26.66	27.76	
Thu, 09-07-2015	05:33:15	0.347	0.674	↻	2.38	3.3	68.97	1007.65	26.64	27.67	
Thu, 09-07-2015	05:18:25	0.33	n/a	↻	2.32	n/a	70.83	1007.79	26.67	27.57	
Thu, 09-07-2015	05:03:25	0.341	n/a	↻	2.41	n/a	71.5	1007.69	26.72	27.5	
Thu, 09-07-2015	04:33:15	0.383	n/a	↻	2.5	n/a	71.37	1008.38	26.86	27.66	



Sensor : wind, air temperature, pressure, humidity, wave, sea temperature

# SUPPORT ACTIVITIES ~ AWS ON PLATFORM (LIGHTHOUSE)

- + Pilot project at this year (2015)  
Loc (Java Sea)
- + Observed elements :
  - ~ Wind (Ultrasonic)
  - ~ Rain (Typing Bucket)
  - ~ Wave and current profiler  
(ADCP freq ~1 Mhz)
  - ~ SST (PT100)
  - ~ Communication (Inmarsat)
- ? Contribute to GTS exchange data



Scheme of Installation





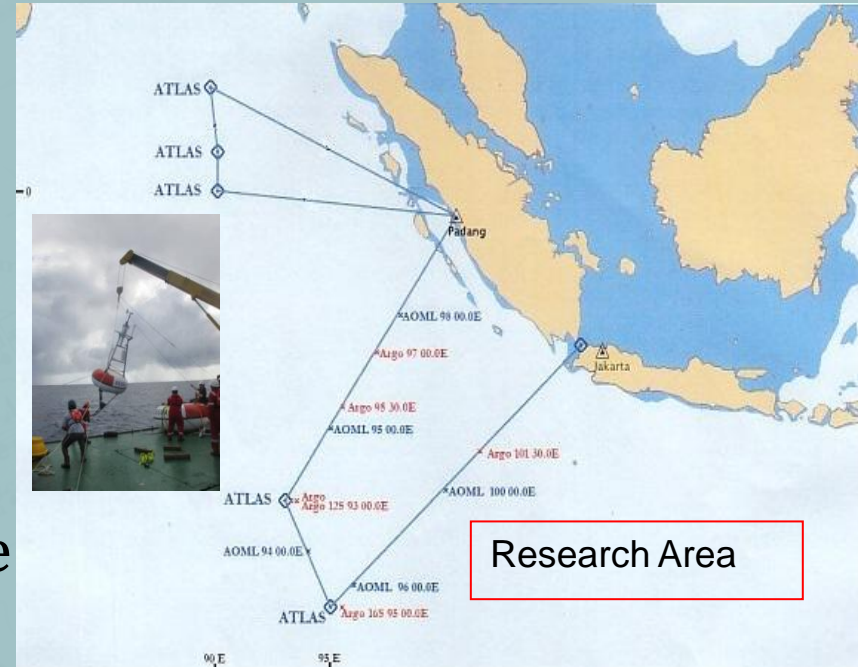


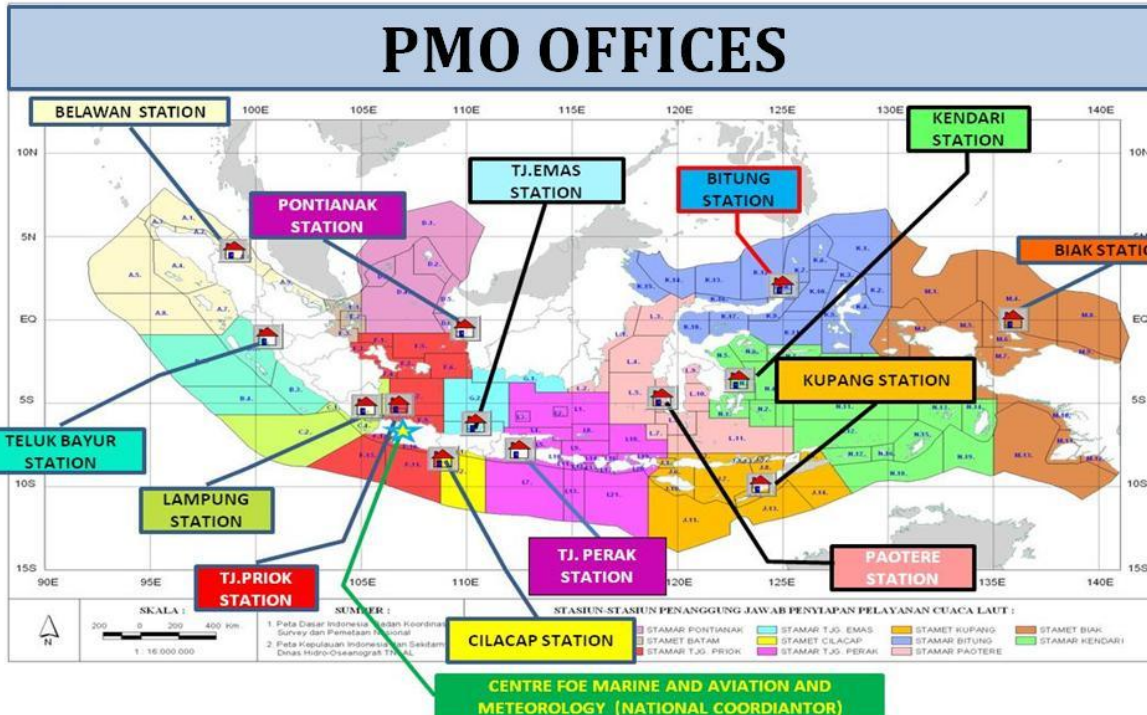
# SUPPORT ACTIVITIES ~ (**INDONESIA PROGRAM INITIATIVE ON MARITIME OBSERVATION AND ANALYSIS (INAPRIMA)**)

- Research vessel = Baruna Jaya I  
(April 15<sup>th</sup> – May 14<sup>th</sup> 2015)
- Participants = BMKG, BPPT and  
NOAA USA

## *Purposes :*

- ~ Install and deploy Atlas buoy at five  
locations in the Indian Ocean.
- ~ Release 10 pieces argo float.
- ~ Get the more data for meteorology  
and oceanographic observation  
parameter .





Registered at JCOMM is 7 PMO offices :

1. National PMO
2. PMO Belawan
3. PMO Tanjung Priok
4. PMO Tanjung Emas
5. PMO Paotere
6. PMO Bitung
7. PMO Tanjung Perak





# INDONESIAN PMO ACTIVITIES

Recruiting and assisting VOSs in coordination between HQ of BMKG and PMOs.

## **HQ – National Contact**

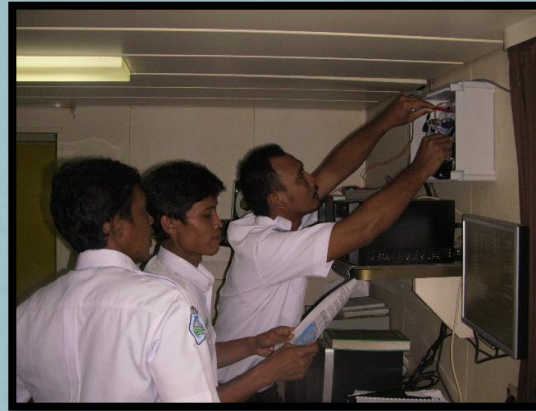
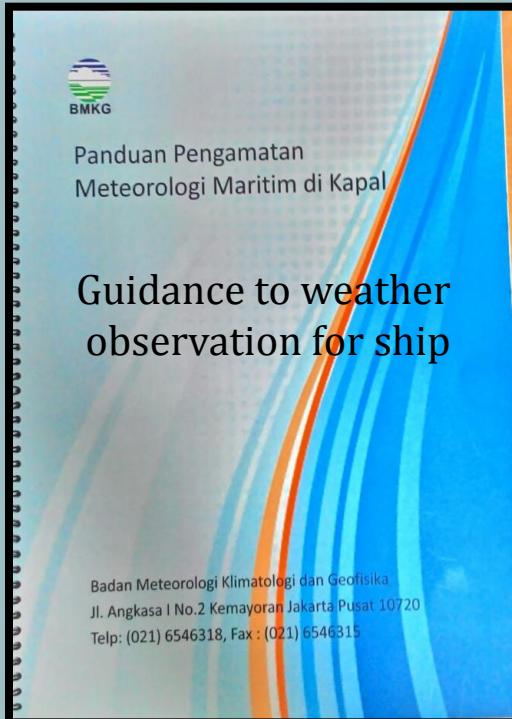
- ✓ Manage and recruit Voluntary Observing Ships (VOS)
- ✓ Promote and maintain liaison with Shipping Companies and harbour authorities.
- ✓ Assistance to PMO activities

## **PMO – Visiting Ship**

- ✓ To encourage and give advice on meteorological observation
- ✓ To check and maintenance instrument / AWS installed on board
- ✓ To explaining about meteorological information provided by BMKG.



# INDONESIAN PMO ACTIVITIES



Maintenance AWS System



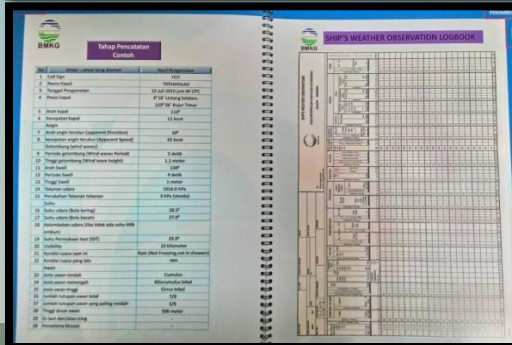
Coordination with Ship master



Explain about Marine Weather Observation and reports



Awards for participations In training of marine weather observation







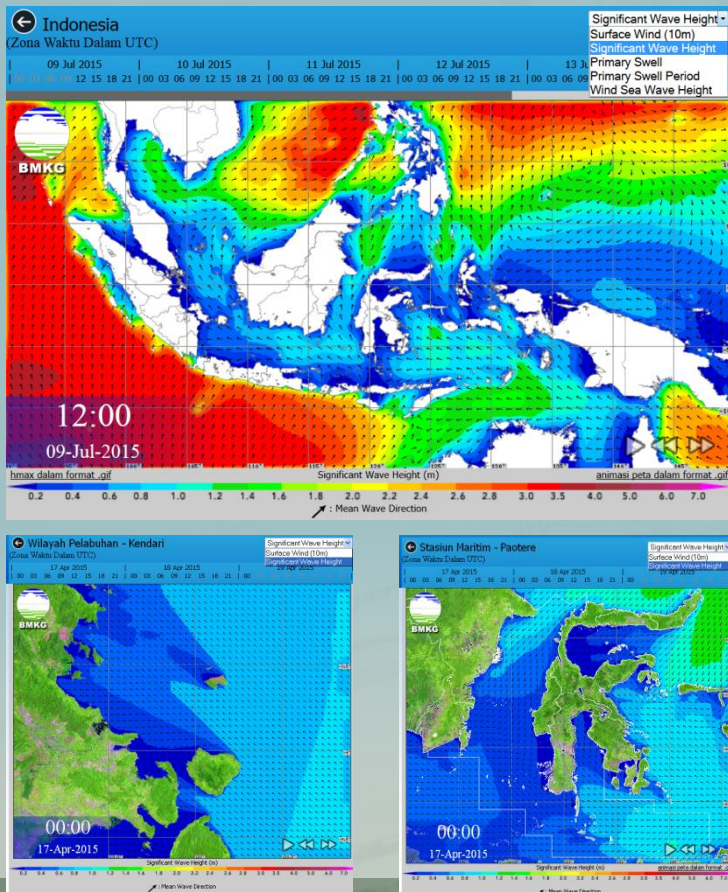
# MARINE METEOROLOGICAL INFORMATION AND SERVICES

- BMKG provides forecast and warning such as those weather, wind, wave height are provided for the safety and efficiency of shipping, fisheries and other offshore activities.
- To enhance quality of information and services, BMKG has developed Nearshore wave model (SWAN) and coupled with Wavewatch-III.
- BMKG is actively leading the implementation of CIFDP, primarily focuses on the demonstration operational system for Jakarta and Semarang
- BMKG develop national portal of marine / ocean climate data and information is called MIDAS (Maritime Integrated Data and Analysis System) to support CIFDP-I



# MARINE INFORMATION AND SERVICES NEARSHORE WAVE MODEL (SWAN)

**Developed Nearshore wave model (SWAN) and coupled with  
Wavewatch III**



## Wind Input :

*Global Forecasting System (GFS)  $0.5^{\circ} \times 0.5^{\circ}$*

*Weather Research Forecasting (WRF)  $10 \text{ km} \times 10 \text{ km}$*

## Output :

✓ *Domain Indonesia :*

*Resolusi grid :  $0.125^{\circ} \times 0.125^{\circ}$*

✓ *Domain Region:*

*Resolusi grid : 4 km*

✓ *Domain Harbour:*

*Resolusi grid : 1 km and 500 m*



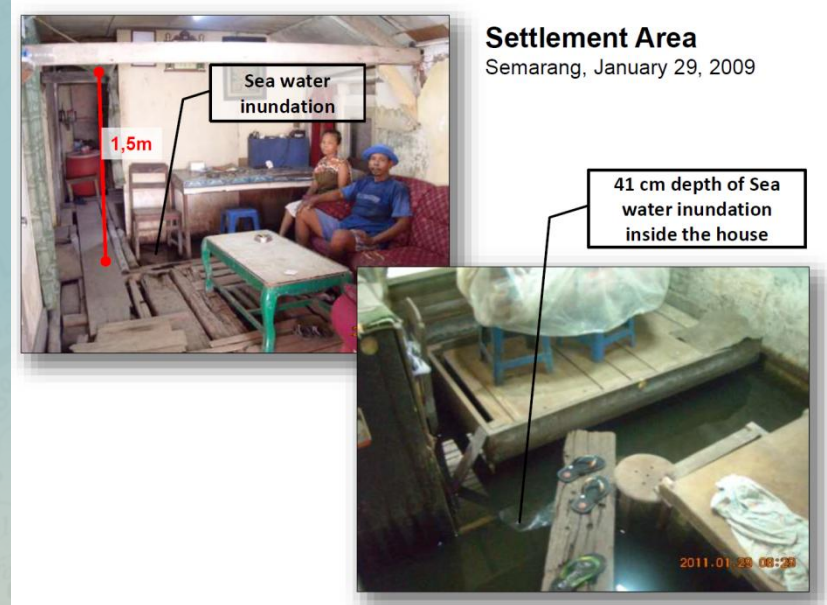


# MARINE INFORMATION AND SERVICES

## COASTAL INUNDATION FORECASTING DEMONSTRATION PROJECT (CIFDP)



### NATIONAL STAKEHOLDERS WORKSHOP CIFDP- JAKARTA- SEMARANG (3-6 DECEMBER 2013)



**Settlement Area**  
Semarang, January 29, 2009

Sea water inundation

1,5m

41 cm depth of Sea water inundation inside the house

- ✓ Joint cooperation with Deltares ~ apply Delft3D model
- ✓ Integrated with Jakarta - FEWS (Flood Early Warning System)



BMKG

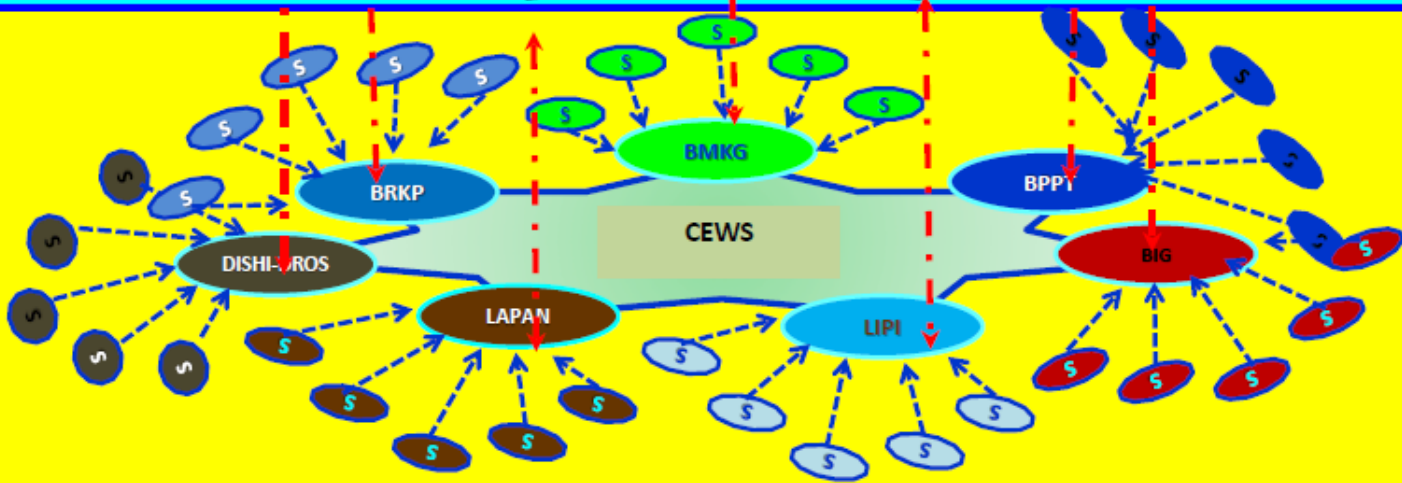
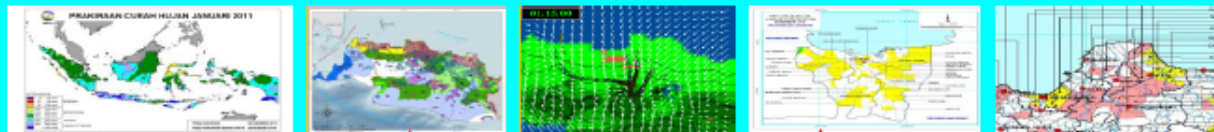
# MARINE INFORMATION AND SERVICES

## MARITIME INTEGRATED DATA AND ANALYSIS SYSTEM (MIDAS)



### MARINE INTEGRATED DATA and ANALYSIS SYSTEM (MIDAS)

PORTAL MARITIME IMPELEMNTATION









**BMKG**



**THANK YOU**  
**GRACIAS**  
**TERIMA KASIH**