BMKG

COUNTRY REPORT
INDONESIA

JMA/WMO WORKSHOP ON EFFECTIVE TROPICAL CYCLONE WARNING IN SOUTHEAST ASIA

TOKYO, 11 – 15 March 2014

Indonesian Agency for Meteorology, Climatology, and Geophysics
(BMKG)

BMKG

Outline

I. Overview of BMKG

I.1. Organizational Structure

I.2. Meteorological Operation

I.3. Meteorological Services and Users

I.4. On-going Developments

II. Jakarta TCWC

II.1. Brief History of Jakarta TCWC

II.2. Area of Responsibility

II.3. Operational Background

II.4. Operational Procedure

II.5. Operational Design

II.6. List of Products

II.7. List of Names

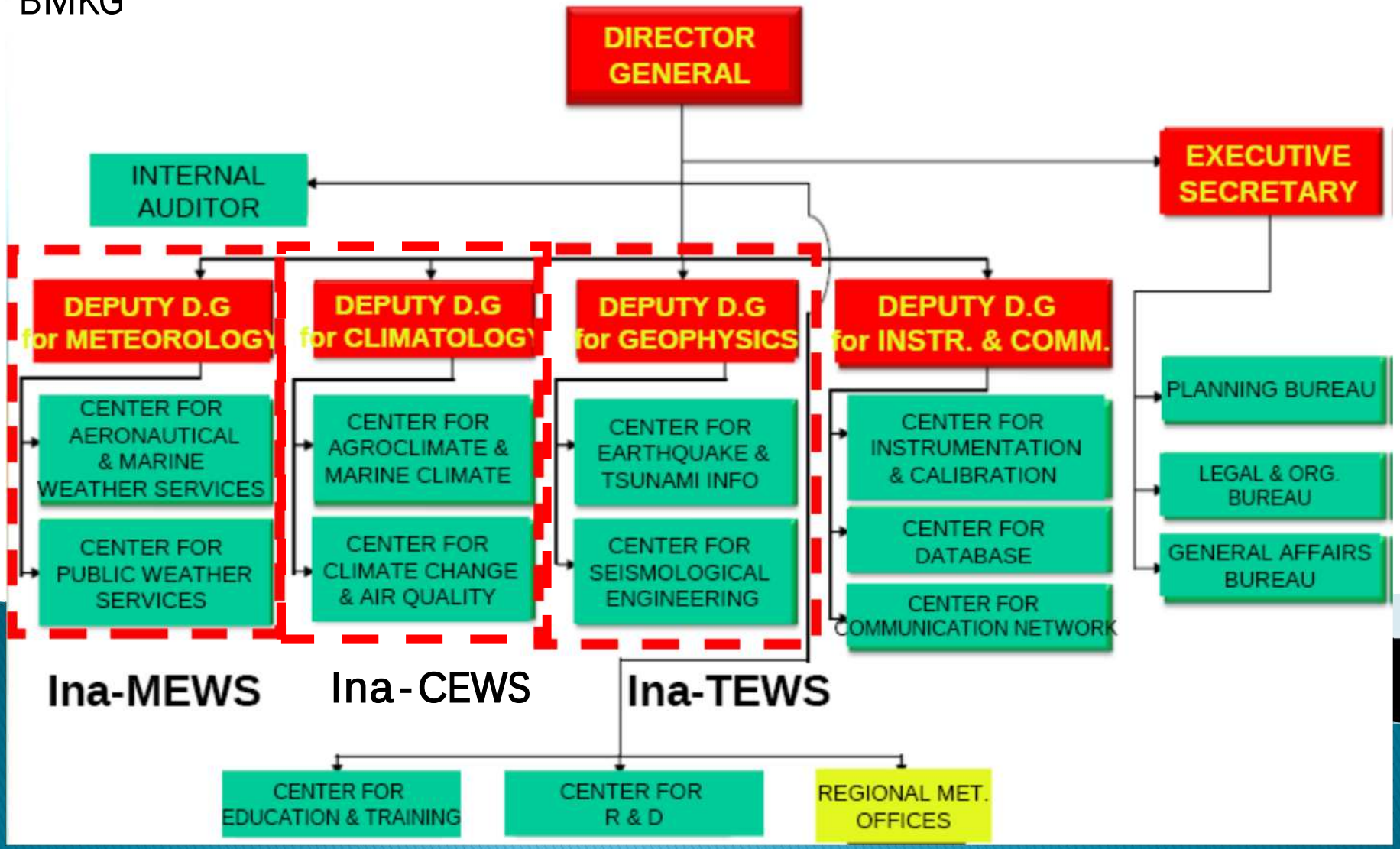
III. Tropical Cyclones Around Indonesia

IV. Challenges on TC Analysis and Forecasting in Indonesia

BMKG

I. Overview of BMKG

I.1. Organizational Structure

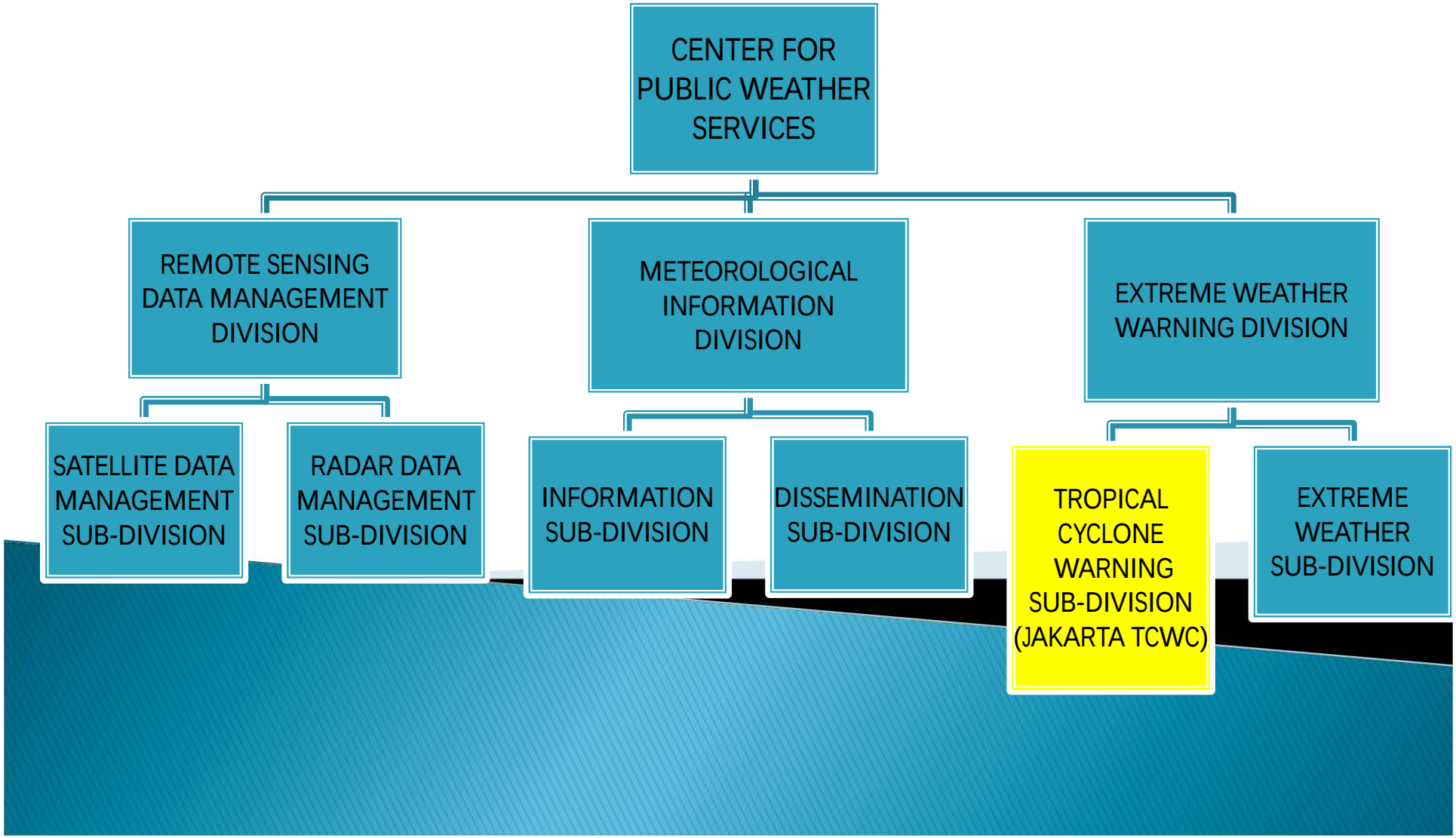


BMKG

I. Overview of BMKG

I.1. Organization Structure…*(continued)*

Center for Public Weather Services



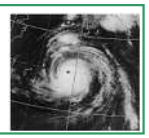
I. Overview of BMKG

I.2. Meteorological Operation

BMKG

Observations

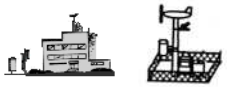
Space-based Observation



Upper Air Observation

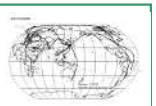
Radar Observation

Surface Observation



Ocean Observation

International Data Exchange



Data Collection

Analysis, Forecast, Application

Computer System for Meteorological Services

Model Prediction PC

DataProcessing and Products Dissemination

Issuance of Products at Met. Sta and HQ

Information Issuance

End User Products

- Warnings
- Advisories
- TC Forecast
- Weather Forecast
- One Week Forecast
- Aeronautical Met. Information
- Marine Met. Information

I. Overview of BMKG

I.3. Meteorological services and Users

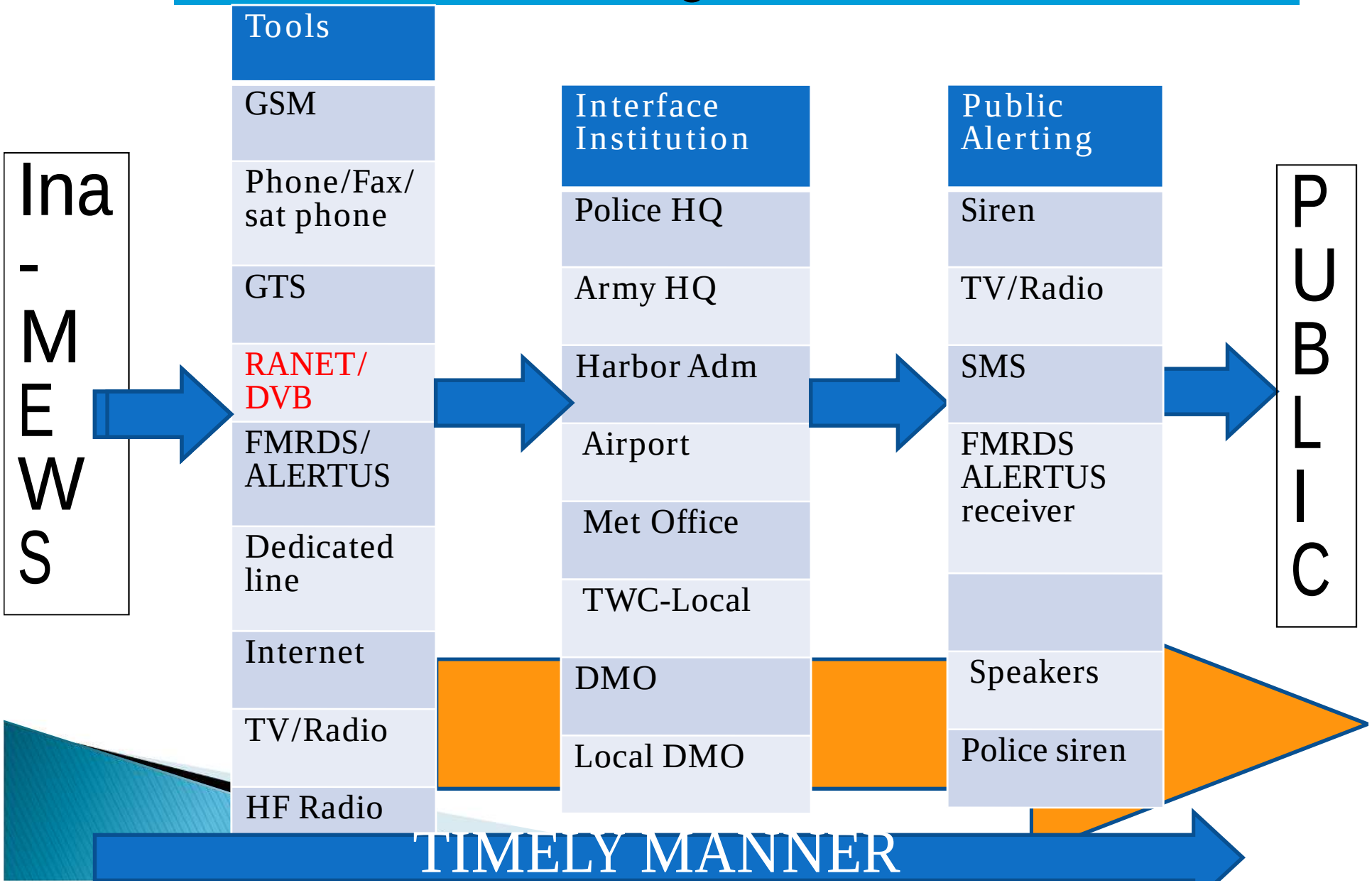
BMKG

	PRODUCTS :
Public Weather Services	- Daily Weather Forecast Extreme weather warning
Aeronautical Weather Services	- Aerodrome forecast - Flight-Route forecast - SIGMET
Marine Weather Services	- Max & Significant Wave & Swell forecast - Surface current - 10-meter wind forecast
Fire Weather (F D R S)	-Hotspot/Firespot -Fire Weather Index - Smoke dispersion/ Trajectory
Tropical Cyclone	- TC Track forecast - TC's Impacted Area forecast

USERS :

- Ministry of Transport
- Ministry of Agriculture
- Tourisms
- Marine stakeholders
- Fisheries
- Public works/ construction
- Ministry of Health
- Ministry of Defense
- National Logistics Agency
- Disaster Managm't Agency (Nat'l & Provincial/District)
- Mass Media
- Universities
- Research Institutions
- General Public

National Warning FLOW to the Public

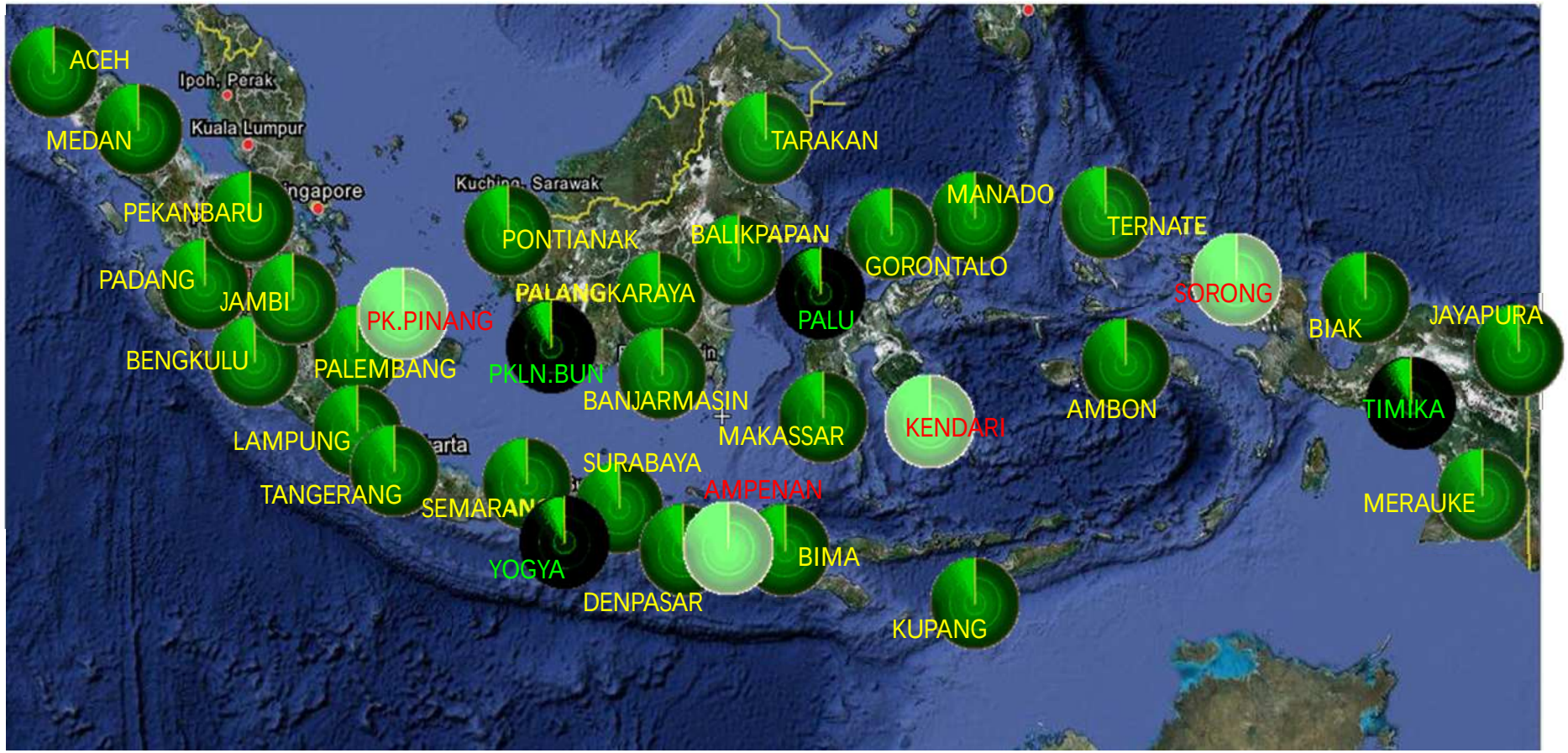


I. Overview of BMKG

I.4. On-going Development

BMKG

BMKG's Weather Radar Network (as of Dec. 2013 : 31 sites in operation)



Obs. Radius : 150 km (C-band) ; 100 km (X-band)

FY. 2006-2012

FY. 2013 (4 radars)

FY. 2014 (add 4 radars)

Strengthening BMKG Climate and Weather Service Capacity

with France* mfi METEO FRANCE INTERNATIONAL

BMKG

Strengthening Project, 2011-2014

Strengthening Project, 2011-2014

Observation Systems

- **Automatic Weather Station (Synoptic & Mesonetwork)** X 66 (2 per propinsi)
- **VOS (Voluntary Observing Ship)** X 5
- **Calibration** Kantor Pusat + Kantor Balai
- **AWOS** 1 bandara
- **Wind Profiler** 1 bandara
- **Upper Air Observation** X 5 lokasi
- **Hydrogen Generator** X 5 lokasi
- **Lightning network** X 9 sensor + Kantor Pusat (processing)

Information Systems

- **Transmet** (Telecom) Kantor Pusat + 5 Kantor Balai
- **ObsNet** (Data Collection) 5 Kantor Balai
- **CIPS** (Data Center + NWP & pollution Models) Kantor Pusat
- **AeroMetWeb** (Pilot briefing) 4 bandara
- **Synergie** (Forecasting workstation) 21 client workstations (Kantor Pusat + 5 Kantor Balai)
- **MeteoFactory** (Public Weather Services & Warning) Kantor Pusat + 5 Kantor Balai
- **VisuMet** (Public Display) 15 sistem
- **TV Met** (TV bulletin) HQ + 1 stasiun TV
- **CliSys** (Climate Data Management) Kantor Pusat

Pengguna Jasa BMKG

Konsultansi · Design · Penyediaan Sistem · Integrasi · Manajemen Proyek · Change management · Alih Teknologi · Pelatihan · Dukungan Teknis

Layanan yang diberikan

mfi METEO FRANCE INTERNATIONAL

BMKG

** Proyek ini dibiayai dengan pinjaman lunak dari Pemerintah Perancis*

Weather Forecasting Centre, BMKG – Jakarta

II. Jakarta Tropical Cyclone Warning Centre

BMKG

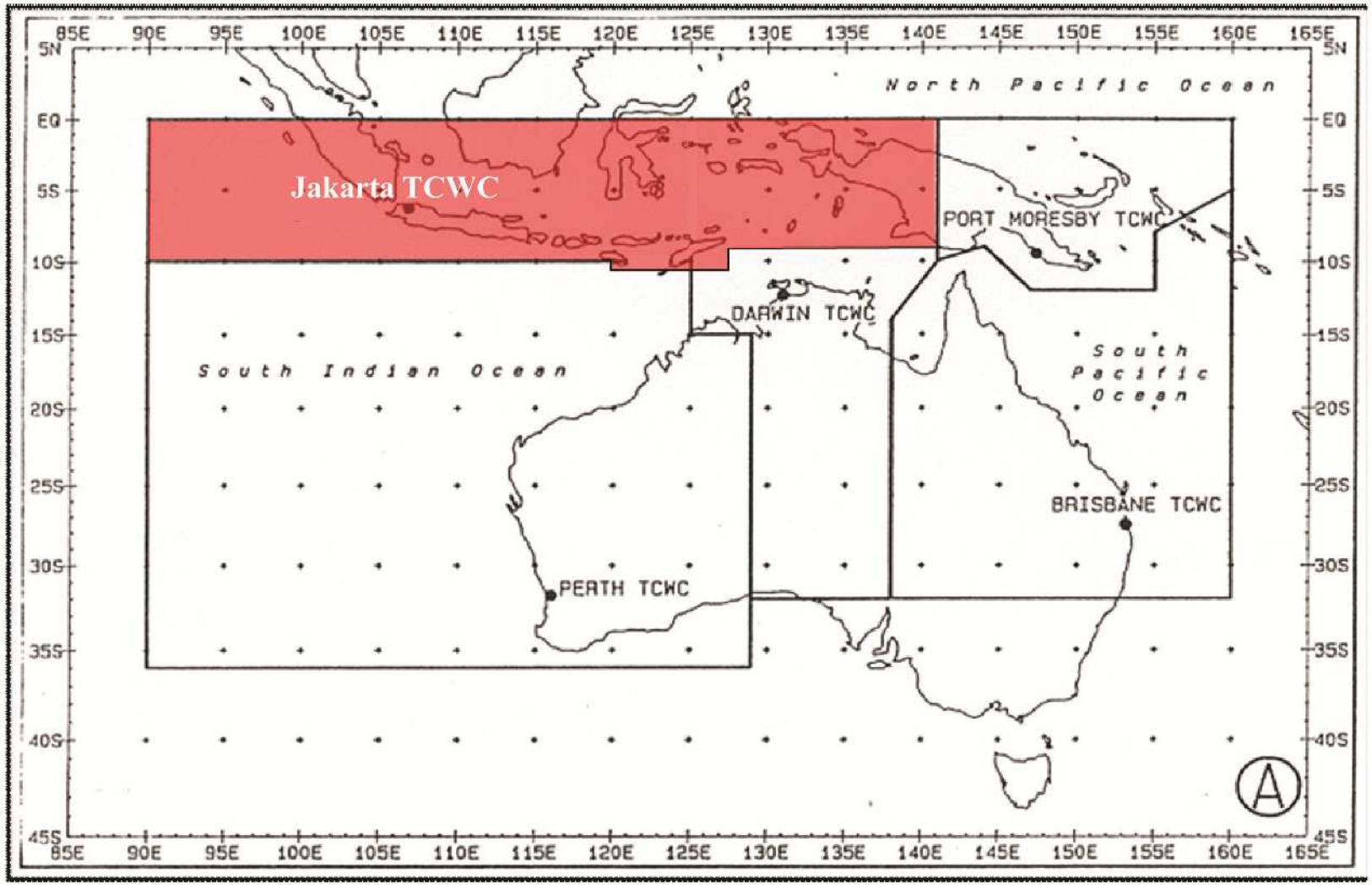
II.1. Brief History of Jakarta TCWC

1. Indonesia has been being a member of WMO RA-V TCC since it establishment by RA V-IX in 1986 and responsible to operate Jakarta TCWC covering the sea area of 90° – 125°E and 10°S – Equator.
2. During 1998 – 2006 Australia assume warning responsibilities covers Indonesia as interim measure
3. Indonesia takes over responsibility from Australia starting 2007/2008 cyclone season.
4. A major project to establish Jakarta TCWC was completed at the end of 2007 and officially operated at March 24, 2008.
5. First activation during TC Durga (April 22 – 25, 2008).
6. RA V TCC-XIII approved to extend responsibility area of Jakarta TCWC within coordinate 090°E - 120°E & 0° -10°S 0° - 11°S & 120°E - 128°E , 0° - 09°S & 128°E - 141°E

II. Jakarta Tropical Cyclone Warning Centre

BMKG

II.2. Area of Responsibility



BMKG

II. Jakarta Tropical Cyclone Warning Centre

II.3. Operational Background

1. **WMO MANDATORY**

   WMO Tropical Cyclone Operational Plan For The South Pacific And South East Indian Ocean (TCP-24, 2006 Edition) stated Indonesia would take over responsibility at the start of the 2007/2008 cyclone season.

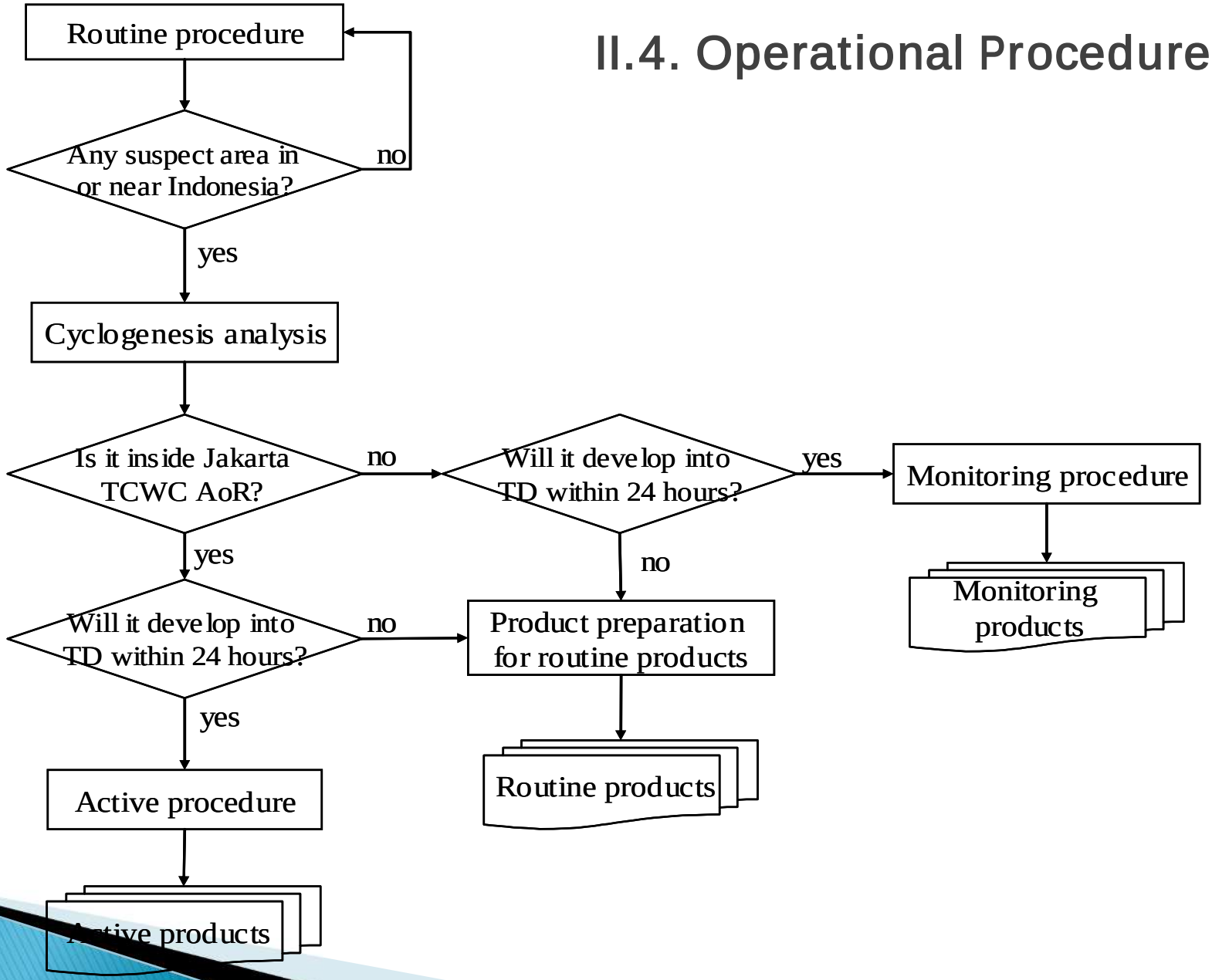
2. **INTERNAL INTEREST OF BMKG**

   Though Indonesia is very rarely tracked by TC, the occurrence of TC near the region, gives impact to Indonesia weather variability.

II. Jakarta Tropical Cyclone Warning Centre

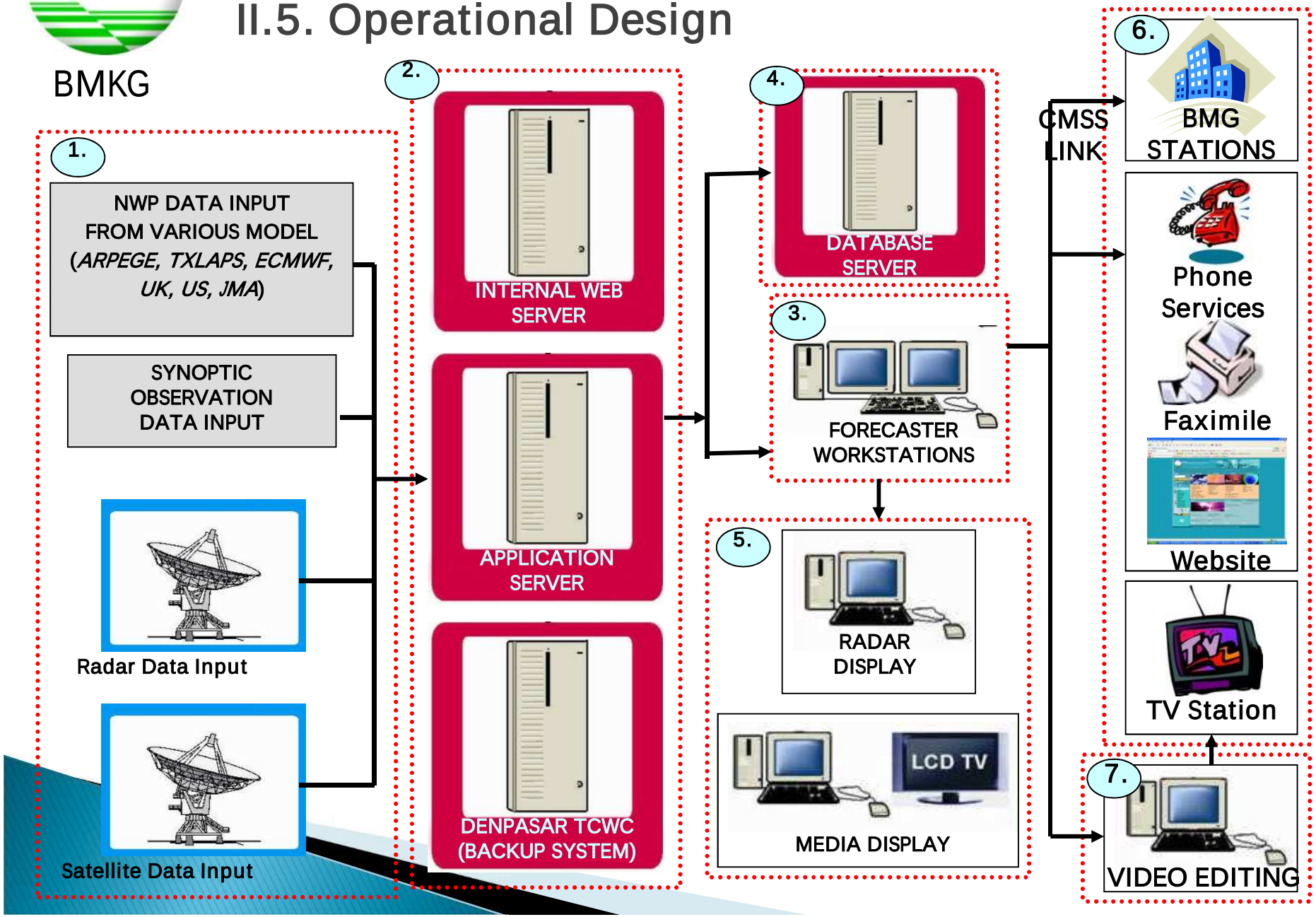
BMKG

II.4. Operational Procedure



II. Jakarta Tropical Cyclone Warning Centre

II.5. Operational Design



BMKG

II. Jakarta Tropical Cyclone Warning Centre

II.6. List of Products

No.	Product Name	Format	Frequency of issuance	Languange	Remarks
1.	Extreme weather warning	Text	6 hourly	English & Indonesia	
2.	TV Crawler messages	Text		Indonesia	
3.	High seas warning	Text	6 hourly	English & Indonesia	International exchange
4.	Coastal Zone Warning	Text	6 hourly	English & Indonesia	
5.	TC Technical Bulletin	Text	6 hourly	English & Indonesia	
6.	TC Public Information Bulletin	Text	6 hourly	Indonesia	
7.	TC Outlook	Text	Daily	English & Indonesia	
8.	TC Aviation Advisory	Text	6 hourly	English	
9.	CREX	Text	6 hourly	English	
10.	TC Track & Impact map	Graphical	6 hourly	English & Indonesia	
11.	Extreme Weather map	Graphical		English & Indonesia	

BMKG

II. Jakarta Tropical Cyclone Warning Centre

II.7. List of Names

List A	List B (Standby)
1.Anggrek	1.Anggur
2.Bakung	2.Belimbing
3.Cempaka	3.Duku
4.Dahlia	4.Jambu
5.Flamboyan	5.Lengkeng
6.Kenanga	6.Melati
7.Lili	7.Nangka
8.Mangga	8.Pisang
9.Seroja	9.Rambutan
10.Teratai	10.Sawo

BMKG

III. Tropical Cyclone Around Indonesia

1. Since 2007 – present, 2 tropical cyclones developed in Jakarta TCWC AoR :TC Durga in March 2008 and TC Anggrek in November 2010
2. Indonesian area is only for the initial stage for TC developments.
3. During 2011 – 2012 cyclone season in SE Indian Ocean (South of Indonesia) 12 suspect ares identified in Indonesian water, 1 of them developed as a TC in Darwin AoR and 2 in La Reunion AoR
4. Remote / indirect impact of TC in Northwest Pacific and Southeast Indian to Indonesian weather

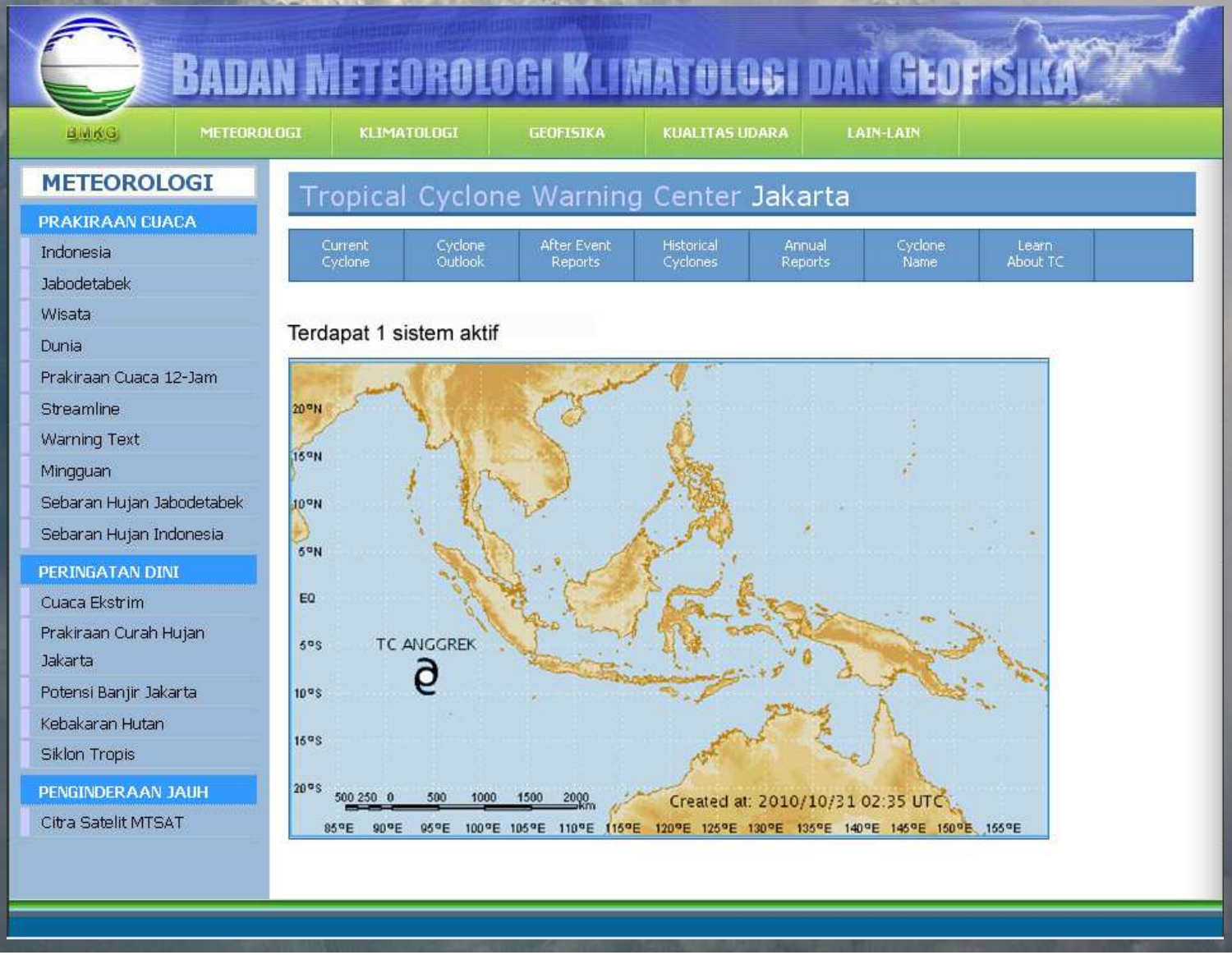
BMKG

IV. Challenges on TC Analysis and Forecasting in Indonesia

1. Early stage analysis of TC development (Cyclogenesis analysis)
2. Remote / Indirect impact of tropical cyclones
3. Low latitude TC

Jakarta Tropical Cyclone Warning Center Website

http://meteo.bmkg.go.id/siklon



METEOROLOGI

PRAKIRAAN CUACA
- Indonesia
- Jabodetabek
- Wisata
- Dunia
- Prakiraan Cuaca 12-Jam
- Streamline
- Warning Text
- Mingguan
- Sebaran Hujan Jabodetabek
- Sebaran Hujan Indonesia

PERINGATAN DINI
- Cuaca Ekstrim
- Prakiraan Curah Hujan Jakarta
- Potensi Banjir Jakarta
- Kebakaran Hutan
- Siklon Tropis

PENGINDERAAN JAUH
- Citra Satelit MTSAT

TCWC Jakarta

Current Cyclone | Cyclone Outlook | After Event Reports | Historical Cyclones | Annual Reports | Cyclone Name | Learn About TC

Cyclone Outlook

Bahasa English

Indonesian Agency for Meteorology Climatology and Geophysics
Jakarta Tropical Cyclone Warning Centre (TCWC)

TROPICAL CYCLONE OUTLOOK

Tropical Cyclone Outlook for Southern Indonesia area
Issued Wednesday, June 12th 2013 09.15 Western Indonesia Time

Current Tropical Cyclone in the Southern Indonesia area:
None.

Tropical cyclone development possibility:
No tropical cyclone development in the next 3 days.

Possibility to develop into tropical cyclone:
Thursday (tomorrow) : small possibility
Friday (tomorrow +1): small possibility
Saturday (tomorrow +2) : small possibility

Note:
Small possibility means possibility for the suspect area to develop into tropical cyclone is less than 10%.
Medium possibility means possibility for the suspect area to develop into tropical cyclone is about 20%-40%.
Large possibility means possibility for the suspect area to develop into tropical cyclone is more than 50%.

Southern Indonesia area is area within equator to 11 S and 90 to 141 E.

TC Track and Impact Map

BMKG

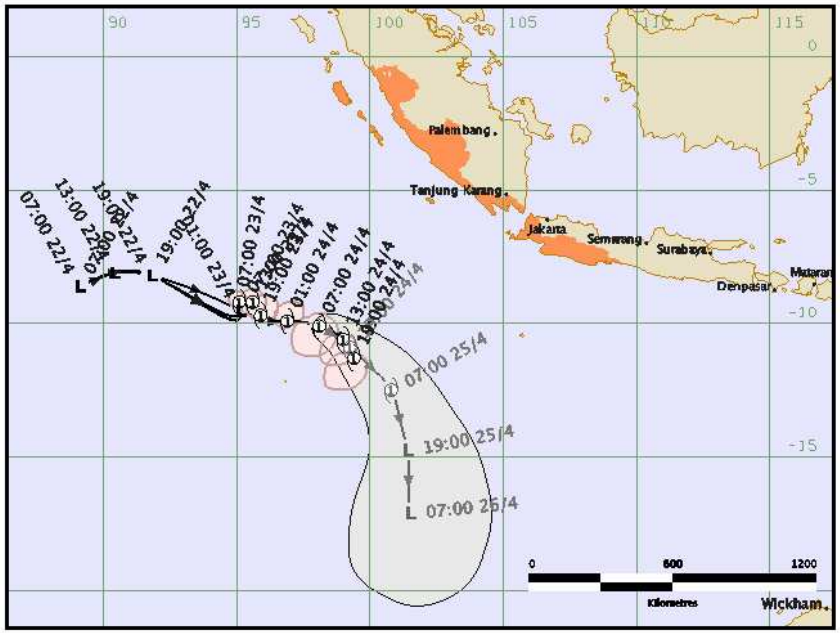
INDONESIAN AGENCY FOR METEOROLOGY CLIMATOLOGY AND GEOPHYSICS

Tropical Cyclone Warning Centre (TCWC) JAKARTA

TROPICAL CYCLONE TRACK AND IMPACT MAP

Tropical Cyclone DURGA

Issued Thursday 22 October 2009 19:35 WIB



All times shown are in WIB.

Community Threat	Past Cyclone Details
Warning Area: Extreme weather with the possibility of heavy rain (>=50mm/day) and/or strong winds (>=50 km/h) within 24 hours	Past Location
Watch Area: Extreme weather with the possibility of heavy rain (>=50mm/day) and/or strong winds (>=50 km/h) within 48 hours	Past Track and Movement
Current Cyclone Details	**Forecast Cyclone Details** (at 24, 48 and 72 hours from issue)
Current Location	Forecast Location
Very Destructive Winds	Very Destructive Wind Boundary
Destructive Winds	Destructive Wind Boundary
Gale Force Winds	Gale Force Wind Boundary
	Most Likely Future Track
	Range of Likely Tracks over 72 hours

The forecast path shown above is BMG's best estimate of the cyclone's future movement and intensity. There is always some uncertainty associated with tropical cyclone forecasting and the grey zone indicates the range of likely tracks.

Remarks:

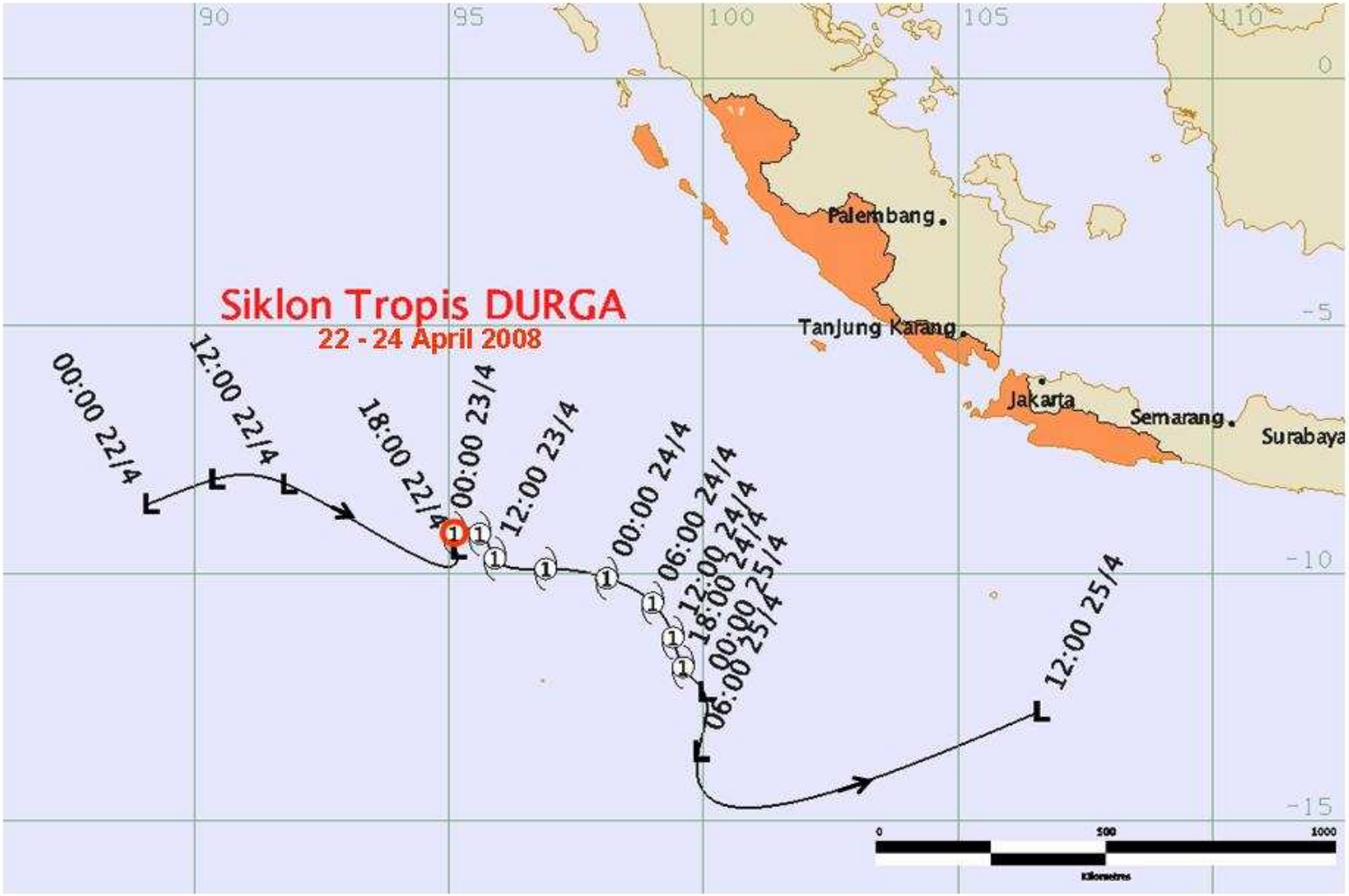
Probability of light into heavy rain in Western of West Sumatera, Western of South Sumatera,.
High Waves could reach 3.0 meters or higher along Western waters of West Sumatera to Lampung.

Tropical Cyclone Forecast:

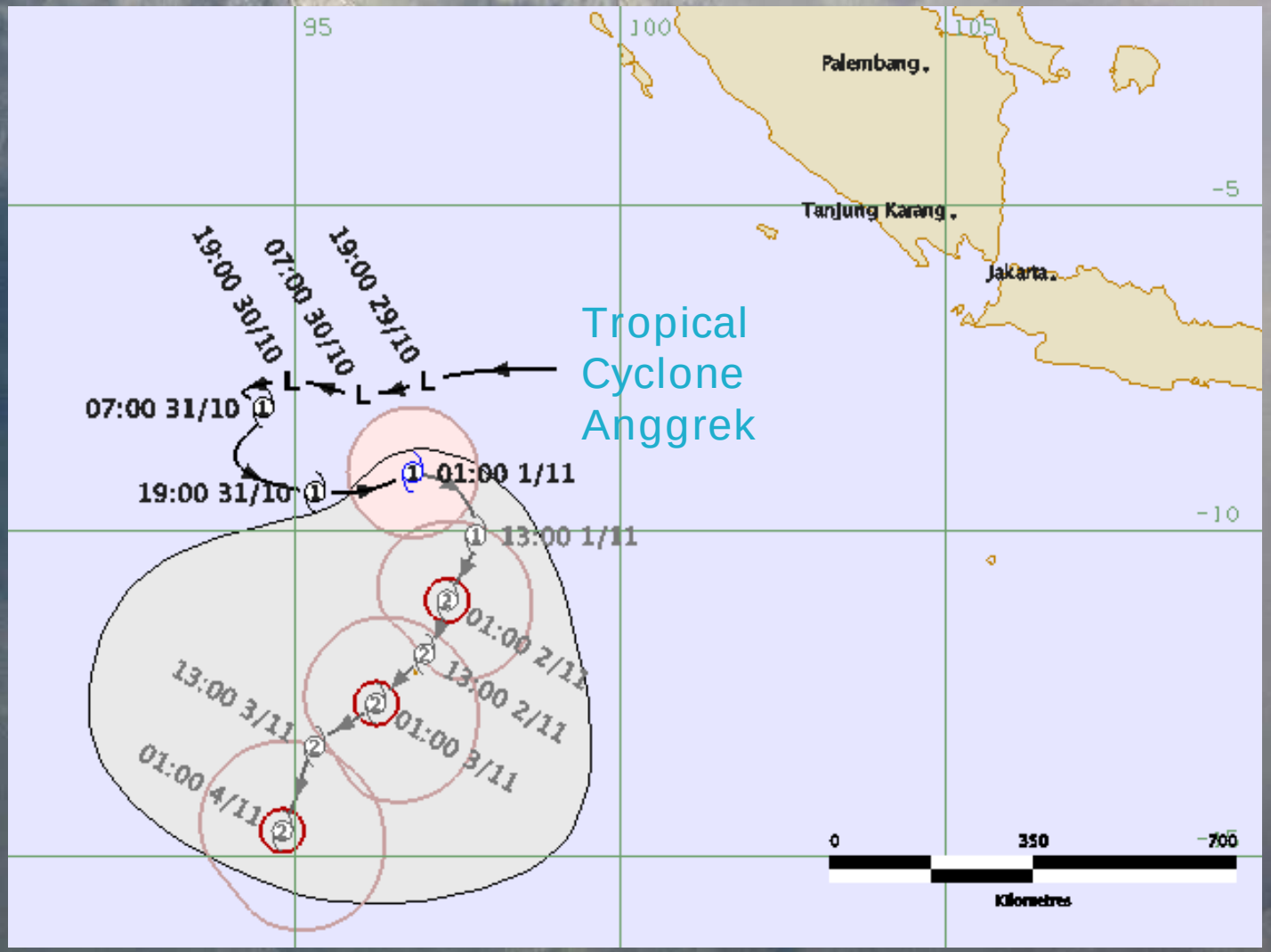
	Time (WIB)	Maximum Wind Speed (km/h)	Latitude (decimal deg.)	Longitude (decimal deg.)
0hr	07:00 April 24	75	10.1S	98.1E
+6hr	13:00 April 24	85	10.5S	98.7E
+12hr	19:00 April 24	85	10.9S	99.2E
+18hr	01:00 April 25	85	11.6S	100.0E
+24hr	07:00 April 25	75	12.5S	100.8E
+36hr	19:00 April 25	65	14.8S	101.4E
+48hr	07:00 April 26	55	17.1S	101.5E
+60hr	19:00 April 26	55	18.1S	101.5E
+72hr	07:00 April 27	45	18.6S	100.8E

The next Impact Map will be issued by Friday 23 October 2009 02:00 WIB.

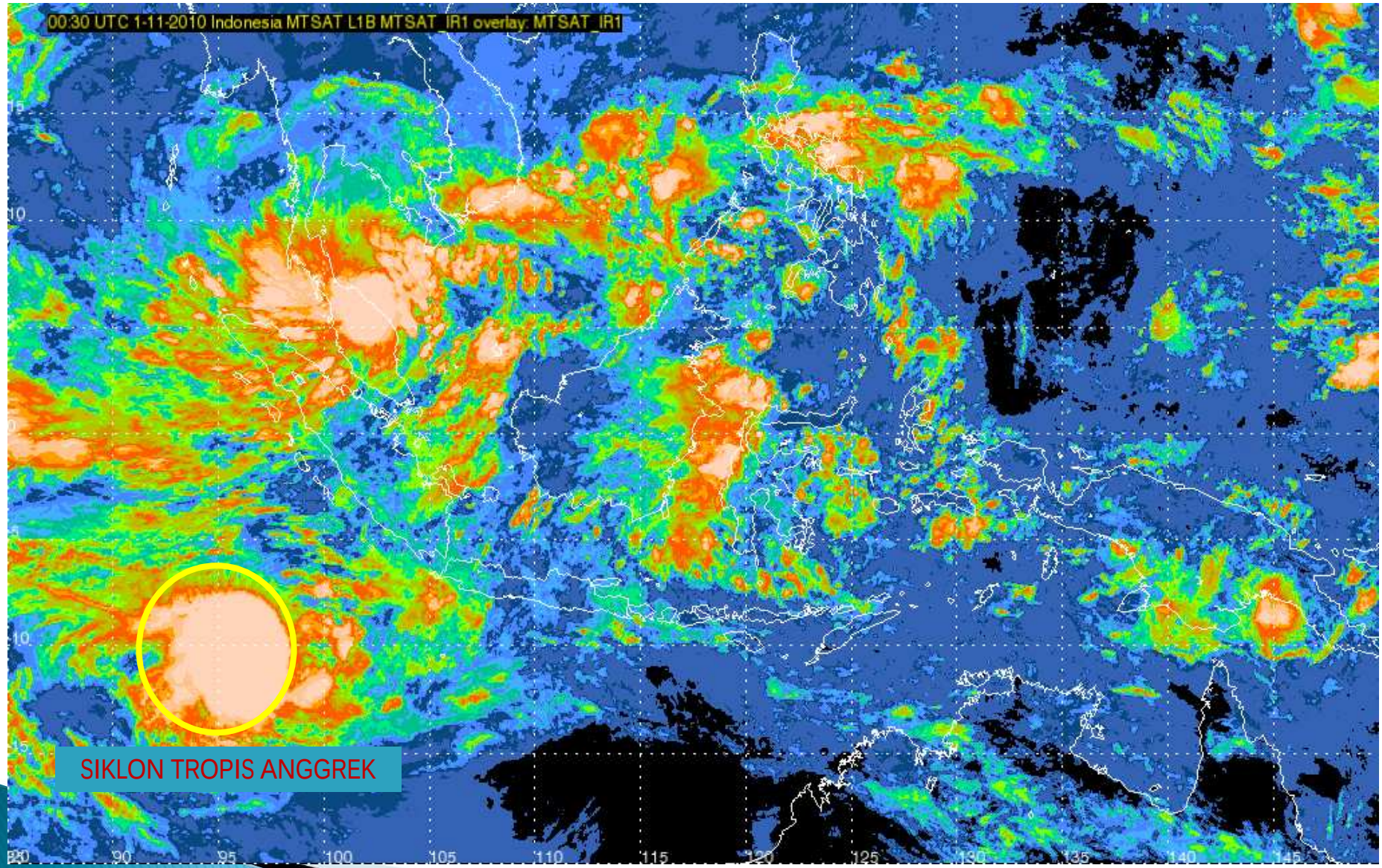
Track Tropical Cyclone “DURGA”, 22 - 24 April 2008



Forecast Track Tropical Cyclone "Anggrek", 1-4 November 2010



SIKLON TROPIS "ANGGREK",
(01 November 2010, 07.00 WIB)



Terima Kasih