

JEPP/HARIMAU radar – wind profiler network over the Indonesian maritime continent

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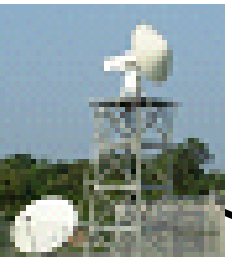


- Significance of Indonesian “maritime continent”
- The JEPP/HARIMAU project (JFY 2005-2009)
- Contribution to MAHASRI/CEOP/GEWEX/WCRP and GEOSS
- Process studies by using HARIMAU radar-profiler network
- Further study for social application and benefits

Hydrometeorological Array for ISV-Monsoon Automonitoring (HARTMAI)



Kototabang EAR, BLR, XDR KU + LAPAN



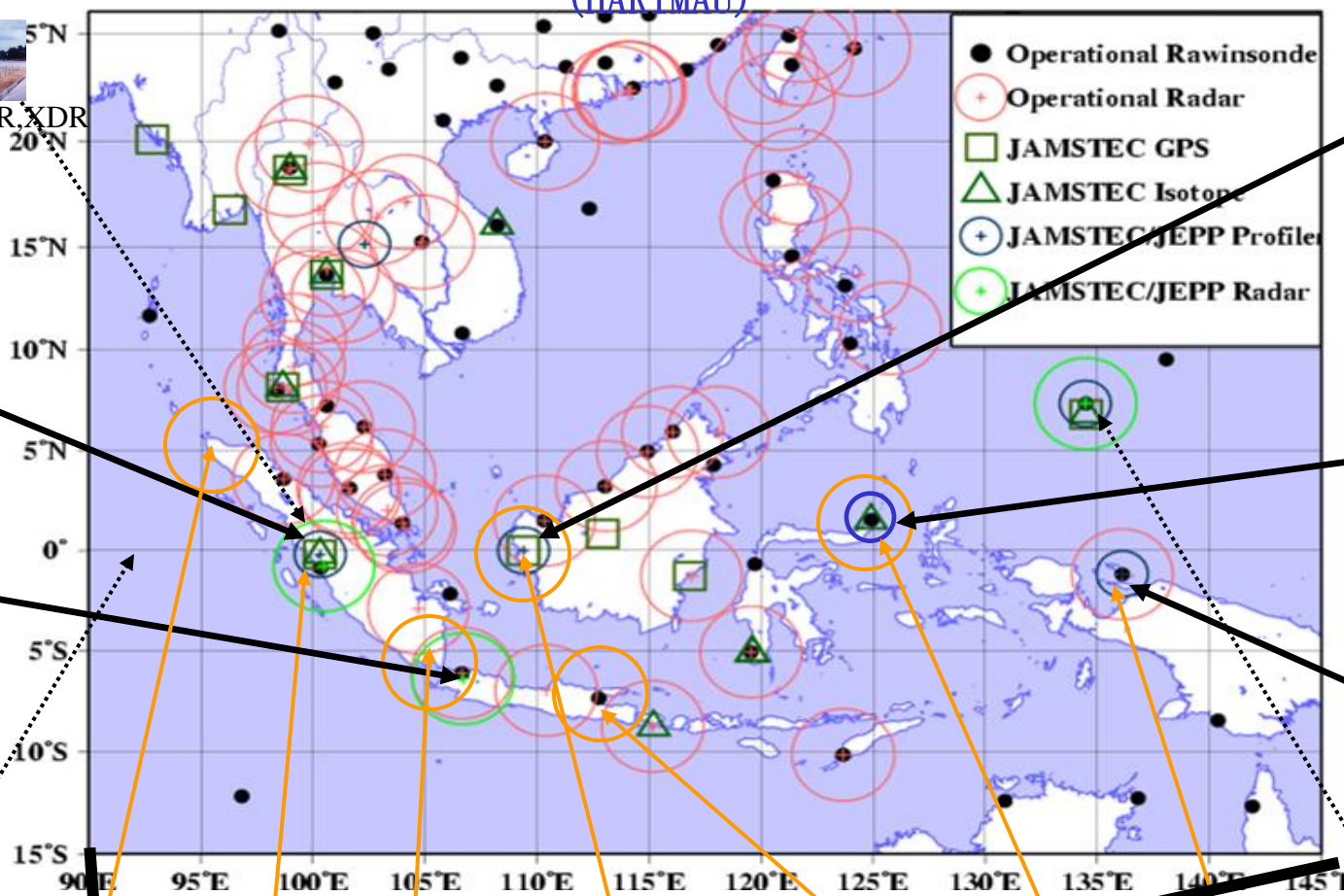
MIA XDR



Serpong CDR



Mirai CDP JAM BMG



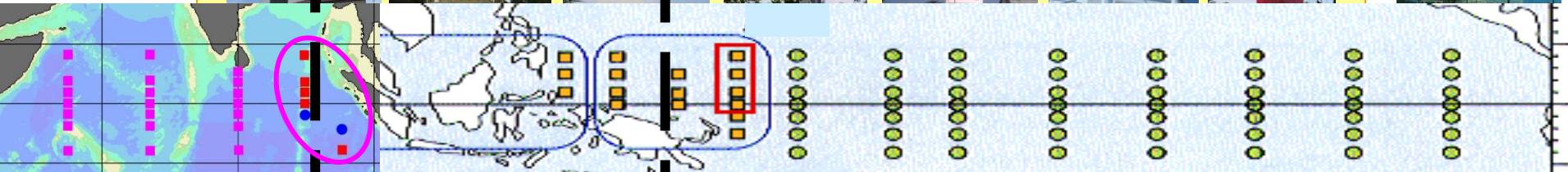
Pontianak WPR



Manado WPR

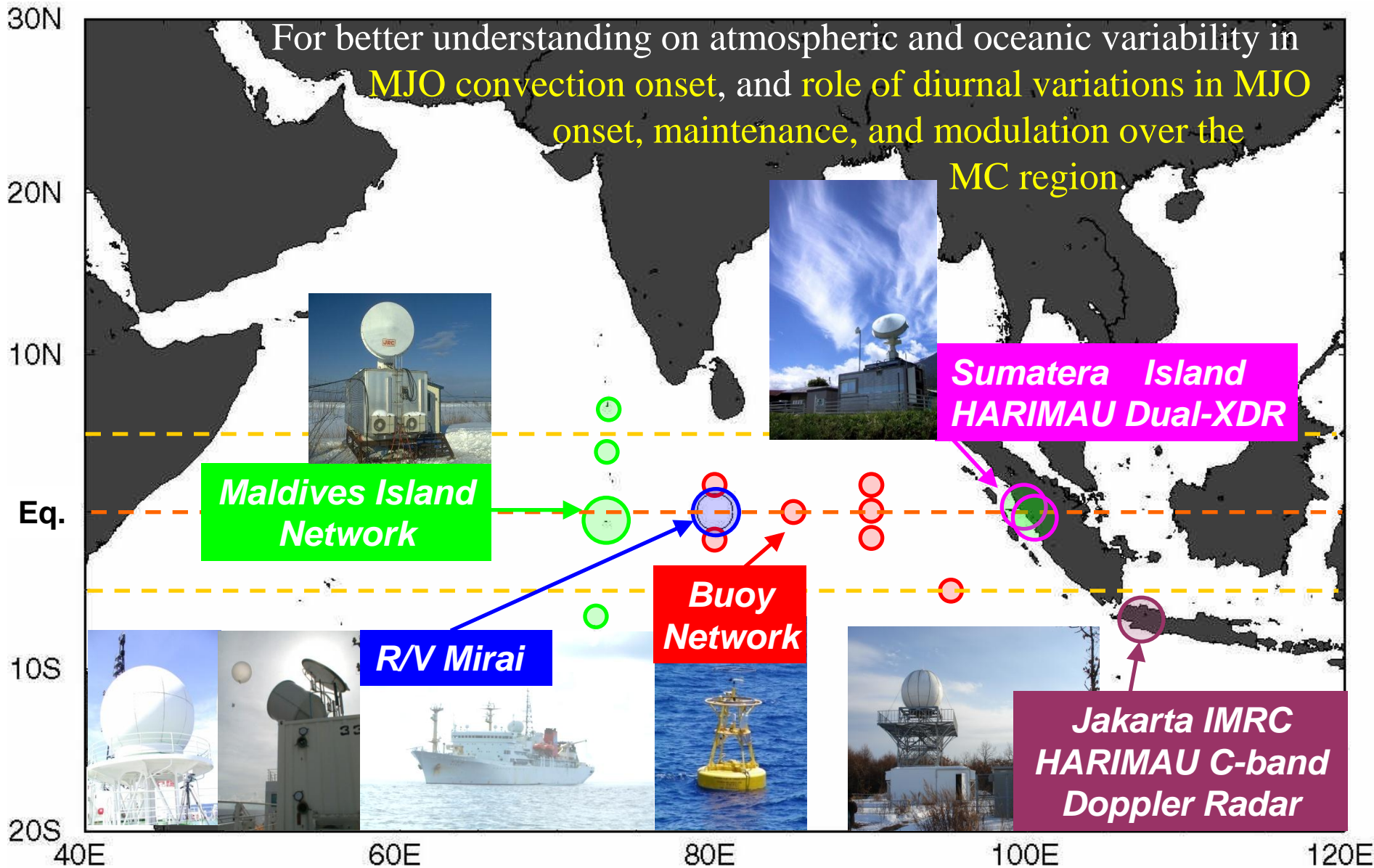


Biak WPR



HARIMAU2006 in collaboration with MISMO

during October 28 – November 27, 2006



HARIMAU2006 Intensive Observation

- Background and Objective

To better understand **structures and dynamics of diurnally generated convective systems** over the southwestern coastal region of Sumatra Island, and their **interactions with intraseasonal variation (MJO)**.

- Observation Sites

X-band Doppler radars at MIA (JEPP) and Tiku (Hokkaido Univ)
Soundings at Tabing and Siberut

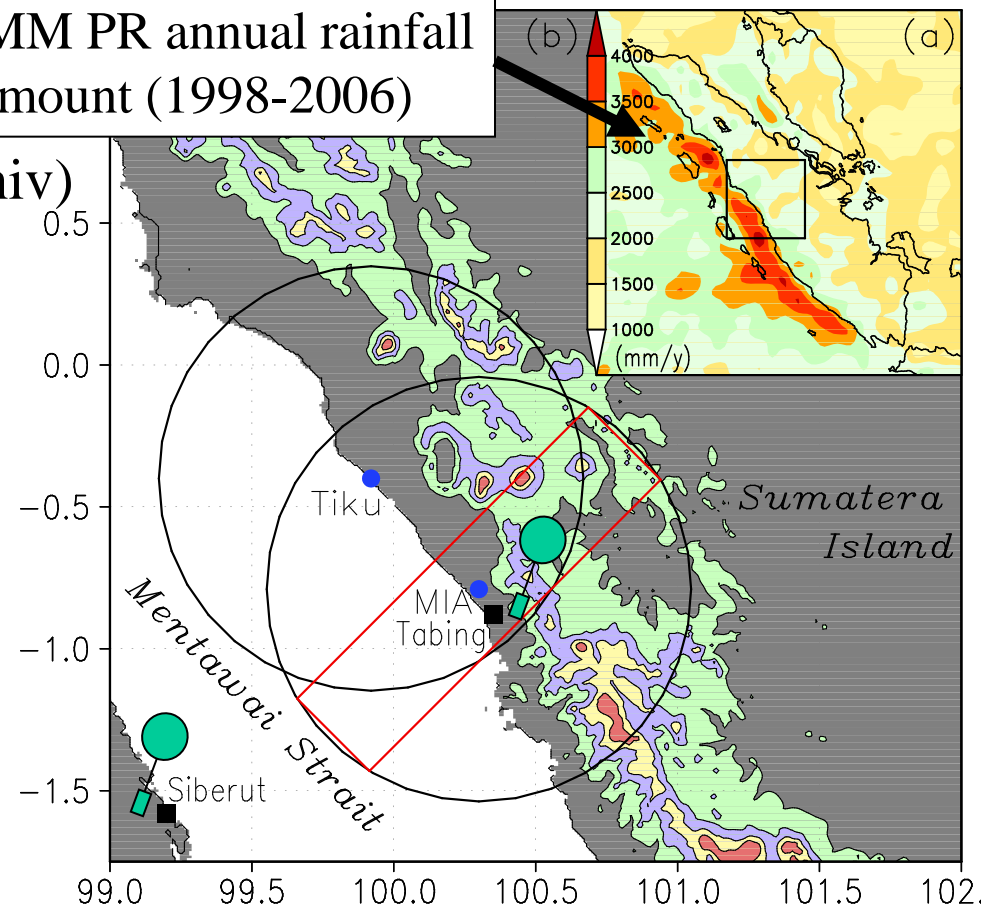
- Observation Period

October 28 – November 27, 2006

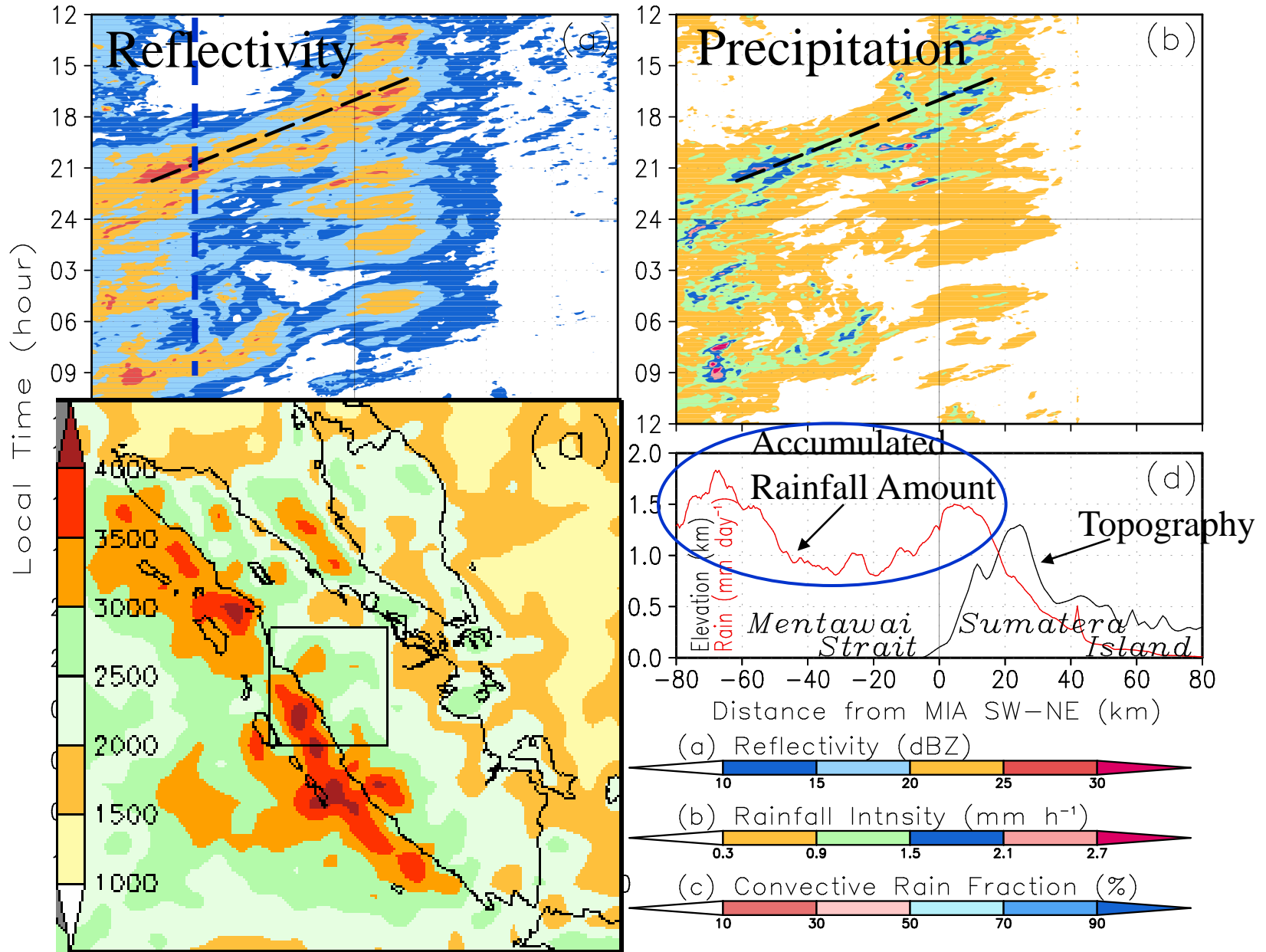
- Status

Various kinds of convections (e.g., isolated, organized, hazardous) **embedded in diurnally developed cloud systems** during **MJO inactive phase** were frequently observed.

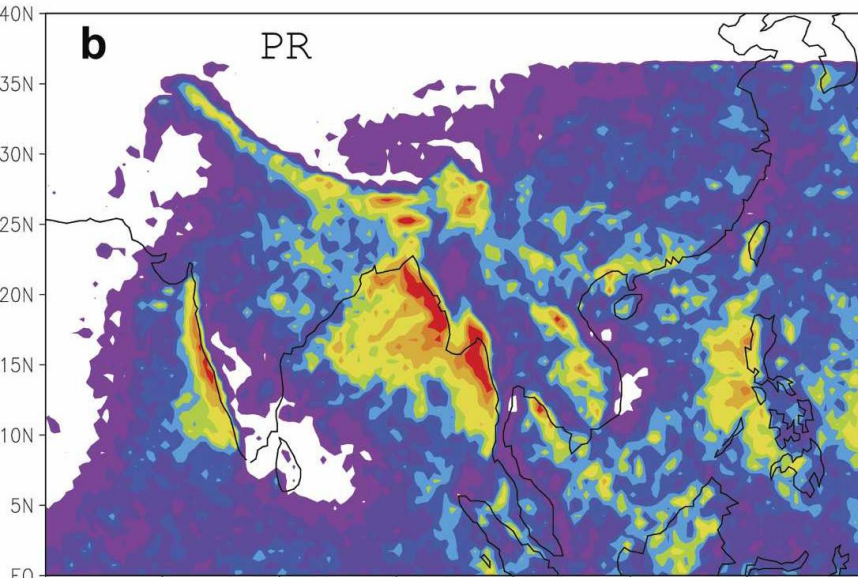
TRMM PR annual rainfall amount (1998-2006)



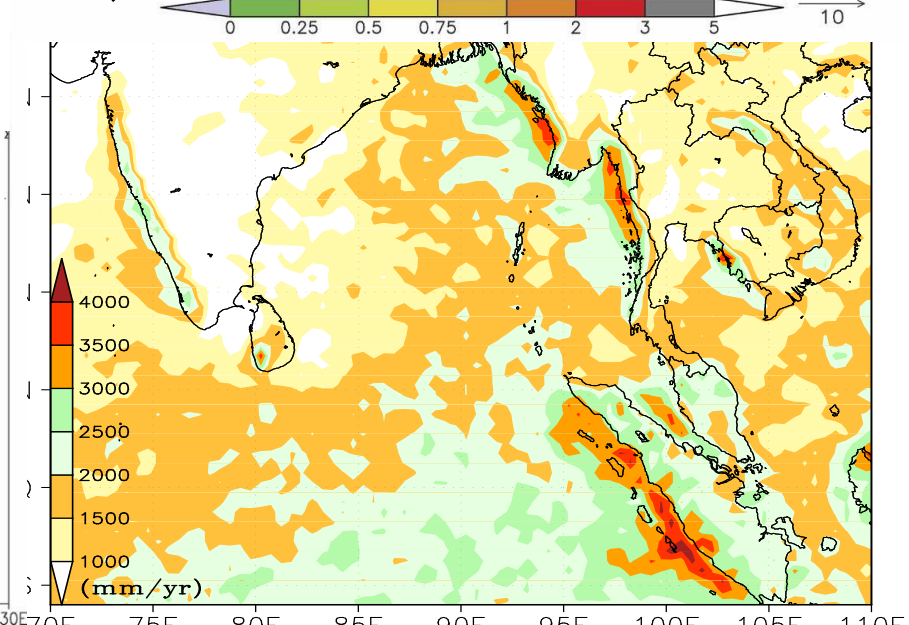
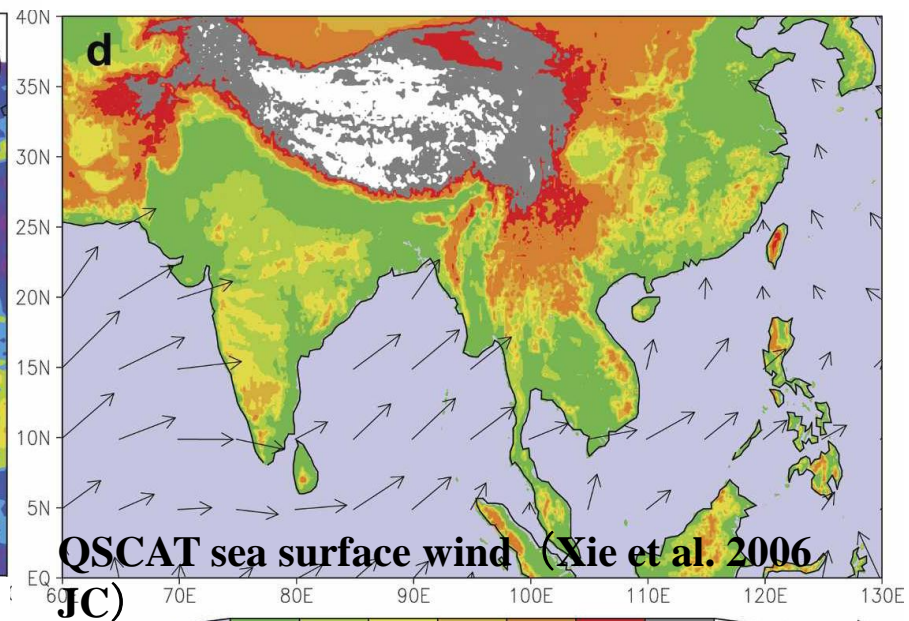
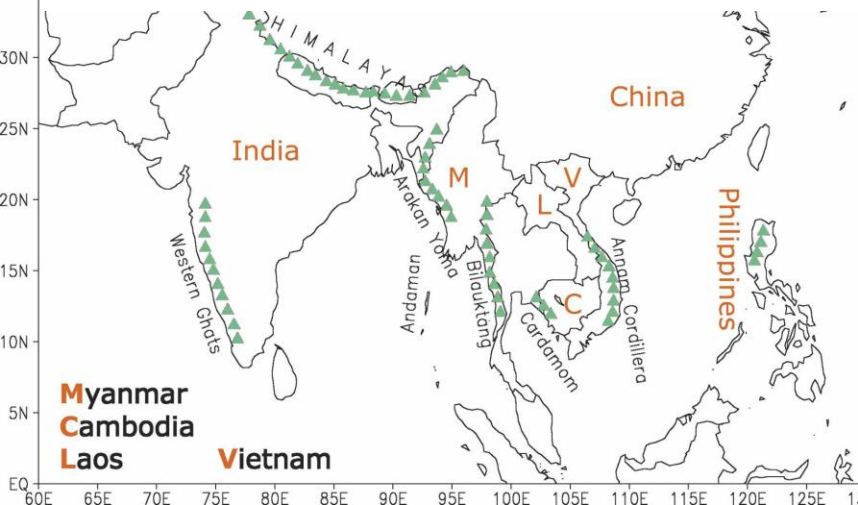
Nocturnal re-development of coastal precipitation



Coastal Rain Bands in South-Southeastern Asian Monsoon Region

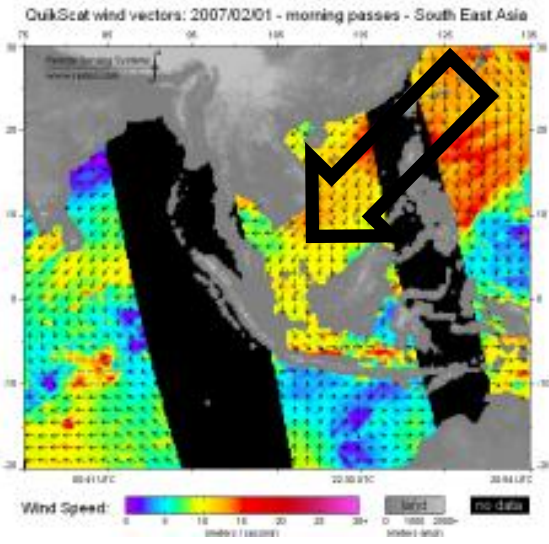
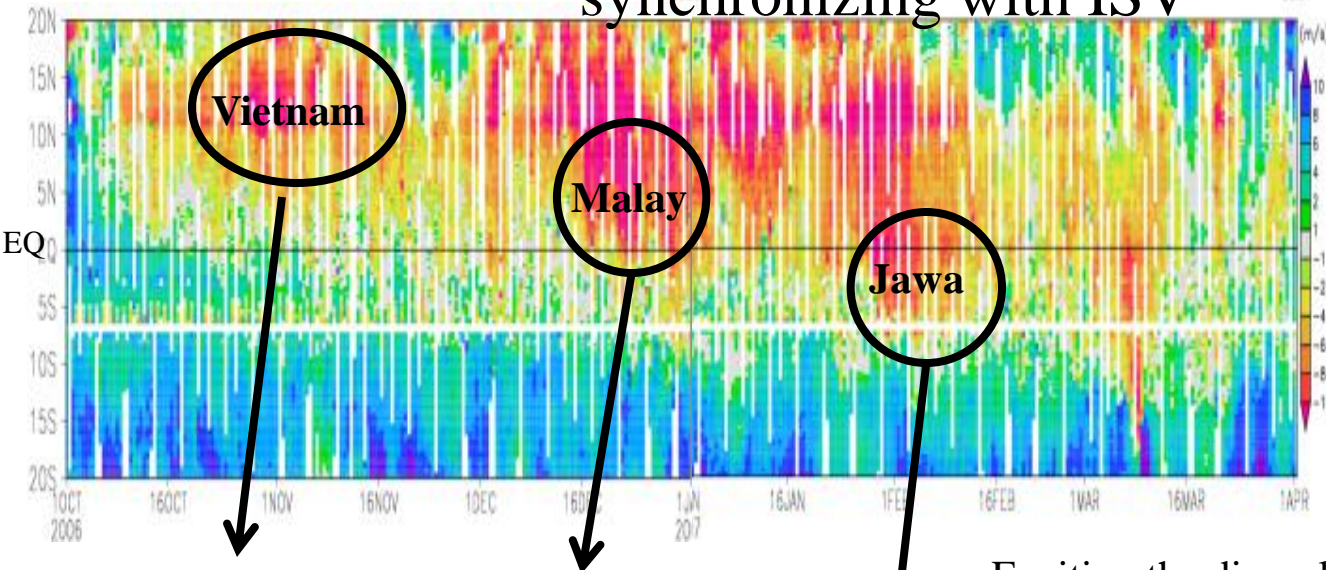


Rainfall distribution (JJA) observed with TRMM PR and related coastal mountain ranges in Asian region (Xie et al. 2006 JC)



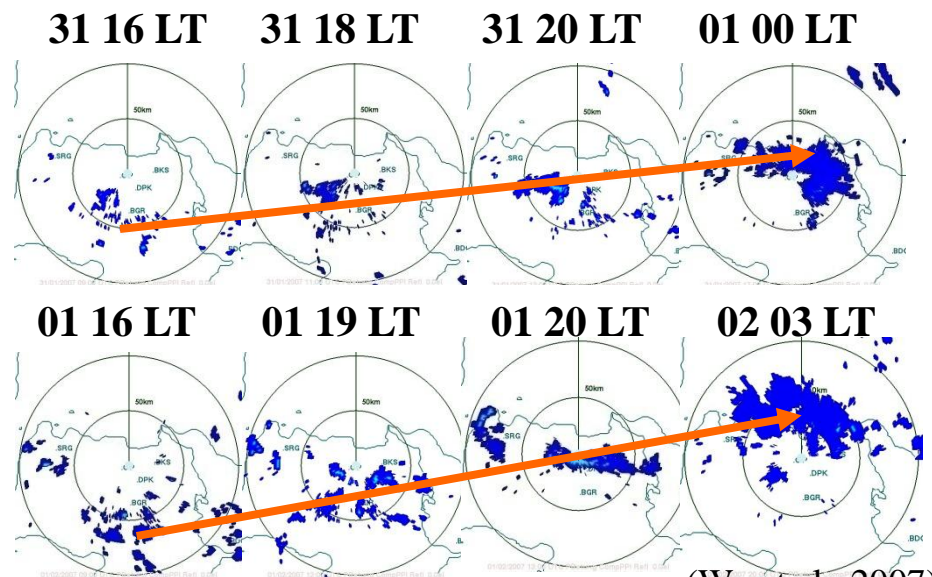
SE-Asian floods by cross-equatorial monsoon

“Cold surge” (northerly from Siberia) across the Equator, synchronizing with ISV



Jakarta flood (Jan-Feb 2007)
 >100 psns killed,
 >300 thousand psns suffered

Exciting the diurnal-cycle precipitating clouds



(Wu et al., 2007)

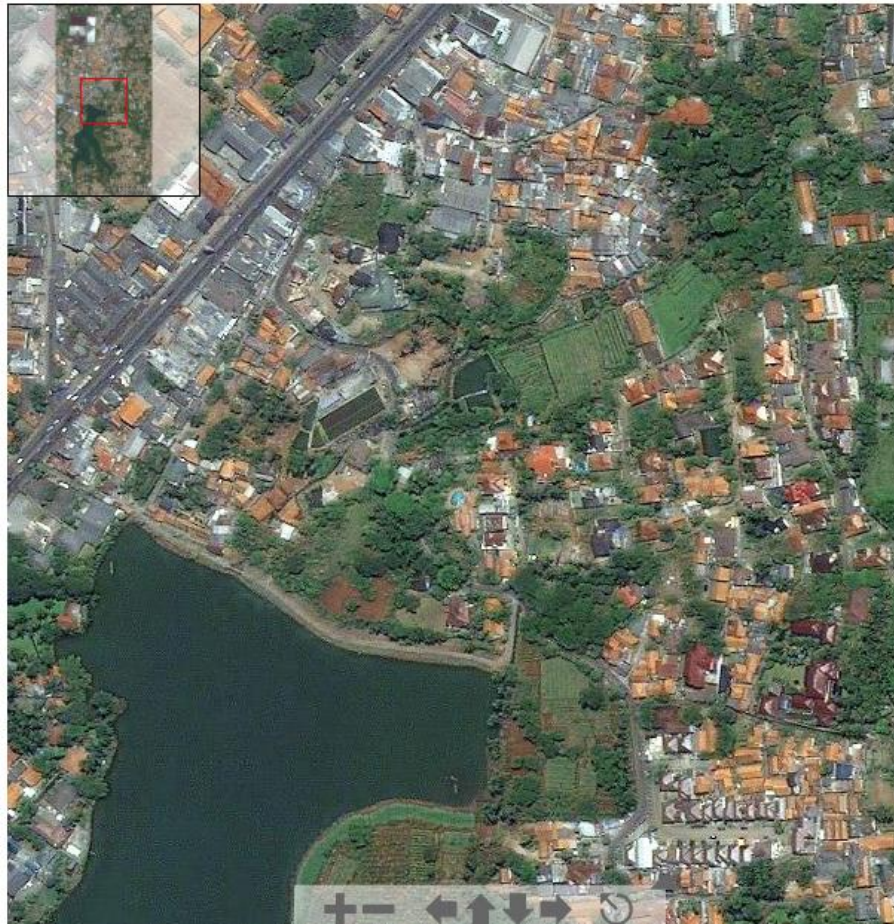
Situ Gintung death toll reaches 97, but 100 still missing

The Jakarta Post , Jakarta | Sun, 03/29/2009 3:21 PM | National

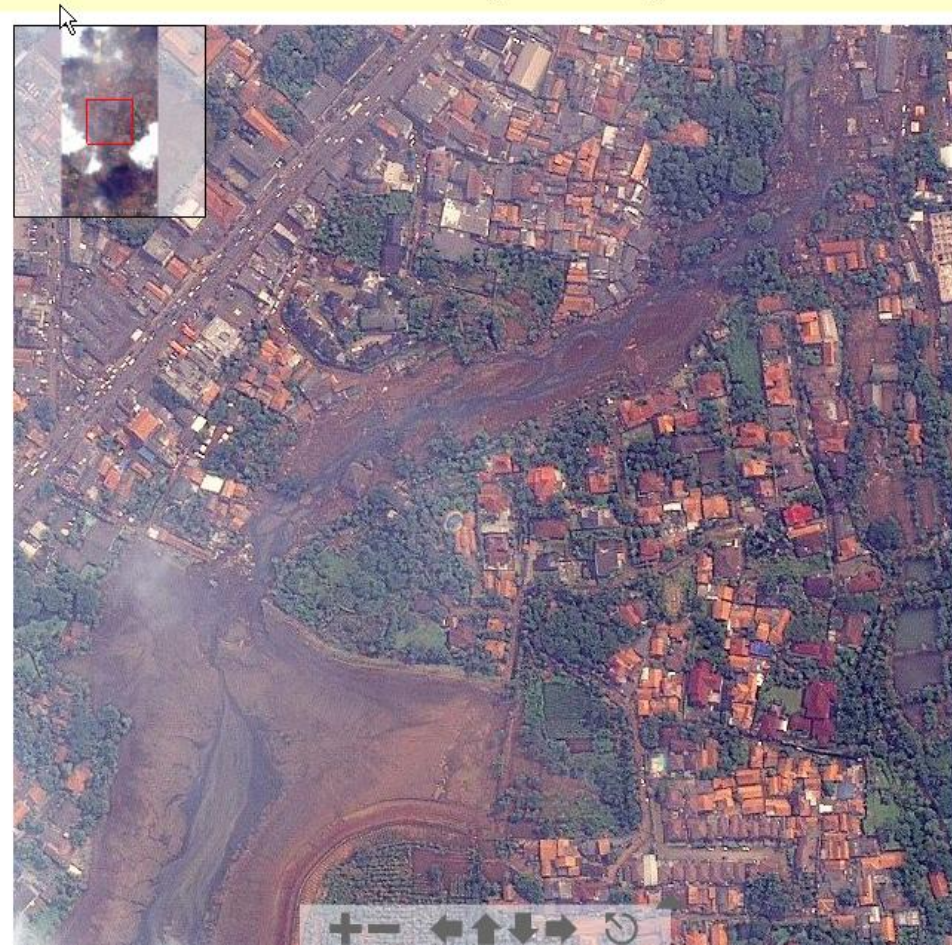


AsiaRooms.com
Number 1 in Asia part of TUI Travel PLC
Number 1 in Asia Hotels +150K hotel partners

Before dam burst (12 Sep 2007)

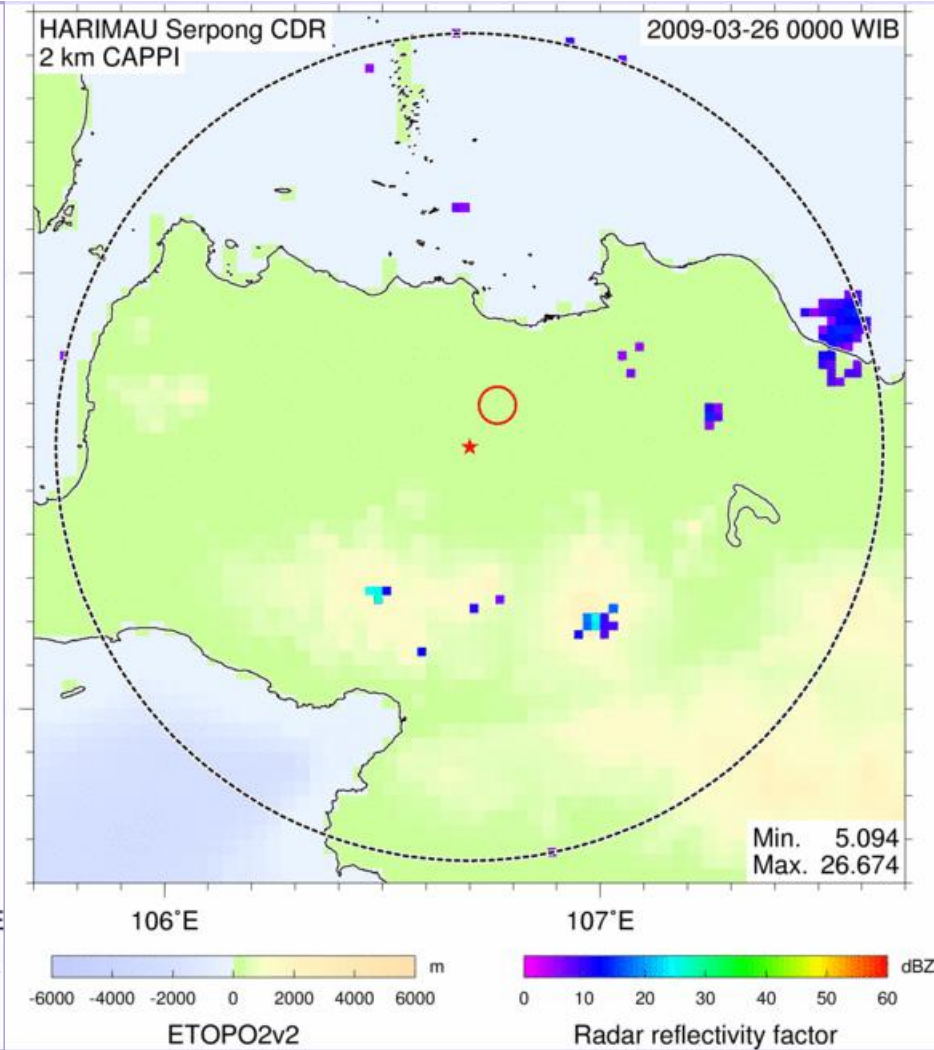
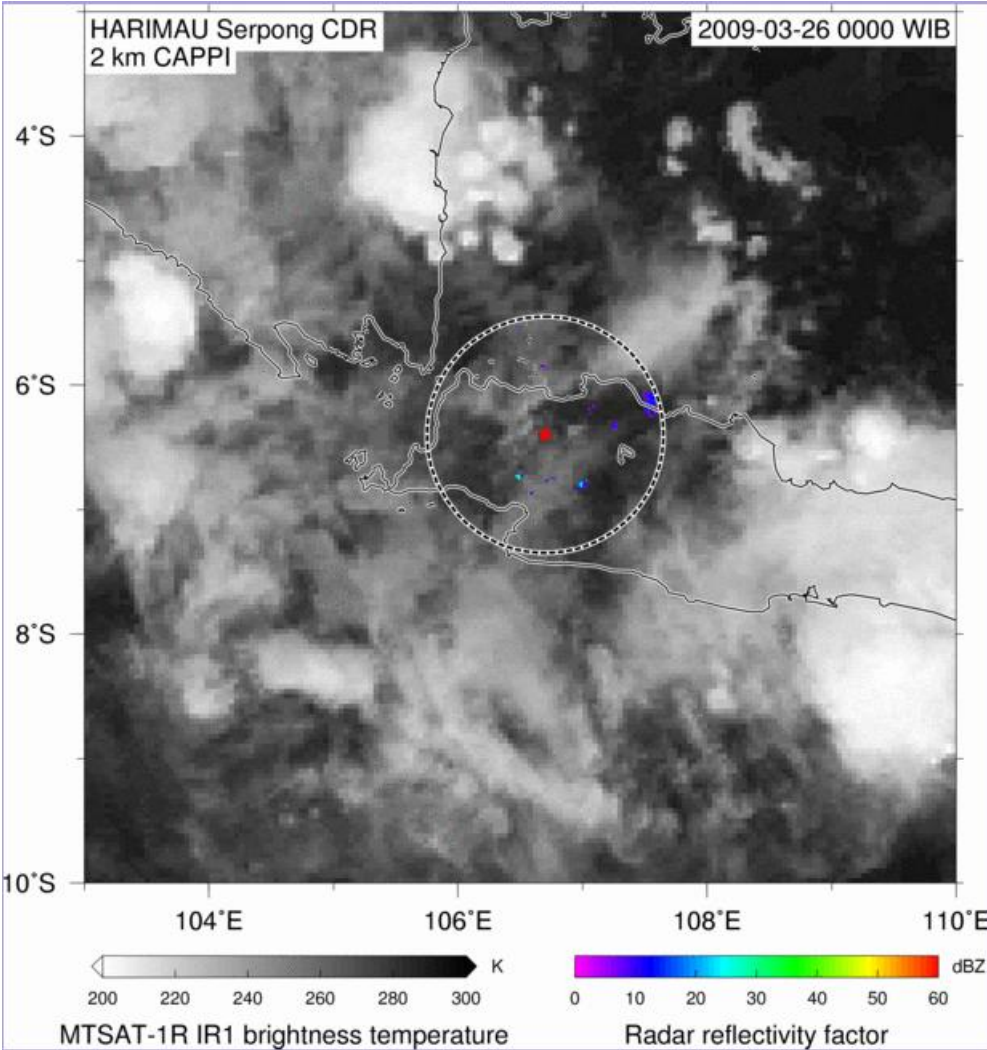


After dam burst (28 Mar 2009)



Situ Gintung Dam Burst, Jakarta, Indonesia

15-18LT 26 March 2009



HARIMAU2010 Intensive Observation

- **Questions**

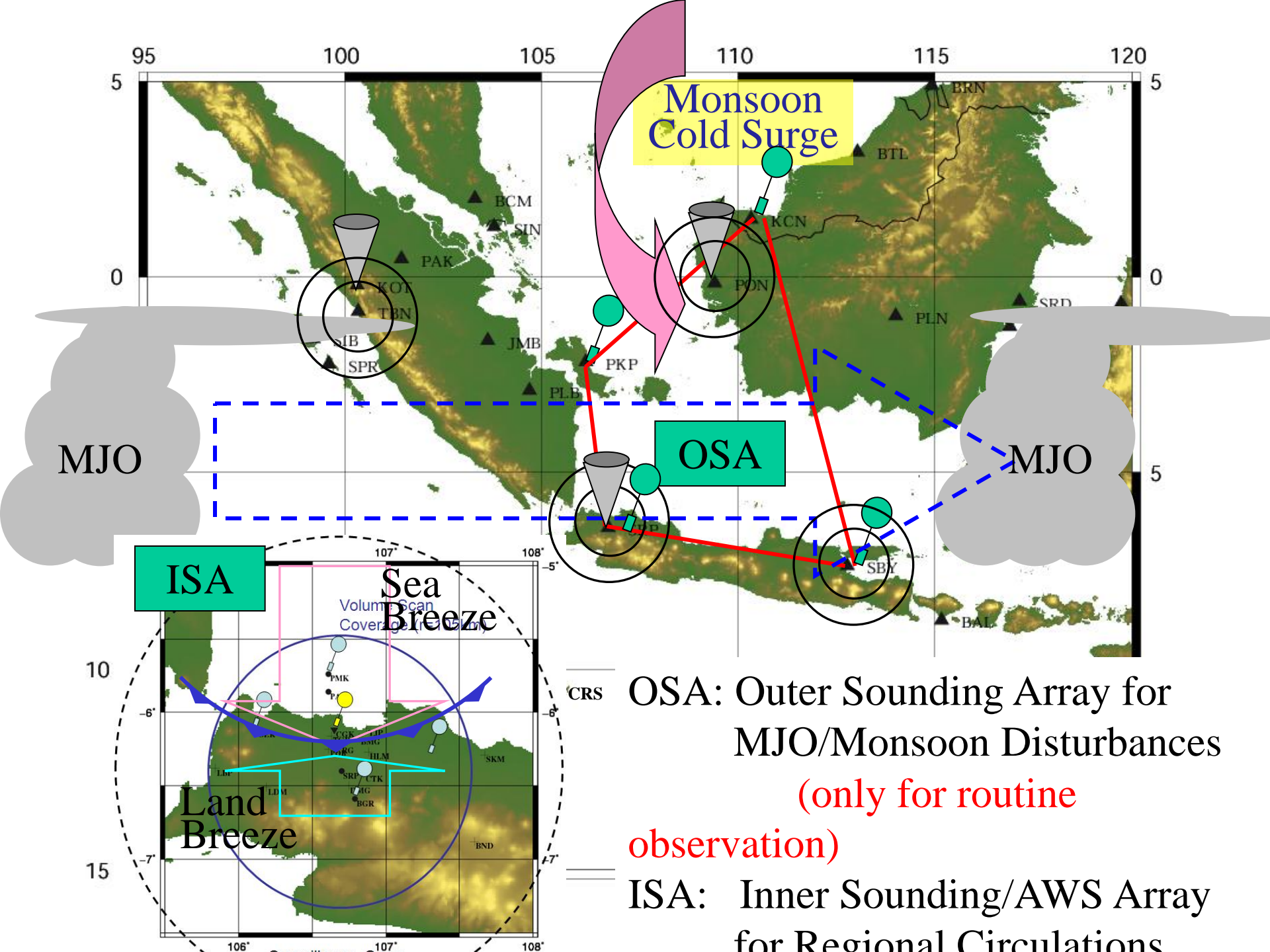
- + What **synoptic environment** causes **torrential rainfall** over the Asian megacity, Jakarta, during the winter monsoon?
- + Detailed meso-scale structure and dynamics of **diurnal convective activity** which generate torrential rain there?
- + How locally developed **diurnal convections interact with the monsoon cold surge and/or MJO** for extreme events?
- + Role of the **planetary boundary layer** (including developments of **convective mixing layer**) on the torrential rain.

- **Period**

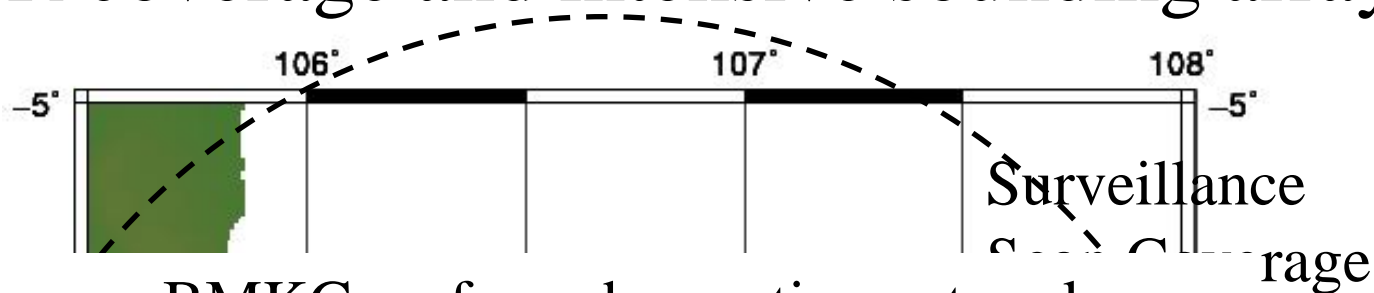
15 January – 14 February (31 days), 2010

- **Methodology**

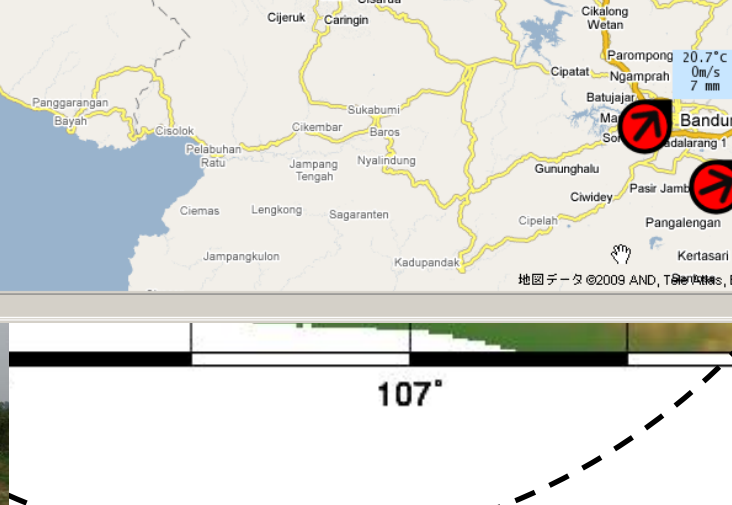
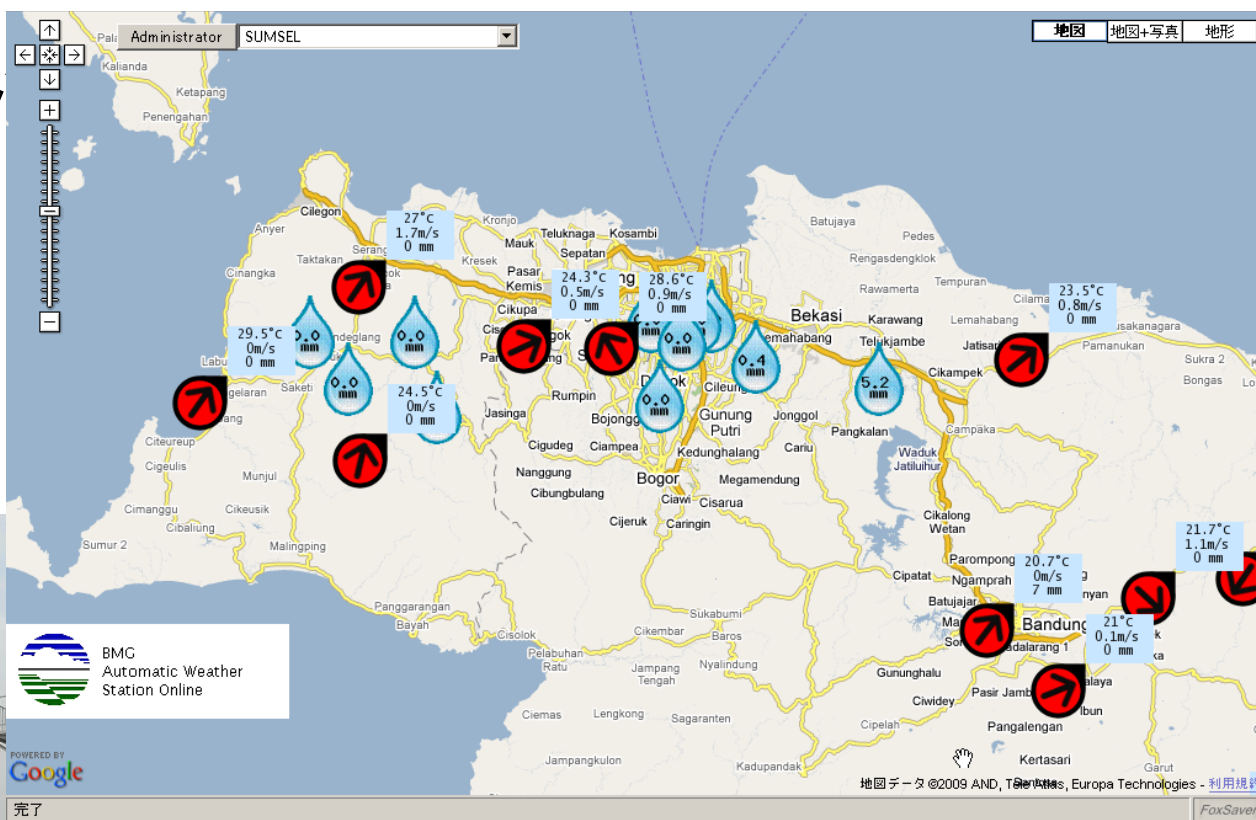
A C-band Doppler radar and a wind profiler at Serpong, intensive sounding array, AWS network, and experimental forecast by using NHM (Non-Hydrostatic Model, MRI)



CDR coverage and intensive sounding array



BMKG surface observation network



1. Methodology and logistics of IOP

- + We plan to emphasize more on the regional scale study over the JABODETABEK and make a sounding array there to observe diurnal local circulation and related convective activity in detail in time and space.
- + Synoptic disturbance (i.e., monsoon cold surge and MJO) over the Jawa sea in relation to the regional phenomena shall be analyzed by using NCEP and/or JRA reanalysis dataset.
- + Mesoscale surface and pilot balloon observations at BMKG stations are essential.

2. Sounding array (Vaisala System)

- + Pramka, Bogor, **Seran (BMG pilot balloon station), and Karawang (AWS site for BPPT)** are reselected for sounding array by using our Vaisala system.
- + We plan to make 4 launches a day for 31 days by 4 staff (2 Japanese and 2 Indonesian).

- + If we get additional budget, we make another 4 launches a day for 2 weeks in the middle of the IOP by 6 staff (2 Japanese and 4 Indonesian).

3. Extra Launching at BMG Cenkareng (Meisei System)

- + Same as the original plan, we request the BMKG at Cenkareng to make extra 2 launches a day for 31 days. We supply Meisei transmitters (RS-01G2 GPS) and 500g (or 600g) balloons.

4. Data collection for BMKG surface and pilot balloon observation

- + We request the BMKG to share the AWS/ARG digital data during the IOP.