

# INTERNATIONAL COLLABORATIONS RELATED TO OCEAN CLIMATE AND HYDRO-METEOROLOGICAL ARRAYS IN INDONESIA

*Fadli Syamsudin*

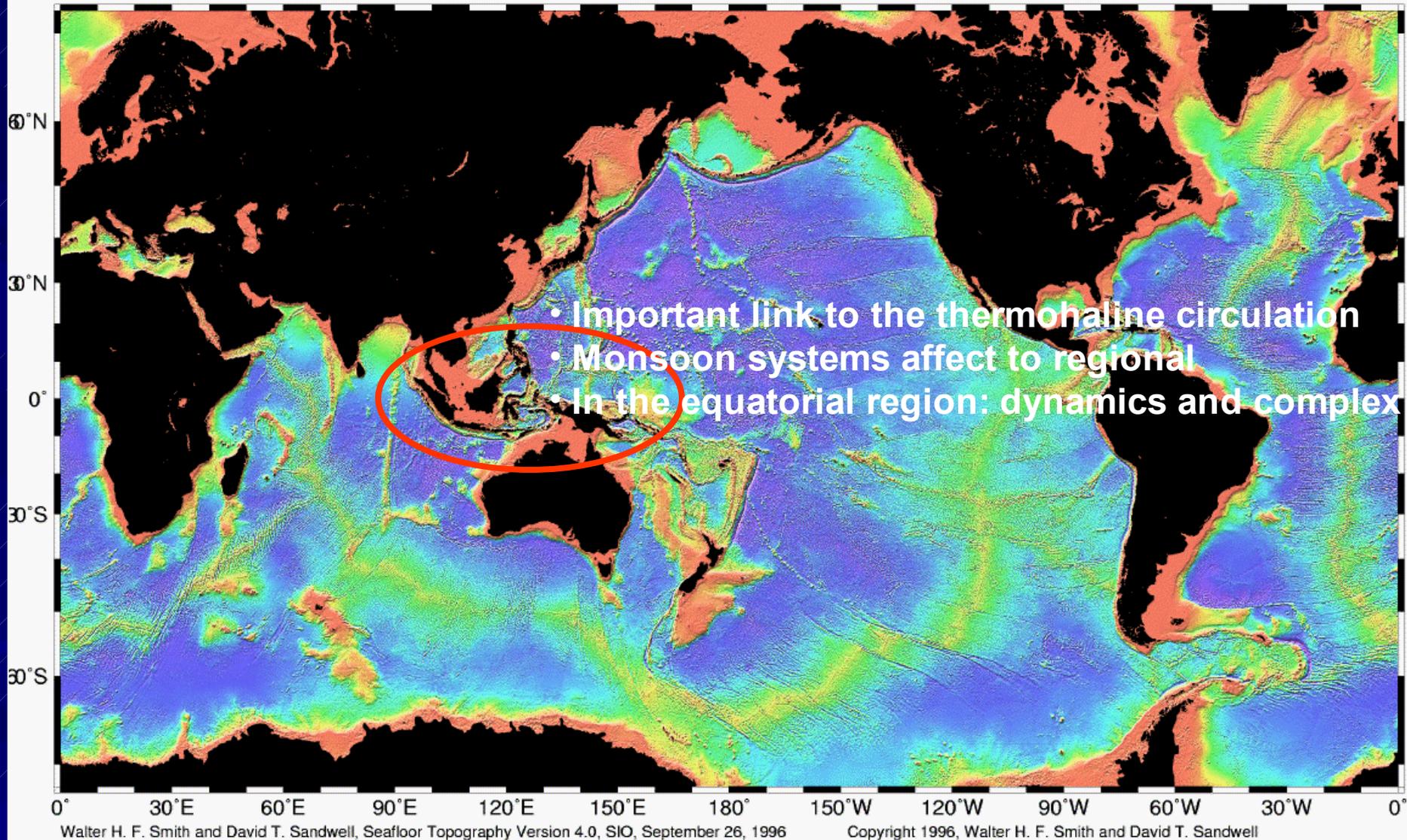
*Agency for the Assessment and Application of Technology (BPPT)  
Indonesia*

- **Background: Indonesia as Maritime Continent**
- **International collaboration related to ocean climate**
- **International collaboration related to hydrometeorological array**

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**The First International MAHASRI Science Steering Committee  
(IMASSC) Meeting at the Grand Hotel Bangkok, Thailand  
October 19-20, 2006**

# INDONESIA AS MARITIME CONTINENT

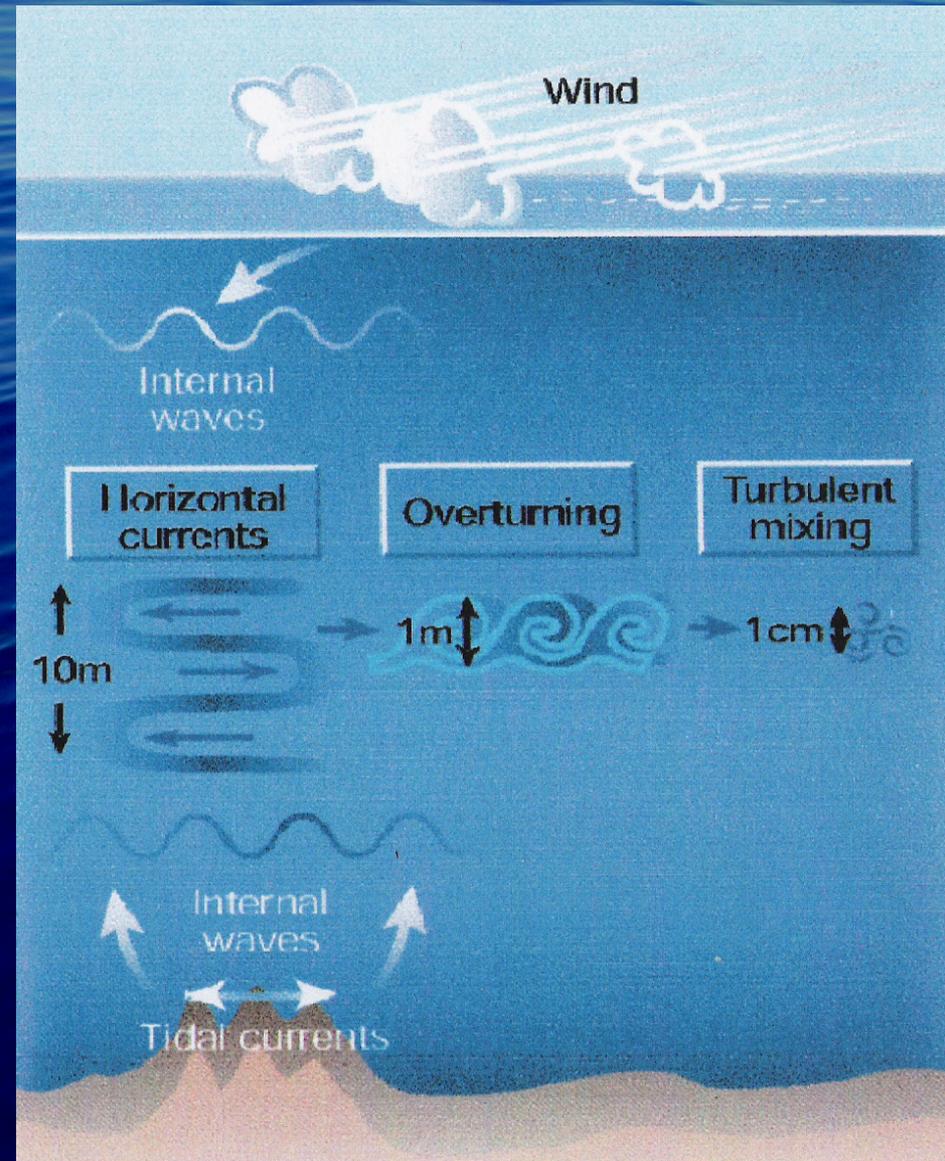


# INDONESIA AS MARITIME CONTINENT

- Total tidal “dissipation” in ocean derived from astronomical data: 3.5 TW (1 Terrawatt =  $10^{12}$  W).

- Most dissipation on continental shelf, but significant part is “dissipated” in the deep ocean by conversion to internal tides, over ridges and rough topography (1 TW available for abyssal mixing, Egbert & Ray, 2000).

- Together with wind input, this provides enough energy for abyssal mixing to maintain Meredional Overturning Circulation (Wunsch & Ferrary, 2004).



(Figure from Garrett, 2003)

# **International Collaborations Related To Ocean Climate**

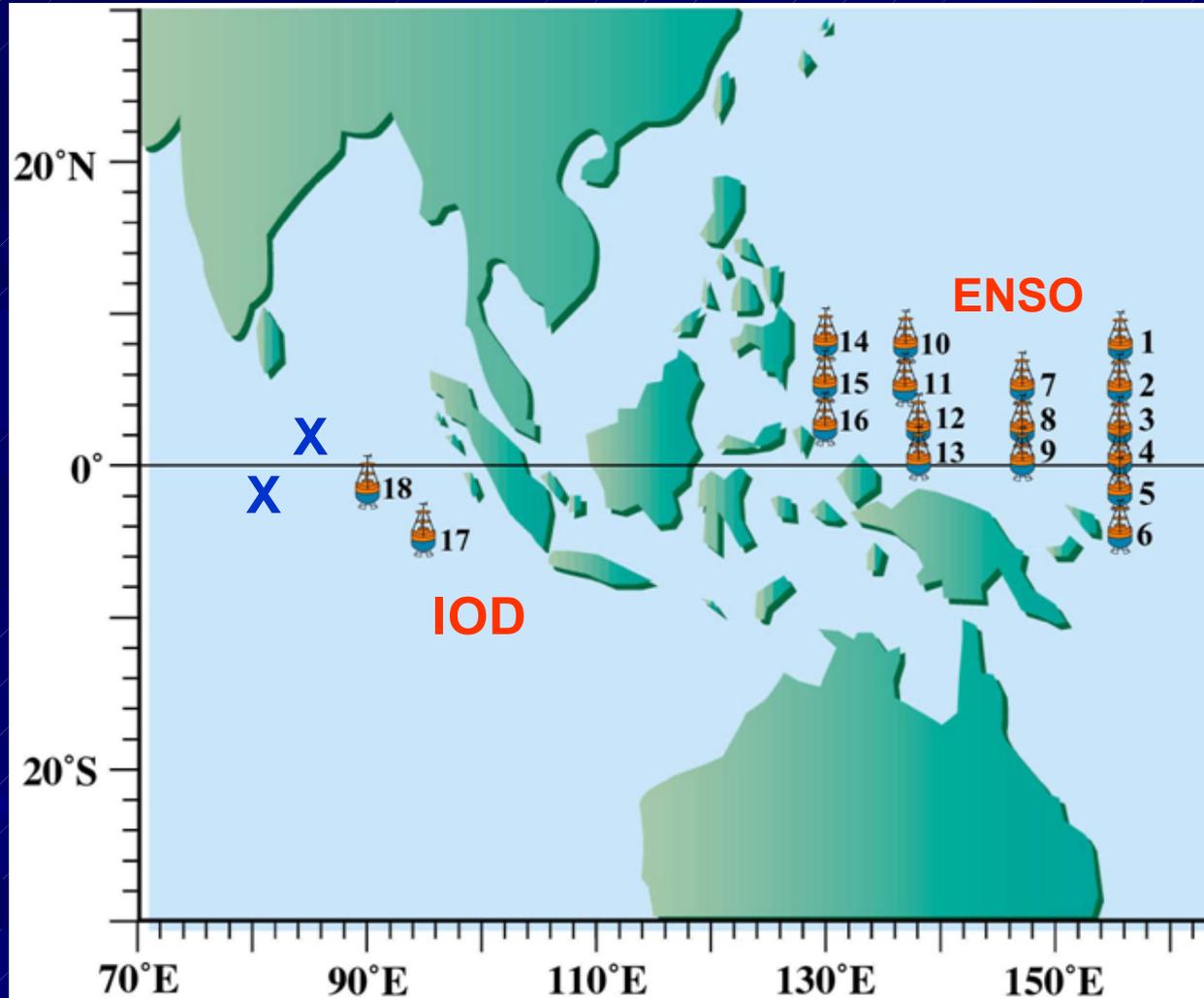
# INSTANT

*[International Nusantara Stratification and Transport]*



**Institution Participants: DKP, BPPT, LIPI, USA, France, Australia, Netherlands**

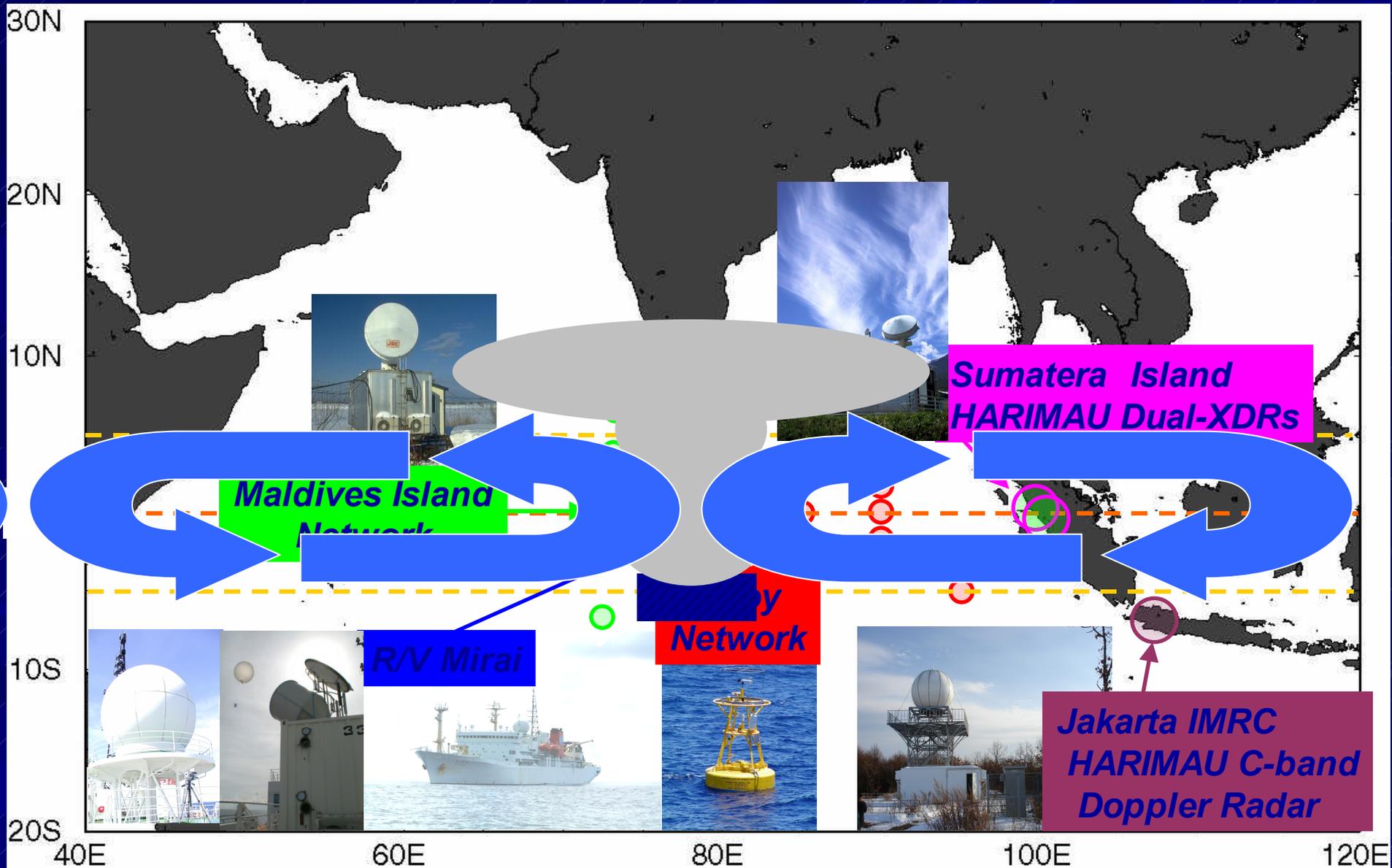
# Research on air-sea interactions



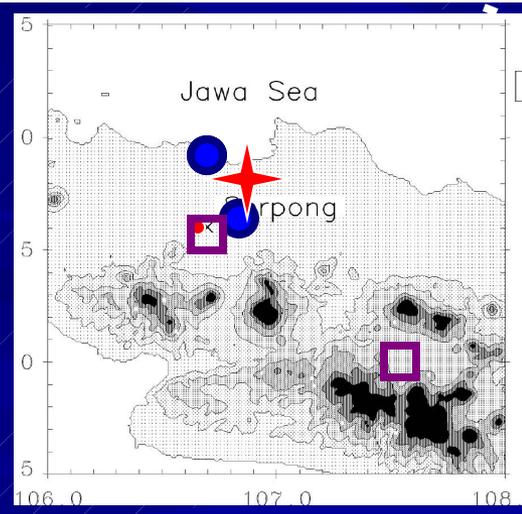
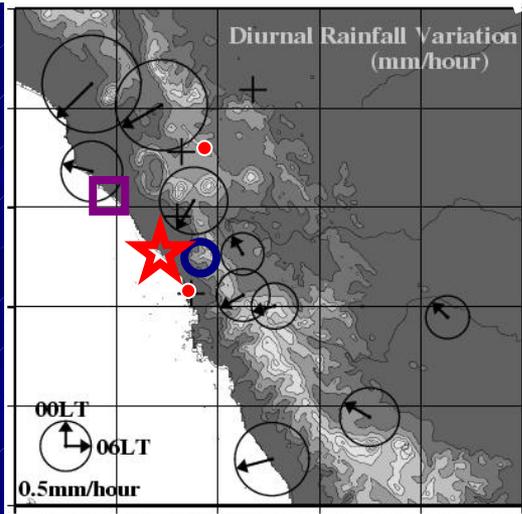
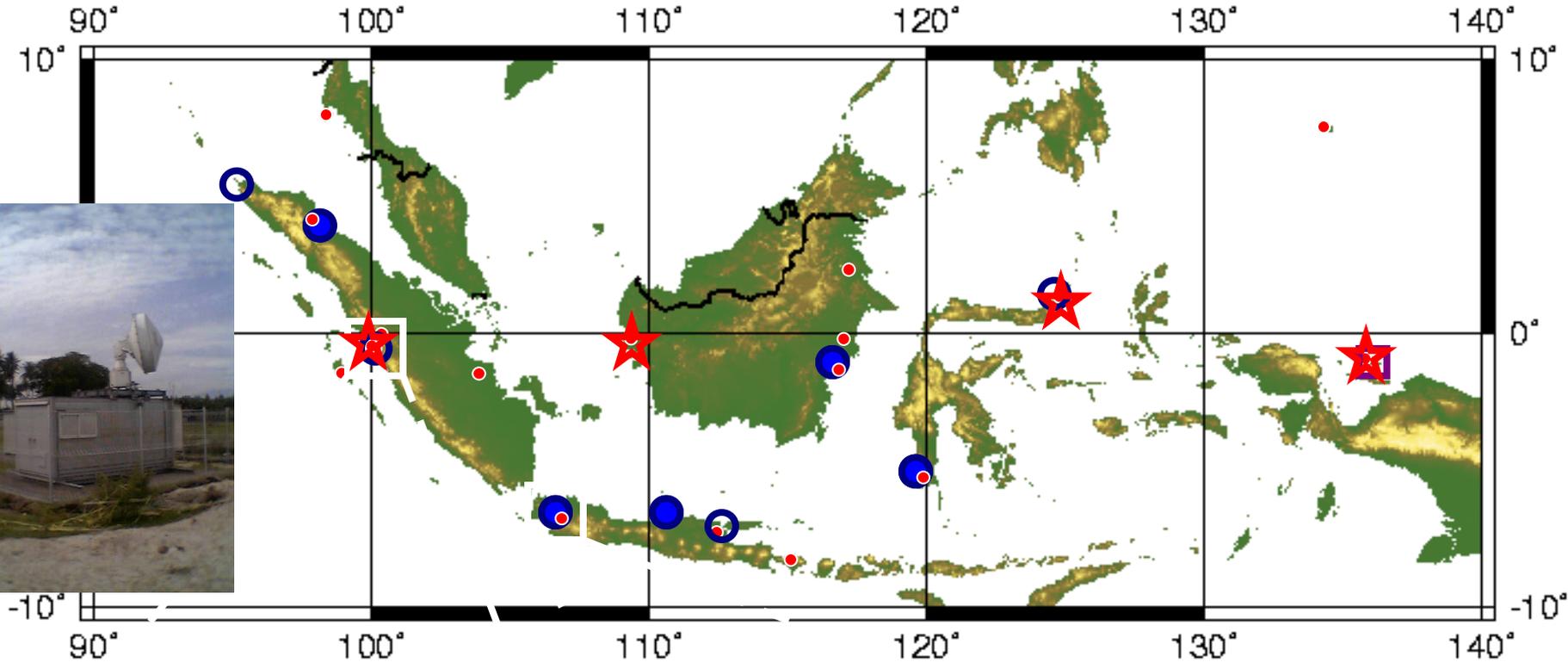
- JAMSTEC, JAPAN (1990 – On-going)
- NOAA, USA (October 2006 – On-going)

# **International Collaboration Related To Hydro-Meteorological Arrays**

**HARIMAU2006** with MISMO during October 23 – November 21, 2006  
(**MIRAI** Indian Ocean cruise for the **Study on MJO-convections Onset**)



# Planned stations and a local HQ



-  Local HQ
-  JEPPI stations
-  JAMSTEC sites
-  BMG radars (old)
-  BMG radars (planned)
-  Other projects (Kyoto U etc.)

# Kototabang Observatory, West Sumatera, Indonesia



Equatorial Atmosphere Radar (VHF Profiler)



Meteorological Radar



Sonic Anemometer

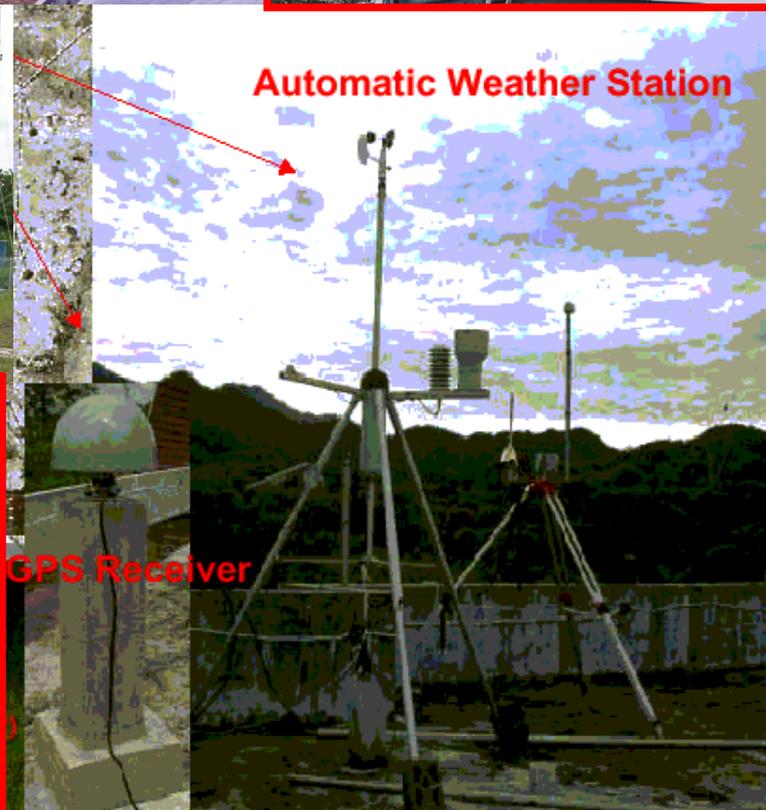
Sodar



Intense Rawinsonde Obs.



Boundary Layer Radar (UHF Profiler)

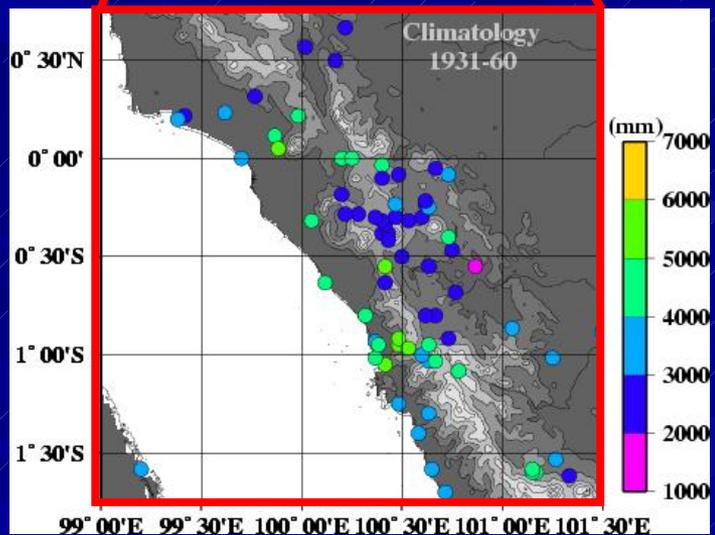
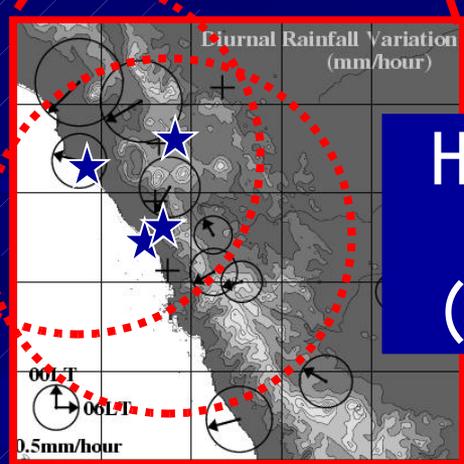
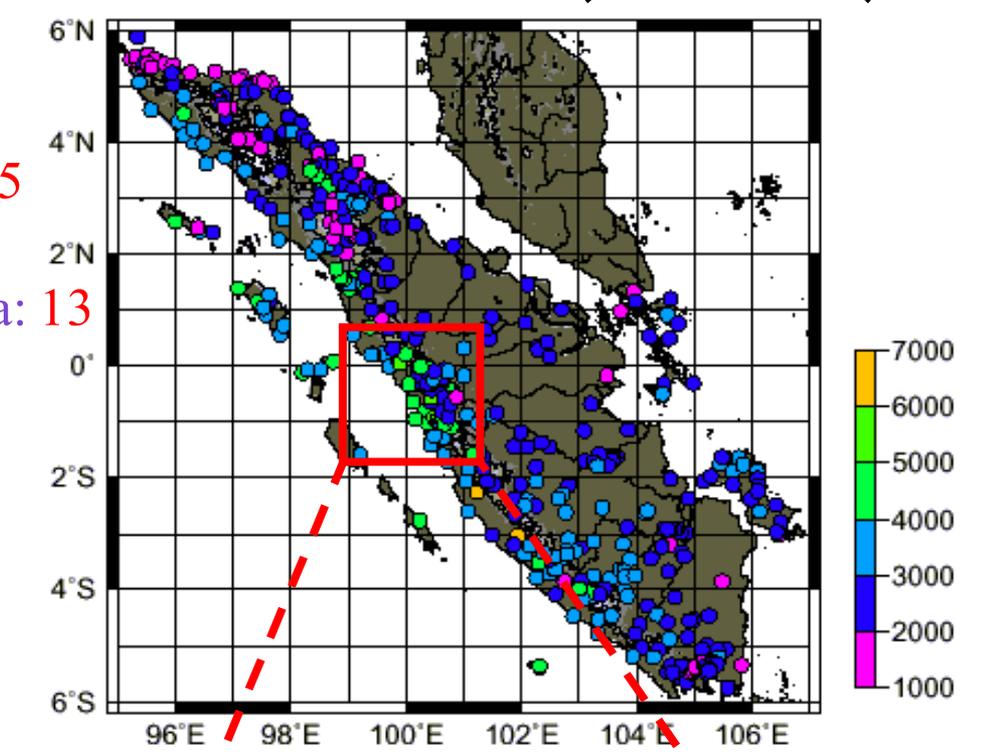
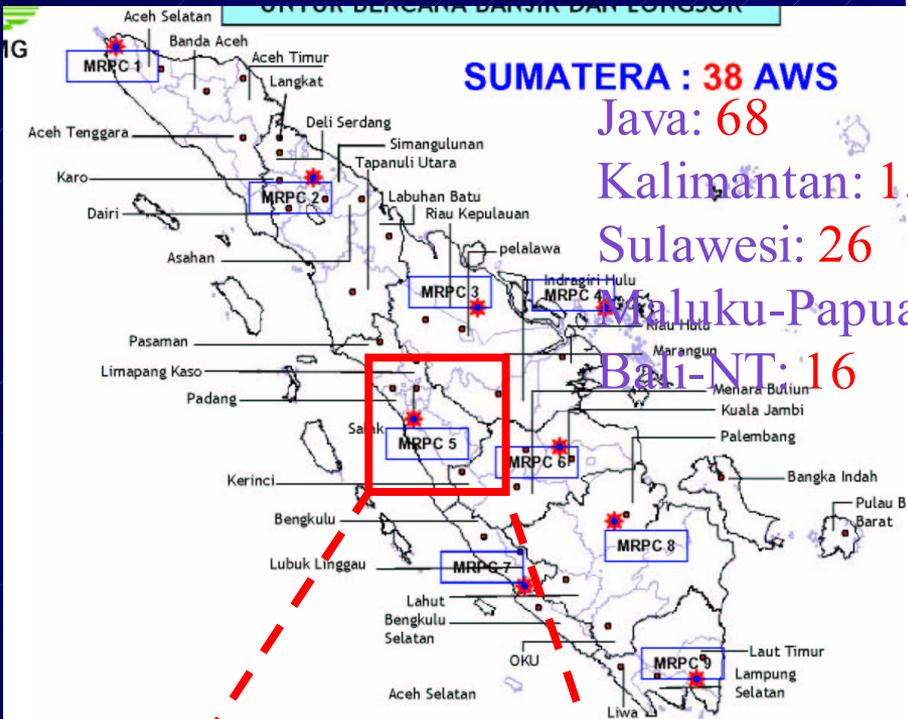


Automatic Weather Station

GPS Receiver

# BMG AWS (2006~)

# Annual Rainfall(1930~60)



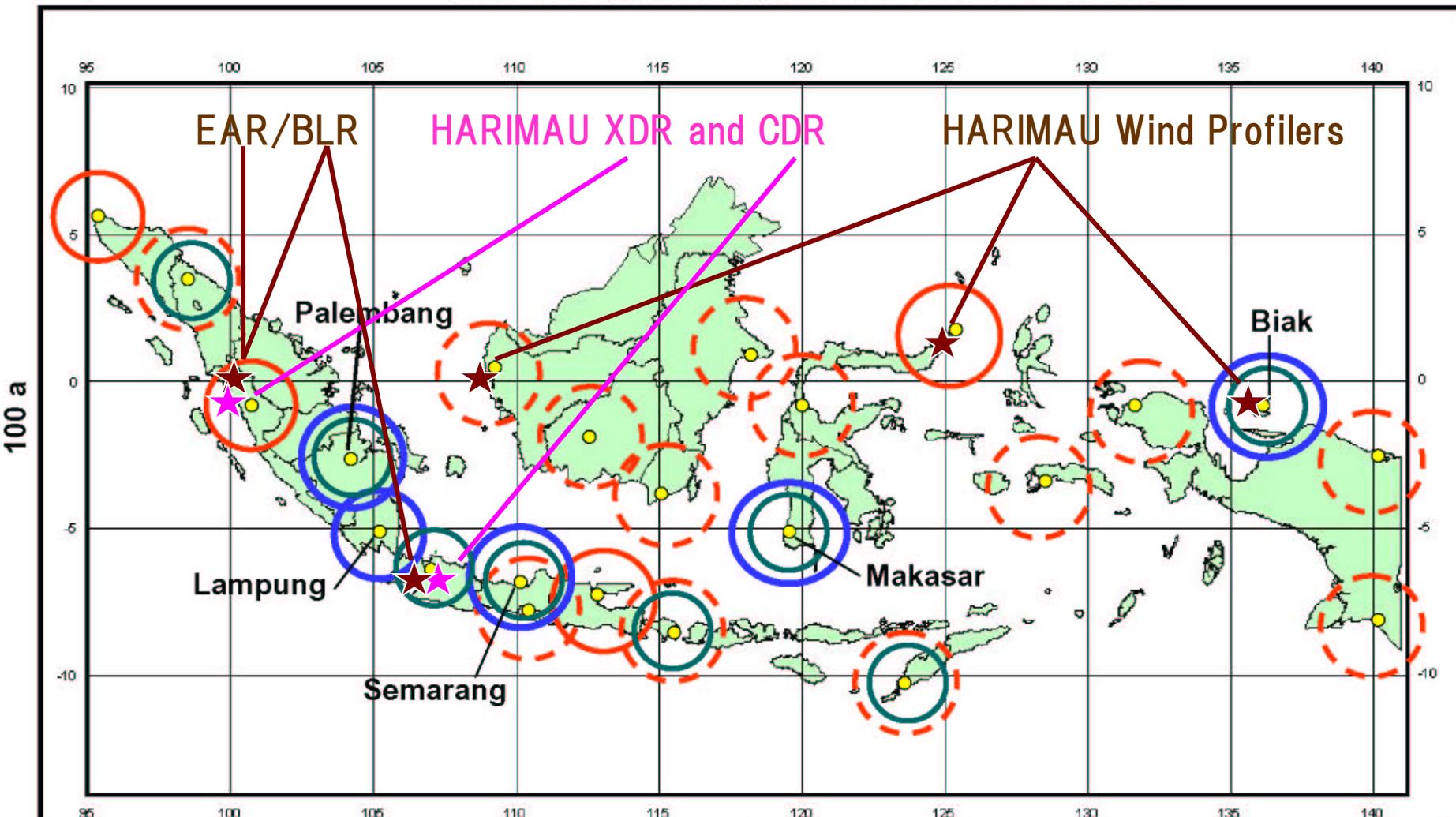
(Hamada et al.)



BMG

# RADAR CUACA C - BAND - NETWORK

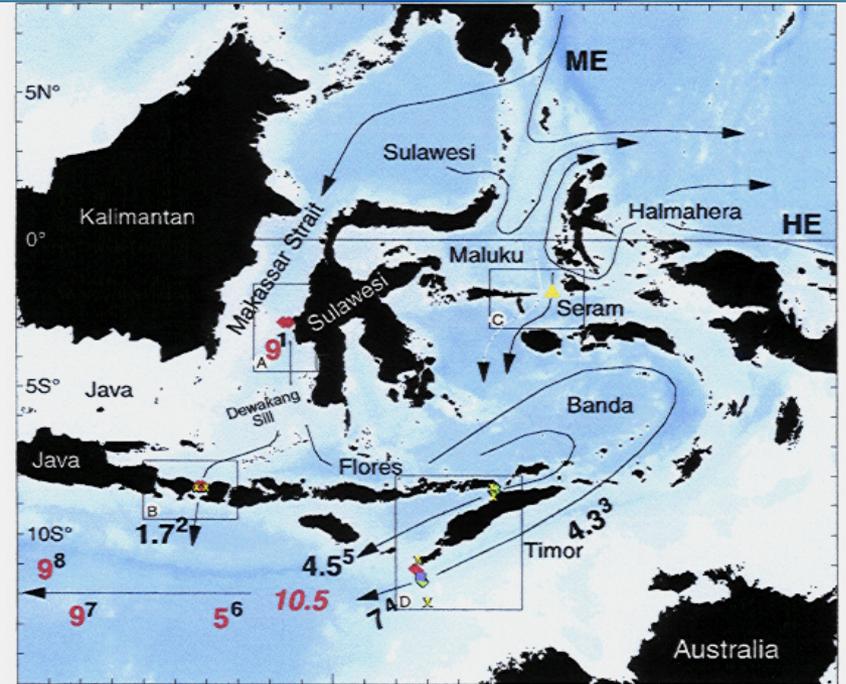
JUMLAH IDEAL RADAR CUACA : 22 LOKASI



 <p>RADAR CUACA TUA (20 thn) SAAT INI : 8 LOKASI, HARUS DIGANTI (SPARE PART SULIT, BIAYA UPGRADE 35 % X HARGA BARU)</p>	 <p>APBN 2006 4 LOKASI</p>	 <p>APBN 2007 5 LOKASI</p>	 <p>USULAN BERIKUT S/D 2009 : 22 - 9 = 11</p>
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**Concluding Remarks:**

# Present State Indonesia Ocean-Atmosphere Monitoring System



INSTANT

TRITON/TAO BUOYS



Tropical Moored Buoy Network

