



BMKG

OPERATIONAL MONSOON PREDICTION AND ONGOING/RELEVANT RESEARCH TOPICS

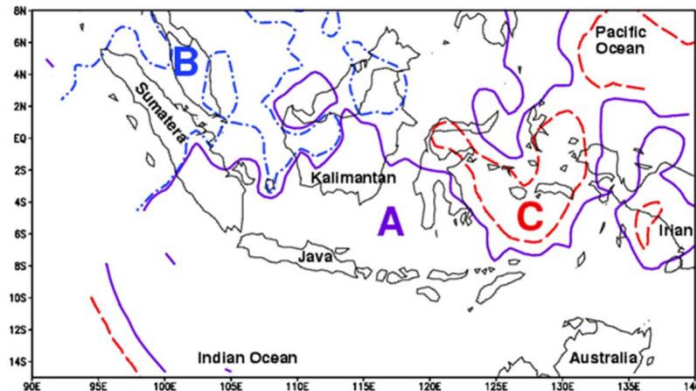
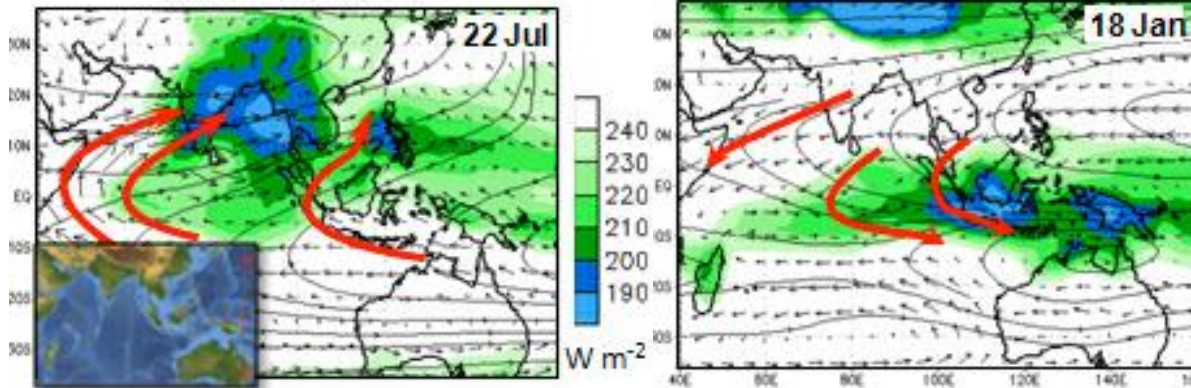
Donaldi S. Permana

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Indonesian Agency for Meteorology Climatology and Geophysics (BMKG)
E-mail: donaldi.permana@bmkg.go.id; donaldi.sp@gmail.com**

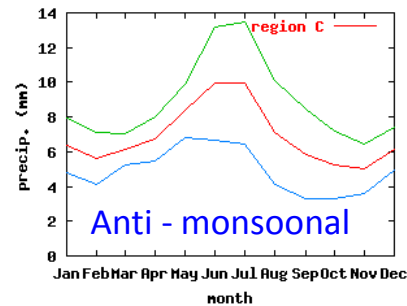
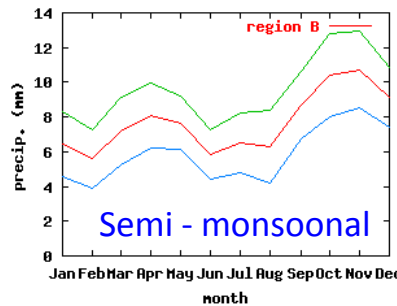
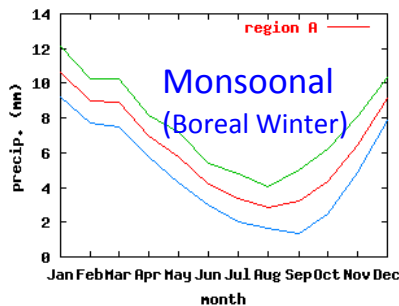
**WCRP-JNU Training School on Monsoon Variability in Changing Climate
Jeju, 16-21 January 2017**

STATUS OF MONSOON PREDICTION

Asian-Australian NOAA/NWS/CPC

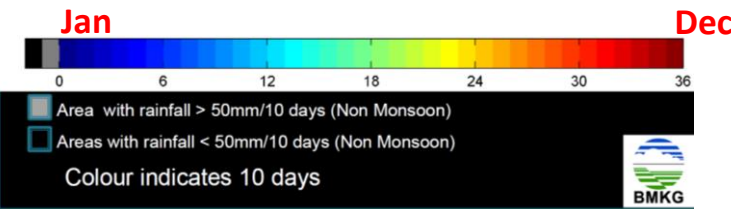
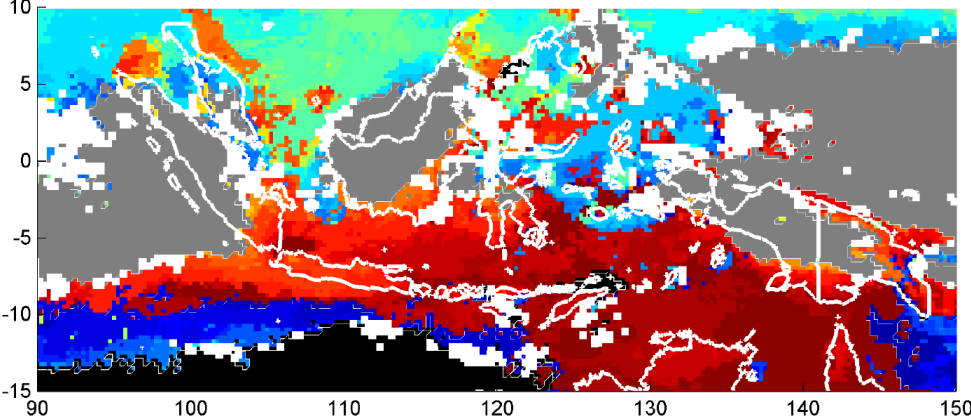


- There are three distinct rainfall climate regions over Indonesia, which mainly has a monsoonal type
- Instead of wind direction changes, BMKG currently generates the prediction of the onset of wet/dry seasons for monsoon prediction purposes

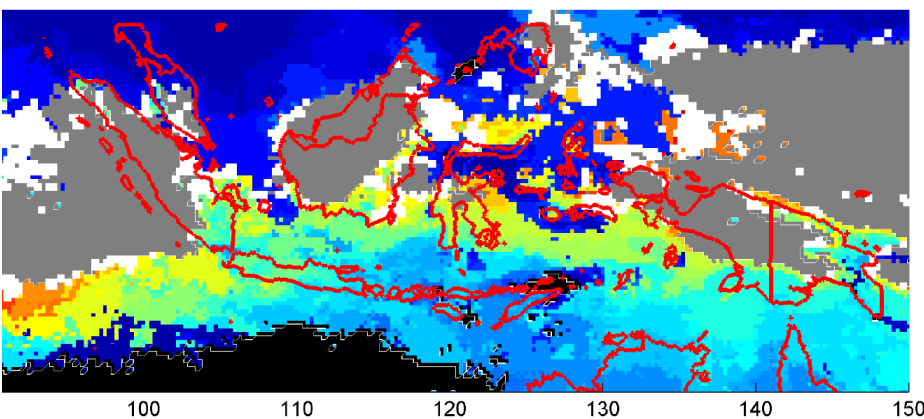


STATUS OF MONSOON PREDICTION

Rainy Season onset (TRMM data 1998-2010)



Dry Season onset (TRMM data 1998-2010)

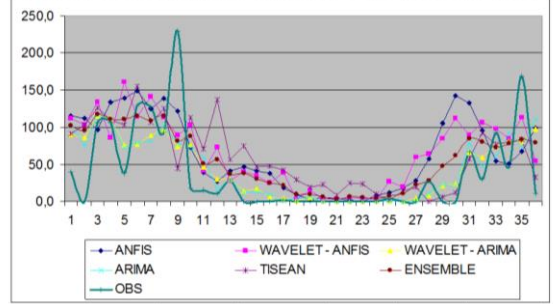


- Criteria for the wet season onset : three consecutive 10-days (decades) with rainfall ≥ 50 mm & the total rainfall ≥ 150 mm
- Criteria for the dry season onset : three consecutive decades with rainfall < 50 mm

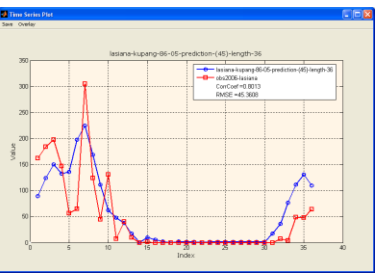
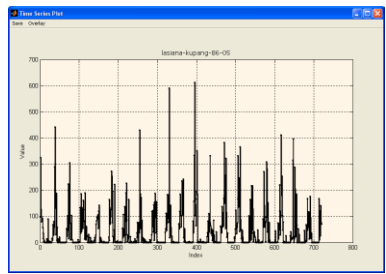
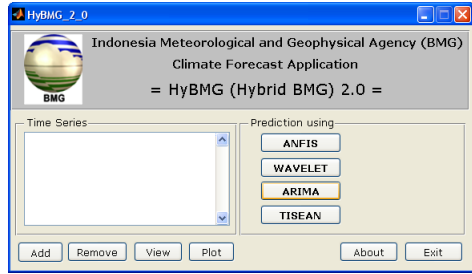
- Use statistical and dynamical model (CFSv2 and ECMWF) for decade timeseries rainfall prediction

Example : Malang District – East Java (Karang Ploso Station)

- Rainfall Forecasting and Validation 2008 (10-day format)



	ANFIS	WAV-ANFIS	WAV-ARIMA	ARIMA	TISEAN	ENSEMBLE
Correl	0.56	0.58	0.67	0.64	0.49	0.65
RMSE (mm)	56.52	54.65	42.13	43.28	55.85	45.98





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ONGOING/RELEVANT RESEARCH TOPICS

Journal of Geophysical Research: Atmospheres

Permana et al 2016

RESEARCH ARTICLE

10.1002/2015JD023893

Tropical West Pacific moisture dynamics and climate controls on rainfall isotopic ratios in southern Papua, Indonesia

Donaldi S. Permana^{1,2}, Lonnie G. Thompson¹, and Gesang Setyadi³

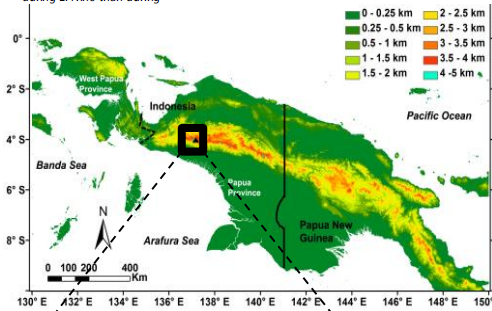
¹Byrd Polar and Climate Research Center and School of Earth Sciences, Ohio State University, Columbus, Ohio, USA,

²Research and Development Center, Indonesian Agency for Meteorology Climatology and Geophysics, Jakarta, Indonesia,

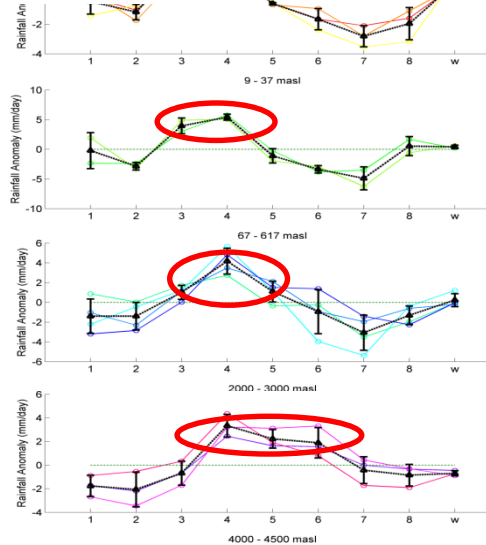
³Environmental Department, PT Freeport Indonesia, Timika, Indonesia

Key Points:

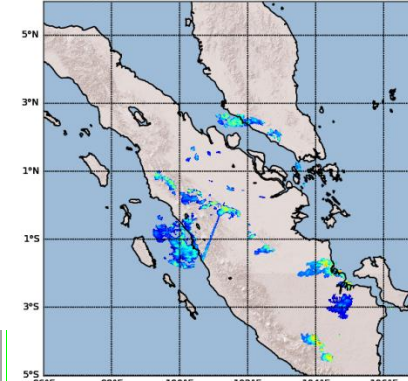
- First stable isotope analysis of rain from an altitudinal transect in Papua
- Seasonal $\delta^{18}O$ may reflect the temperature in clouds at mean condensation level
- Rainfall $\delta^{18}O$ are more enriched during El Niño than during



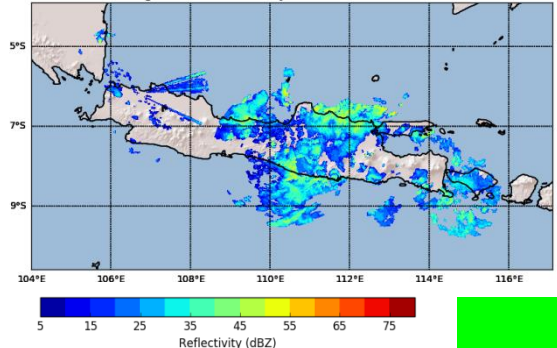
- PORT (9 masl)
- MP21 (27 masl)
- TMK (37 masl)
- KK (67 masl)
- MP50 (617 masl)
- TPR (~2000 masl)
- MILE66 (2350 masl)
- RCMP (2410 masl)
- MILE74 (2750 masl)
- GRS (~4000 masl)
- DISP (4109 masl)
- ALP (~4400 masl)



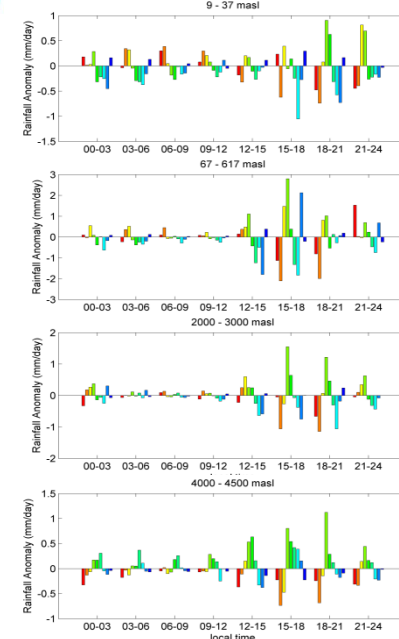
Mosaik Integrasi Radar Mandiri SUMATERA -201-70-10 2:-11 UTC



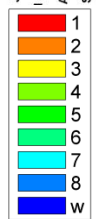
Mosaik Integrasi Radar Mandiri JAWA - BALI 2016-12-01 10:40 UTC



Focus on sub-seasonal to seasonal (S2S) variation and its relation with diurnal cycle at multi elevation station in southern



MJO phase weak



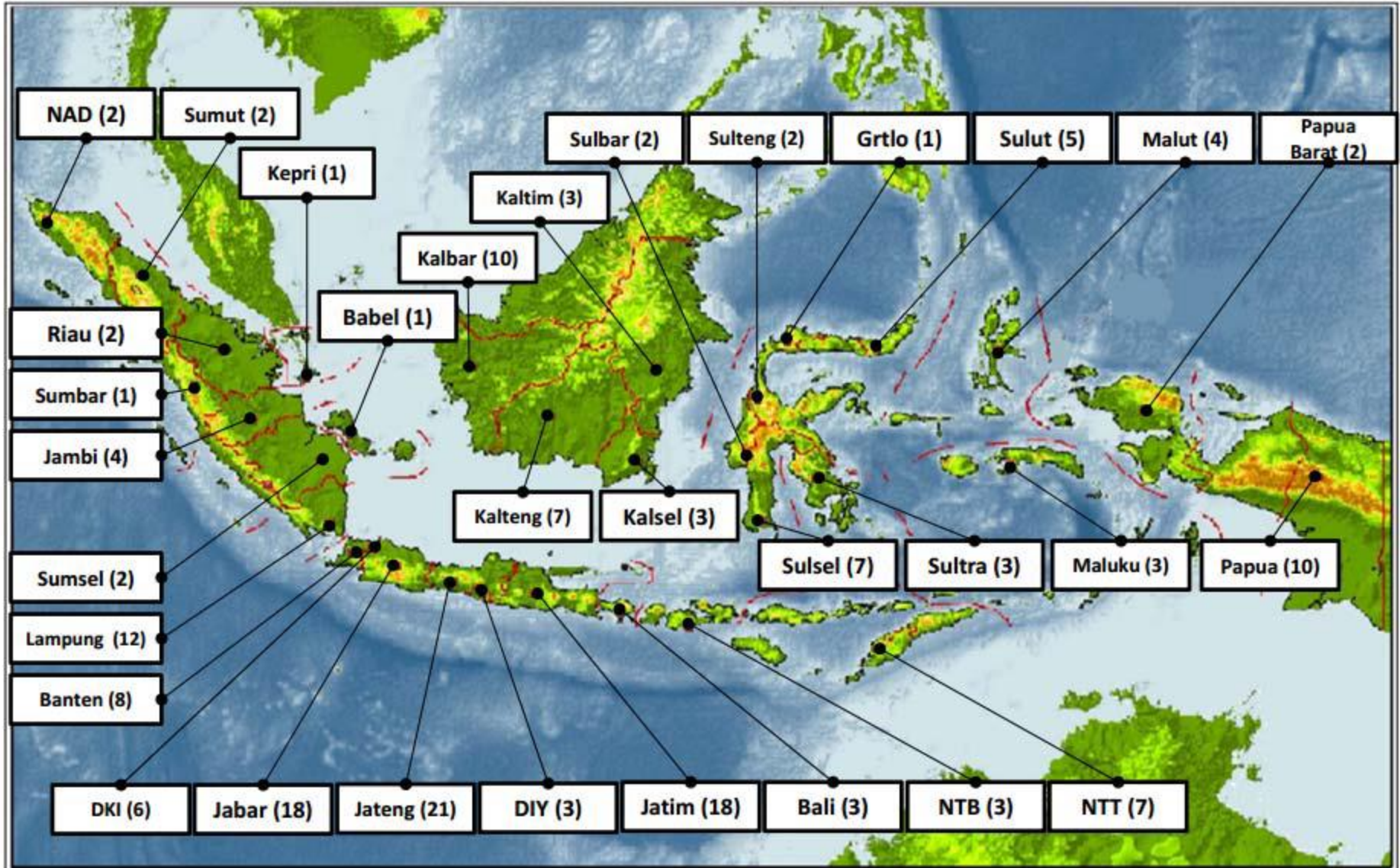
Permana et al (AGU, 2016)

- Future Plan: MJO signal identification from RADAR and radiosonde data to better understand the mechanism of MJO cycle over Maritime Continent



BMKG SUPPORTS TO YMC

BMKG AWS NETWORK



BMKG RADIOSONDE NETWORK

13 (2013), 5 (2014), 2 (2015) Stations





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THANK YOU