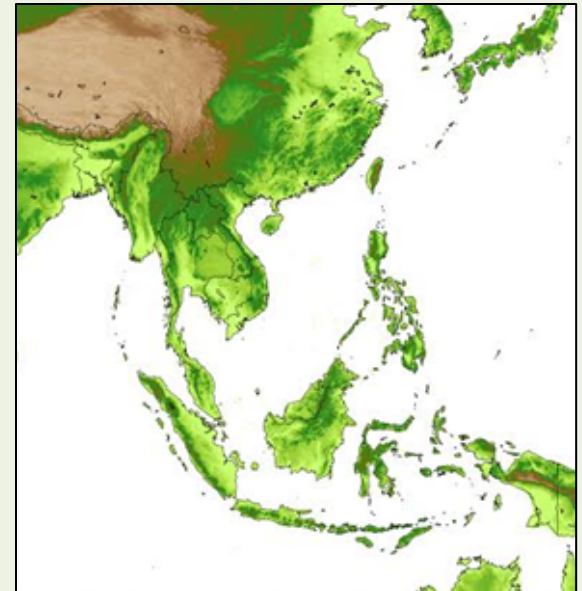


***On behalf of colleagues involved in SEACLID/
CORDEX Southeast Asia***



Outline

- Introduction / background / historical perspectives
- Domain, Resolution, GCMs/RCMs
- Sensitivity experiments & highlight of results
- Second workshop SEACLID/CORDEX SEA – Bangkok
- Concluding remarks

Countries within SEA

Country	Institutions	Members/Point of Contact/Emails
Malaysia	- Universiti Kebangsaan Malaysia (UKM) - National Hydraulic Research Institute of Malaysia (NAHRIM) - Malaysian Meteorological Department (MMD)	- Prof. Dr. Fredolin Tangang (UKM)[ftangang@gmail.com;tangang@ukm.my] - Dr. Liew Juneng (UKM)[juneng@ukm.my] - Mr. Mohd Syazwan Faizal (NAHRIM)[syazwan@nahrim.gov.my] - Mr. Zubaidi Johar (NAHRIM)[zubaidi@nahrim.gov.my] - Mr. Ling Leong Kwok (MMD)[llk@met.gov.my] - Mr. Kumarathan Subramaniam (MMD)[kumar@met.gov.my]
Indonesia	Indonesian Agency for Meteorology, Climatology & Geophysics (BMKG)	- Dr Edwin Aldrian(BMKG)[e_alldrian@yahoo.com] - Dr Dodo Gunawan(BMKG)[dodo.gunawan@bmkg.go.id]
Vietnam	Vietnam National University, Hanoi University of Science (VNU HUS)	- Prof. Phan Van Tan (HUS)[tanpv@vnu.edu.vn] - Dr. Thanh Ngo-Duc (HUS)[ngoducthanh@gmail.com]
Thailand	- Ramkhamhaeng University (RU) - Chulalongkorn University (CU)	- Asst Prof. Dr. Jerasorn Santisirisomboon (Ramkhamhaeng Univ)[jerasorn@ru.ac.th] - Dr. Patama Singhruck (Chulalongkorn Univ)[patama.s@chula.ac.th]
The Philippines	- Ateneo de Manila University (ADMU) - Manila Observatory (MO)	- Assoc. Prof. Dr. Gemma Narisma[gtnarisma@gmail.com] - Dr. Faye Cruz[faye.cruz@gmail.com]
Cambodia	Pannasastra University of Cambodia (PUC)	Mr. Sao Sythoun(PUC)[sythuonsao@yahoo.com]
Lao PDR	Department of Meteorology and Hydrology (DMH)	Mrs. Bouangeun Oudomdchit[bouangeun_ou@yahoo.com]

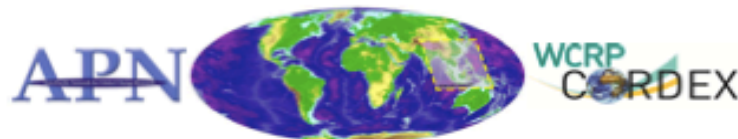
Countries outside SEA

Country	Institutions	Point of Contact/Emails
Australia	• CSIRO	• Dr John McGregor [John.Mcgregor@csiro.au]
United Kingdom	• Hadley Centre, UKMO	• Mr David Hein[david.hein@metoffice.gov.uk]
South Korea	• Apec Climate Center (APCC)	• Dr.Hongwen Yang[hwyangapcc@gmail.com]
Hong Kong SAR	• City University of Hong Kong (CityU)	• Dr. Chi Yung Francis Tam[franctam@cityu.edu.hk]



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~ Announce



High-resolution climate change scenarios are basic requirement for climate change impact, vulnerability and risk assessment studies at local and regional scales. Generation of such information requires downscaling of general circulation model (GCM) outputs. However, regional downscaling is a time-consuming and resource-expensive exercise. Given the overlapping domain, conducting a collaborative effort is in the best interest of countries within the Southeast Asia (SEA) region. Hence, SEACLID (Southeast Asia Climate Downscaling Experiment) is a collaborative climate downscaling project involving a number of countries in the Southeast Asia region. It was established under the Southeast Asia Regional Climate Initiative (SEARCI), a platform for scientists within the Southeast Asia region to collaborate in climate related projects. SEARCI was established during a workshop hosted by the VNU Hanoi University of Science from 2-3 August 2012. SEACLID is mainly funded by [Asia-Pacific Network \(APN\)](#)'s ARCP programme and funding within the groups that involved in the project. Current member countries include Indonesia, Malaysia, the Philippines, Thailand, Vietnam, Cambodia and Lao PDR. We aim to expand this network to other countries within the Southeast Asia as well as outside the region.

Recently SEACLID has been streamlined and integrated into the World Climate Research Programme (WCRP)'s Coordinated Regional climate Downscaling Experiment (CORDEX) and now known as SEACLID/CORDEX Southeast Asia (CORDEX-SEA) with Prof. Fredolin Tangang of the [National University of Malaysia](#) as its current coordinator. In addition to the original member countries, several countries pledged their commitment to participate in the project. These include Australia, UK, South Korea and Hong Kong SAR. We encourage other institutions from within and outside the region that have interest in regional climate over this region to become a collaborator of this project. Possible contributions can be downscaling additional GCMs or sharing resources.

SEACLID / CORDEX-SEA aims to downscale a number of CMIP5 GCMs for the Southeast Asia region through sharing-task basis among the institutions and countries involved. The products would be high-resolution climate change scenarios for the Southeast Asia region. Data portal would possibly be created for effective product dissemination to users in which [CORDEX](#) and [APN](#) data policies will be practiced. SEACLID/CORDEX-SEA will also provide a platform for capacity building and training especially for young scientists from within the region in regional climate modeling. The SEACLID/CORDEX-SEA outcome will enhance scientific understanding of regional climate change in the region. With the availability of high-resolution regional climate change scenarios, the number of climate change impact assessment studies is expected to increase. Eventually, this project would lead to increase in peer-review publications in the scientific, impacts and policy-related aspects of regional climate change and will narrow knowledge gaps in the region.

Further query about this project should be addressed to:

Prof. Fredolin Tangang
Project Coordinator
email: ftangang@gmail.com; tangang@ukm.my

Logos of Institutions involved in the Project:



The website is hosted by Universiti Kebangsaan Malaysia & maintained by Prof. Fredolin Tangang



(<http://www.ukm.my/seaclid-cordex>)

[9-10 June 2014]

Second Workshop of SEACLID, held in Bangkok from June 9-10. Information [read here](#)

[04 April 2014]

Dr Juneng represented SEACLID MARS Scientific Meeting in Ba

[13 Nov 2013]

Please download the [final report](#) for the 1st CORDEX-SEA work information, [read here](#)

[13 Nov 2013] We are please welcome [Malaysian Meteorology Dept.](#), new member of the SEACLID/CORDEX-SEA. [Read](#)

[28 Oct 2013] An Outreach II will be held in conjunction with workshop 20 Nov 2013. More i

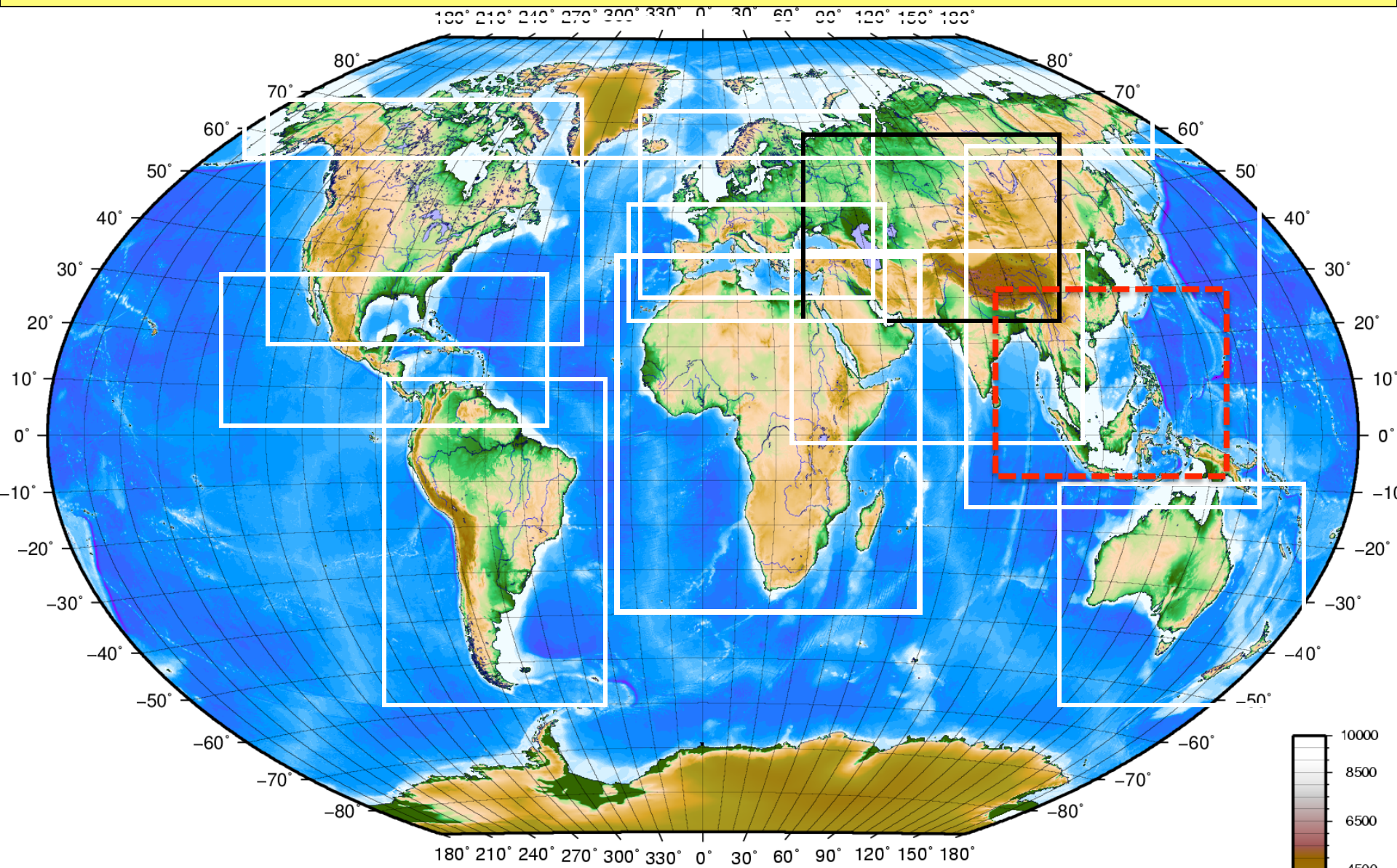
[27 Oct 2013] The 1st CORDEX-SEA will be held in Jakarta 18-19 Nov 2013. [Read](#)

[27 Oct 2013] CORDEX News published by CORDEX in its [web](#) [correx.jamstec.go.jp](#) or can i

[5 May 2013] - Dr Dado and of Indonesia has graciously off SEARCI /SEACLID /APN work synchronized with APN start di announced later.

[1 May 2013] - It's a pleasure proposal to APN's ARCP was a week. [Click](#)

CORDEX domains



Southeast Asia Regional Climate Initiative (SEARCHI)

**Initial Member Countries: Malaysia, Indonesia, Vietnam,
Philippines, Thailand**



First Workshop hosted by Hanoi University of Science, Vietnam, 2-3 Aug 2012

Southeast Asia Regional Climate Downscaling (SEACLID) Project

- Scientists from five SEA countries attended the workshop in Hanoi agreed to establish the Southeast Asia Regional Climate Initiative (SEARCI)
- SEARCI is a platform for SEA scientists to collaborate in regional climate related issues
- Southeast Asia Regional Climate Downscaling (SEACLID) Project was the first project under SEARCI
- Countries involved: Malaysia, Thailand, Indonesia, Vietnam, the Philippines and two additional countries (Cambodia and Lao PDR)
- An APN Funding was successfully secured for a three year period beginning October 2013
- Later SEACLID was streamlined into CORDEX and renamed as SEACLID / CORDEX Southeast Asia.

SEACLID/CORDEX SEA objectives

- On a sharing-task basis, carry out a joint regional climate downscaling for a common SEA domain with RegCM4 (and other RCMs) and a number of CMIP5 GCMs and RCPs.
- Collectively analyze model performances, create ensemble regional climate projection for the SEA region, and establish web portal and data center for efficient data dissemination freely to users.
- Conduct a number of workshop and disseminate findings through peer-reviewed publications & policy relevant publications

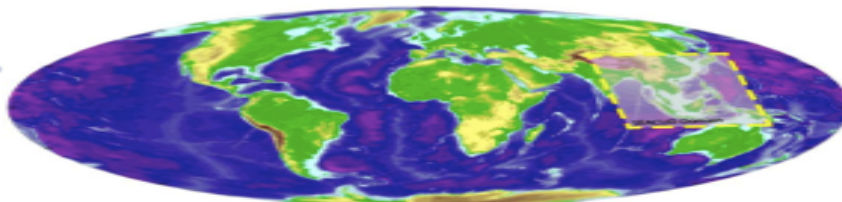
SEACLID

CORDEX-Southeast Asia



SEACLID / CORDEX-SEA First Workshop
Nov 18-20, 2013, hosted by BMKG

APN

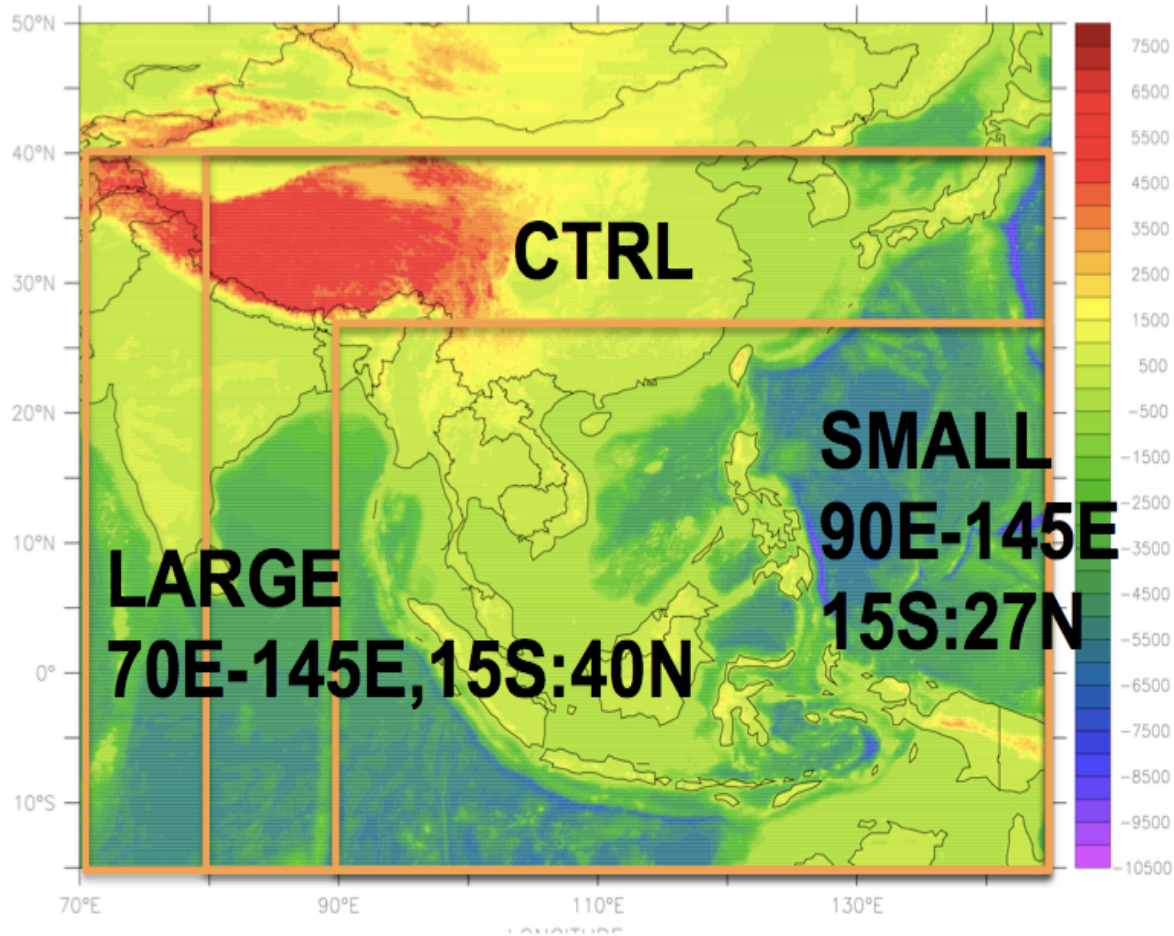


WCRP
CORDEX

Pledged Commitments in SEACLID/ CORDEX SEA

Country	GCM	Institution & Country developed the GCM	RCP	RCM
Vietnam	CNRM-CM5	Centre national de Recherches Meteorologiques, France	RCP8.5, 4.5	RegCM4
Philippines	HadGEM2	Hadley Centre, UK	RCP8.5, 4.5	RegCM4
Thailand	MPI-ESM-MR	Max Planck Institute for Meteorology, Germany	RCP8.5, 4.5	RegCM4
Thailand	EC-Earth	EC-Earth consortium	RCP8.5, 4.5	RegCM4
Indonesia	ACCESS1.3	CSIRO, Australia	RCP8.5, 4.5	RegCM4
Malaysia	CanESM2	Canadian Centre for Climate Modeling and Analysis, Canada	RCP8.5, 4.5	RegCM4
Malaysia	IPSL-CM5A-LR	Institute Pierre-Simon Laplace, France	RCP8.5, 4.5	RegCM4
Malaysia	GFDL-ESM2M	GFDL, USA	RCP8.5, 4.5	RegCM4
Australia	CNRM-CM5	Centre national de Recherches Meteorologiques, France	RCP8.5	CCAM
Australia	CCSM4	NCAR, USA	RCP8.5	CCAM
Australia	ACCESS1.3	CSIRO, Australia	Australia	CCAM
Hong Kong SAR	CCSM or CESM	NCAR, USA	Hong Kong SAR	WRF
United Kingdom	HadGEM2-ES	Hadley Centre, UKMO	United Kingdom	PRECIS
South Korea	HadGEM2-AO	Hadley Centre, UKMO	South Korea	WRF

CORDEX SEA Domain



Original plan:

**Domain: 70E-145E,
15S-40N**

Resolution: 36 km x 36 km

Revised plan :

**Domain: 90E-145E,
15S-27N**

Resolution: 25 km x 25 km

RegCM4.3 Sensitivity Experiments

- Domain: 36 km, 81.14°E-143.86°E; 15.04°S ~ 39.84°N
 - PBL: Holtslag (1990)
 - Radiation: CCSM
 - Large scale moisture: SUBEX (Pal et al. 20)
 - Land-surface treatment: BATSe
 - Cumulus parameterization:
 - Grell / Arakawa-Schubert (closure)
 - MIT Emanuel
 - MIT (O) / Grell (L)
 - Grell (O) / MIT (L)
 - Grell / Fritch-Chappell (closure)
 - Kuo
 - Ocean flux treatment:
 - BATSe
 - Zeng (iocnrough=1)
 - Zeng (iocnrough=2)
- 18 Simulations (100% completed)
- Lateral boundary conditions: ERA Interim
 - Run length: 1989 – 2008 (20 years)

Country Assignments: Task-sharing Basis

Run #	Country	CPS (icup)	Closure (igcc)	Ocean flux (iocnflx)	Run status	Uploading to HUS server
Exp01	Indonesia	Grell	Arakawa-Schubert	BAT S1e	Re-run	20 Feb. (estimated)
Exp02	Indonesia	Grell-CLM	Arakawa-Schubert	Zeng (iocnrough=1)	Done	Monthly&Daily CLM Done
Exp03	Indonesia	Grell	Arakawa-Schubert	*Zeng (iocnrough=2)	Re-run	20 Feb. (estimated)
Exp04	Malaysia	MIT Emanuel	Arakawa-Schubert	BAT S1e	Done	Monthly&Daily (Done)
Exp05	Malaysia	MIT Emanuel	Arakawa-Schubert	Zeng (iocnrough=1)	Done	Monthly&Daily (Done)
Exp06	Malaysia	MIT Emanuel	Arakawa-Schubert	*Zeng (iocnrough=2)	Done	Monthly&Daily (Done)
Exp07	Philippines	Emanuel (land) + Grell (ocean)	Arakawa-Schubert/ Fritsch-Chappell	BAT S1e	100% Feb 2014	uploading
Exp08	Philippines	Emanuel (land) + Grell (ocean)	Arakawa-Schubert/ Fritsch-Chappell	Zeng (iocnrough=1)	Done	uploading
Exp09	Philippines	Emanuel (land) + Grell (ocean)	Arakawa-Schubert/ Fritsch-Chappell	*Zeng (iocnrough=2)	Done	uploading

Exp10	Thailand	Grell	Fritsch-Chappell	BAT S1e	94% Feb 2014	not yet
Exp11	Thailand	Grell	Fritsch-Chappell	Zeng (iocnrough=1)	100% Feb 2014	not yet
Exp12	Thailand	Grell	Fritsch-Chappell	*Zeng (iocnrough=2)	100% Feb 2014	Monthly done, Daily 20%
Exp13	Vietnam	Grell (land) + Emanuel (ocean)	Arakawa-Schubert	BAT S1e	Done	Monthly&Daily (Done)
Exp14	Vietnam	Grell (land) + Emanuel (ocean)	Arakawa-Schubert	Zeng (iocnrough=1)	Done	Monthly&Daily (Done)
Exp15	Vietnam	Grell (land) + Emanuel (ocean)	Arakawa-Schubert	*Zeng (iocnrough=2)	Done	Monthly&Daily (Done)
Exp16	Malaysia	Kuo	Arakawa-Schubert	BAT S1e	Done	Monthly&Daily (Done)
Exp17	Malaysia	Kuo	Arakawa-Schubert	Zeng (iocnrough=1)	Done	Monthly&Daily (Done)
Exp18	Thailand	Kuo	Arakawa-Schubert	*Zeng (iocnrough=2)	93%, 200708	Not yet

Joint Analysis of Sensitivity Experiment Outputs

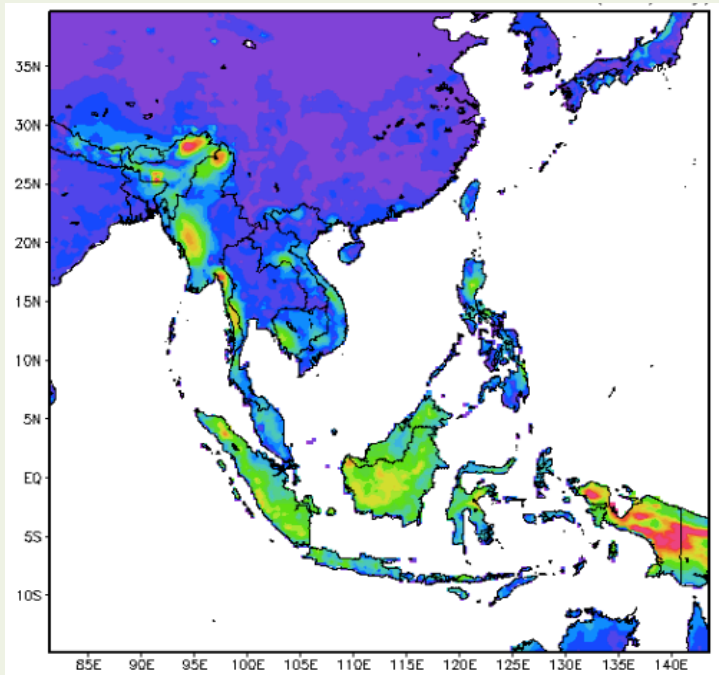
Country	Variables
Malaysia	Rainfall
The Philippines	Temperature
Vietnam	Extremes
Thailand	Circulation
Indonesia	Tmax, Tmin

Gridded observation products

Annual mean rainfall:

GPCC, CRU, APHRODITE, TRMM

largest - lowest

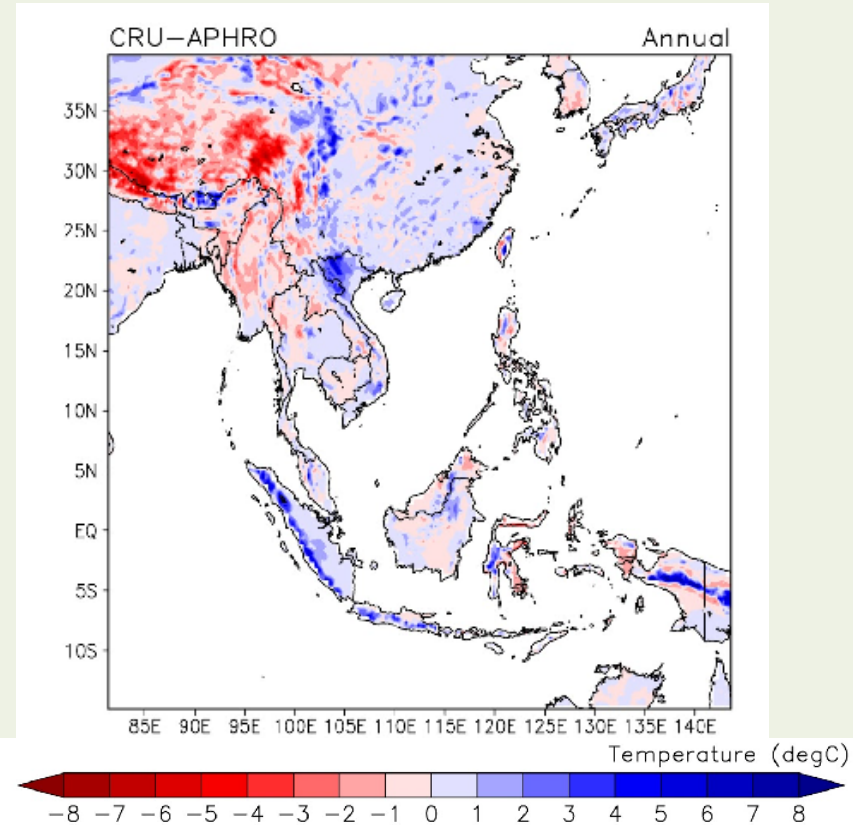


Unit:
mm/day



Annual mean temperature:

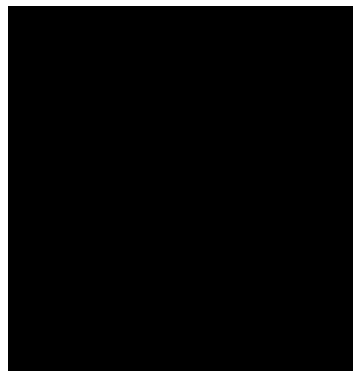
CRU, APHRODITE



- *Variations among the observational products can be large.*
- *Strategy: compare with multiple gridded products.*

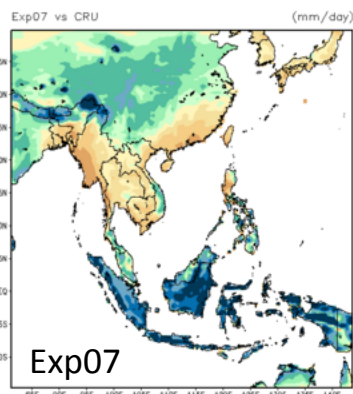
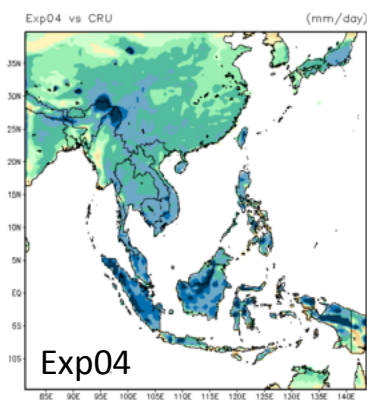
Annual Precipitation Biases (vs CRU)

Grell/AS



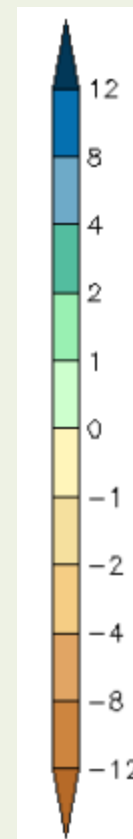
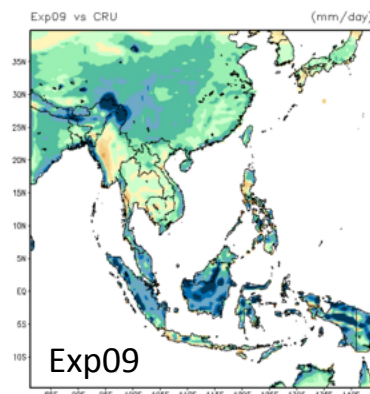
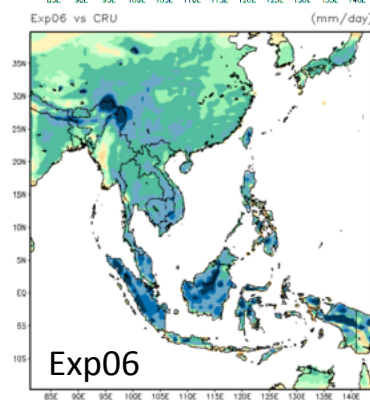
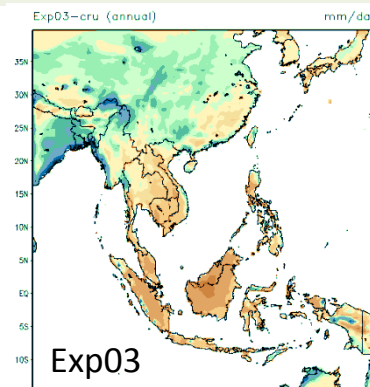
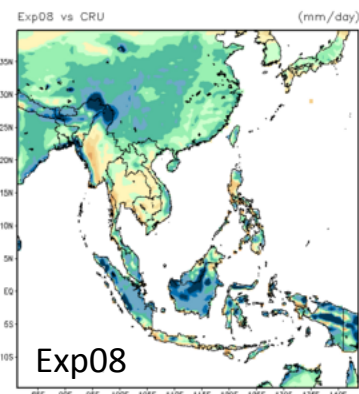
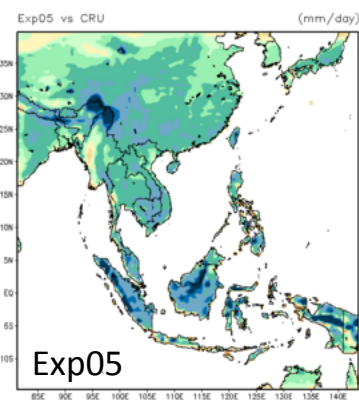
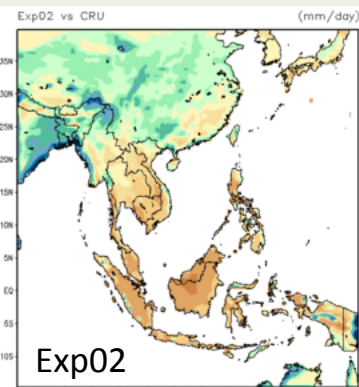
MIT

Too wet !!!



Still too wet over
the equatorial regions!

MIT(L)/Grell(O)



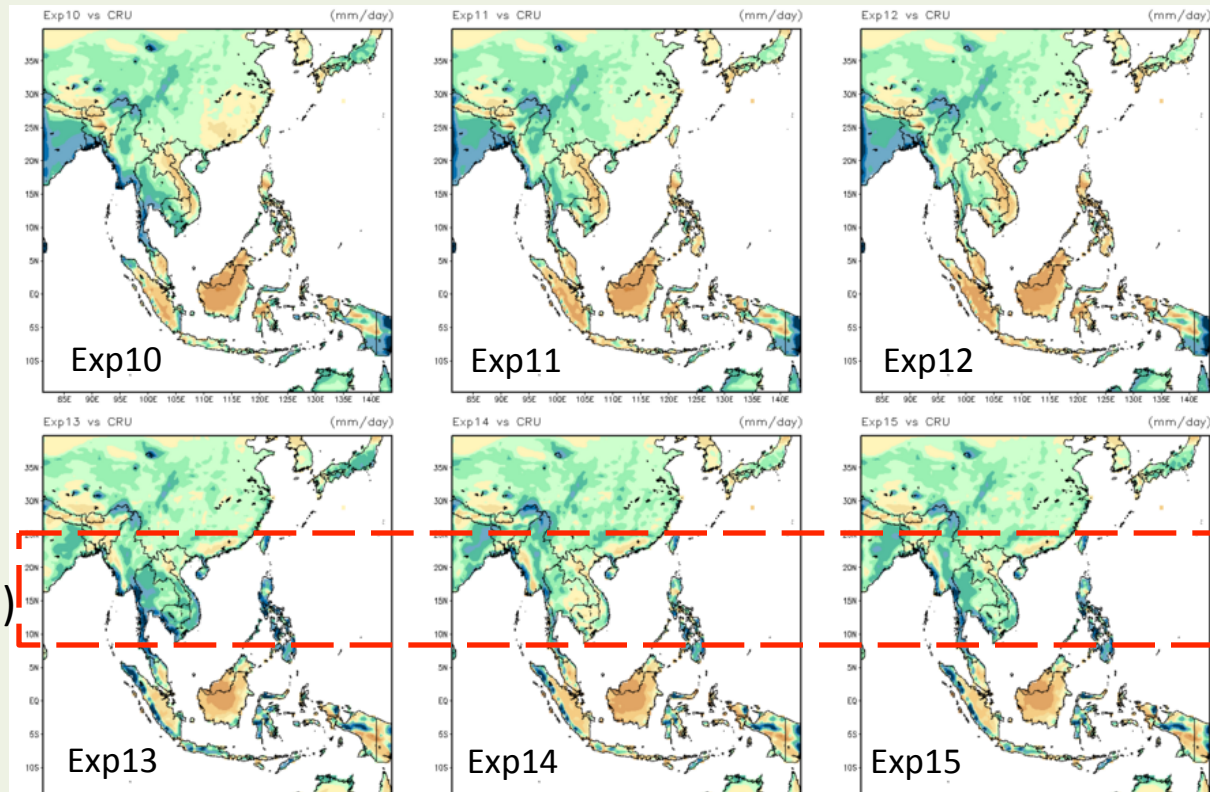
BATS1e

Zeng (iocnrrough=1)

Zeng (iocnrrough=2)

Annual Precipitation Biases (vs CRU) – Con't

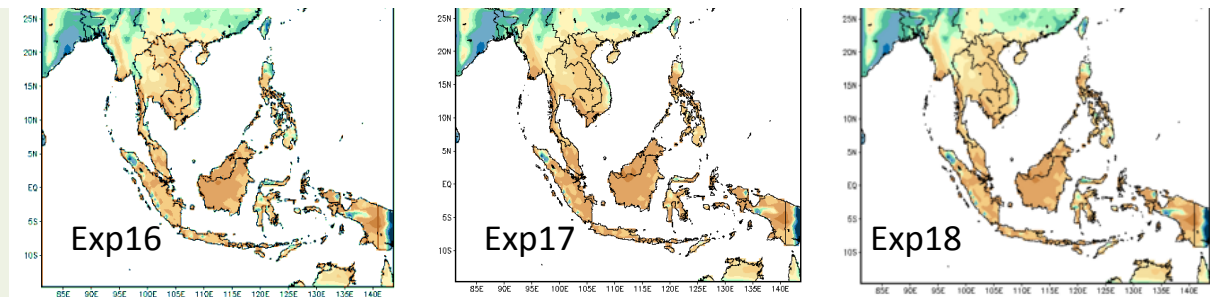
Grell/FC



Grell(L)/MIT(O)

Most of the simulations produce drier climate over the equatorial regions, except that used MIT over the land.

Kuo



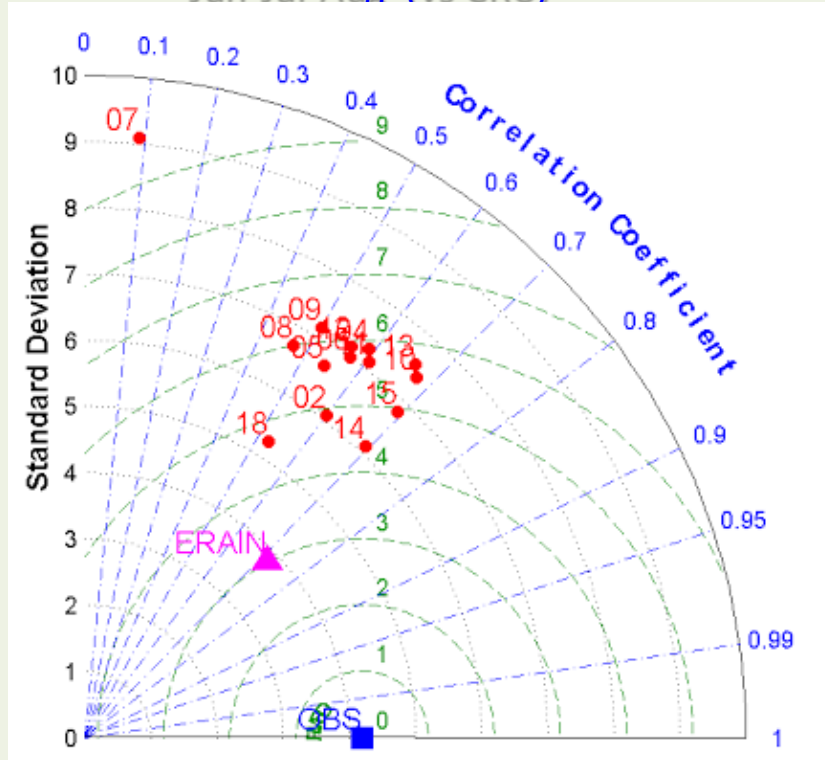
BATS1e

Zeng (iocnrough=1)

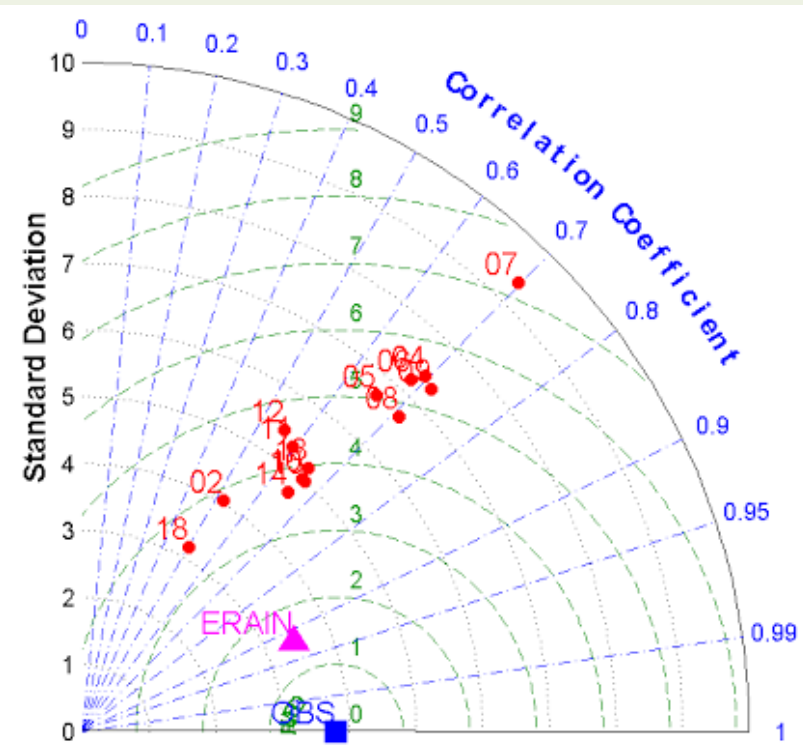
Zeng (iocnrough=2)

Spatial comparison using Taylors Diagrams

Jun-Jul-Aug (vs CRU)

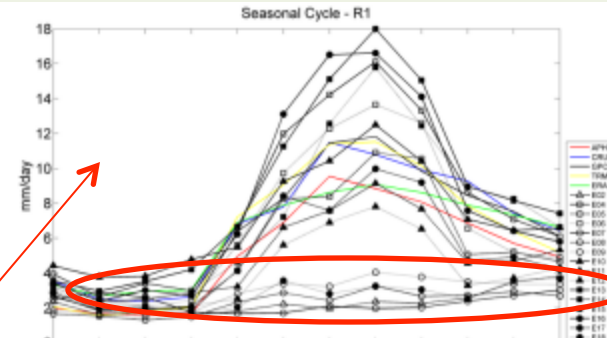
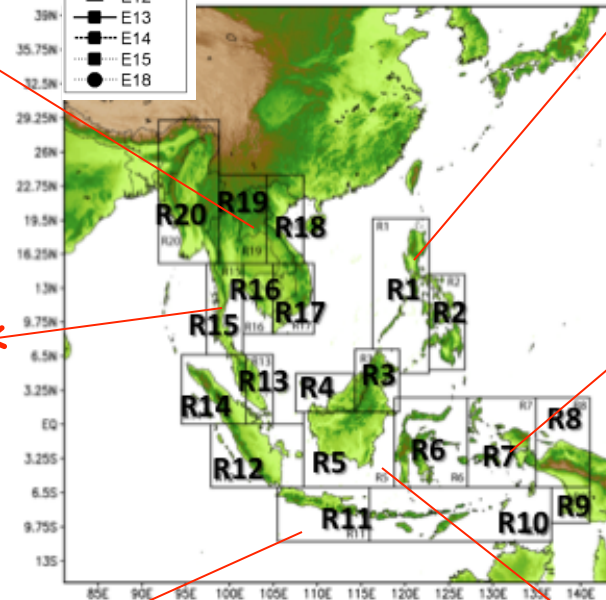
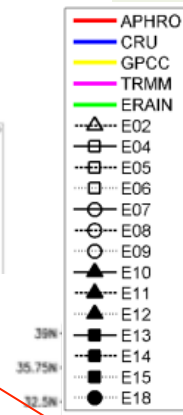
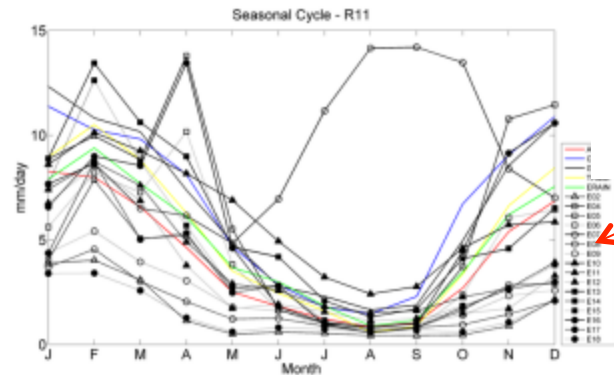
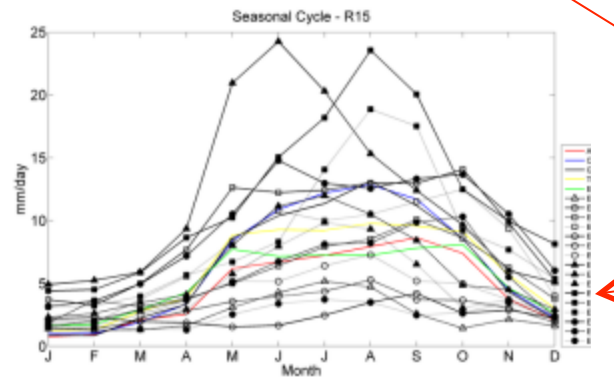
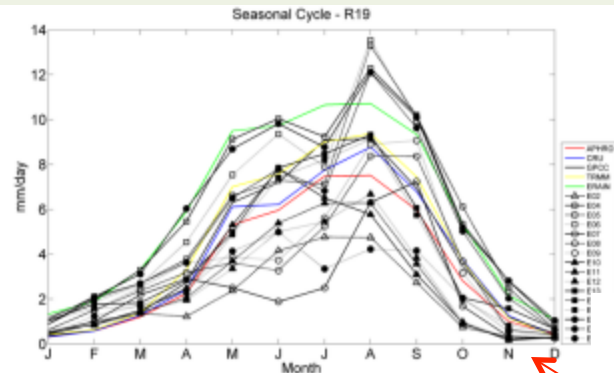


Dec-Jan-Feb (vs CRU)

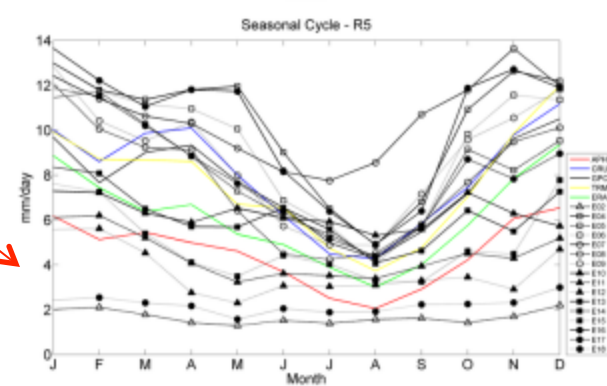
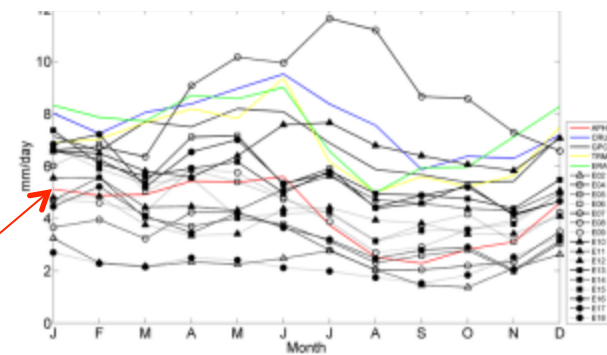


- Generally, the simulations have much higher spatial variations.
- Correlation – moderate (~ 0.5 - 0.7) – complex land/coastal configuration.
- Inter-model variations higher during the winter season.
- Exp14 (Grell(L)/MIT(O)) tends to have smaller RMSE.

Rainfall Annual Cycles

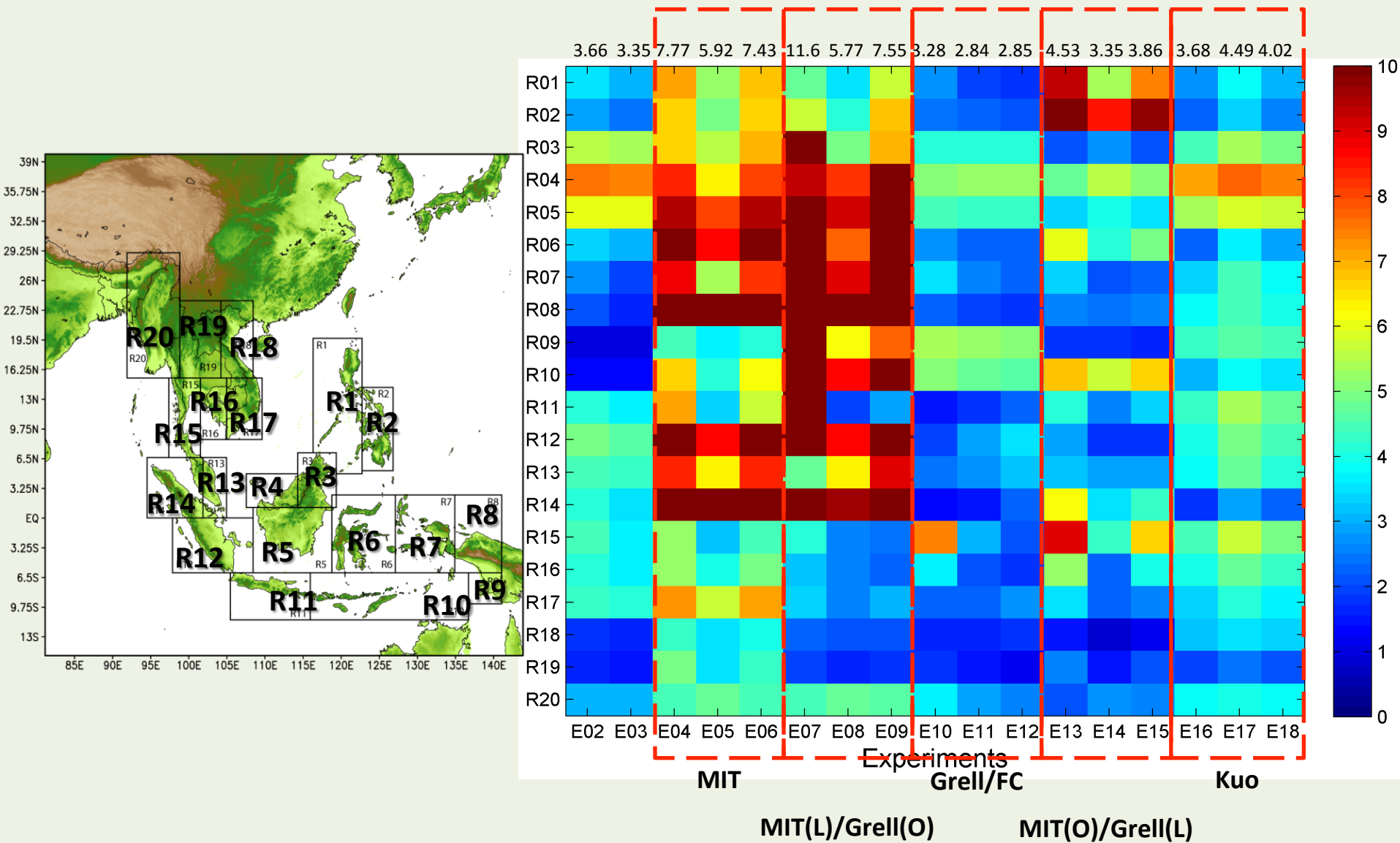


Grell/AS, Grell(O)/MIT(L), Kuo



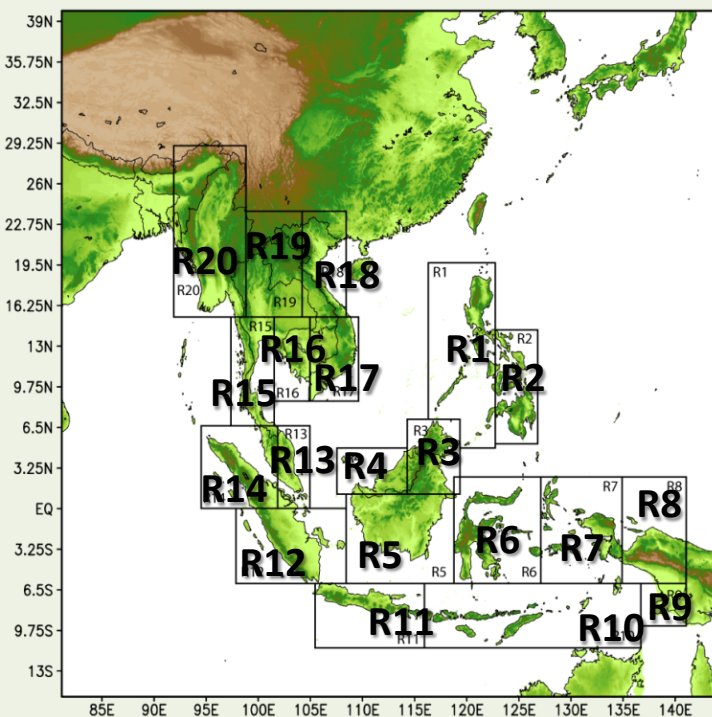
- The variations among the observations can be large.
- Generally, most simulations capture the seasonal cycles but others fail.

RMSE of the rainfall seasonal cycles (vs. CRU)

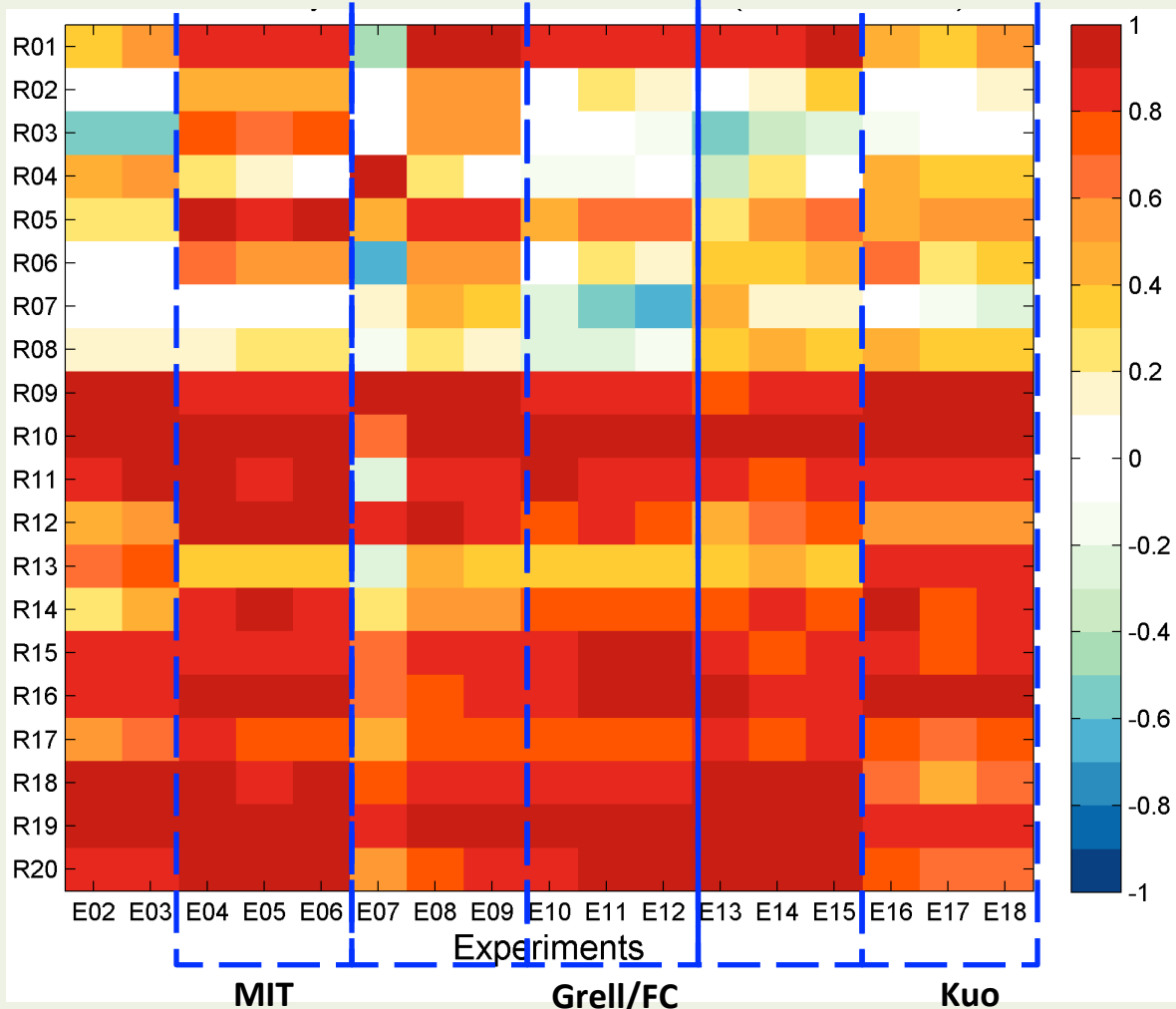


- Zeng (iocnrough=1) usually have smaller RMSEs of the annual curves

Correlation coefficient of the rainfall seasonal cycles (vs. CRU)



Median: 0.49 0.53 0.72 0.70 0.71 0.31 0.69 0.68 0.52 0.56 0.53 0.56 0.61 0.63 0.62 0.55 0.60

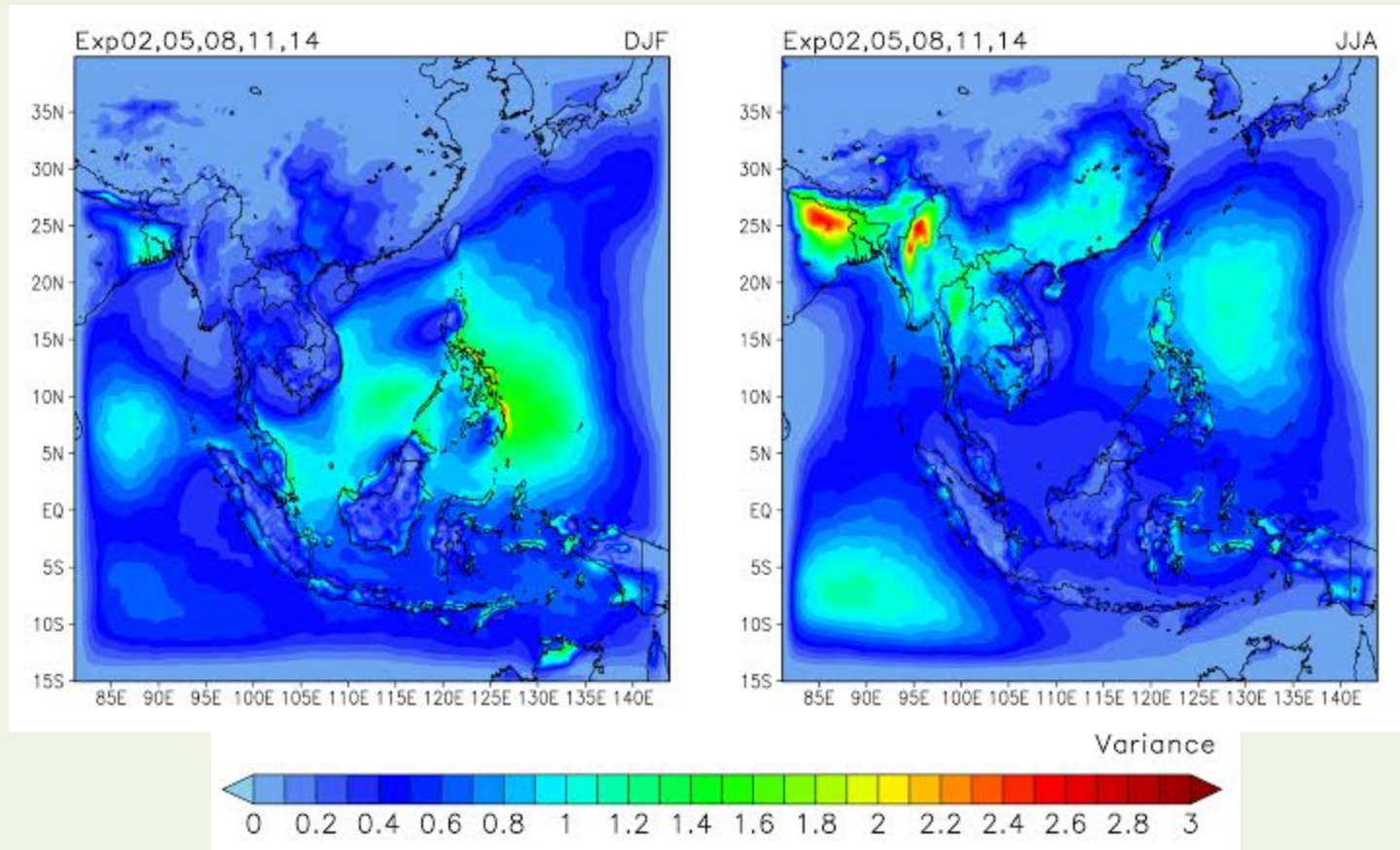


MIT(L)/Grell(O)

MIT(O)/Grell(L)

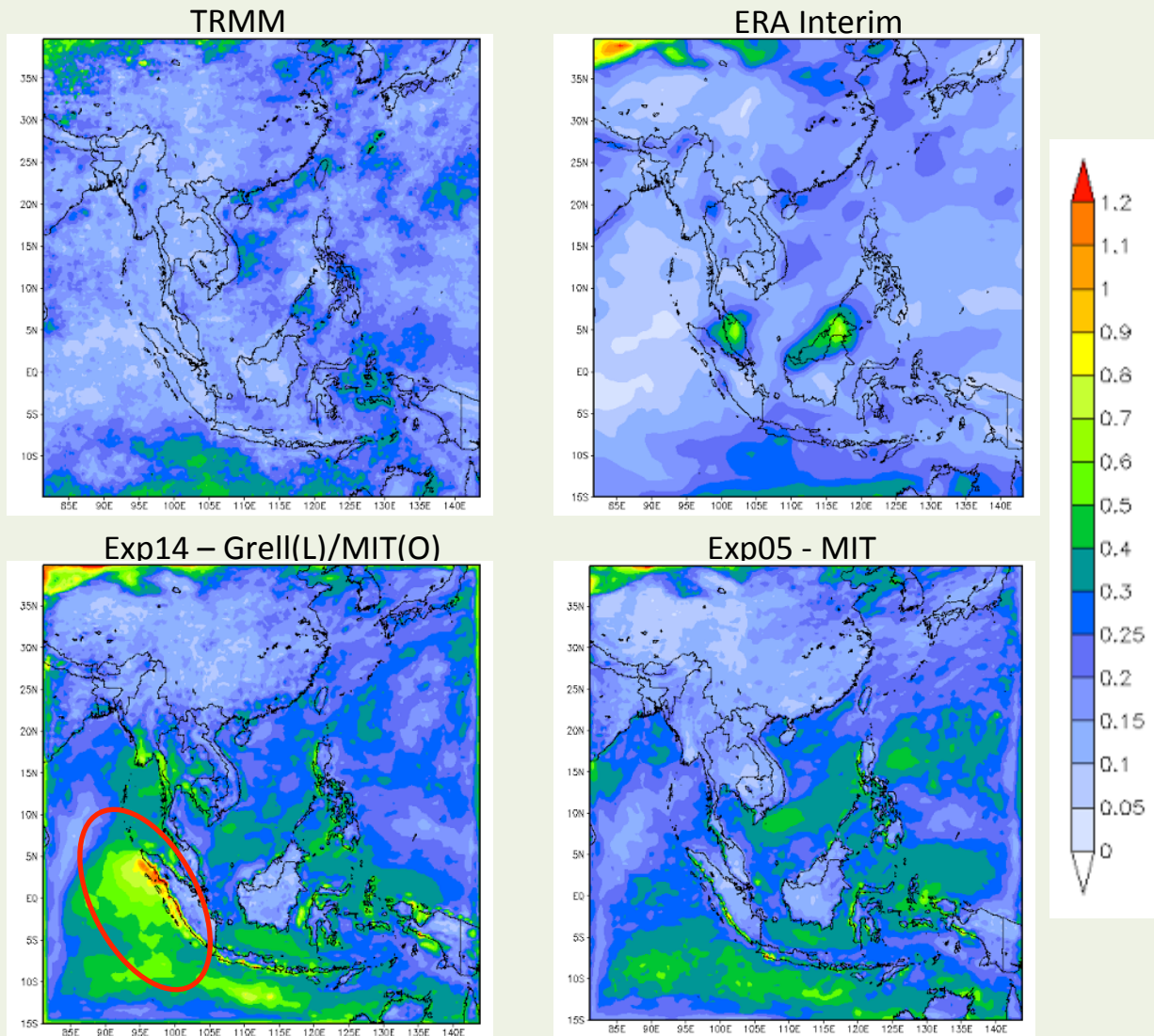
Where is the simulations most sensitive to the convective parameterization?

Variance of the simulated seasonal rainfall values [Zeng (iocnrough=1)]



- Winter: east of Philippines/western Pacific
- Summer: over the Indochina / Myanmar regions (land).
- Regions over the equator are generally less sensitive to cumulus parameterization

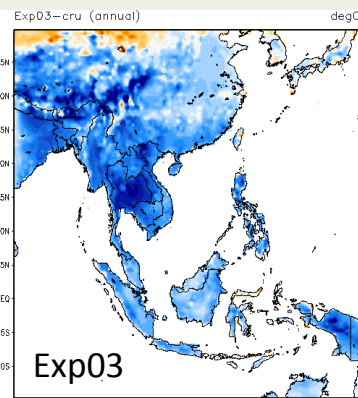
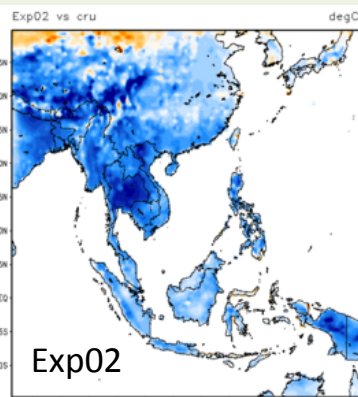
Coefficient of variations of the annual rainfall (1999-2008)



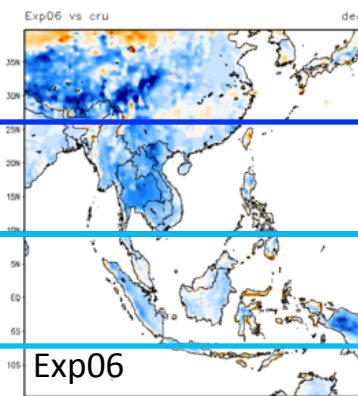
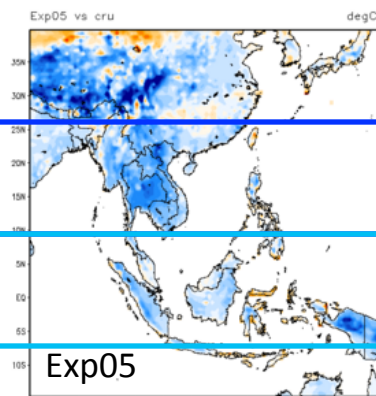
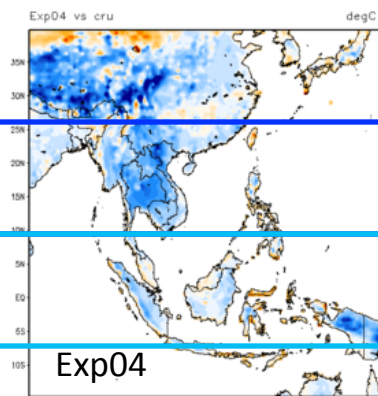
- Generally stronger interannual variability in both the Grell(L)/MIT(O) and MIT.
- Very strong inter-annual variability over eastern Indian Ocean in Grell(L)?MIT(O)

Annual mean temperature biases (vs. CRU)

Grell/AS



MIT

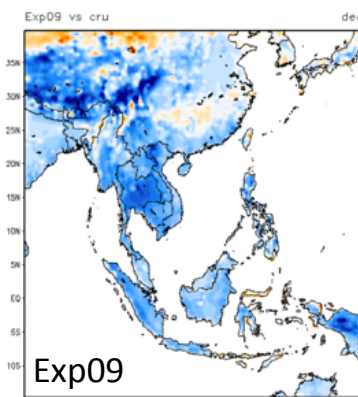
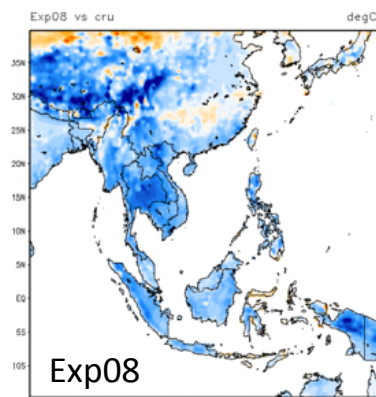
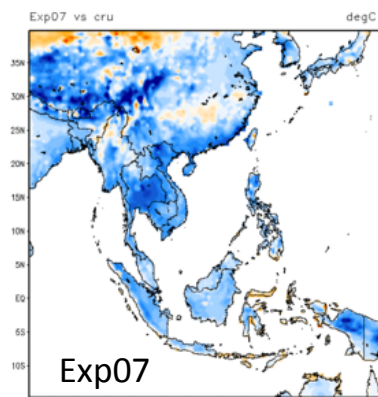


Exp04

Exp05

Exp06

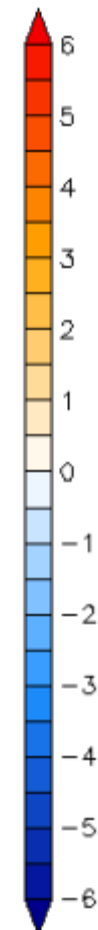
MIT(L)/Grell(O)



Exp07

Exp08

Exp09

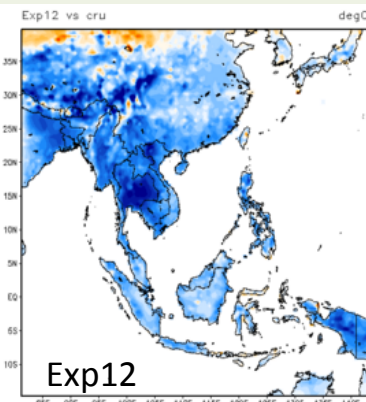
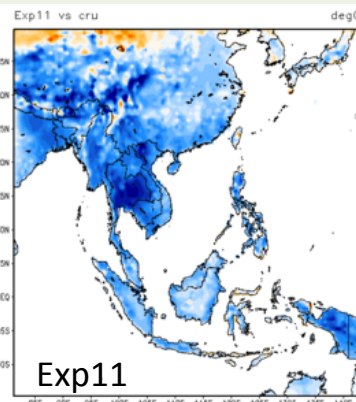
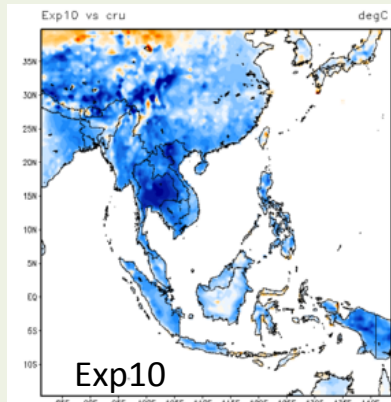


BATS1e

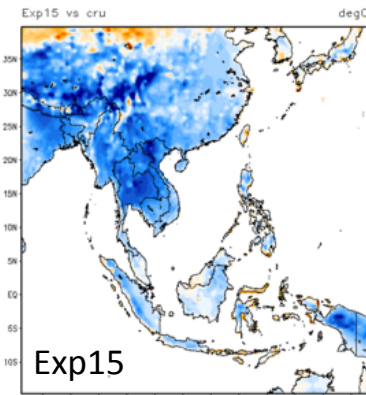
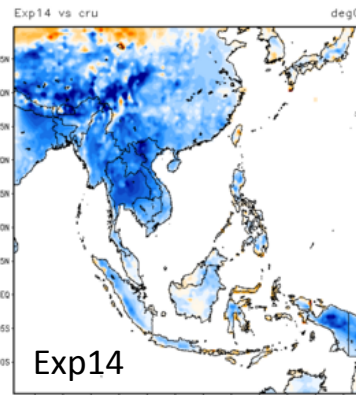
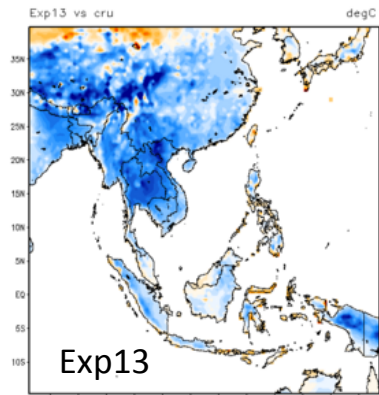
Zeng (iocnrough=1)

Zeng (iocnrough=2)

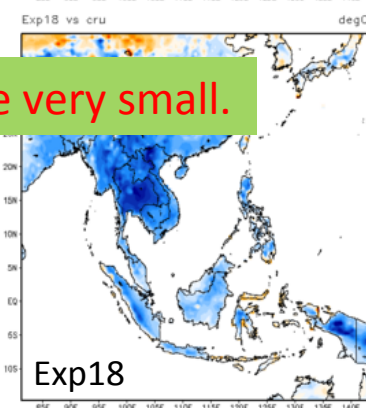
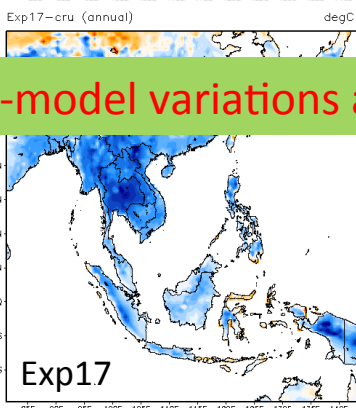
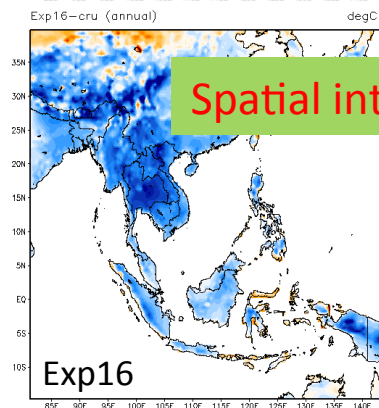
Grell/FC



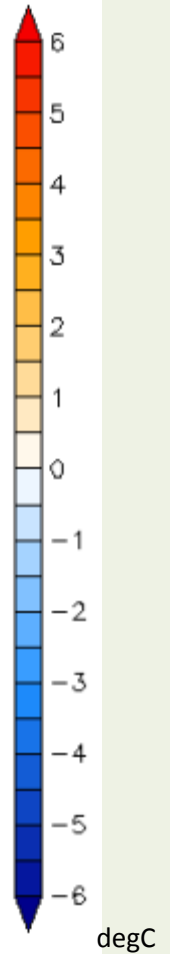
Grell(L)/MIT(O)



Kuo



Spatial inter-model variations are very small.



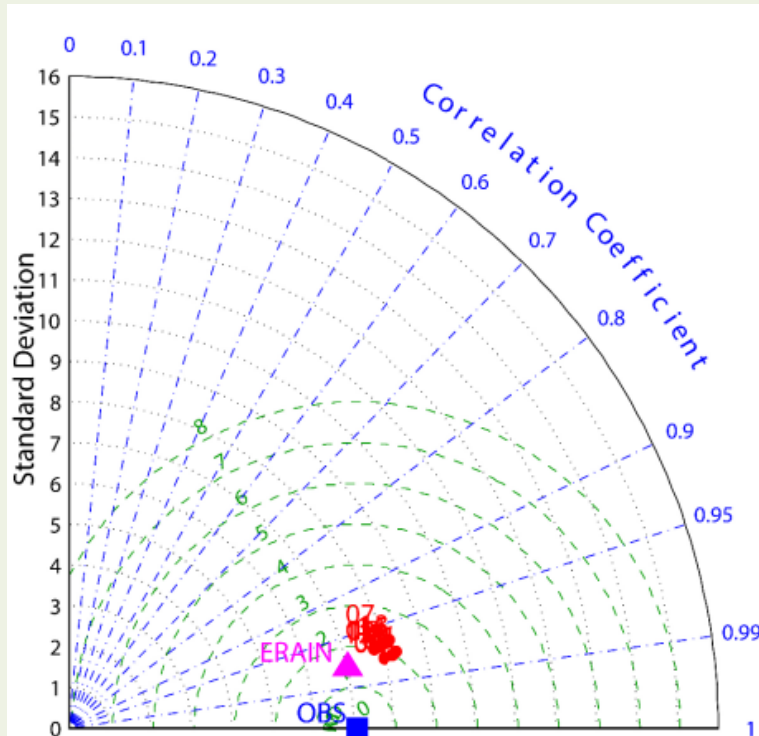
BATS1e

Zeng (iocnrough=1)

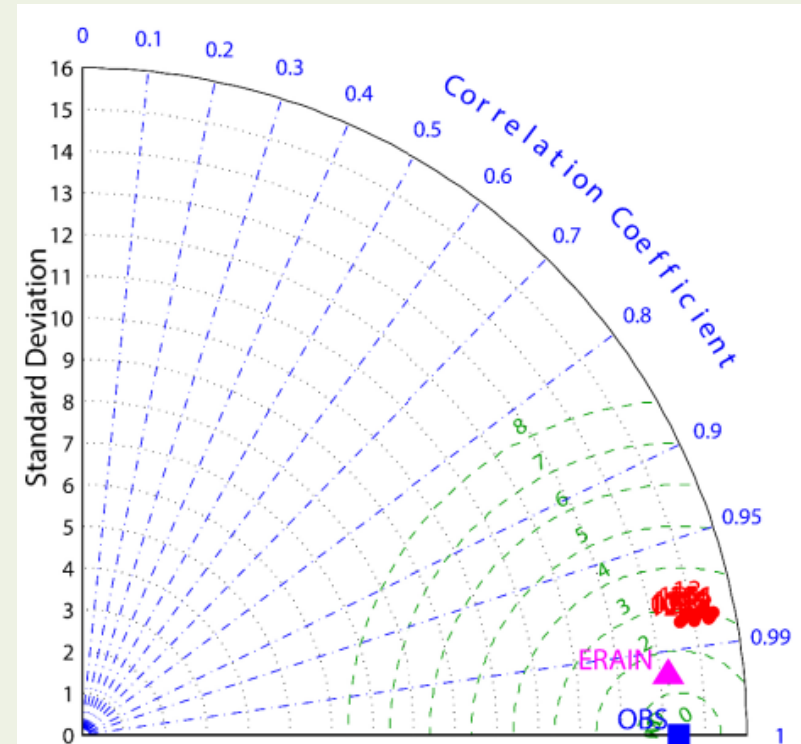
Zeng (iocnrough=2)

Taylor's Diagrams (spatial comparison)

Jun-Jul-Aug (vs CRU)

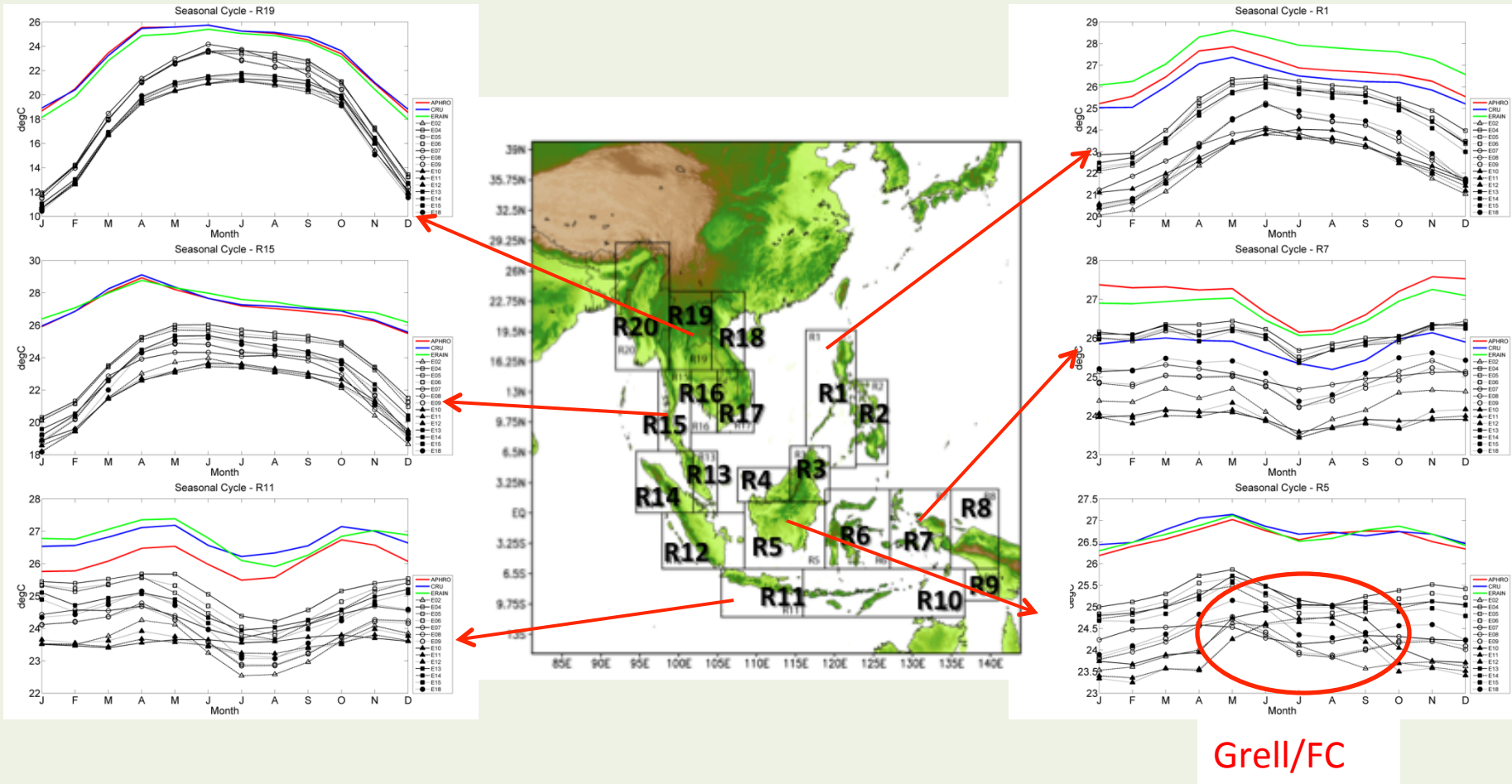


Dec-Jan-Feb (vs CRU)



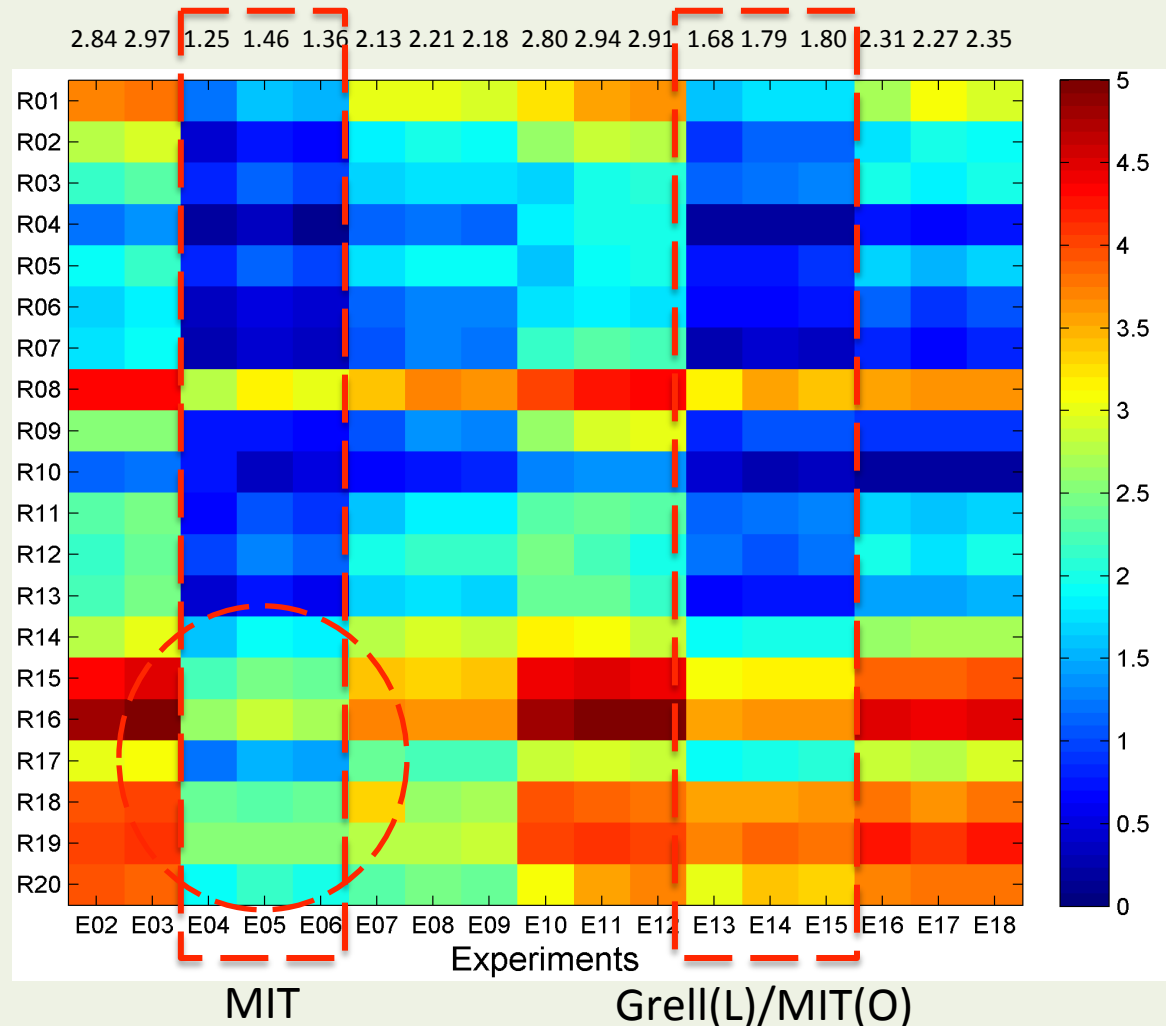
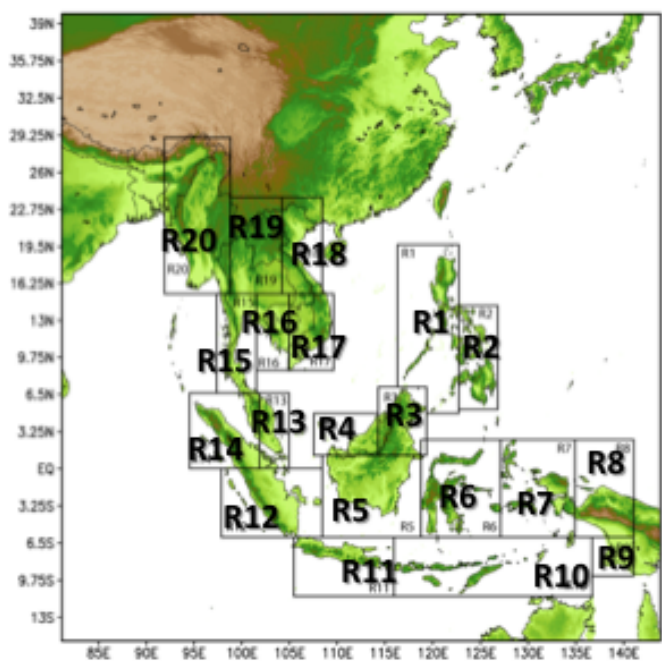
- Unlike the rainfall, all the simulated mean temperature spatial patterns show high fidelity and consistency.
- Higher spatial correlations between the modeled and the observed values.

Temperature annual cycles



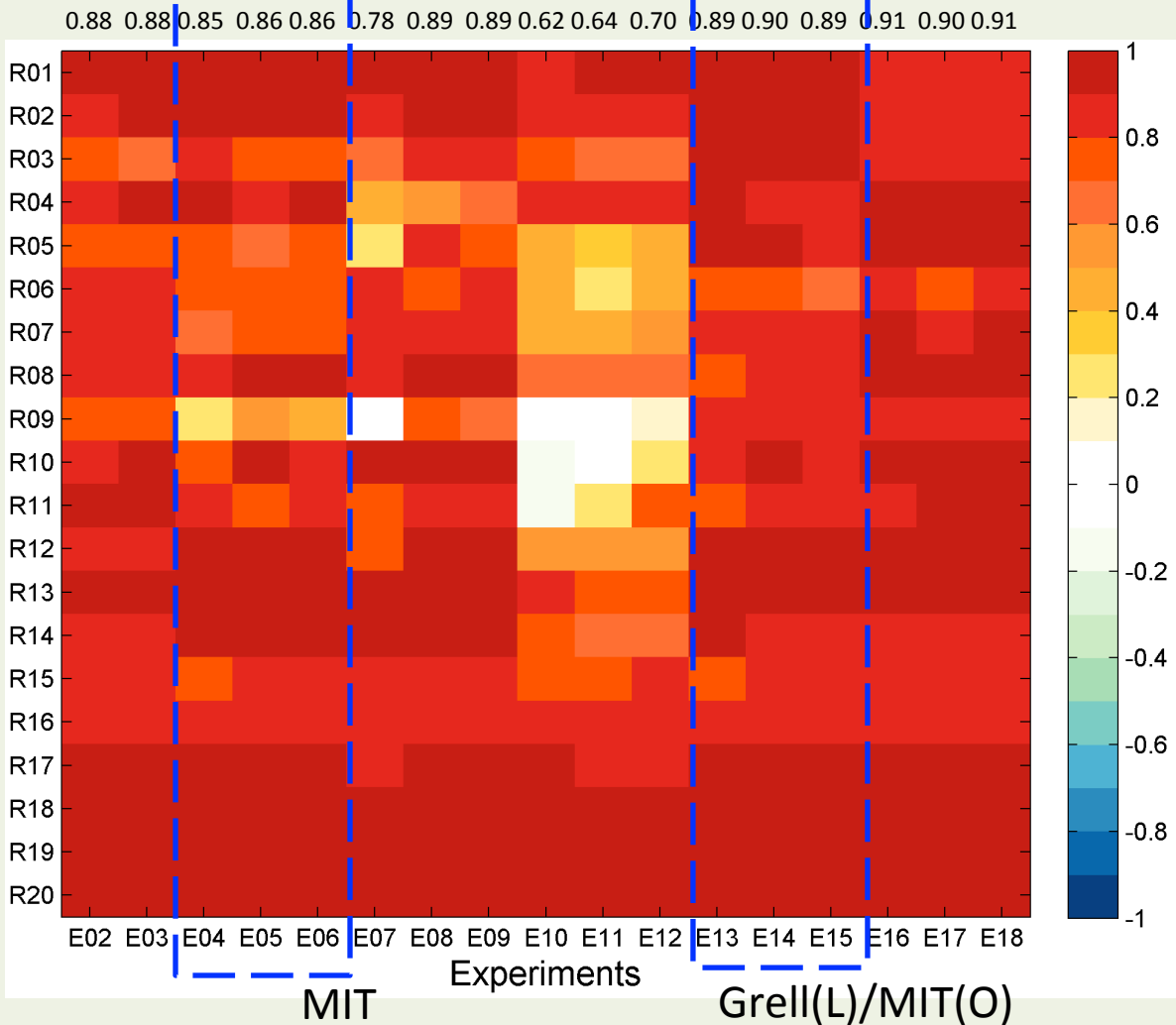
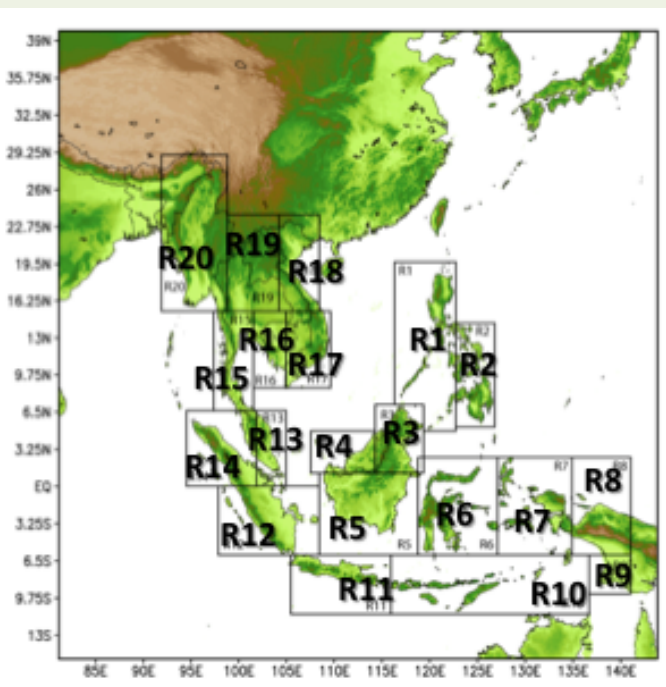
- *The surface air temperature annual cycles are generally well reproduced, but with notable cold biases.*

RMSE of the temperature seasonal cycles (vs. CRU)



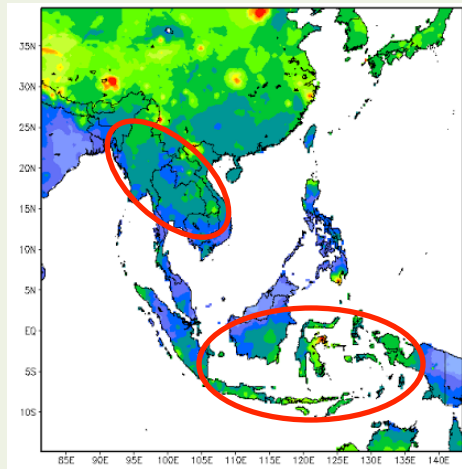
- Less sensitive across the different ocean flux treatments.
- MIT scheme has better skills.

Corr of the temperature seasonal cycles (vs. CRU)

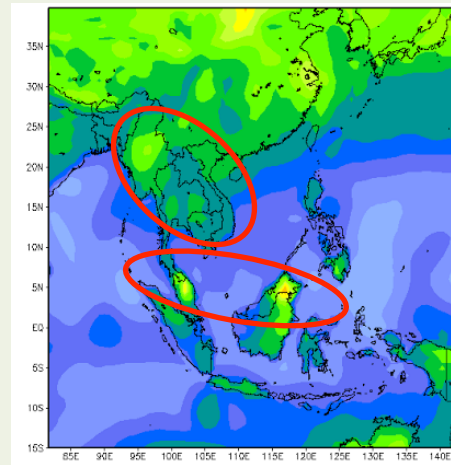


Standard deviation of the annual mean temperature

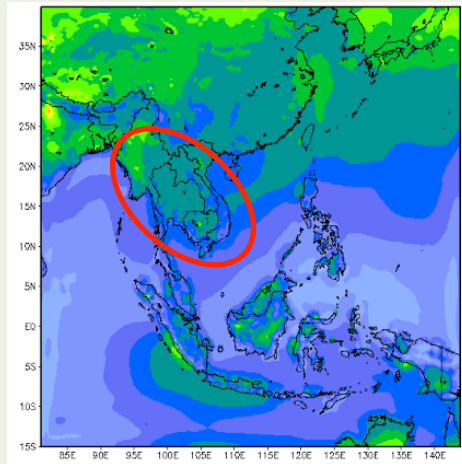
APHRODITE



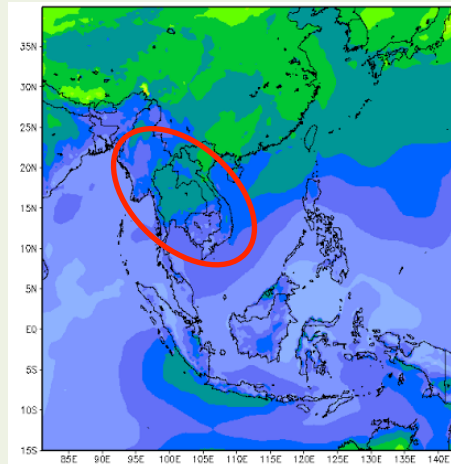
ERA Interim



Exp14 – Grell(L)/MIT(O)

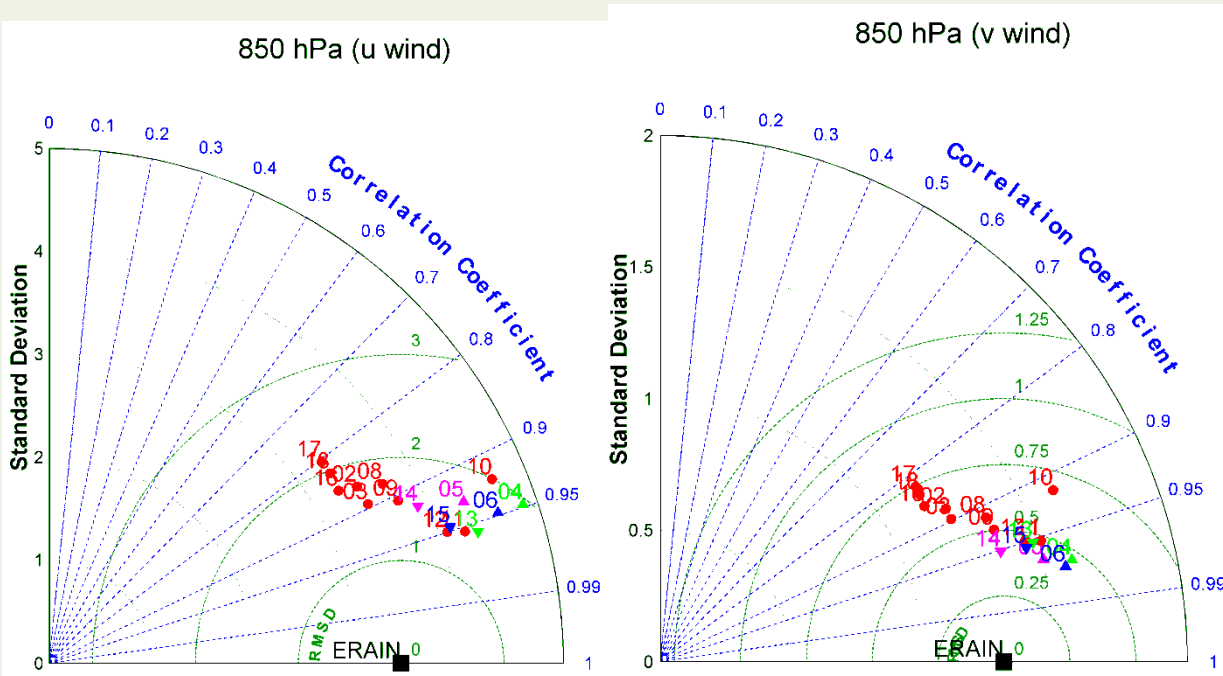


Exp05 - MIT

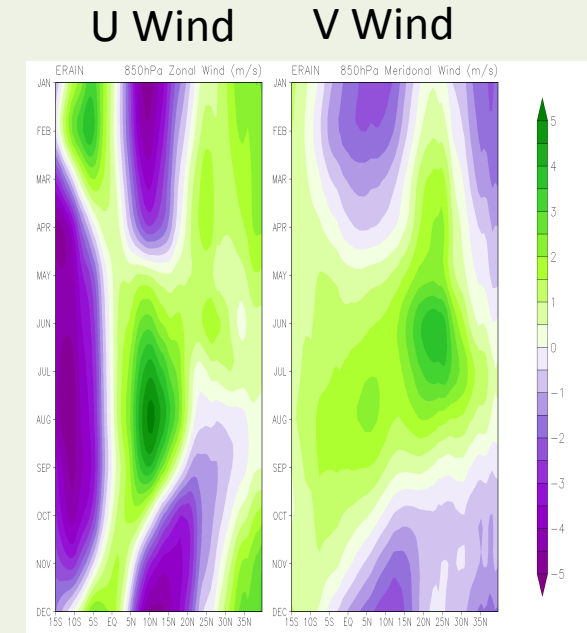


- Lower temperature interannual variabilities in the simulations, particularly Exp05 using MIT scheme.*

Monsoon Circulation

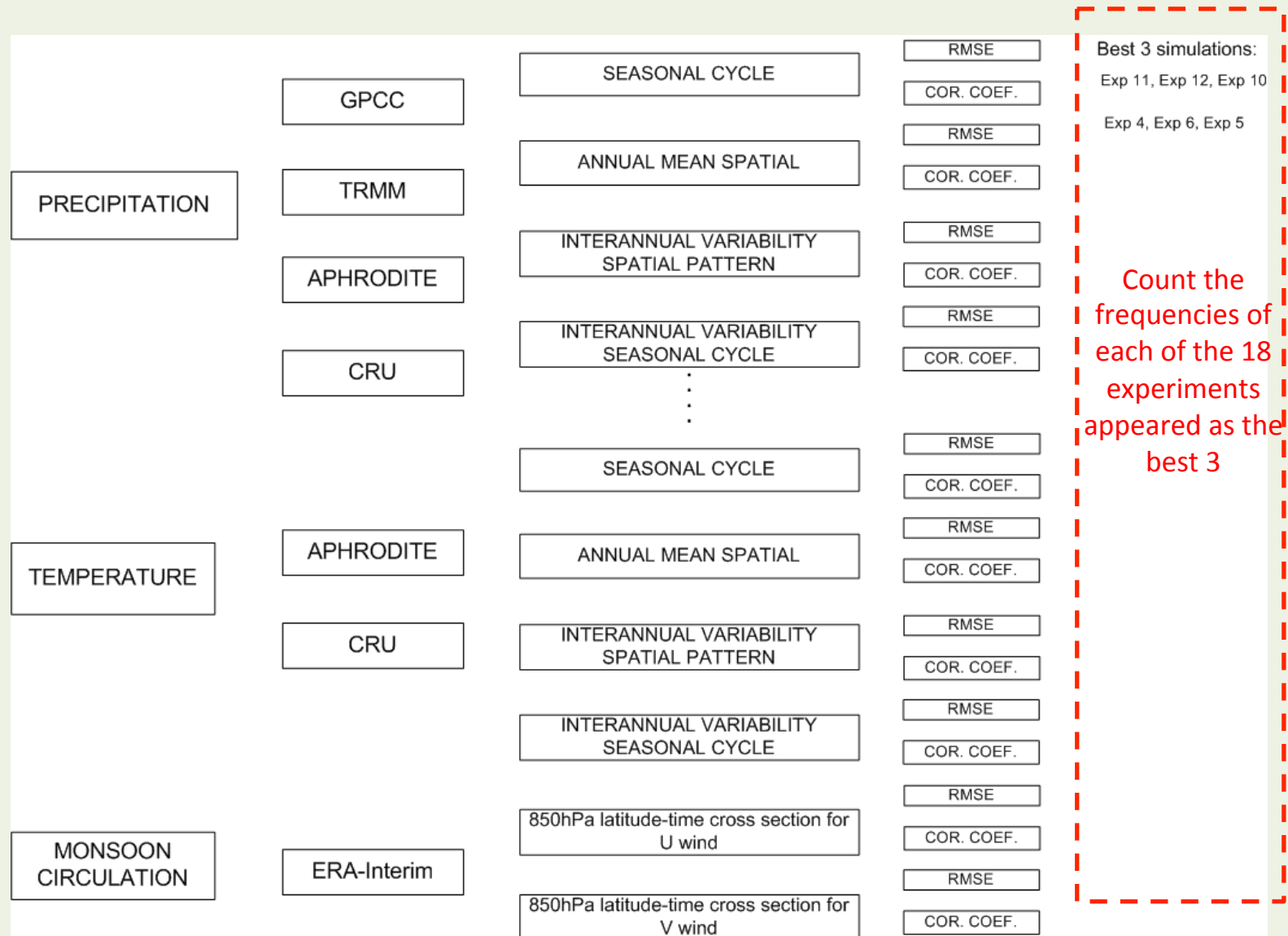


04 – 06 & 13 – 15 simulated monsoon circulation closest to ERA-Interim

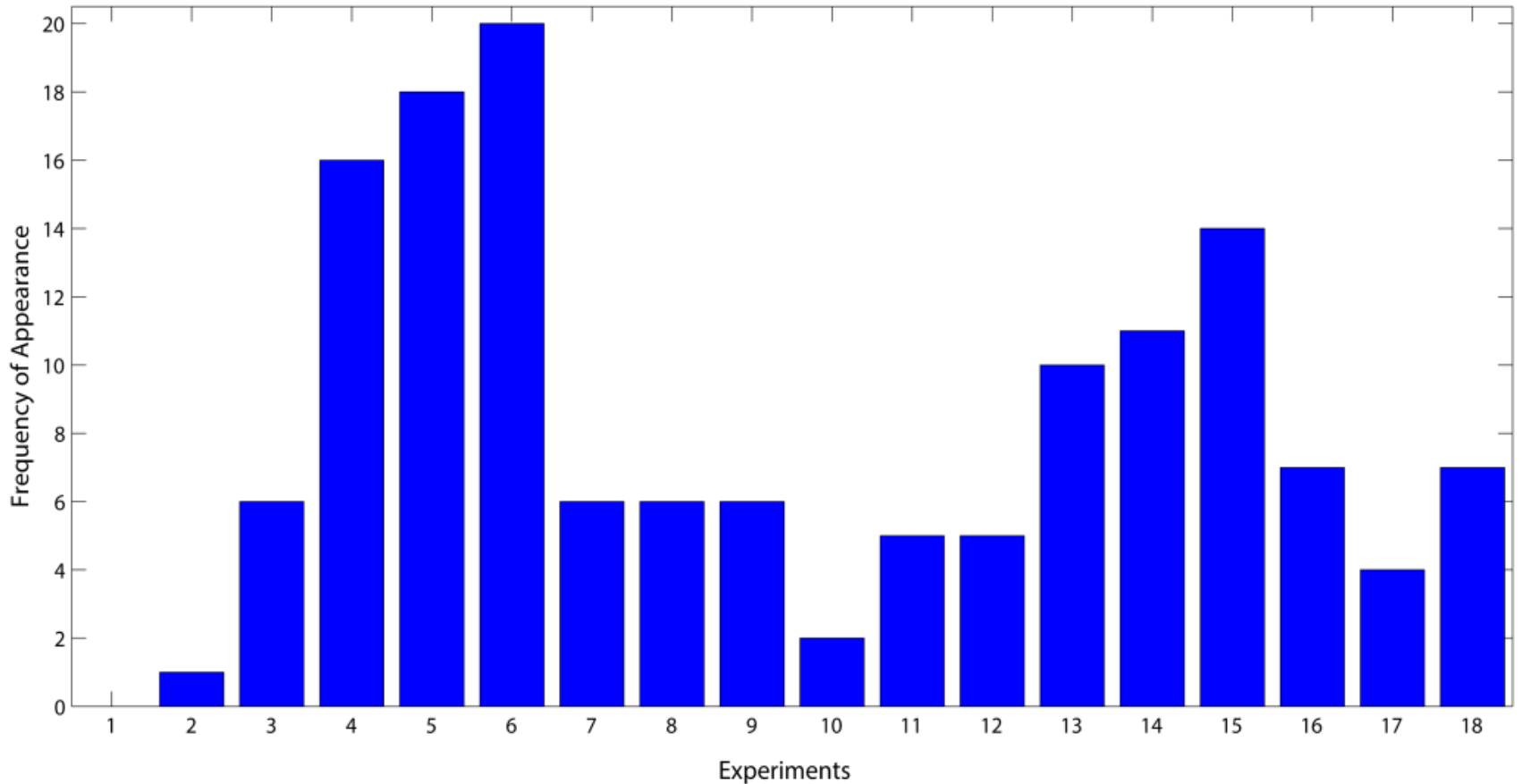


ERA-interim time-latitude cross section of U and V wind at 850hPa

Searching for the Best Combinations

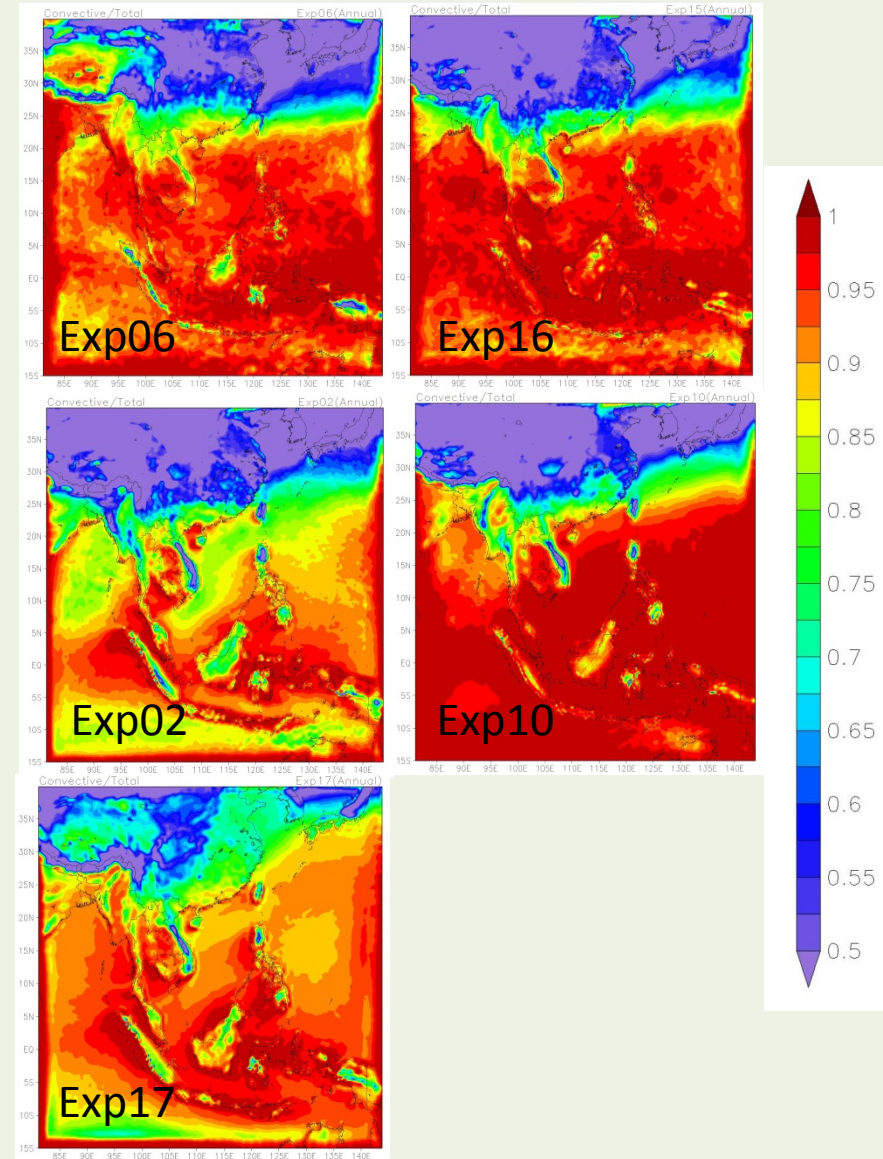
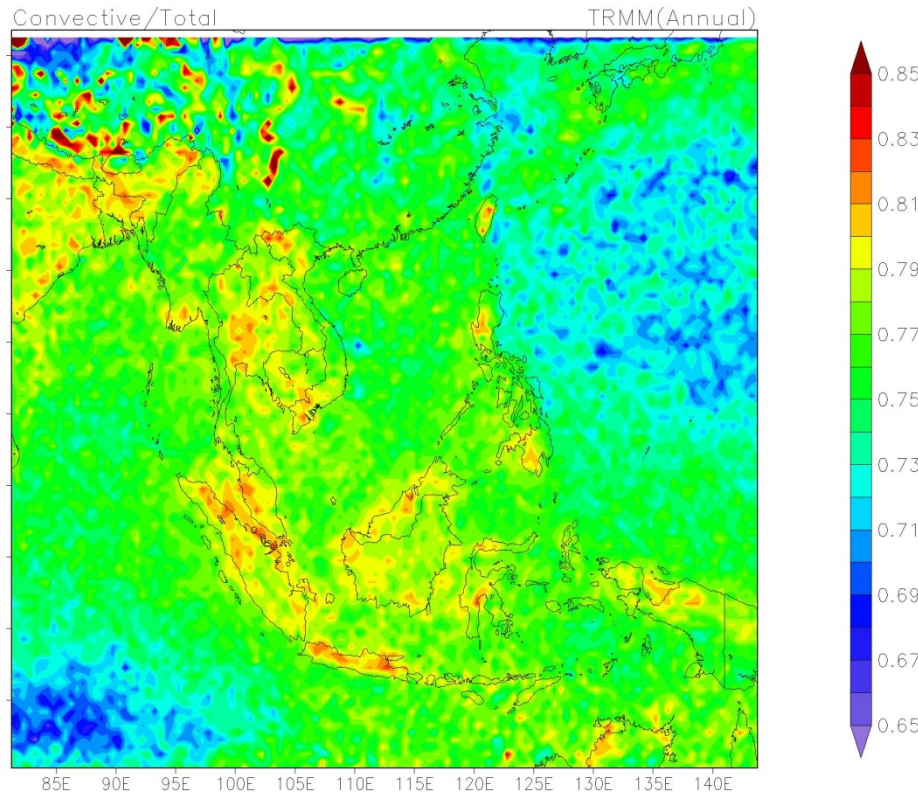


Searching for the Best Combinations



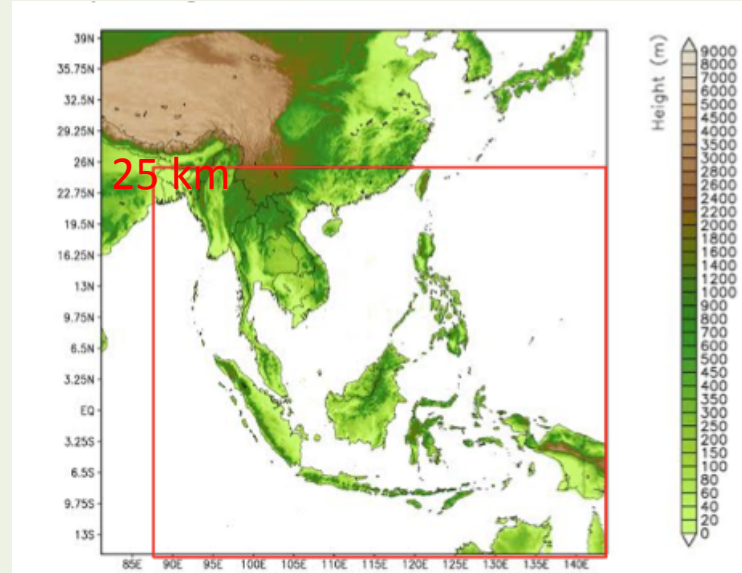
Convective Rainfall Percentage

TRMM



Current/Future planning

- Second workshop in Bangkok
- Resizing simulation domain.
- 25 km runs instead of 36 km.



- Phase II (July 2014 – July 2016): control and projection simulations.
- 3rd Workshop (Manila, April 2015), 4th workshop (Jan 2016), Final workshop (Sept 2016)

The 2nd Workshop of the Southeast Asia Regional Climate Downscaling (SEACLID)/ CORDEX Southeast Asia Project

Bangkok, Thailand, 9-10 June 2014





Program Schedule

The 2nd Southeast Asia Regional Climate Downscaling (SEACLID)/ CORDEX Southeast Asia Workshop

Venue: Ramkhamhaeng University, Bangkok, 9 – 10 June 2014

9 June (Monday)		OPENING SESSION
09.00 – 09.30	Registration	
09.30 – 09.40	Welcoming remarks	Prof. Dr. Fredolin Tangang, Coordinator, SEACLID / CORDEX Southeast Asia
09.40 – 09.55	Opening and Welcoming Address	Asst. Prof. Wutisak Lapcharoensap President, Ramkhamhaeng University
09.55 – 10.25	Keynote Address: Opportunities across CORDEX initiatives in Asia	Dr. Michel Rixen (via remote video presentation) World Climate Research Programme (WCRP), World Meteorological Organization
10.25 – 10.40	Group Photo	
10.40 – 11.00	Coffee Break	
9 June (Monday)		SESSION I
		CORDEX activities, Other Existing Regional Climate Initiatives, and Coordination, Chair: TBD, Rapporteur: TBD
11.00 – 11.25	IPCC AR5 WGI Report and its relevance to Southeast Asia	Prof. Fredolin Tangang, IPCC WG1 Vice Chair
11.25 – 11.50	MAIRS and its roles in Regional Climate Change Initiatives	Prof. Dr. Michael Manton Chair Scientific Steering Committee for Monsoon Asia Integrated Regional Study (MAIRS)
11.50 – 12.15	CORDEX South Asia & its activities	Dr Krishnan (via remote video presentation), CORDEX South Asia



12.15 – 13.30	Lunch	
13.30 – 13.55	CORDEX East Asia & its activities	Dr Aillikun , CORDEX East Asia
13.55 – 14.20	The Southeast Asia Regional Climate Downscaling (SEACLID)/CORDEX Southeast Asia	Prof. Dr. Fredolin Tangang SEACLID / CORDEX Southeast Asia
14.20 – 14.45	Summary of CORDEX Australasia Activities and CSIRO's involvement in CORDEX-SEA	Dr. Jack Katzfey , CORDEX Australasia
14.45 – 15.10	Simulating the East Asian and western north Pacific summer monsoon with RegCM4- sensitivity to model physics & involvement in CORDEX SEA	Dr. Francis Chi Yung Tam , City University of Hong Kong
15.10 – 15.30	Coffee Break	
15.30 – 15.55	Regional Climate Downscaling at APCC & Involvement in CORDEX SEA	Dr. Hongwei Yang , APCC, Busan, South Korea
15.55 – 16.20	Regional Southeast Asia Climate Analysis and Modelling (SEACAM) Project	Dr. Liew Juneng , The National University of Malaysia
16.20 – 16.45	Evaluation of simulated Asia summer monsoon in AMIP experiment with high resolution climate model & Possible involvement in CORDEX Southeast Asia	Prof. Jaiho OH , Pukyong National University, South Korea
16.45 – 17.30	Discussion	
18.00 – 20.00	Dinner hosted by Thailand Research Fund / Ramkhamhaeng University	

10 June (Tuesday)	Session III Priorities and Data Requirement for Impact Assessment Studies; Chair: TBD, Rapporteur: TBD	
08.30 – 08.55	IPCC AR5 WGII Report and its implications for Southeast Asia	Dr Poh Poh Wong, Coordinating Lead Author (CLA) WGII, IPCC
08.55 – 09.20	Impact Assessment Studies & Regional Climate Change Scenarios Data Requirements in Thailand	Prof. Attachai Jintrawet, Chiang Mai University, Thailand
09.20 – 09.45	Impact Assessment Studies & Regional Climate Change Scenarios Data Requirements in Vietnam	Prof. Dr. Phan Van Tan, VNU, HUS, Vietnam
09.45 – 10.10	Impact Assessment Studies & Regional Climate Change Scenarios Data Requirements in Malaysia	Mr. Mohd Syazwan Faisal Mohd, National Hydraulic Research Institute of Malaysia (NAHRIM), Ministry of Natural Resources and Environment, Malaysia
10.10 – 10.20	Tea Break	
10.20 – 10.45	Impact Assessment Studies & Regional Climate Change Scenarios Data Requirements in Indonesia	Dara Kasihairani & Dr. Dodo Gunawan, BMKG, Indonesia
10.45 – 11.10	Cambodia First National Communication Report	Mr. Sem Sopheap, Ministry of Environment, Cambodia
11.10 – 11.35	Impact Assessment Studies & Regional Climate Change Scenarios Data Requirements in Lao PDR	Mrs. Boua Ngeun Oudomchit, Department of Water Resources, MoNRE, Lao PDR
11.35 – 12.00	Impact Assessment Studies and Regional CC Scenarios and other data requirements (Philippines and other regions in Asia)	Ms. Jessica Asne Dator-Bercilla, Christian Aid, Ateneo de Manila University
12.00 – 12.25	Assisting Adaptation to Climate Change: Preparing regional scenario data and using it to model impacts in New Zealand	Dr David Wratt, NIWA, New Zealand
12.25 – 13:00	Open Discussion Data Needs and How CORDEX initiatives may fill the gaps	



13.00 – 14:00 Lunch

10 June (Tuesday)	Session IV Presentation of SEACLID/CORDEX SEA Sensitivity Experiments; Chairs: TBD, Rapporteurs: TBD	
14.00 – 14.30	Performance evaluation of RegCM4 in simulating rainfall over SEACLID / CORDEX-SEA Domain	Malaysia (Dr Juneng/ Ms. Ngai Sheau Tieh /Mr Chung Jing Xiang/Prof Fredolin)
14.30 – 15.00	Performance evaluation of RegCM4 in simulating temperature over SEACLID/ CORDEX-SEA Domain	The Philippines (Ms. Julie Mae B. Dado / Dr Gemma Narisma / Dr Faye Cruz)
15.00 – 15.30	Performance evaluation of RegCM4 in simulating Tmax, TMin over SEACLID/ CORDEX-SEA Domain	Indonesia (Dr Dodo Gunawan / Dr Elvin Aldrian)
15.30 – 16.00	Performance evaluation of RegCM4 in simulating Circulation Fields over SEACLID/ CORDEX-SEA Domain	Thailand (Dr Jerasorn Santisirisomboon / Dr Patama Singhruck)
16.00 – 16.30	Performance evaluation of RegCM4 in simulating Extremes over SEACLID/CORDEX-SEA Domain	Vietnam (Dr Thanh Ngo-Duc / Prof. Phan Van Tan)
16.30 – 16.45	Coffee Break	
16.45 – 17.15	Open Discussion on the Analysis Results of Sensitivity Experiments, Decision on Domain, Resolution & Physics Option	
17.15 – 17.45	Open Discussion on CORDEX SEA outstanding issues & moving forward	
17.45 – 18.00	Closing	Ramkhamhaeng University / TRF

Challenges ahead

- Actual runs (July/August 2014 onwards)
- Limited computing facilities
- Establishing and maintaining a datacenter could be a real challenge
- Interfacing to user community
- Scientific publications

Concluding remarks

- Temperature: less sensitive to ocean flux treatment compare to deep convective parameterization.
- Rainfall: correct combination of ocean flux treatment and convective scheme is crucial.
- MIT scheme produces too much of rainfall over land.
- Grell(L)/MIT(O) improves the rainfall simulations but making the Indo-China regions a lot cooler.
- The magnitude of the interannual variability
 - rainfall > simulation stronger compare to observations.
 - temperature > comparable with the observations but weaker over the southeast quadrant of the domain.
- Suggestion: MIT, with some expert tuning of the parameters of either the MIT convective scheme itself or of the large scale SUBEX moisture scheme.

Thank You