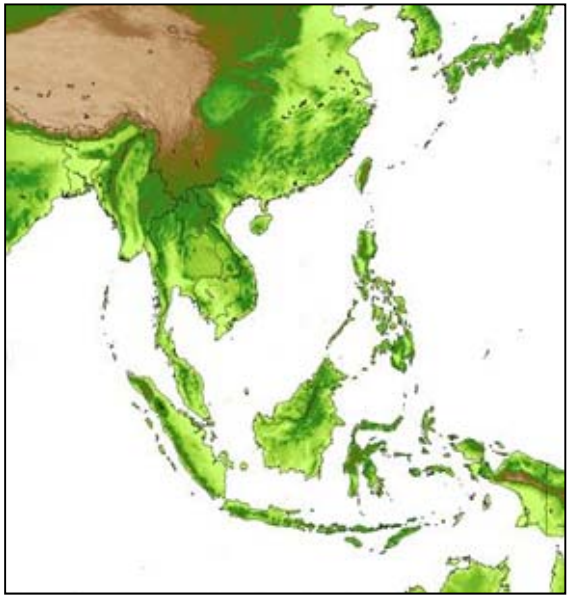
SEACLID

CORDEX-Southeast Asia

The Southeast Asia Regional Climate Downscaling (SEACLID) / CORDEX Southeast Asia Project



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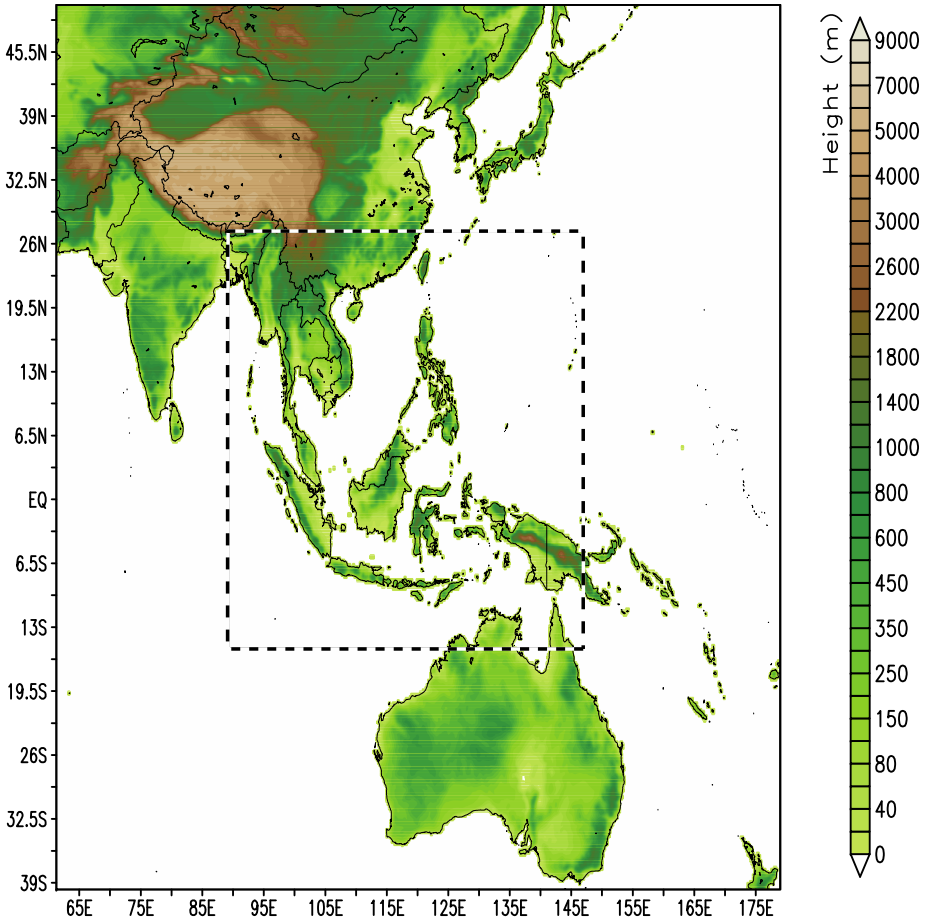
SEACLID/CORDEX Southeast Asia
The National University of Malaysia

On behalf of colleagues involved in SEACLID/ CORDEX Southeast Asia

- **13 Countries, 17 Institutions involved in the project**

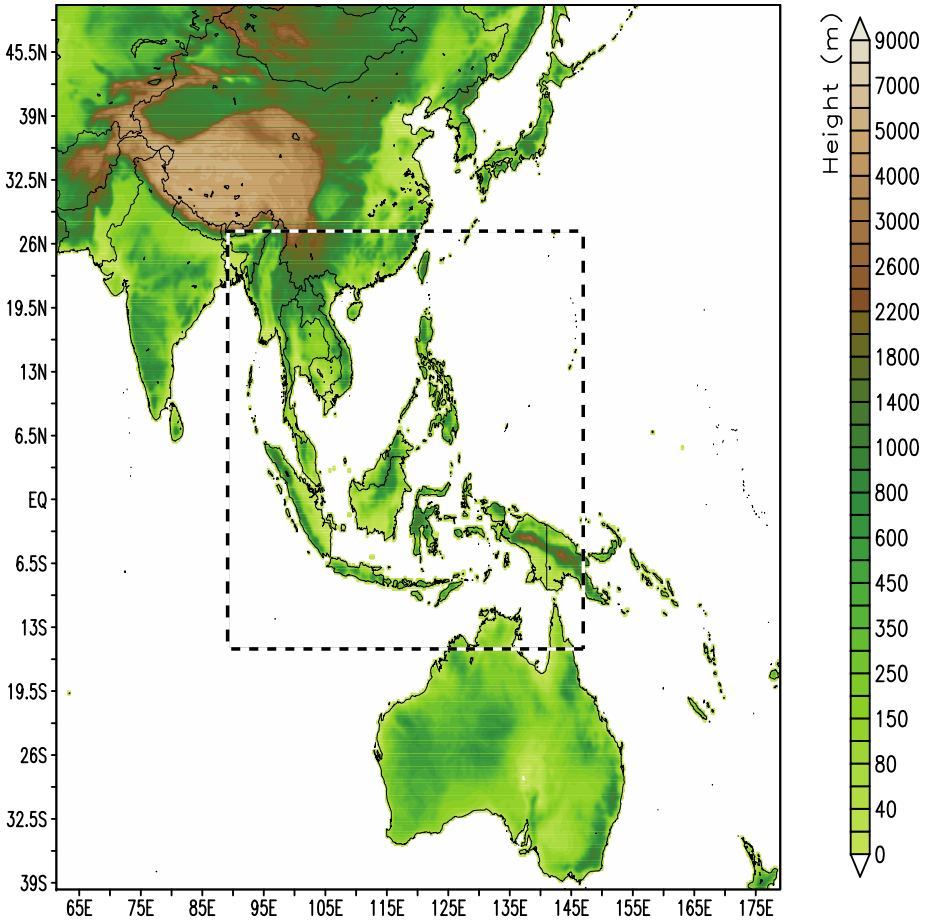
(http://www.ukm.edu.my/seaclid-cordex)

Southeast Asia region



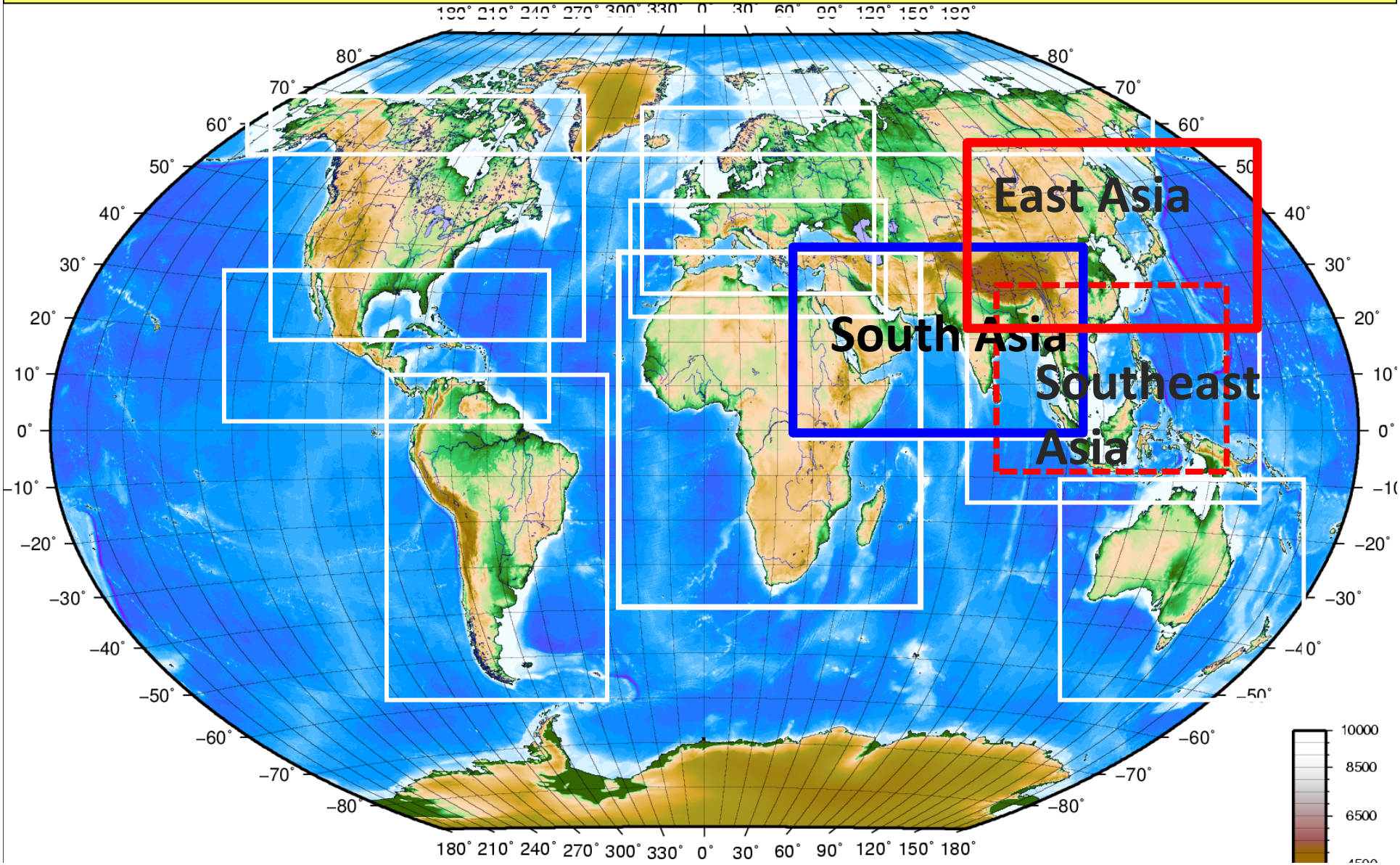
- > ½ billion people
- High exposure, higher vulnerability
- No coordinated regional climate downscaling
- No freely available downscaled regional climate change scenarios
- Could be a contributing factor to lack of IAV in the region

Southeast Asia region



- With multiple GCMs, RCMs, and emission scenarios, regional climate downscaling requires large computing resources
- We have a number of institutions with regional climate modeling expertise but limited resources
- Collaboration and sharing resources are the way to move forward
- CORDEX provides a good platform for regional collaboration

CORDEX domains



SEACLID/CORDEX SEA objectives

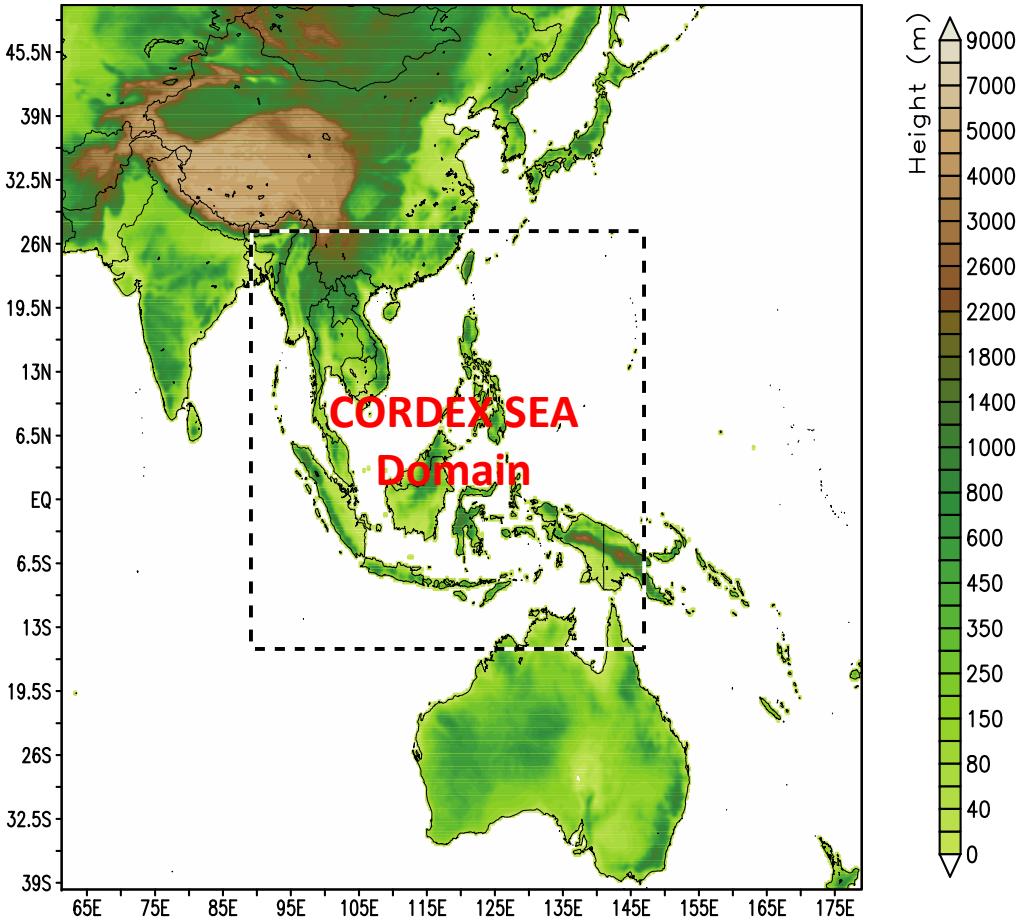
- **Create a platform for scientists (especially young scientists) within and outside the SEA region to collaborate on issues related to regional climate downscaling;**

- **On a task-sharing basis, carry out a joint regional climate downscaling activity over a common SEA domain with RegCM4 (and other RCMs) using a number of CMIP5 GCMs and RCP scenarios;**

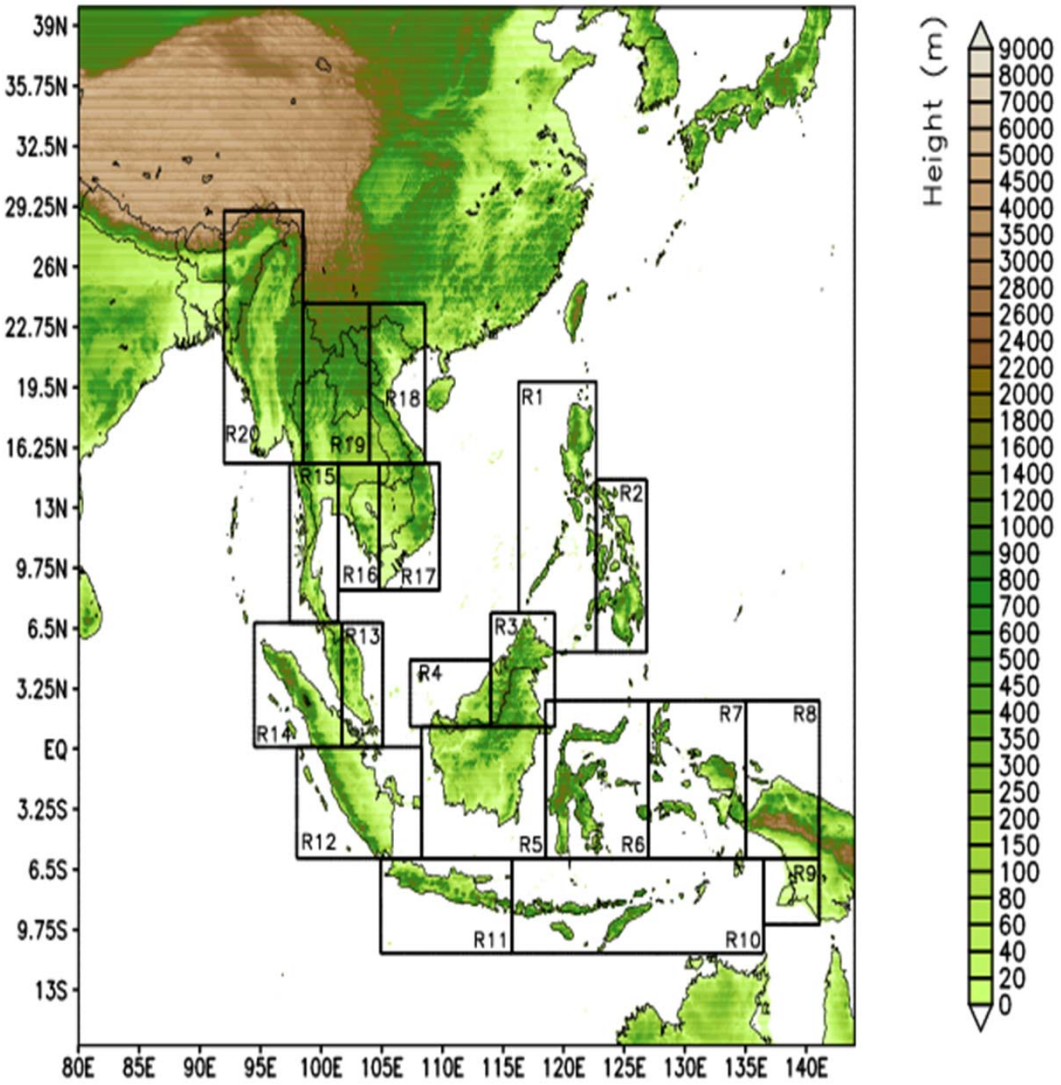
- **Collectively analyze model performances, create an ensemble of regional climate projection scenarios for the SEA region, and establish a web portal and data center for efficient data dissemination (ESGF);**

- **Narrow the knowledge gaps related to regional climate change in SEA by increasing peer-review scientific and policy-relevant publications and strengthen research capacity and capability, particularly in numerical regional climate modeling.**

Southeast Asia region



- Domain: ~15.14°S – 27.26°N, ~89.26°E – 146.96°E (approved by CORDEX)
- Resolution: 25 km × 25 km
- Projection: Normal Mercator



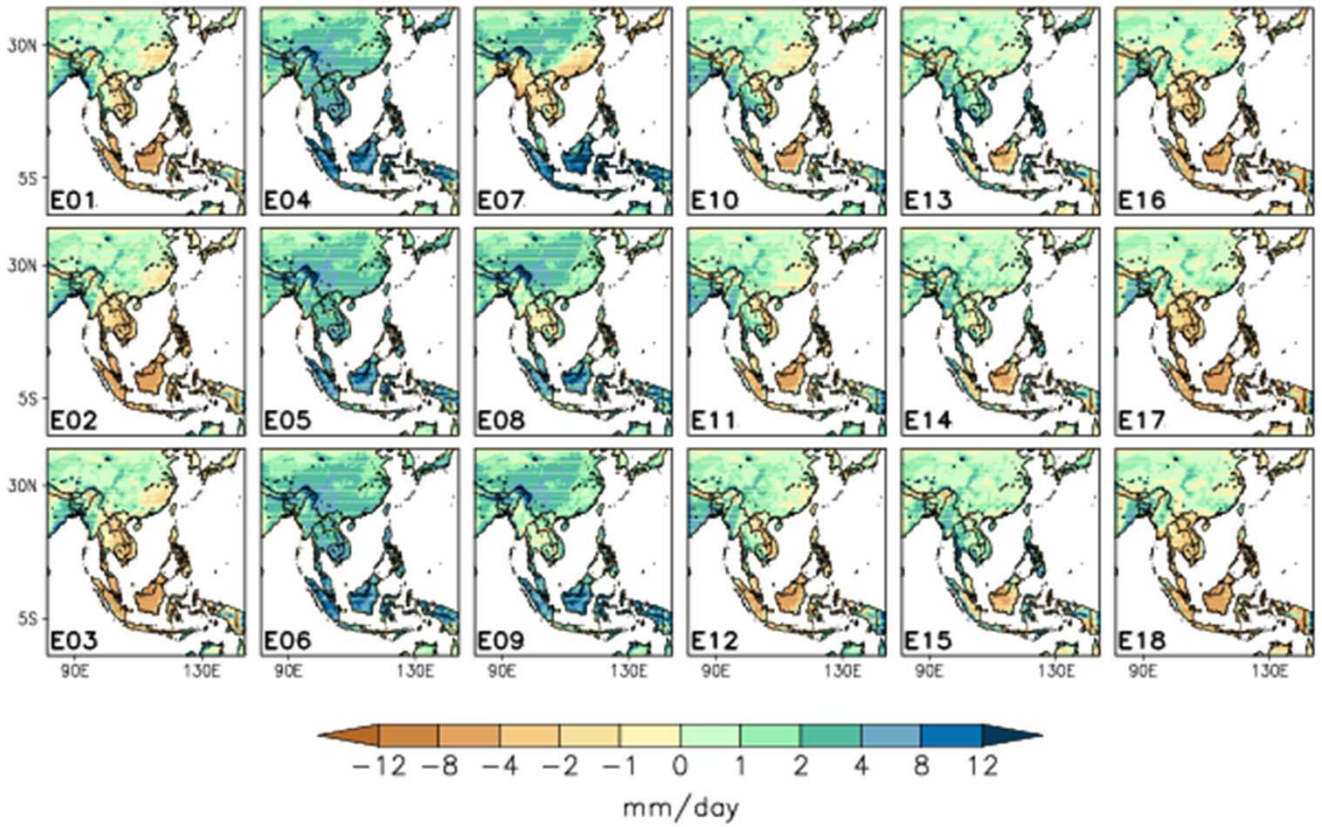
The boxes are the 20 sub-regions used for further regional model performance assessment.

Pledged commitments by participating countries

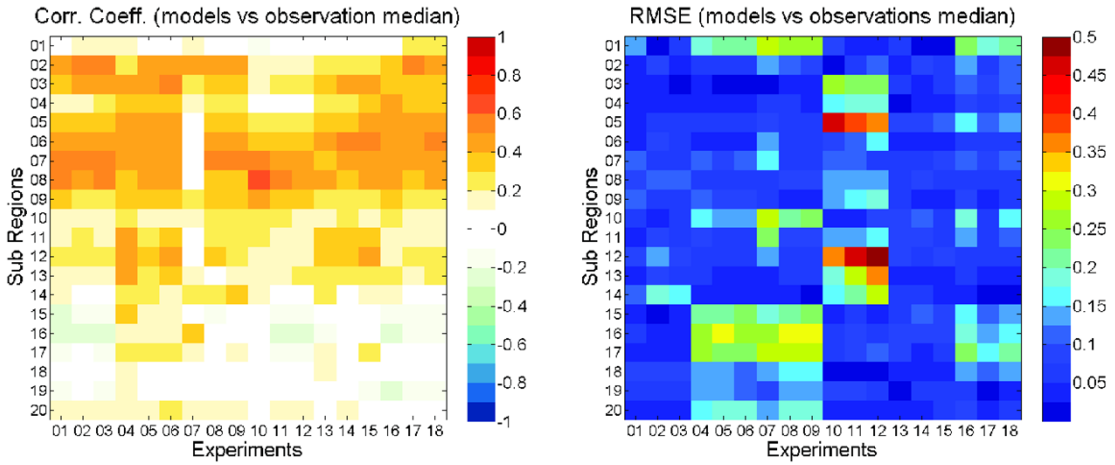
Country	GCM	Institution & Country developed the GCM	RCP	RCM
Vietnam	CNRM-CM5	Centre national de Recherches Meteorologiques, France	RCP8.5, 4.5	RegCM4
Philippines	HadGEM2	Hadley Centre, UK	RCP8.5, 4.5	RegCM4
Thailand	MPI-ESM-MR	Max Planck Institute for Meteorology, Germany	RCP8.5, 4.5	RegCM4
Thailand	EC-Earth	EC-Earth consortium	RCP8.5, 4.5	RegCM4
Indonesia	CSIRO MK3.6	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	RCP8.5	CCAM
Hong Kong SAR	CCSM4 or CESM	NCAR, USA	RCP8.5, 4.5	WRF
United Kingdom	HadGEM2-ES	Hadley Centre, UKMO	RCP8.5, 4.5	PRECIS
South Korea	HadGEM2-AO	Hadley Centre, UKMO	RCP8.5, 4.5	WRF
Sweden	CNRM-CM5	Centre national de Recherches Meteorologiques, France	RCP8.5, 4.5	RCA3
Sweden	HadGEM2-ES	Hadley Centre, UKMO	RCP8.5,4.5	RCA3
Germany	MPI-ESM-LR	Max Planck Institute for Meteorology, Germany	RCP8.5, 4.5	ROM

CORDEX Southeast Asia Simulation Progress (30 October 2015) [1 more year to complete the project]

Country	GCM	Baseline run	RCP4.5 (until 2100)	RCP8.5 (Until 2100)
Vietnam	CNRM-CM5	Completed	Completed	Problem with boundary data
Philippines	HadGEM2	Completed	31 December 2015	31 March 2016
Thailand	MPI-ESM-MR	Completed	Completed	Completed
Thailand	EC-Earth	Completed	Completed	>90%
Indonesia	CSIRO MK3.6	Completed	30 November 2015	Completed
Malaysia	CanESM2	Completed	30 November 2015	30 November 2015
Malaysia	IPSL-CM5A-LR	Completed	31 December 2015	Expected to start in January 2016
Malaysia	GFDL-ESM2M	Completed	Completed	Completed
Australia	CNRM-CM5	Not Run	Not Run	Mid-March 2016
Australia	CCSM4	Not Run	Not Run	Mid-March 2016
Australia	ACCESS1.3	Completed	Not Run	Mid-March 2016
Hong Kong SAR	CCSM4 or CESM	March 2016	July 2016	December 2016
United Kingdom	HadGEM2-ES	X	X	X
South Korea	HadGEM2-AO	Completed	Completed	Completed
Sweden	CNRM-CM5	Completed	Completed	Completed
Sweden	HadGEM2-ES	Completed	Completed	Completed
Germany	MPI-ESM-LR	X	X	X



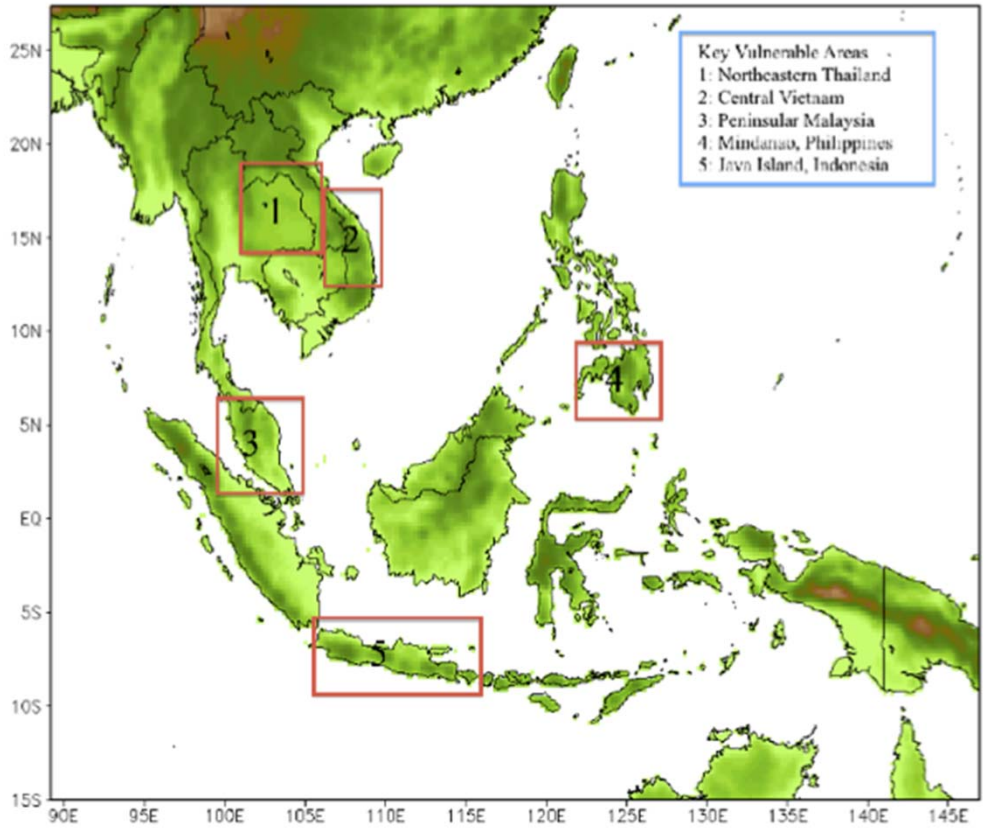
The simulated annual-mean total precipitation biases with respect to the GPCC



The median of the RMSE and correlation coefficient of the simulated interannual cycle compare to the 4 different observational datasets.

Second Phase of CORDEX Southeast Asia – submitted for funding consideration

Further downscaling to 3 km x 3 km resolution over key vulnerable areas to address IAV community needs for basin-scale assessment of climate change impacts



CORDEX Southeast Asia ? YMC