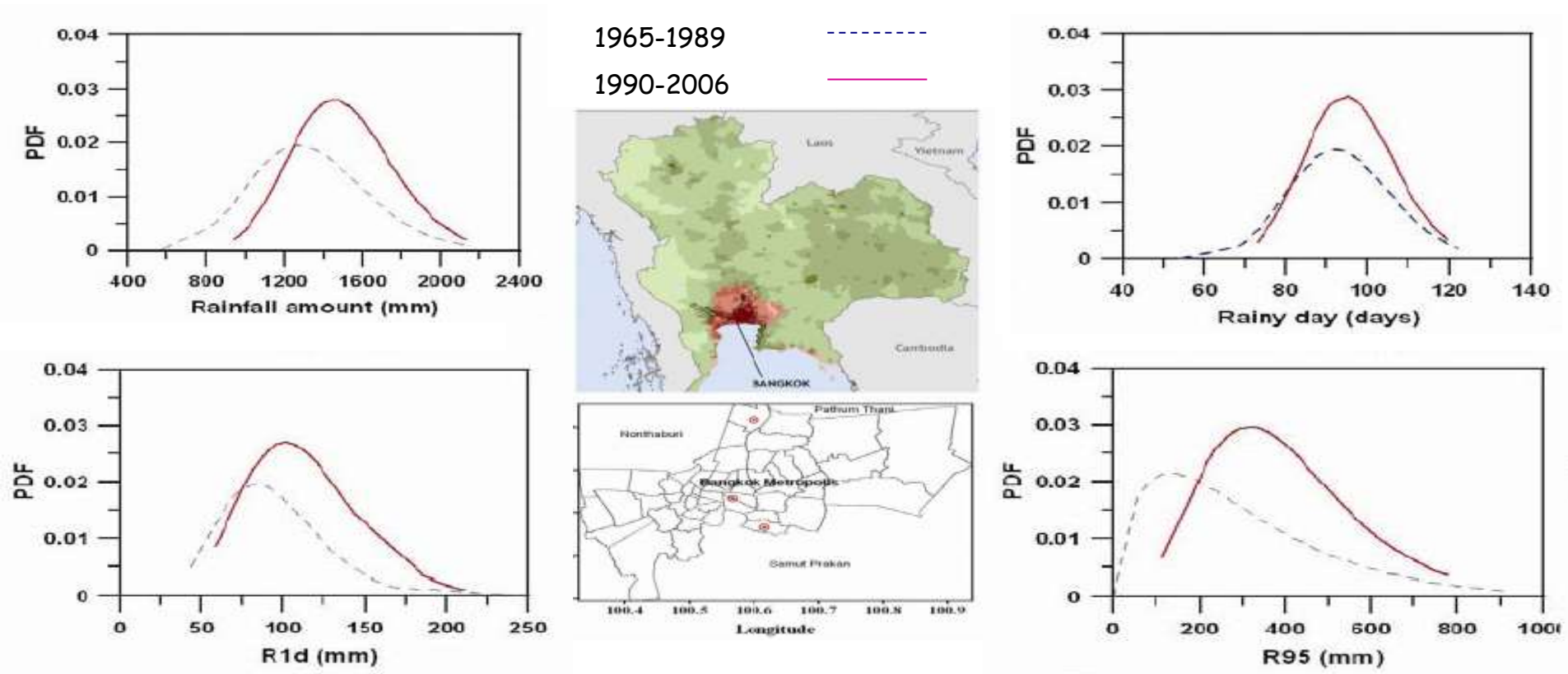


A changing climate leads to changes in extreme weather and climate events



**Seree Supratid, Lead author IPCC
Governor, Provincial Waterwork Authority**

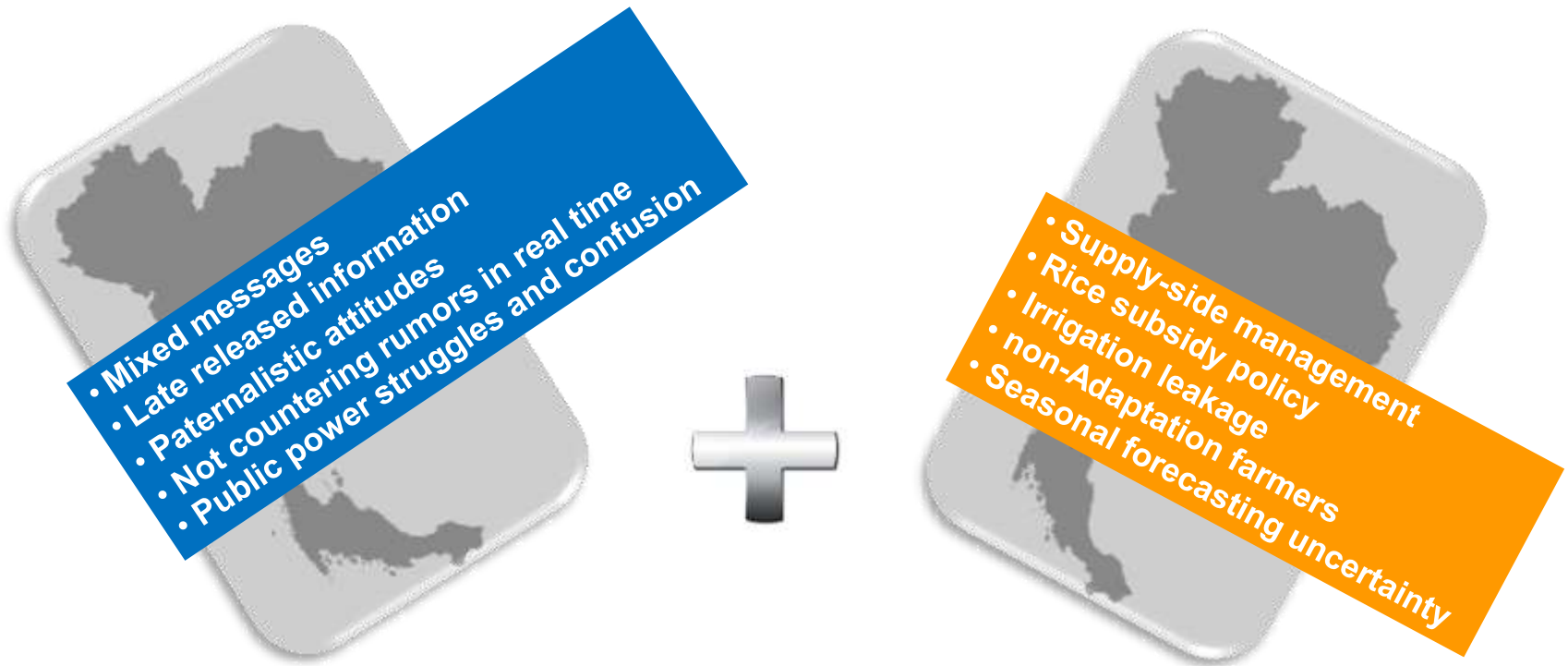
Extreme climate in Thailand



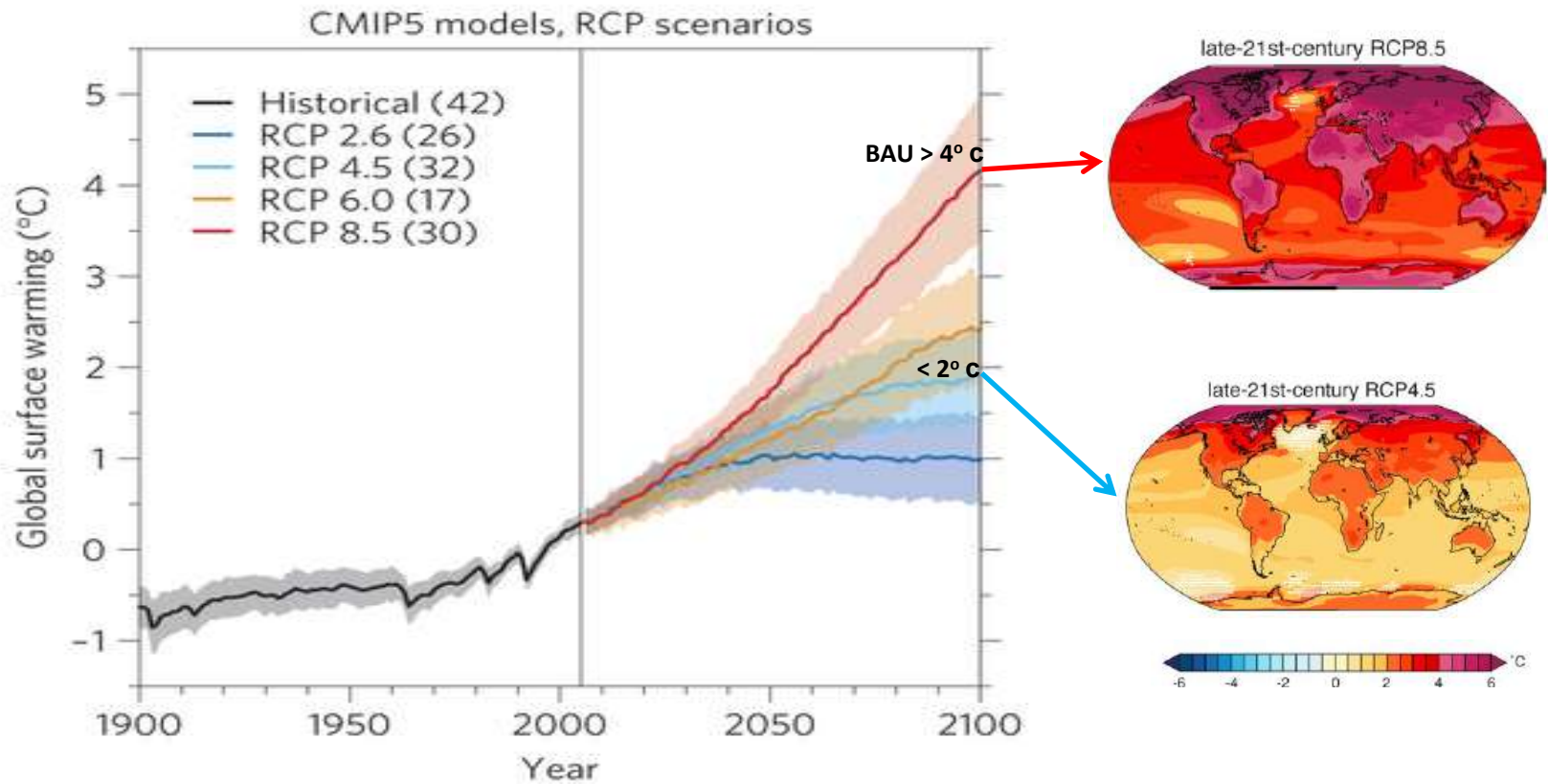
Treats



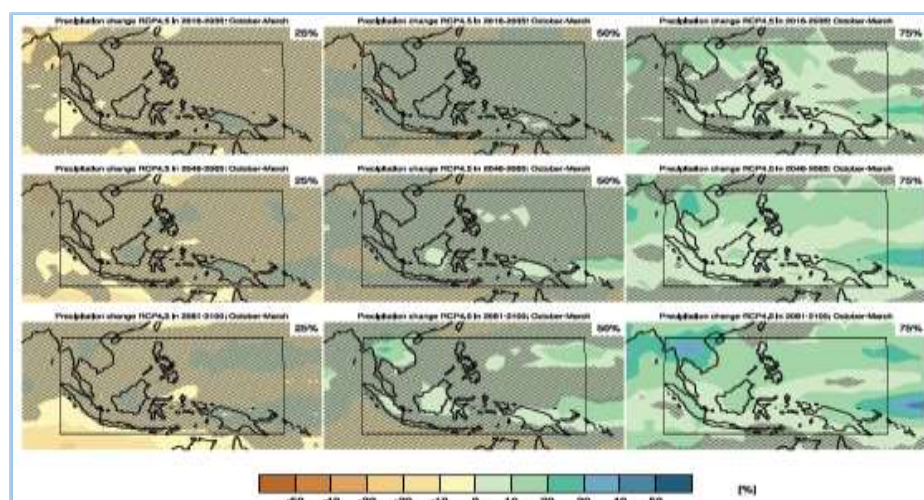
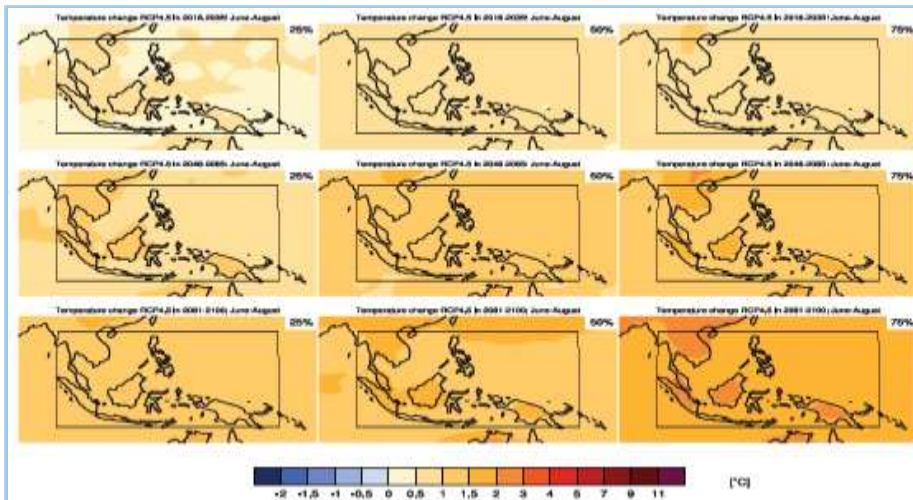
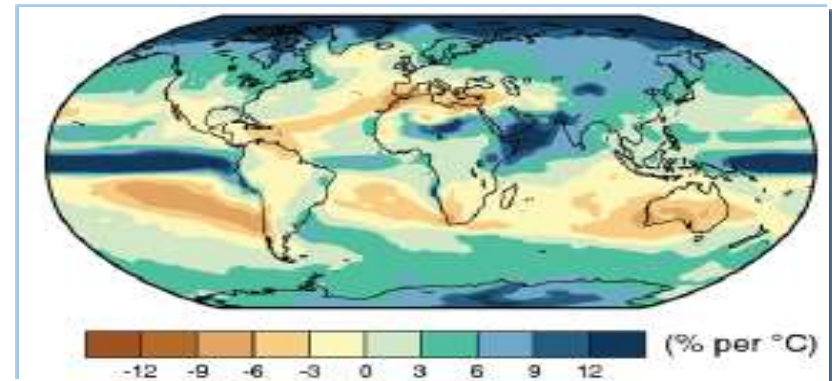
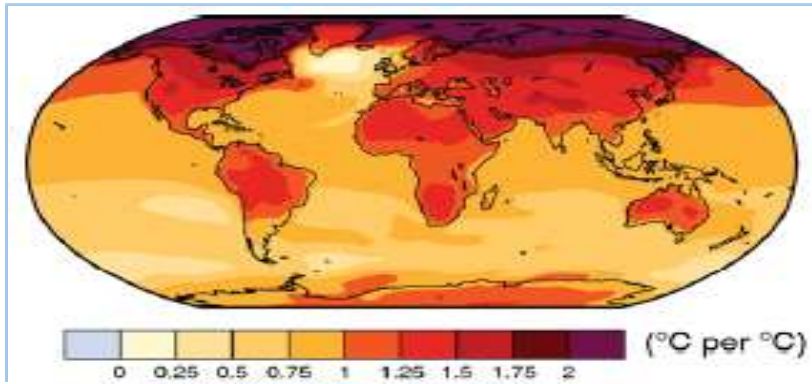
Lesson learnt



Temp. forecast (IPCC)



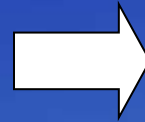
Southeast Asia (AR5, 2014)



Climate downscaling



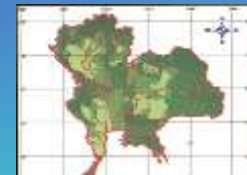
- Global model
- Horizontal Resolution: 200-300 km



Part 1 : RCM for Thailand



- ▶ Regional model
- ▶ Horizontal Resolution: 20-60 km



- ▶ Mesoscale model
- ▶ Horizontal Resolution: 2.5-10 km



Part 2 : Bangkok model



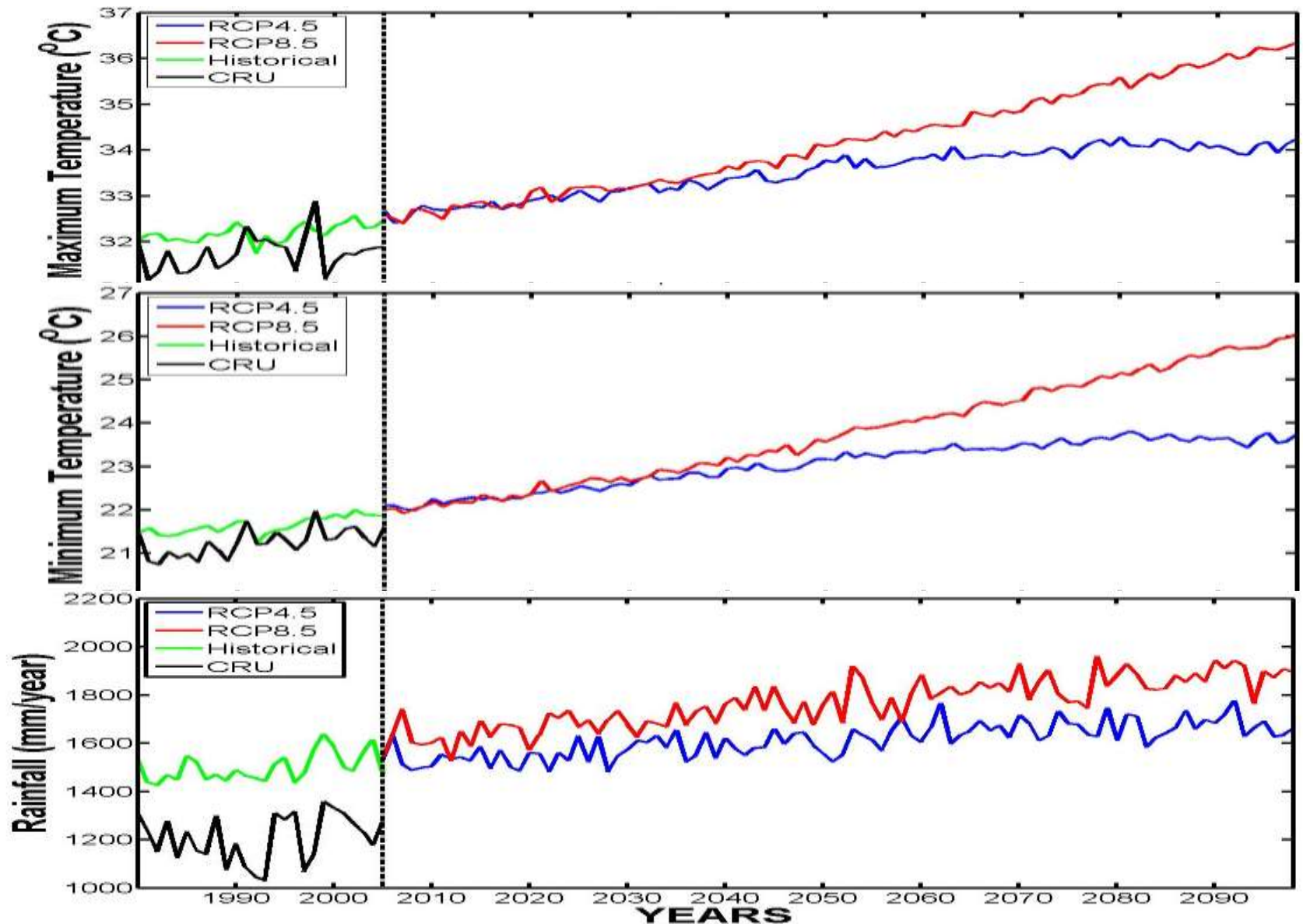
- ▶ Local model
- ▶ Horizontal Resolution: 20-200 m

Climate Change Projections

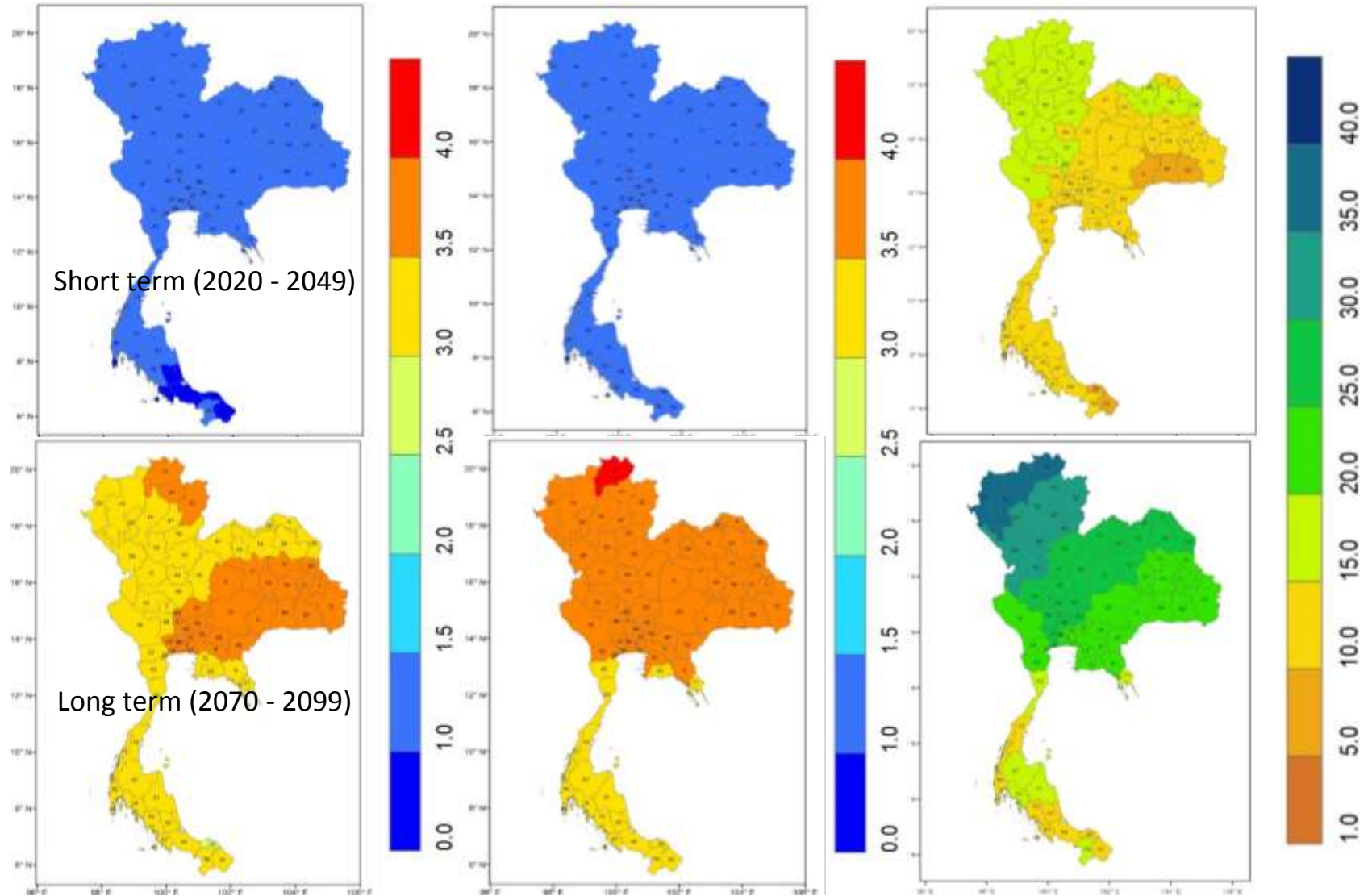
- List of CMIP5 climate models from the NASA Earth Exchange Global Daily Downscaled Projections (NEX-GDDP) dataset used in this study (0.25 x 0.25 degree)

| No. | Model | Modeling center (or group) |
|-----|----------------|---|
| 1 | ACCESS1-0 | CSIRO (Commonwealth Scientific and Industrial Research Organisation, Australia), and BOM (Bureau of Meteorology, Australia) |
| 2 | BCC-CSM1-1 | Beijing Climate Center, China Meteorological Administration, China |
| 3 | BNU-ESM | College of Global Change and Earth System Science, Beijing Normal University |
| 4 | CanESM2 | Canadian Centre for Climate Modelling and Analysis |
| 5 | CCSM4 | National Center for Atmospheric Research |
| 6 | CESM1-BGC | National Science Foundation, Department of Energy, National Center for Atmospheric Research |
| 7 | CNRM-CM5 | Centre National de Recherches Meteorologiques / Centre Europeen de Recherche et Formation Avancees en Calcul Scientifique |
| 8 | CSIRO-Mk3-6-0 | Commonwealth Scientific and Industrial Research Organisation in collaboration with the Queensland Climate Change Centre of Excellence |
| 9 | GFDL-ESM2G | Geophysical Fluid Dynamics Laboratory |
| 10 | GFDL-ESM2M | Geophysical Fluid Dynamics Laboratory |
| 11 | INMCM4 | Institute for Numerical Mathematics |
| 12 | IPSL-CM5A-LR | Institut Pierre-Simon Laplace |
| 13 | IPSL-CM5A-MR | Institut Pierre-Simon Laplace |
| 14 | MIROC-ESM | Japan Agency for Marine-Earth Science and Technology, Atmosphere and Ocean Research Institute (The University of Tokyo), and National Institute for Environmental Studies |
| 15 | MIROC-ESM-CHEM | Japan Agency for Marine-Earth Science and Technology, Atmosphere and Ocean Research Institute (The University of Tokyo), and National Institute for Environmental Studies |
| 16 | MPI-ESM-LR | Max Planck Institute for Meteorology (MPI-M) |
| 17 | MPI-ESM-MR | Max Planck Institute for Meteorology (MPI-M) |
| 18 | MRI-CGCM3 | Meteorological Research Institute |
| 19 | NorESM1-M | Norwegian climate centre |

Time series plots and multi-model ensemble for maximum & minimum temperature and rainfall over Thailand



Map of the annual maximum & minimum temperature and rainfall change between historical and projected for short term and long term for RCP8.5



Bar chart of change in monthly rainfall comparison with historical for short-term (2020 - 2049) and long term (2070 - 2099) for RCP 4.5 and RCP 8.5

