



CASE STUDY

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INTERNATIONAL WORKSHOP ON
THE ASSESSMENT OF SOCIO-ECONOMIC BENEFITS OF
METEOROLOGICAL AND HYDROLOGICAL SERVICES

(NANJING, CHINA, 21-28 SEPTEMBER 2009)

SECTOR : CLIMATE

SUB-SECTOR : CLIMATE

CHANGE

Case study name :

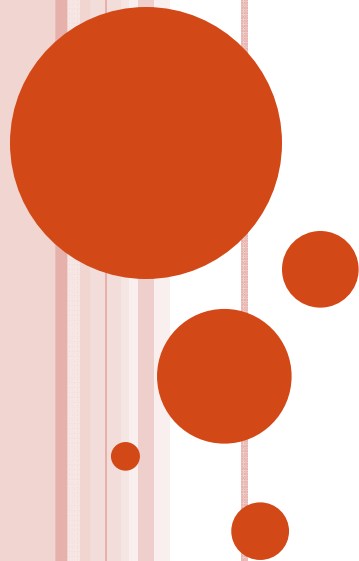
**The report of climate change impacts
in Thailand.**

Case Study Description: (1)

- To present the results of a regional climate model (RCM)
- It's resolution is 55x55 km²,
- It was run base on scenario A2
- The dynamic downscaling method is used for prediction in the several climatic characters such as precipitation, temperature, wind and other elements,
- Early the average of annual rainfall, annual mean minimum and annual mean maximum temperature will be displayed

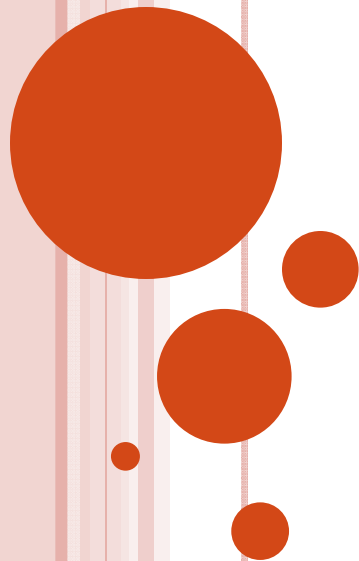
Case Study Description: (2)

- They would be summarized how is its changing since 1961 to 2100 years.
- The report will be distributed to related services at the national level and the public user such as hydrological service, local government, department of disaster prevention and mitigation, department of agriculture, etc. for adaptation and make the decision.



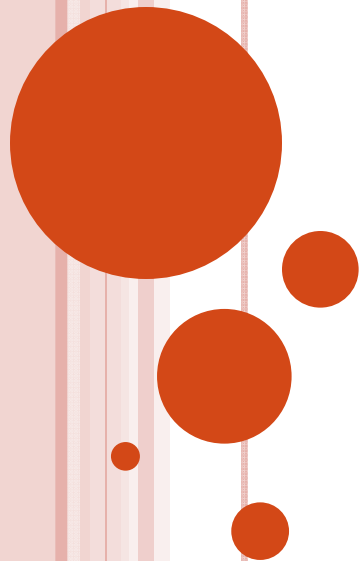
TOOLS EMPLOYED:

- To describe the results of RCM and compare with observation data.
- To find the trend of climate will change in the future.
- Both of them were demonstrated to decadal data.



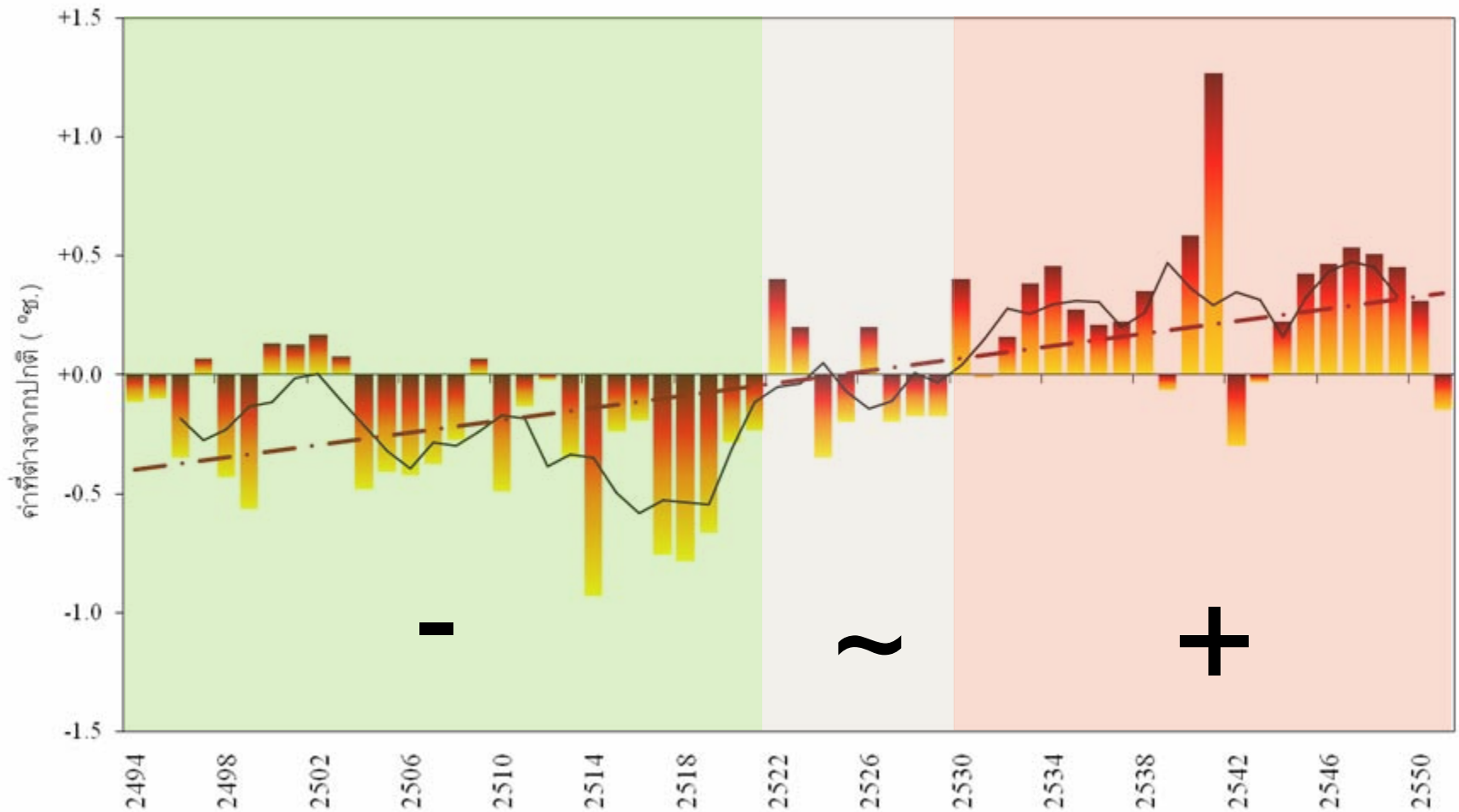
Description of Application:

- To gather and demonstrate the history data to graph and map formats.
- The results of RCM were transformed to graph and map formats.
- Compare 1 with 2.
- To find the trend of climate change in the future.
- To write the summary report.



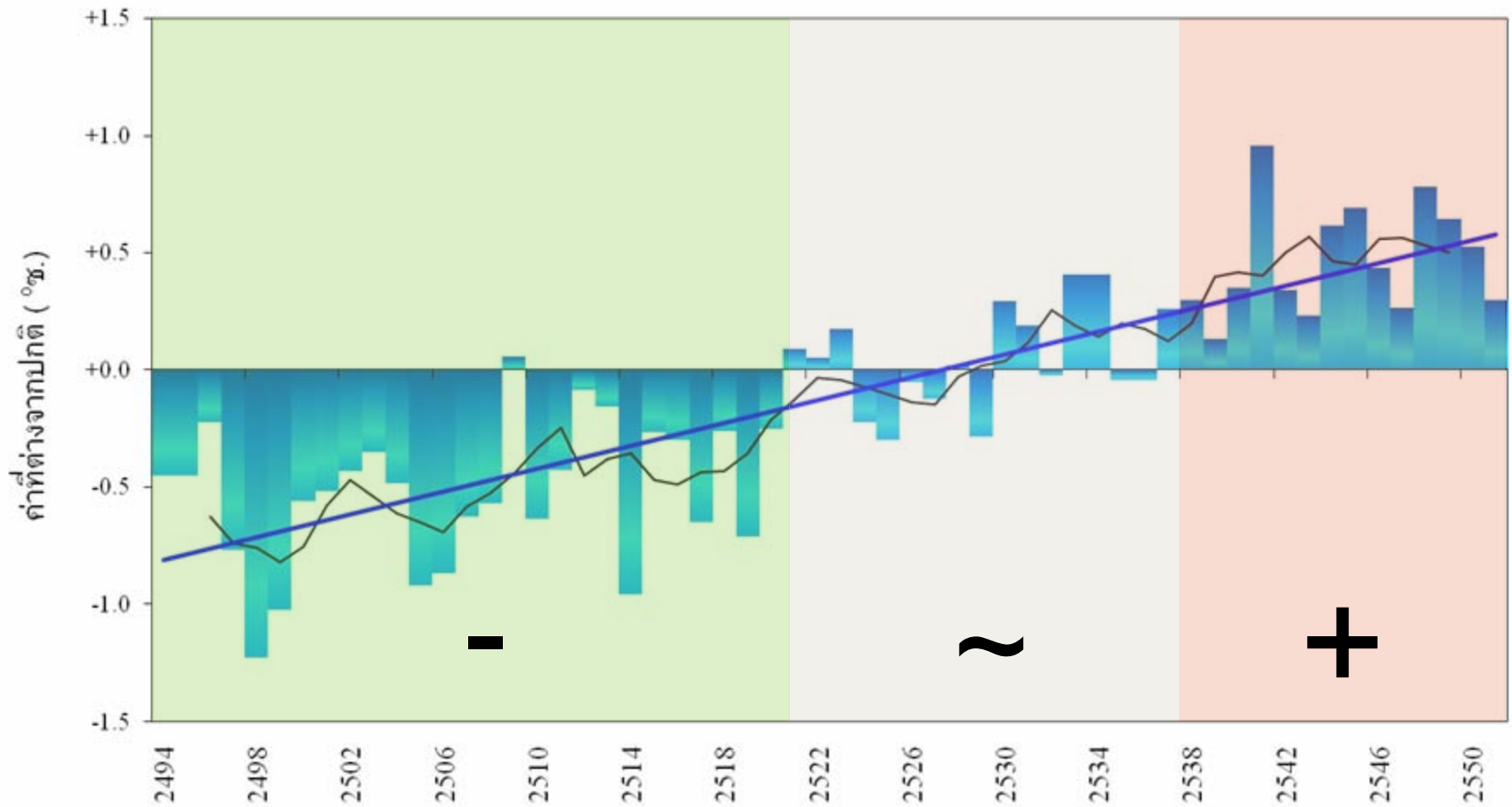
• Outcomes of Application : (History data 1)

Mean maximum temperature anomaly



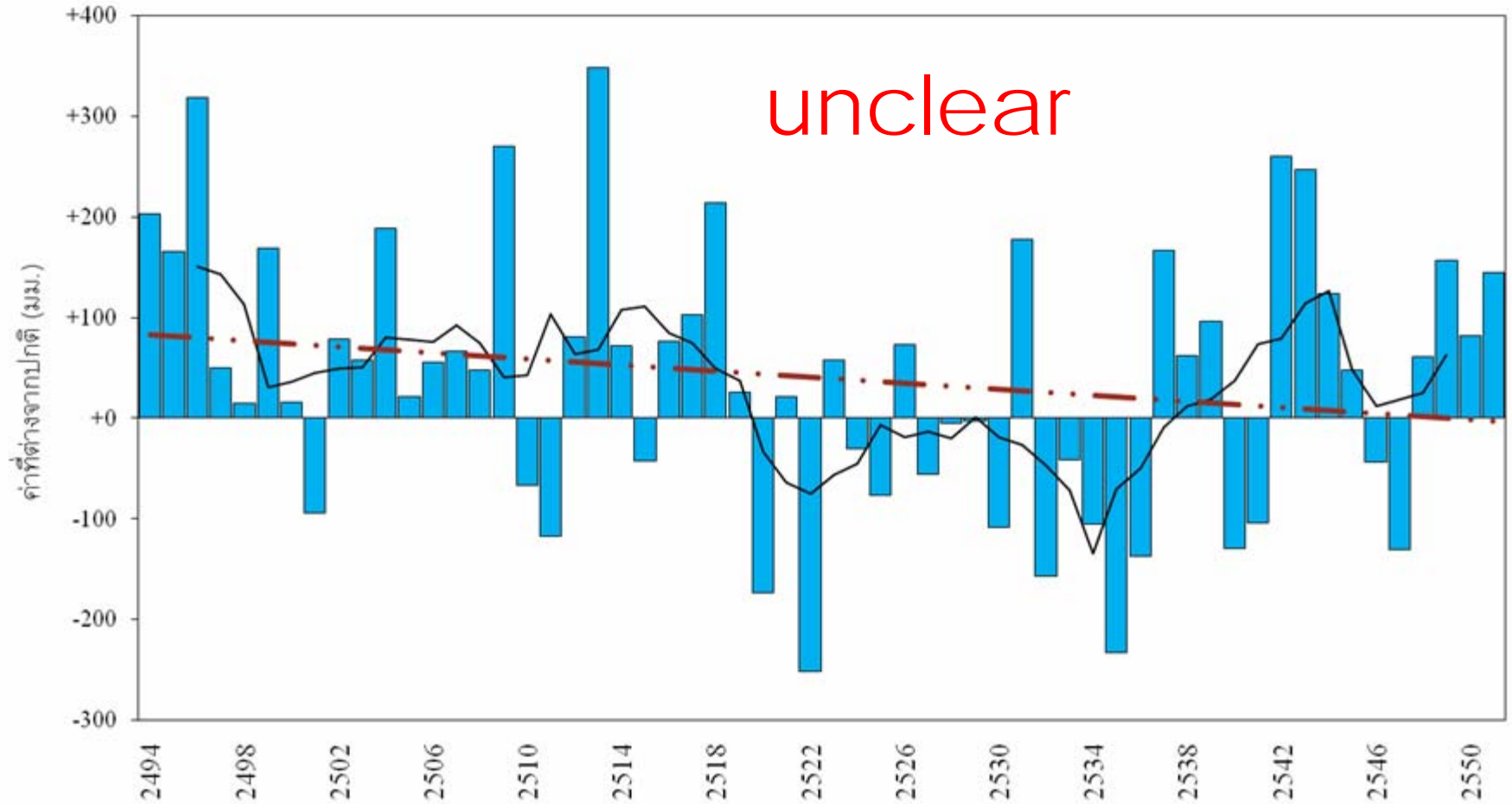
• Outcomes of Application : (History data 2)

Mean minimum temperature anomaly



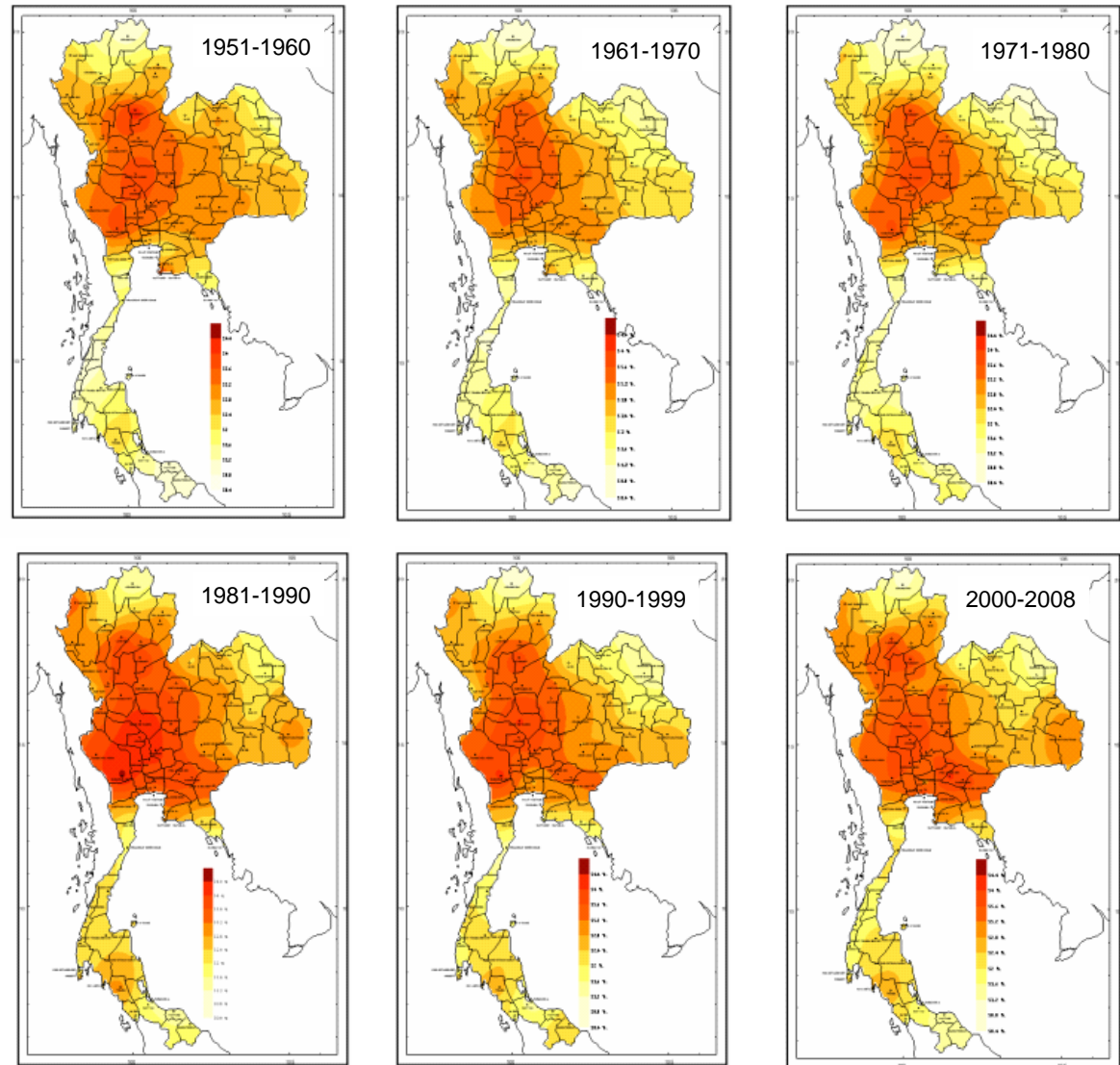
- Outcomes of Application : (History data 3)

Average of amount of rainfall anomaly



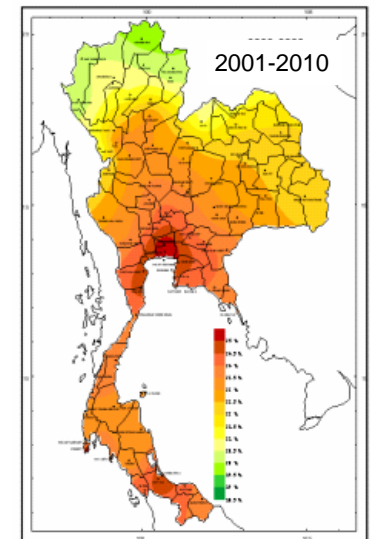
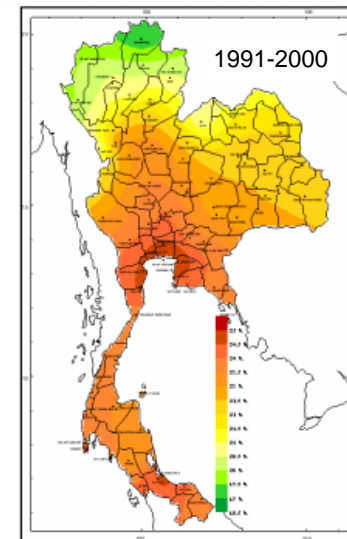
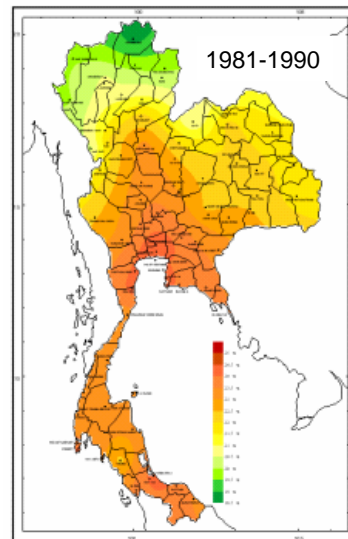
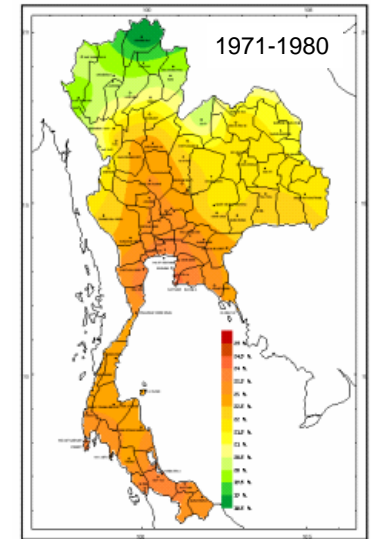
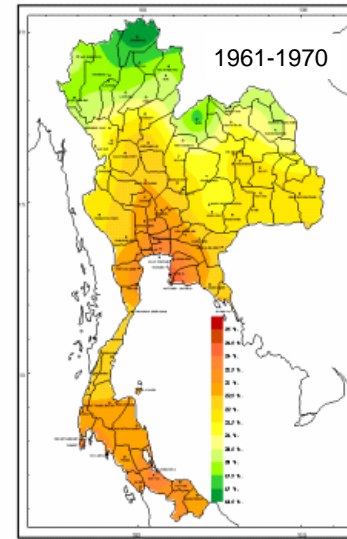
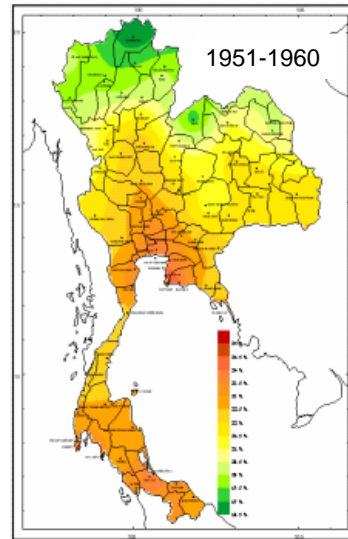
• Outcomes of Application : (History data 1)

Decadal maximum temperature



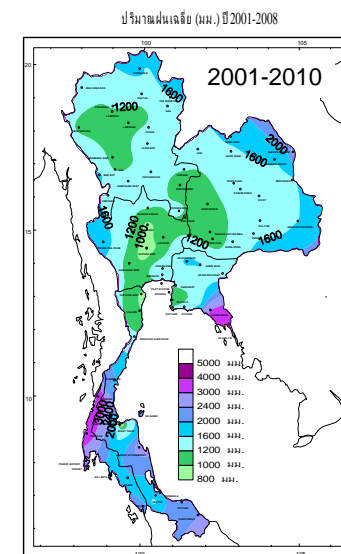
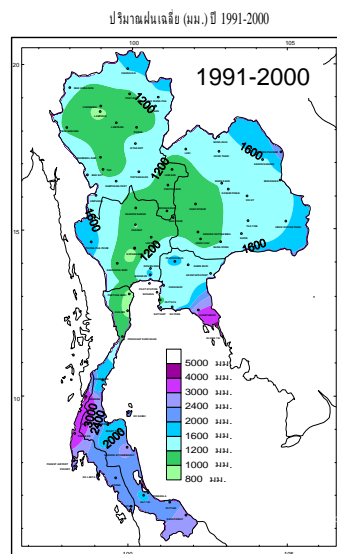
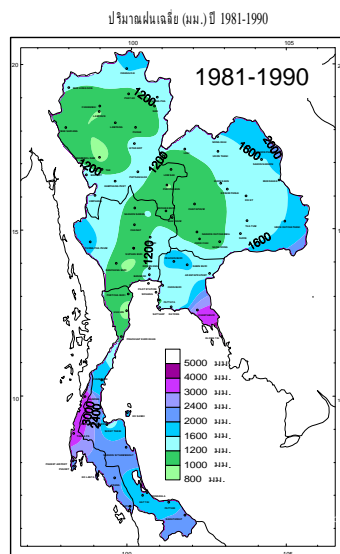
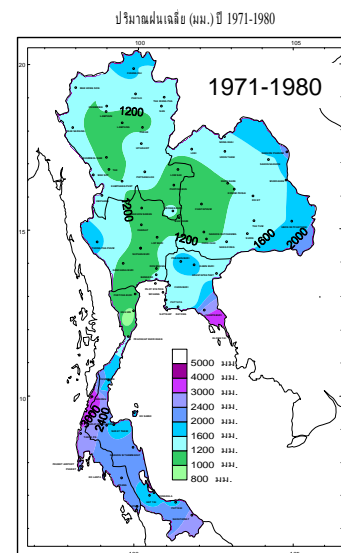
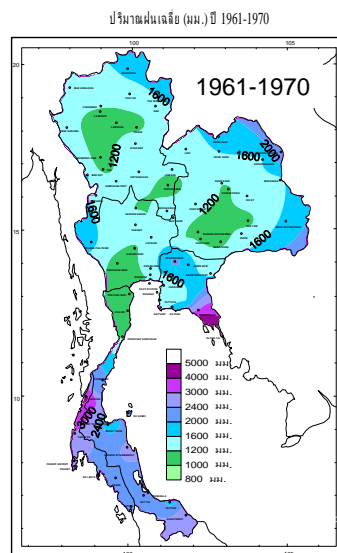
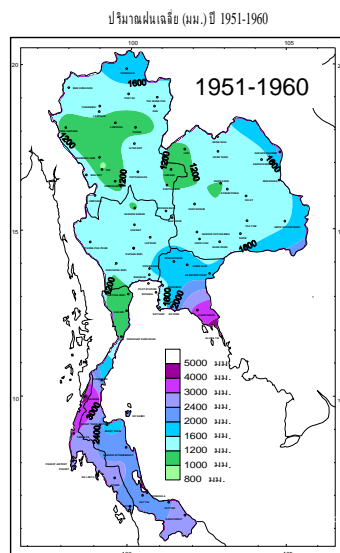
• Outcomes of Application : (History data 2)

Decadal minimum temperature



• Outcomes of Application : (History data 3)

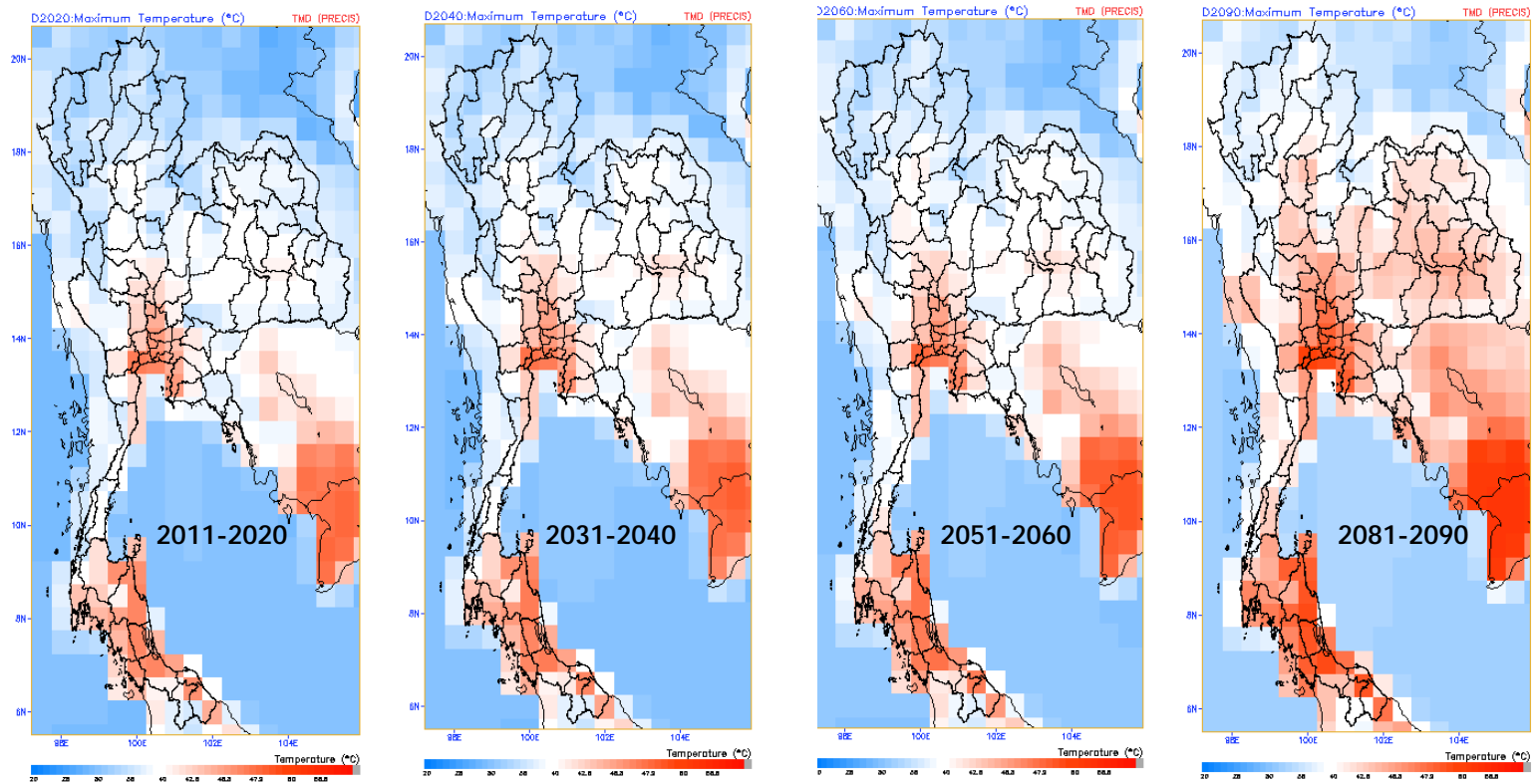
Decadal amount of rainfall



• Outcomes of Application : (RCM outputs 1)

Mean maximum temperature: 90% of RCMs results are higher than observed data (10% are nearly observed data). By 2100s (2091 to 2100), the most areas will increase of 4°-5°C compare by 2000s (1991 to 2000).

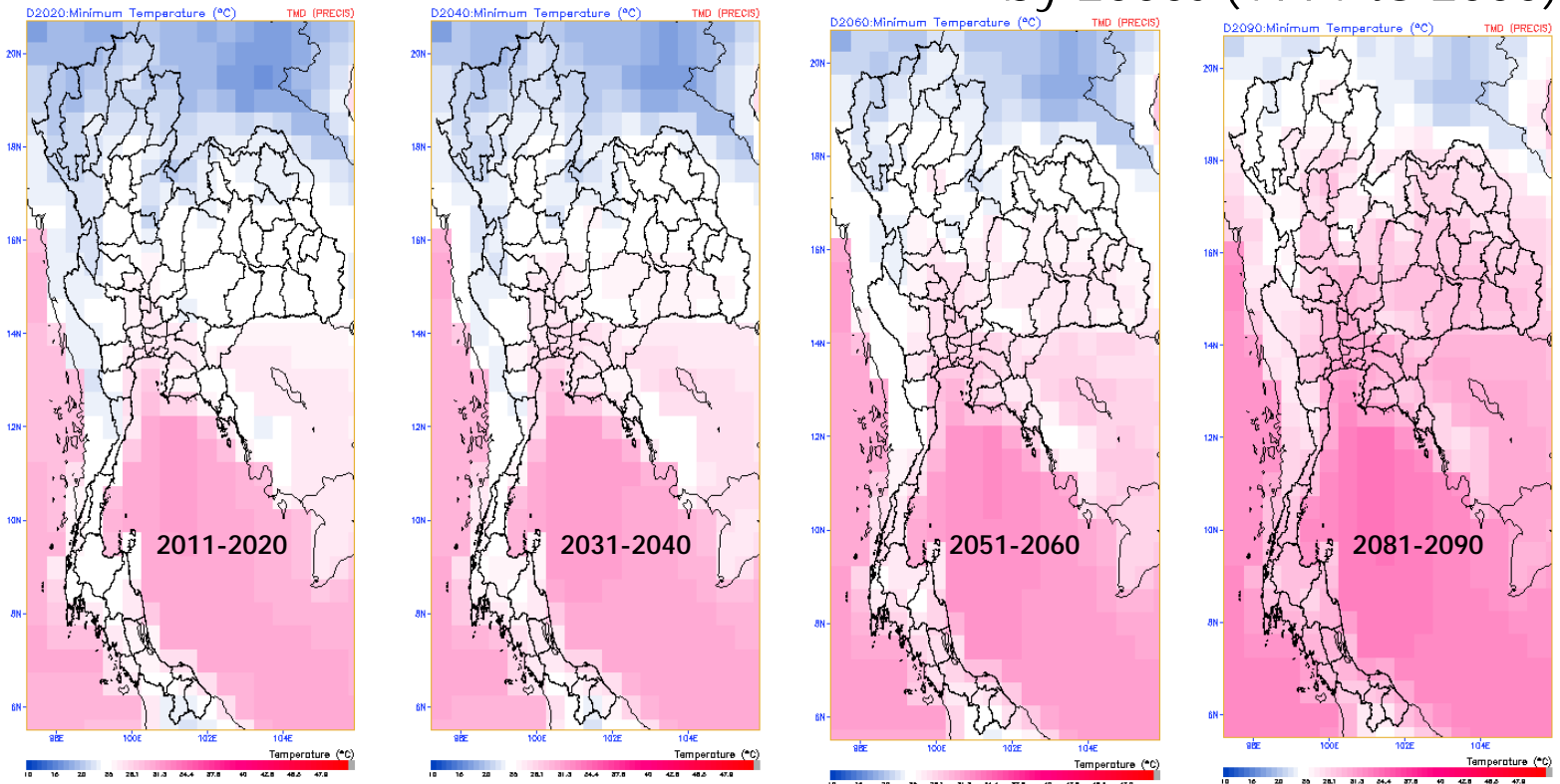
Examples



• Outcomes of Application : (RCM outputs 2)

Mean minimum temperature: RCMs results is most reliably, 63% of results are higher than observed data (37% are nearly observed data). By 2100s (2091 to 2100), Increasing in mean minimum temperature of Thailand, mostly will increase of 4°-5°C compare by 2000s (1991 to 2000).

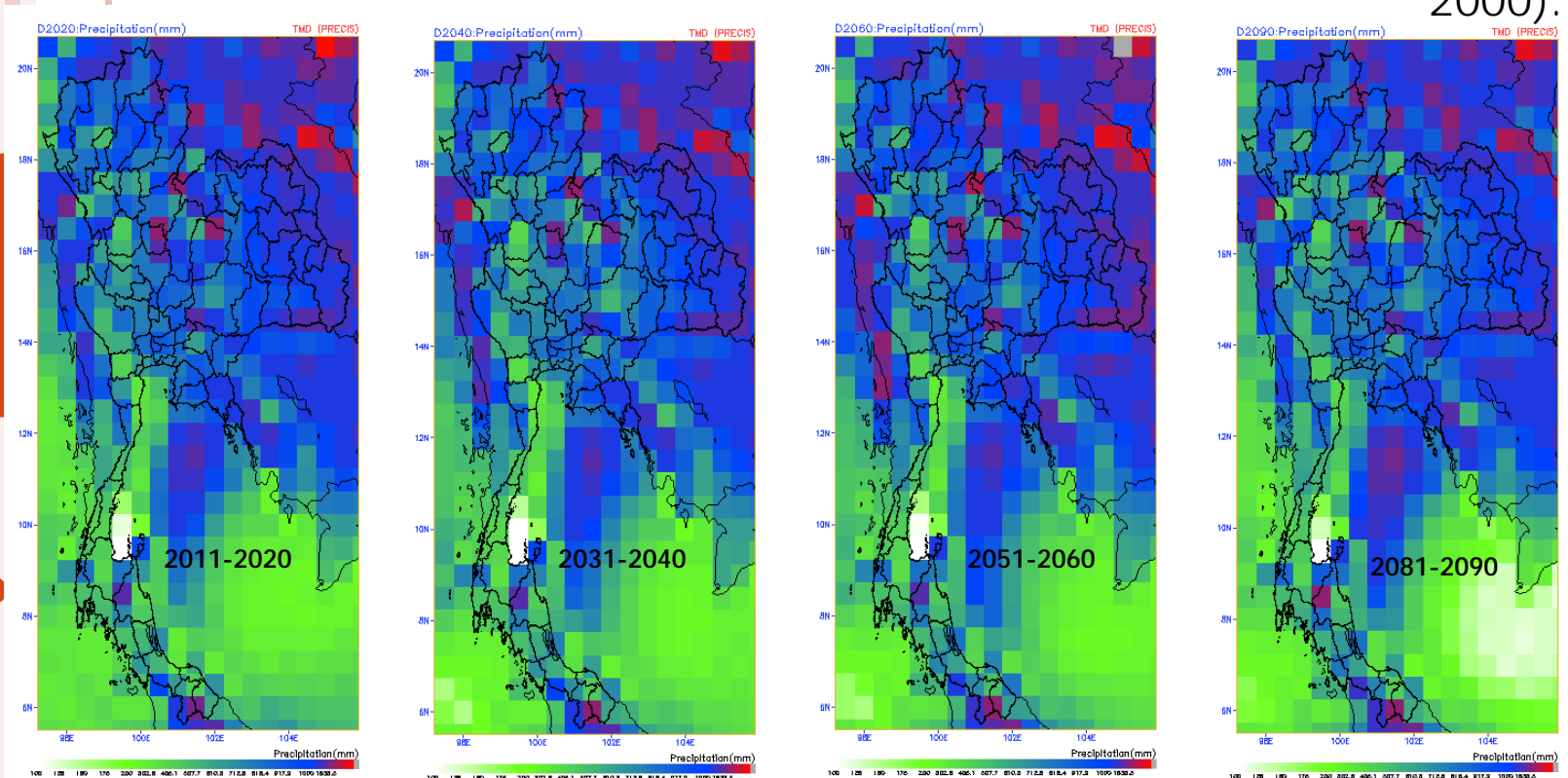
Examples



• Outcomes of Application: (RCM outputs 3)

Mean amount of rainfall: 8% of RCMs results are nearly to observed data. By 2100s (2091 to 2100), The trend of mean amount of rainfall is not clearly in most areas, but it will increase in coastal areas and it will decrease in the northeastern part, compare by 2000s (1991 to 2000).

Examples





- **Cost / Benefits:**

Cost : computer and human resources, knowledge, and history data.

Benefit : for policy maker to adaptation and mitigation plan, especially it effects to water management and planting plan. Growth rates of plants may be affected by higher temperatures or changes in the amount and timing of precipitation.

STUDY:

Consultation Mechanisms : Consultation between climate center's staff of TMD.

Structural Interface : Direct contact to climate center's staff of TMD for data/information

Delivery Mechanism : Printed as summary report and provided in electronic format on website (www.tmd.go.th)

Feedback Mechanism : Meeting and briefing sessions between user and staff.

Lessons Learnt : It isn't a simple operation to predict the climate change. A higher resolution is needed to accurately.

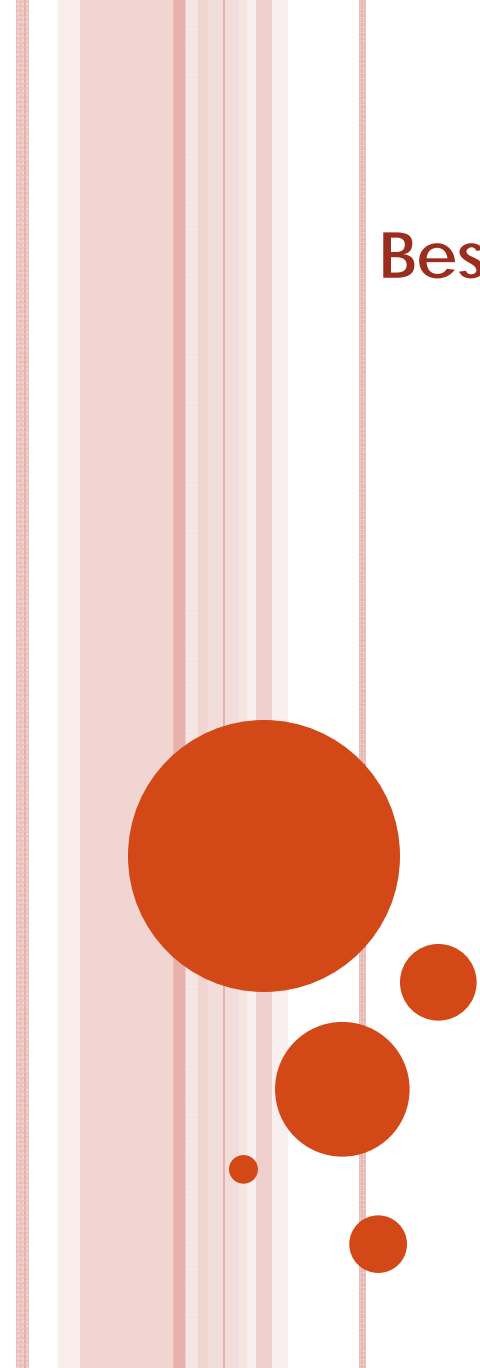
Project Logistics

Resources used : 8 calendar months for the RCMs run because of limit on computer efficiency and human resources.

Data requirements : Initial data from GCM model had required to the RCMs run, and history data had required.

Economic expertise : None

Required : An understanding of how benefits are estimated, the better efficiently computer and human resources are essential.



Best Practice Advice : Users will be aware and will have well knowledge and understanding in fields relating to climate change before using the products to adaptation and decision.

Possible Future Advances : Improving and developing in climate prediction (scenario, elements).



Thank you for your attention