

**High resolution climate change projection under SRESA2 scenario during summer and winter monsoons over southeast asia using PRECIS regional climate modeling system**

**ABSTRACT**

Climate change is the significant change of weather pattern over long period of time and it is related to interaction of complex system. Climate change brings adverse impacts to Southeast Asia since most economics are relying on agriculture and natural sources. The aim of this paper is to investigate and project the future climate for Southeast Asia by the end of 21st century. The PRECIS-RCM (Providing Regional Climates for Impact Studies) is the latest version of Hadley Centre model and used to downscale global data from HadAMP-GCM to regional data by generating the A2 future climate change scenario. Under the A2 climate scenario, the surface temperature is projected to increase during DJF and JJA (3.0oC and 3.1oC). T-test shows that surface temperature changes of all seasons were statistically significant at 95% confidence level over the whole SEA area. In response to the warming across the region, there was a reduction in cloud fraction and increased in solar radiation. Meanwhile, the future changes in precipitation have shown a high degree of variability. These results suggest that significant changes particularly the surface temperature and precipitation could potentially increase the climate-related risks and vulnerability in the region.