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The Projections of Urban Climate Change Using Conformal Cubic Atmospheric Model in Bali, Indonesia

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Abstract : Urban climate change has short- and long-term implications for decision-makers in urban development. The problem for this important metropolitan regional of population and economic value is that there is very little usable information on climate change. Research about urban climate change has been carried out in Bali Indonesia by using Conformal Cubic Atmospheric Model (CCAM) that runs with Representative Concentration Pathway (RCP)4.5. The history data means average data from 1975 to 2005, climate projections with RCP4.5 scenario means average data from 2006 to 2099, and anomaly (urban climate change) is RCP4.5 minus history. The results are the history of temperature between 22.5-27.5 OC, and RCP4.5 between 25.5-29.5 OC. The temperature anomalies can be seen in most of northern Bali that increased by about 1.6 to 2.9 OC. There is a reduced humidity tendency (drier) in most parts of Bali, especially the northern part of Bali, while a small portion in the south increase moisture (wetter). The comfort index of Bali region in history is still relatively comfortable (20-26 OC), but on the condition RCP4.5 there is no comfortable area with index more than 26 OC (hot and dry). This research is expected to be useful to help the government make good urban planning.

Keywords : CCAM, comfort index, IPCC AR5, temperature, urban climate change
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