



## **Investigation of Urbanization effect on Climate Change in South China by WRF model**

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It is found from statistical analysis that urban effects have great impact on climate change in South China, especially in recent year with the fast economic development in China. Minimum temperature and precipitation tend to be greater in urban area than in rural region. This study tends to prove this urban effect in South China, especially the Pearl River Delta region by using Weather Research and Forecasting model (WRF).

In this study, we use two land use data of Pearl River Delta in 1980 and 2000 respectively. For urbanization development, we especially focus on Guangzhou and Shenzhen region. According to the change rate of urban and build-up area from 1980 to 2000, we set different land use change scenarios in Guangzhou-Shenzhen region to test the sensitivity of model simulations to different land use change. Average the results from different scenarios simulation, we do find the urban effect has great influence on temperature change as well as precipitation change. It is also found that WRF model can reproduce well the feature of DTR (diurnal temperature range) change in urban and rural area.

**Key words** climate change; WRF model Urbanization; South China; Pearl River Delta