



Numerical studies of regional climate extremes in Southeast China

W. Chen (1), Z. Jiang (1), and L. Li (2)

(1) NUIST, KLME, Nanjing, China (wl_chenchen@163.com), (2) CNRS, LMD, Paris, France (li@lmd.jussieu.fr)

A variable-grid atmospheric general circulation model, LMDZ, with a local zoom over southeast China is used to investigate climate changes in terms of both mean and extremes. Two time slices of 30 years are chosen to represent respectively the end of the 20th century and the middle of the 21st century. The boundary conditions were taken from the outputs of three global coupled climate models. An evaluation of the simulated temperature and precipitation for the current climate shows that in general LMDZ reproduces well the spatial distribution of mean climate and extremes in southeast China, but the model has systematic cold bias in temperature and tends to overestimate the extreme precipitation. Scenario results show that in all seasons there is a significantly increase for mean, maximum and minimum temperature in the entire region, associated with a decrease in the number of frost days and with an increase in the heat wave duration. The magnitudes and main spatial patterns of the changes in temperature extremes show a quite good consistency among three global scenarios. A warming environment will also give rise to changes in extreme precipitation events. Precipitation extremes will increase over most of southeast China, and this in a quite consistent manner among the three global scenarios.