

Tropospheric ozone response on climate change in Malaysia

ABSTRACT

Ozone at the tropospheric level is considered as pollutants and harms the human health. As the chemistry of tropospheric ozone is sensitive to solar radiation and temperature, one may expect significant changes to the tropospheric ozone variability due to climate change. In this study, the authors have explored the impact of regional climate change to the tropospheric ozone in a number of urban, rural and remote areas in Malaysia. This paper aims to develop a climate change scenario for A2 emissions over Malaysia using RCM PRECIS model and used the climate output as input to CiTTYCAT, a tropospheric chemistry model. At the end of this century, the surface temperature and precipitation were found to increase both during wet season (winter monsoon) and dry season (summer monsoon). In response to climate change relative to the observed ozone concentrations in year 2008, tropospheric ozone concentrations have been found to increase in urban areas (Kuala Lumpur, SgPetani and Kota Kinabalu), while in rural and remote areas (Kapit and Danum Valley) concentrations have been found to decrease. These projections were observed in both seasons. This study has suggested that tropospheric ozone sensitivity to climate change shows a degree of response variability.