Abstract

Introduction:

Changes in climate have impacts on natural and human systems on all continents and across the oceans. Most countries, including the UAE, are expected to experience a huge impact of climate change, due to the undergoing rapid growth and huge urban developments.

Materials & Methods:

Representative Concentration Pathways, or RCPs, represent the latest generation of scenarios that are used as potential inputs into climate models to show imposed greenhouse-gas concentration pathways during the 21st century. Four emission scenarios have been used for climate research; namely RCP 2.6, RCP 4.5 and RCP 6 and RCP 8.5. RCP 4.5 and RCP 8.5 are used. The aims of this study are to assess different RCPs and their appropriateness to predict temperatures and rainfall and to study the effect of climate change on three different cities in the UAE.

Results & Conclusion:

The results show a strong correlation between the present Tmax *vs* Tmax 2020, Tmax 2040, Tmax 2060, Tmax 2080 and Tmax 2095 for both RCP4.5 and RCP8.5. This means that maximum temperatures are going to increase in the coming years based on the predictions according to the different scenarios using MarksimGCM^{R}.

Precipitation projections shows greater variation than temperature. In this paper the amount of increase in temperatures and precipitation change is shown for the end of the current century.