



Abu Dhabi Polytechnic

Students' Graduation Project Abstract

Department:	Meteorology	Semester:	Spring-2022
Project Title:	Climate Change over the UAE as assessed from CMIP6 Models PART-2		
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Abstract:

The MENA region, which is the Middle East and North Africa, that extends from the Maghreb in the Northwest of Africa to the Arabian Peninsula is susceptible to climate hazards in a warming scenario. Significant variations are found in the future climate (e.g., temperature and precipitation) from the latest Coupled Model Intercomparison Project (CMIP6) simulations under the three Shared Socioeconomic Pathways (SSPs) over this region. Although coarse-resolution General Circulation Models provide an overall view of the changes in climate fluctuations, for more accurate projections over a region like MENA, climate downscaling simulation using a Regional Climate Model is necessary. Here, we use simulations from the Coordinated Regional Climate Downscaling Experiment (CORDEX) of the World Climate Research Program over the MENA region (CORDEXMENA) to assess the future climate over the UAE. Indices of extremes are calculated using daily temperature, precipitation, and humidity from the simulations and validate with the few meteorological stations over the United Arab Emirates (UAE) in the historical period.

Further, this study aims to evaluate the projection of extreme temperature thresholds (like hot and cold days) over the region in a warming scenario (RCP 8.5). The sensitivity of the results and model uncertainty will be discussed. Various methods of analysis were added, and more ensembles of each variable were studied to determine the future climate changes in the MENA region focusing on the UAE.