



Climate change projection over Mediterranean under RCP4.5 and RCP8.5

Rafaella - Eleni Sotiropoulou (1,2), Ioannis Stergiou (1), Efthimios Tagaris (1,2)

(1) University of Western Macedonia, Dept. of Mechanical Engineering, Kozani, Greece (rsotiropoulou@uowm.gr), (2) University of Western Macedonia, Dept. of Environmental Engineering, Kozani, Greece

Climate change projection is assessed for the middle of 21st century over the Mediterranean under two different Representative Concentration Pathways (RCPs); the RCP4.5 and the RCP8.5. The Goddard Institute for Space Studies General Circulation Model (GISS GCM) ModelE is used to simulate current and future climate while the Weather Research and Forecasting (WRF) model is used to dynamically downscale GCM simulations at a 9 km by 9 km grid resolution. Meteorological conditions in the finer grid size are simulated for five current years around 2010 (i.e. 2008-2012) and five future years around 2050 (i.e. 2048-2052) due to the time needed for the downscaling procedure. Spatial distribution plots suggest that annual average temperature will change in the range of -0.5 - 1.25 °C and 0 -1.5 °C according to RCP4.5 and RCP8.5, respectively. For the greater part of the area, annual average change in the precipitation rates is estimated in the range -20 – 20 % and -40 – 20 % according to RCP4.5 and the RCP8.5, respectively. However, the suggested changes are location depended with significant differences in the seasonal estimations.

Acknowledgments LIFE CLIMATREE project “A novel approach for accounting & monitoring carbon sequestration of tree crops and their potential as carbon sink areas” (LIFE14 CCM/GR/000635).