Plinius Conference Abstracts,
Vol. 11, Plinius11-102, 2009
11th Plinius Conference on Mediterranean Storms

Incorporating vegetation dynamics in regional climate change projections over the Mediterranean region

C.A. Alo (1) and E.N. Anagnostou (1,2)

(1) University of Connecticut, Civil and Environmental Engineering, Storrs, CT 06269, USA (calo@engr.uconn.edu, manos@engr.uconn.edu, +1 860 486 6806), (2) Hellenic Center for Marine Research, Institute of Inland Waters, Anavissos, Greece (manos@engr.uconn.edu, +30 229 107 63 23)

Recent projections of climate change over the Mediterranean region based on general circulation models (e.g. IPCC AR4 GCMs) and regional climate models (e.g. PRUDENCE RCMs) generally show strong warming and pronounced decrease in precipitation, especially in the summer. While the role of vegetation in modulating the regional climate is widely recognized, most, if not all, of these GCM and RCM climate change projections do not account for the response of the dynamic biosphere to potential climate changes. Here, we present preliminary results from ongoing 15-year simulations over the Mediterranean region with a regional climate model (RegCM3) asynchronously coupled to a dynamic vegetation model (CLM-DGVM). Three experiments are performed in order to explore the impact of vegetation feedback on simulated changes in mean climate, climate variability and extreme climatic events (i.e., flood-inducing storms, droughts, heat waves, and extreme winds). This includes 1) a present day climate run with dynamic vegetation, 2) a future climate run with dynamic vegetation, and 3) a future climate run with static vegetation (i.e. vegetation fixed at the present day state). RegCM3 and CLM-DGVM are both run at a horizontal grid spacing of 20 km over a region covering the Mediterranean basin and parts of Central Europe and Northern Africa. Results illustrate the importance of including vegetation feedback in predictions of climate change impacts on Mediterranean climate variability, extreme climatic events and storms.