



DUST OVER THE MEDITERRANEAN USING AN ONLINE CLIMATE-CHEMISTRY REGIONAL CLIMATE MODEL (REGCM4)

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Dust is transported from the Sahara to the Mediterranean through episodic events. Eastern, central and western Mediterranean receive different loads of dust that follow diverse trajectories path and from various dust sources in the Sahara. Here we investigate the spatiotemporal patterns of dust using the on-line chemistry-climate regional model RegCM4 and evaluate it with a "pure dust" satellite product LIVAS for the period January 2007 to November 2014 over the Mediterranean. According to LIVAS western Mediterranean exhibits a dust optical depth maximum during summer, while eastern Mediterranean over spring. Central Mediterranean is considered a transition area that receives dust throughout the year and display a main spring maximum with a secondary in summer. RegCM4 overestimates the dust optical depth over all subregions and captures its annual cycle adequately. Although it exhibits a positive bias over eastern and western Mediterranean during summer and spring respectively. The vertical distribution of dust is also investigated using the dust extinction. The model tends to underestimate dust in the planetary boundary layer and overestimates in the free Troposphere. Vertical advection and vertical convective transport of dust is probably accountable for the overestimation in the middle Troposphere.