

Name-Surname	Styliani Apostolopoulou
Thesis Title	<i>Mass concentration profiling using lidar measurements at the station of Finokalia, Crete</i>
Supervisor	E. Giannakaki, Lecturer
Summary	<p>In this study we investigate the validity of the aerosol mass concentration profiles simulated with the RAMS/ICLAMS, SKIRON/Dust and DREAM8b using observational lidar data. For this purpose, were used retrievals of the PollyXT lidar in combination with measurements of the CIMEL sunphotometer, which perform measurements at the frame of CHARADMExp campaign during June – July 2014. Lidar aerosol vertical profiles are required to validate the modeled vertical mass concentration products. The main model products typically involve mass concentrations for different aerosol types. Thus, to ensure comparability we convert the lidar 's output, such as the aerosol backscatter and extinction coefficient profiles after applying appropriate techniques. Three case studies were selected, involving dust particles from the Sahara, marine particles as well as a mixture of them. The comparison showed a good estimation of the geometric characteristics of dust layers but an underestimation of the mass concentration values by the model DREAM8b. The SKIRON/Dust model showed a good agreement on the geometry and absolute concentration values of the lower dust layer, but there is an overestimating by the model concerning the upper dust layer. The RAMS/ICLAMS model simulates marine particles at heights lower than 1 km while the comparison shows lower values of mass concentration than lidar approach.</p>
Key words	<i>lidar, dust, marine aerosols, aerosol separation</i>
Evaluation committee	E. Giannakaki, Lecturer G. Kallos, Professor V. Amiridis, Senior Researcher