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<b>Thesis Title</b>	<i>Nuclei condensation and cloud creation</i>
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<b>Summary</b>	<p>In the current study we investigate the possibility of retrieving vertical distributions of cloud condensation nuclei (CCN) and ice nuclei particles (INP) with the use of a ground-based remote sensing lidar system. For this purpose lidar measurements conducted in the framework of the CHARADMExp campaign (June-July 2014) in the Finokalia station in Crete are used. In our work we first utilize the particle depolarization ratio for characterizing the aerosol types probed (marine particles, Sahara dust aerosols and continental particles). Afterwards we proceed with the CCN and INP retrieval of the vertical distributions of the concentration. The retrieval is done in two phases: first, the extinction coefficient is converted into concentration using conversion coefficients obtained from CIMEL photometer for different aerosols types; then, well-known CCN and INP parameterization schemes available in the literature are used for the final CCN, INP retrievals. We apply our methodology in Sahara dust and marine aerosol cases, and also in their mixtures. We observe that the dust aerosols create more CCN than marine particles. The water particles do not affect the formation of INP because of the lack of low temperatures in the height range of their presence.</p>
<b>Key words</b>	Aerosols, cloud condensation nuclei, ice nucleation particles, LIDAR, CIMEL
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