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Thesis Title	<i>Studying spectral characteristics of the marine Atmospheric Boundary Layer over Aegean Sea</i>
Supervisor	C. Helmis, Professor
Summary	<p>In this master thesis the spectral analysis method is used, to investigate whether the turbulence mechanism over Aegean Sea, follows the standards which are fundamentally satisfied over flat, homogeneous land surfaces and over oceans.</p> <p>The measurements took place at the shoreline of two Greek islands Skyros (Northern Aegean) and Karpathos (Southern Aegean), in September 2011 and August 2012 respectively, through a wider experimental campaign which held to investigate the momentum, heat and humidity fluxes, over this part of the north-eastern Mediterranean Sea. The power spectral density was estimated using the non-parametric method of periodogram, with the implementation of a 4th order, low-pass Butterworth filter in frequency domain.</p> <p>Results showed a good approximation between the mean spectra of the velocity's components and the Kaimal model at near neutral conditions, for both regions. Certain deviations from the expected theoretical slopes revealed from the Cospectra. The slope values varied from slightly less steep to significantly less steep from $-7/3$, meaning that momentum, energy and humidity fluxes over Aegean Sea have a clear variation compared to those over land or ocean, fact that can be attributed to its specific morphological and oceanographic features.</p>
Key words	Marine Atmospheric Boundary Layer, Spectra, Cospectra, Spectral Analysis, Turbulence
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