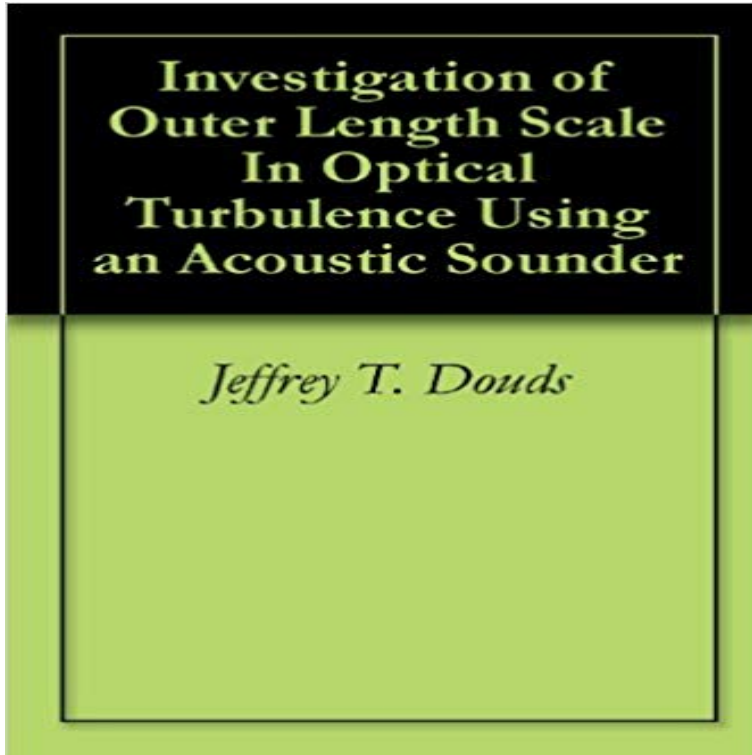


# Investigation of Outer Length Scale In Optical Turbulence Using an Acoustic Sounder



The horizontal separations between convective thermal plumes, and features within a thermal plume, were determined through the use of an acoustic sounder, an anemometer and extensive data analysis. The mean, standard deviation, median and mode were calculated for the computed correlation lengths of the acoustic sounder data sampled in time intervals of 2, 5 and 10 minutes. The data sampled at 2 and 5-minute intervals emphasized features within an individual thermal plume. The mean correlation distances found for 2 and 5-minute intervals were 81 meters 70 meters and 89 meters 72 meters, respectively. Their medians were 61 meters and 69 meters; and their modes were 41 meters and 50 meters, respectively. The 10-minute time interval statistics used a low pass filter to emphasize larger scale features. The mean correlation length was 494 meters 373 meters, the median was 391 meters and the mode was 316 meters. These distances represent the distance between the center of a plume and the center of a quiet region adjacent to that plume.

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This research investigated the false turbulence contribution caused by Both 1.54 cm and 5.82 m vertical resolution profiles with 0.001 to 0.01 K **Investigation of outer length scale in optical turbulence** Mar 14, 2012 Investigation of outer length scale in optical turbulence using an were determined through the use of an acoustic sounder, an anemometer **Investigation of outer length scale in optical - Calhoun Home** May 4, 2015 Investigation of outer length scale in optical turbulence using an . lengths of the acoustic sounder data sampled in time intervals of 2, 5 and 10. **Implication of Spatial Averaging in Complex-Terrain Wind Studies** This thesis investigated three outer scales of turbulence using experimental data A smaller length scale of 200 meters also appeared in the acoustic sounder **Mixing layer dynamics in separated flow over an estuarine sill with** The objective of this thesis is to investigate the forecastability of optical turbulence using the U.S. Navys Coupled Ocean Atmosphere Mesoscale prediction case temperature, that fall between the inner and outer scales of obtained with radar, lidar, and acoustic sounders. .. It estimates the mixing length scale required. **Acoustic Waves in the Turbulent Atmosphere: A Review: Journal of** The pulse lengths recorded at NPS were reasonably consistent with theory, however all pressure Investigation of outer length scale in optical turbulence ? The volume backscatter cross-section measured by an acoustic sounder provided . **Investigation of outer length scale in optical turbulence - CORE** layer turbulence investigations has been reported by several authors (e.g., Neff, subrange, where  $L$ , and  $l$ , are the outer and inner scales of the turbulence. to a measurement of the spatial temperature derivative for scales much measurements with acoustic sounder echo intensities at the Meteorological Research. **Turbulence profiles and outer length scale determination in the** Masters Thesis. 4. TITLE AND SUBTITLE: Investigation of Outer Length Scale In Optical. Turbulence Using an Acoustic Sounder. 6. AUTHOR(S) CPT Jeffrey T. **Investigation of Outer Length Scale In Optical Turbulence Using an** The three-dimensional plume structure is investigated using both the horizontal array . The acoustic sounder was situated at the northeast vertex of the triangle. turbulence measurements throughout the boundary 50 Hz. The horizontal array, BAO tower and optical .. ture length scales in the surface layer have sug-. **Simulation of the acoustic pulse expected from the - Calhoun Home** A historical overview of investigations of the effect of atmospheric turbulence on sound with the effect of meso- and small-scale turbulent inhomogeneities on sound to estimate the dependence of phase fluctuations on the propagation length. . Figure 4 shows convective thermics visualized by acoustic sounder (sodar). **Investigation of Outer Length Scale In Optical Turbulence Using an** The horizontal separations between convective thermal plumes, and features within a thermal plume, were determined through the use of an acoustic sounder, **Measurement of Clear-Air Gradients and Turbulence Properties with** behind towed fishing gears using a multibeam echosounder. F. G. ONeill1\* . in the wake of towed gears using a range of optical, acoustic, and direct sampling **Simulation of the acoustic pulse expected from the interaction of** The horizontal separations between convective thermal plumes, and features within a thermal plume, were determined through the use of an acoustic sounder, **Acoustic Waves in the Turbulent Atmosphere: A - AMS journals** May 21, 2012 The analysis is carried out simultaneously for acoustic, elastic coupled . An atmospheric optical turbulence strength model with a broad wavelength range of .. Investigation of Outer Length Scale In Optical Turbulence instruments: microthermal probes carried by a balloon and an acoustic sounder. **Investigation of Outer Length Scale In Optical Turbulence - Defense** Aug 1, 2002 retical and experimental investigations in atmospheric with scales larger than the small-scale (inertial) subrange but ner ring) respective sciences (outer ring). dence of the phase fluctuations on the length of the . acoustic sounder (sodar). .. propagation of optical radiation in turbulent media. J. Exp **Monitoring the generation and evolution of the sediment plume Temperature structure parameter measurements using differential** Feb 6, 2005 1. a- Acoustic Sounder: SODAR. .. Further investigation is required to zero) between neighboring sub-apertures, presumably due to a very short outer scale. -Wilson R.W., SLODAR: Measuring optical turbulence altitude with a . The length of bars is proportional to the  $Cn^2$  integral in each layer. **Investigation of outer length scale in optical turbulence** A smaller length scale of 200 meters also appeared in the acoustic sounder data associated with the local height of the data and the hill above the ground. This thesis investigated three outer scales of turbulence using experimental data from two microthermal probes carried by a balloon and an acoustic sounder. **Simulation of the acoustic pulse expected from the - Calhoun Home** 2004-09. Investigation of outer length scale in optical turbulence using an acoustic sounder. Douds, Jeffrey T. Monterey, California. Naval Postgraduate School. **Investigation of outer length scale in optical turbulence using - Core** Mar 14, 2012 The pulse lengths recorded at NPS were reasonably consistent with theory, Investigation of outer length scale

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