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Characterizing the Frequency and Seasonal Dependence of the Sea Breeze in Houston, Texas and Its Impact on Surface Ozone

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Sea breezes arise from temperature differences between land and an adjacent body of water, forming a thermally direct circulation within the boundary layer. During summer, the resulting circulation carries air offshore during the nighttime and early morning and onshore during the afternoon. Banta et al. [2005] noted the impact of recirculation of pollution on high ozone events in Houston. This study characterizes the frequency of flow reversals that accompany the arrival of sea breeze fronts in Houston and the seasonal dependence of that frequency. Furthermore, we quantitatively analyze the effect of the sea breeze on ozone concentrations in the Houston area.

Information about the Authors:

The authors of this project have a background in both physics and meteorology. Students from Valparaiso University have taken part in scientific field experiments measuring ozone levels in Houston for many years. This study stemmed from previous research on the topic.

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