

Evaluating the Impact of Baseline Ozone in California using Ozone-Sonde Measurements at Trinidad Head, CA (THD): Overview

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In 2015, the Environmental Protection Agency (EPA) revised the 8-hour ozone (O₃) National Ambient Air Quality Standard (NAAQS) to 70 parts-per-billion (ppb). Previous studies in California have documented instances in which downward mixing of baseline O₃ aloft contributed to surface O₃ levels that exceeded this new O₃ threshold. In many cases, baseline O₃ entering California can frequently exceed 60 ppb. Since baseline O₃ is not governed by O₃ precursor emissions within the State, attainment of 8-hour O₃ NAAQS in environmentally sensitive areas can become even more challenging under certain meteorological and environmental conditions that allow surface O₃ levels to be influenced by long-range transported O₃. Information on baseline O₃ is becoming more important as the gap between O₃ standard and baseline O₃ levels diminish. The Ozone-Sonde dataset at Trinidad Head, CA (THD) contains the most temporally comprehensive vertical O₃ profile measurements in California and provides extensive information on the baseline O₃ that travel into the west coast. In order to determine the potential impact of baseline O₃ on surface air quality, the California Air Resources Board (CARB), air quality management districts (AQMD), and atmospheric sciences community are evaluating the magnitude and the temporal variation of baseline O₃ using the THD data. The information is also being used to improve regional air quality and global transport models. This poster presentation highlights the criticality of continued Ozone-Sonde measurements at THD and how the information is currently being used to support the State's air quality research and the development of future State Implementation Plans.



Figure 1. Trinidad Head and the town of Trinidad, CA from Luffenholz Beach.