



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

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Project Title Secrets of San Lorenzo Valley's Atmosphere	
Abstract Objectives/Goals To determine the affect of atmospheric inversions on ground particulate matter 2.5 levels. And to compare San Lorenzo Valley's particulate matter 2.5 levels to neighboring areas. Methods/Materials We used: radiosondes, 200g balloons, helium, parachutes, dereelers, an i-Met 3050 Sounding System, and data from EBAMs. We collected atmospheric data over a period of three months, launching weather balloons three times a week, twice a day to obtain atmospheric data. Results Particulate matter 2.5 clearly was affected by atmospheric inversions, and increased greatly on inversion days. In some cases, PM 2.5 levels were "unhealthy" on inversion days and "healthy" on non-inversion days. Also, differing topography between San Lorenzo Valley and non-valley areas also influenced particulate matter 2.5 levels; most comparisons had "unhealthy" PM 2.5 levels in San Lorenzo Valley, while PM 2.5 levels in a neighboring area were "healthy". (Ratings [healthy/unhealthy/etc.] were derived from a modified Air Quality Index Table we had created). Conclusions/Discussion Inversions increase levels of particulate matter 2.5, and San Lorenzo Valley experienced many unhealthy days for particulate matter. San Lorenzo Valley experienced much higher particulate matter 2.5 levels then neighboring areas - to such extent that while another area may be experiencing "healthy" PM 2.5 levels, San Lorenzo Valley can be experiencing "unhealthy" PM 2.5 levels.	
Summary Statement Finding the affect of inversions on particulate matter 2.5 levels in San Lorenzo Valley and comparing particulate matter 2.5 data from San Lorenzo Valley to Santa Cruz particulate matter 2.5 levels.	
Help Received Received equipment/money and training from Monterey Bay Unified Air Pollution Control District and Inter-Met.	