



**CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY**

Name(s) Ashley Welch; Maxwell Zinkievich	Project Number 36317
Project Title El Niño's effects on San Lorenzo Valley's Atmospheric Inversions	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of our project is to compare atmospheric inversion events in the San Lorenzo Valley during El Nino and non El Nino years, and to identify the differences in atmospheric stratification as well as particulate matter (PM 2.5) counts. We wanted to observe the atmospheric changes that the El Nino weather patterns would do to the formation and intensity of atmospheric inversions in the valley.</p> <p>Methods/Materials To accomplish this, we launched iMet radiosondes from San Lorenzo Valley High School, which is located in San Lorenzo Valley, carried by 200 gram weather balloons into the atmosphere. We then analyzed the data that we collected to see if an inversion was present, and then to see what the specific characteristics of that inversion were.</p> <p>Results After we had collected a substantial dataset, we compared the major characteristics of the inversions from an El Nino year, to a non El Nino year, using past datasets that were collected at the same local. For these two data sets, we were able to clearly see the differences in inversions between the years. Then, we were able to access a BAM (Beta Attenuation Monitor) located on San Lorenzo Valley#s Tri-School campus to see the differences in PM 2.5 accumulation due to inversions over time.</p> <p>Conclusions/Discussion From the data sets that we have collected, both from the radiosonde launches, as well as from the BAM, we can say that the atmospheric effects of El Niño are that inversions occur less often and when they do, they do not have their normal intensities and because of this, trap smaller amounts of pollutants in the atmosphere.</p>	
Summary Statement Our project compares the difference between atmospheric inversions occurring in an El Nino year to those occurring in a non El Nino year.	
Help Received We received supplies and a \$1,500 supplies grant from the Monterey Bay Unified Air Pollution Control District.	