



**CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY**

Name(s) Robert Jeffrey; Chloe Zehr	Project Number S2204
Project Title The Relationship between Terrestrial Salamanders and El Nino Soil Moistures	
Abstract Objectives/Goals To compare the effects of El Niño conditions on two different ecosystems in Henry Cowell State Park, determining if increased soil moisture as a result of additional rainfall increases salamander abundance. Methods/Materials Measured macro- and micro-climatic factors through Vernier LabQuest interface and probes; counted salamanders under artificial cover objects in five stations categorized by species. Data consolidated with historical data to compare salamander counts in past years. Results We compared our data to those of past years with a two-way ANOVA and a linear regression. From these models we found that the salamander counts appear to drop as percent soil moisture drops, and counts appear to peak when soil moisture peaks. We found a small increase in average salamander counts this year as compared to previous years. Conclusions/Discussion We did not find a strong correlation between soil moisture and salamander counts in our short term data. From our statistical analyses, we found a moderate correlation between salamander counts and soil moisture. Therefore, we project that with continued data collection, we will find stronger positive correlations in longer-term data.	
Summary Statement We compared climatic data to four years of salamander counts to find no major recoveries from the California drought.	
Help Received Our mentor taught us a statistical analysis and our science teacher taught us how to use some of our equipment.	