



**CALIFORNIA STATE SCIENCE FAIR  
2016 PROJECT SUMMARY**

<b>Name(s)</b> Robert Jeffrey; Chloe Zehr	<b>Project Number</b>  36600
<b>Project Title</b> The Relationship between Terrestrial Salamanders and El Niño Soil Moistures	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> 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.</p> <p><b>Methods/Materials</b> 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.</p> <p><b>Results</b> 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.</p> <p><b>Conclusions/Discussion</b> 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.</p>	
<b>Summary Statement</b> We compared climate data to four years of salamander counts to find no major recoveries from the California drought.	
<b>Help Received</b> Our mentor taught us a statistical analysis and our science teacher taught us how to use some of our equipment.	