



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Reyna D. Garcia</b>	<b>Project Number</b> <b>S1507</b>
<b>Project Title</b> <b>What Is the Effect of Sunspots on Radio Reception?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> I set out to do this project because I wanted to extend and correct the project I conducted last year. I wanted to demonstrate that the correlation I found was not simply due to my human error, but that there in fact was more to it. I wanted to show that sunspots indeed have an effect on radio reception.</p> <p><b>Methods/Materials</b> Materials : 1. 10 portable radios; 2. 10 stop watches; 3. Open area with decent reception; 4. Paper/pencils; 5. Computer; 6. Daily sunspot activity charts. Procedures: 1. Set up all ten portable radios in open area with decent reception. 2. Set them to the same station. 3. Have ten people sit for an hour and listen for static. 4. If there is static time its duration. 5. Record findings. 6. Repeat steps 1-5 every weekday for two weeks. 7. Analyze raw data.</p> <p><b>Results</b> I found that there is a positive correlation between the number of sunspots and the quality of radio reception. On days when there was one active sunspot there was a recorded average of 0.72 seconds of static per one hour period, on days with two active sunspots an average of 1.64 seconds, on days with three active sunspots an average of 3.87 seconds, on days with four active sunspots an average of 5.01 seconds, on days with five active sunspots an average of 6.28 seconds, on days with six active sunspots an average of 6.72 seconds, and on days with seven active sunspots an average of 7.13 seconds . On February 18th, 2006 there were no sunspots affecting the region where the experiment was conducted, and because of that I chose it to be my control. As expected, on that day no static was detected. The results obtained may be explained by the electromagnetic bombardments caused by sunspots that disrupt radio waves.</p> <p><b>Conclusions/Discussion</b> The more sunspots there are, the poorer radio reception is.</p> <p><b>Application/Reflection</b> I did this science fair project because I wanted to see to what extent nature still had control over the technology we have worked for over five decades to perfect. My findings help illustrate that even in an age where technology is so greatly revered, we are still at the mercy of a force which at one point in history has also been venerated for its immense influence on Earthly matters. My findings show that at least to some extent sunspot activity affects radio reception.</p>	
<b>Summary Statement</b> The sun undoubtedly affects many aspects of earthly matters, my project helps exemplify how sunspots affect something we are all familiar with, the radio.	
<b>Help Received</b> First and foremost I would like to thank Jan Alvestad, who compiles solar information from SOHO and the Solar Region Summary provided by NOAA/SEC for public access. I would also like to thank all of the people who volunteered their time to help me collect all of the necessary data, and my parents for funding.	