



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jesse J. Redding</b>	<b>Project Number</b> <b>J0722</b>
<b>Project Title</b> <b>The Effect of the Moon's Gravity on Earthquakes</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> This study looks at whether the moon's gravitational pull affects the frequency, magnitude, and depths of earthquakes.</p> <p><b>Methods/Materials</b> The location of the moon at the time of each earthquake was calculated. I then computed the moon angle made by the longitude under the moon and the longitude of the earthquake. This angle was compared to the depths, magnitudes, and numbers of earthquakes, and plotted using Microsoft Excel. On the charts, sixth order polynomial trend lines are shown, and also the <math>r^2</math> expression which represents the fit of the trend line, the closer to 1.0 the better fit.</p> <p><b>Results</b> The Moon Angle did affect the number of earthquakes. This is shown in the trend lines of the graphs. They fit better as curved lines than straight lines. If the distribution of earthquakes was random and not affected, the trend lines would be straight.</p> <p><b>Conclusions/Discussion</b> One cause of these earthquakes could be the tide in the earth. This earth tide could cause tectonic plates to buckle slightly, causing earthquakes. The increases in the number of earthquakes at 90 and 270 degrees could be caused by the moon pulling simultaneously with and against the rotation of the earth. The moon angle did not significantly affect magnitude, and did not affect depth as much as expected.</p> <p>This research will lead to a better understanding of our earth. It will help us understand the pressure that the moon's gravity places on it, and may eventually lead to a way to help predict earthquakes.</p>	
<b>Summary Statement</b> This study looks at whether the moon's gravitational pull affects the frequency, magnitude, and depths of earthquakes.	
<b>Help Received</b> Mother helped with learning to use Excel.	