



CALIFORNIA STATE SCIENCE FAIR 2010 PROJECT SUMMARY

Name(s) Sarah M. McElligott	Project Number J0708
Project Title Does Lunar Activity Affect Earthquakes?	
Abstract Objectives/Goals The gravitational pull of the moon effects the tides on earth. This study was conducted to find out if the moon effects earthquakes as well. Hypothesis: If earthquakes occur near high tide, then the moon must be having an effect on the earth's fault lines because the moon has greatest gravtional pull on the earth at high (spring) tide. Methods/Materials Computer/internet access was used to obtain earthquake locations and tide data for comparison to determine if tides effect earthquakes; data was logged/graphed on the computer. Results 18 earthquakes (6.0+)and tide data showed 0% occurred at spring tide, 11.1% within 1 day, 44.4% within 2 days, and 61.1% within 3 days. 38.9% of earthquakes occurred closer to neap tide. 66.7% of earthquakes occurred after spring tide; most occurred on Day 2 (27.8%). Expanded data for 92 earthquakes showed 9.8% occurred at spring tide, 21.7% within 1 day, 37.0% within 2 days, and 50% occurred within 3 days. 50% of earthquakes occurred closer to neap tide. 60.9% of earthquakes occurred after spring tide; the most occurred on Day 2 (13.0%). 4.4% of earthquakes occurred at perigee, 8.3% within 1 day, 15.2% within 2 days, 19.6% within 3 days, and 54.4% within 7 days. On perihelion, 2 earthquakes occurred (2.2%). Conclusions/Discussion The hypothesis is neither proven nor disproven by the initial data. No earthquakes occurring at spring tide seems to disprove it; however 44.4% occurring within 2 days of spring tide, and 27.8% occurring on Day 2 seemed significant, so data collection was expanded. The hypothesis appears disproven with the expanded data since 50% of earthquakes occurred within 3 days of spring tide, and 50% occurred closer to neap tide. The largest number, 13.4% was on Day 2 again, suggesting the need for further study. The data for perigee was similar. 54.4% (about half) of earthquakes occurred within 7 days around perigee; about half occurred closer to apogee. The data sample for perihelion was small, hence additional data on earthquakes around perihelion would be helpful for further study.	
Summary Statement The project is to find out if the moon effects earthquakes.	
Help Received Father provided computer and internet access. Mother provided funds for website information and helped type the report.	