CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)	Project Number
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Project Title

Can Tree Frog Behavior Predict Earthquake Activity?

Abstract

Objectives/Goals

The objective was to see if Tree Frog behavior could help predict Earthquake activity. My hypothesis was that the frogs would climb and be active before a seismic event.

Methods/Materials

I re-designed my experiment from last year to get a lot more data and to add controls. Two species of Tree Frogs were observed in two terrariums and their behavior logged on a video system for 24 hours over 10 days. The experiment was conducted at a site on the Maacaama fault centered at 39.17N, 123.15W (in our family room). Seismic activity was downloaded from the USGS for the same period, limited to earthquakes greater than 1.0 on the Richter scale and with epicenters between 38.8 N and 39.5N. The frog behavior and the seismic data was then recorded on a spreadsheet and then graphed to show the correlations between the two.

Results

88 seismic events occurred over the 10 days during the experiment after adjusting for aftershocks. The video-log showed that the frogs were more active prior to seismic events than during the periods in-between: The California Tree Frogs averaged a 40.6% active and climbing rate while the Australian Tree Frogs averaged 33.6%. They averaged 19.3% and 17.8% respectively in the periods between seismic events.

Conclusions/Discussion

The results prove my hypothesis that the frog#s activity would increase and that they would actively climb near a seismic event. I could not see a relationship between magnitude and activity. My conclusion is that Tree Frogs are more active and climb before earthquakes.

Summary Statement

An experiment was designed to see if Tree Frog behavior could help predict earthquake activity.

Help Received

My mother helped me glue the printouts onto the board. My brother helped me set-up the cameras. My father helped me catch the California frogs, buy the Australian frogs and he helped me enter the data into a spreadsheet.