CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY

Name(s)
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Project Number
J2205

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 above mid-tank and be active before or after a seismic event.

Methods/Materials
Four Tree Frogs were observed in a contained terrarium three times per day for 30 days. An "Active-Frog" event was recorded when 2 or more frogs were above 15 cm and moving. The experiment was conducted at a site on the Maacaama fault centered at 39.17N, 123.15W (my bedroom). Seismic activity was downloaded from the USGS site for the same period, limited to earthquakes greater than 2.0 on the Richter Scale and with epicenters between 38.8 N and 39.8N. The frog behavior and the seismic data times were recorded on a spreadsheet and then graphed on a scatter diagram to show the correlations between the two.

Results
18 seismic events above 2.0 occurred on 13 different days during the experiment with 13 "Active-Frog" events on 11 days. If we changed the search criterion to >1.75, all 13 frog events coincided with a seismic event. There were a number of seismic events without an "Active-Frog" event.

Conclusions/Discussion
I could not conclude from my data that frogs would climb and be active prior to or just after a seismic event. There was no direct correlation between the two events. I concluded that I need to have more frequent observations of more frogs and some measure of seismic activity directly at the site of the experiment.

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

Help Received
My grandfather helped me buy the Tree Frogs. My mother helped type the data and glued the print-outs onto the board. My father and I bought the terrarium and he helped me put the data into a spreadsheet. Mr Zellman, my advisor, asked me a lot of questions and helped me understand the value of multiple data