# CALIFORNIA STATE SCIENCE FAIR
## 2007 PROJECT SUMMARY

**Name(s)**
Irene Hsu

**Project Number**
**J0713**

**Project Title**
# Relationship between Sunspot Number and the Geomagnetic Field: A Two Year Study

**Abstract**

**Objectives/Goals**
This study examined the possible correlation between sunspot number and the deflection component of the Earth's magnetic field. In the first year, sunspot measurements were taken with a Sunspotter daily, and magnetometer measurements were taken with a simple bar magnet (soda bottle) magnetometer at 10:00pm nightly for two months. In the second year, sunspot measurements were obtained online, and magnetometer measurements were taken first with a soda bottle magnetometer, and then a compass detector magnetometer for two months. After comparison of the final data, it was found that the higher the sunspot number, the stronger the perturbation in the Earth's magnetic field, and vice versa. This suggests that there is a positive association between sunspot number and the deflection component of the geomagnetic field.

**Summary Statement**
This study examined the possible correlation between sunspot number and the deflection component of the Earth's magnetic field.

**Help Received**
Used lab equipment at the UCLA Space Physics Lab; Kathryn Rowe helped build compass detector magnetometer; father helped build soda bottle magnetometer; Sunspotter was borrowed from Dr. Mark Moldwin