



California Science Center
CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

Your Name (List all student names if multiple authors.)

Spencer O. Hartfeld

Science Fair Use Only

J0512

Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9)

The Earth's Magnetic Pulses

Division

Junior (6-8) **Senior (9-12)**

Preferred Category (See page 5 for descriptions.)

5 - Earth Sciences/ Planetary Sciences/ Physical Environments

Abstract (Include Objective, Methods, Results, Conclusion. See samples on page 14.)

Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.

My objective for this project was to find how often magnetic pulses from the ionosphere rain down on the earth. My hypothesis was that these magnetic pulses come down onto the earth the most during the middle of the day. The method for taking this information was making a module that would detect when these pulses come onto the earth. It consisted of a nylon filament, electrical tape, window glass, rare-earth magnets, ceramic magnets, a laser, and a mirror. After construction of the module, the laser is directed onto the mirror. Rotation of the mirror would create movement of the laser beam. The laser beam would be shined on a wall where there was a piece of graph paper. Over time I would observe the movement of the laser beam and record its position. The result of this experiment was that the pulses are most constant, the strongest, and the longest lasting during the middle of the day. My conclusion is that most magnetic pulses and other magnetic disturbances occur the most during the middle of the day.

Summary Statement (In one sentence, state what your project is about.)

My project is the measure of magnetic pulses in the Ionosphere and how often they occur.

Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4.

My father helped me cut the glass and use epoxy for certain parts