



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) Daniel J. Lorell	Project Number <p align="right">34698</p>
Project Title Magnificent Magnetic Micrometeorites	
<p align="center">Abstract</p> <p>Objectives/Goals Objective: The objective of the experiment is to test whether micrometeorites fall in greater quantities in locations where earth's magnetic forces increase.</p> <p>Methods/Materials Methods and materials: Thirty-two 12.5" x 20" sheets of freezer paper were taped to thirty-two metal tins and sent to eight different locations. Each location was associated with a magnetic intensity band #9 altogether. Inclement weather (wet, soggy paper) ruined the data from one intensity band. However, for the other 7, for 7 consecutive days, each sample was placed outdoors in an area that was unobstructed to the sky. At the end of a week, sample sheets were folded up and sent back to Los Angeles for testing. A magnet was run under the sheets, and the particles that moved with the magnet, which were metallic, were observed under a microscope. If the particle could be identified as a micrometeorite, it was moved to a microscope slide for storage. Micrometeorites were identified as small magnetic particles that have a metallic appearance or texture, showed signs of melting, or contained porous craters</p> <p>Results Results: The hypothesis was proven to be correct in that the area that had the strongest magnetic field showed an average of .75 micrometeorites per sample, whilst the samples from the weakest magnetic fields averaged 0 micrometeorites per sample.</p> <p>Conclusions/Discussion Conclusions: As the hypothesis was proven, it might be reasonable to take into account the strength of a magnetic field when planning an orbit, as it is a variable for orbits and or trajectories of micrometeorites. The magnetic field of earth reaches out 59,725 miles. This could be a consideration for planning out future orbits. Additional analysis would need to be conducted, but the results of this experiment suggest more research on micrometeorites and magnetic fields could be worthwhile.</p>	
<p>Summary Statement This project is testing whether or not micrometeorites fall in greater quantities as earth's magnetic forces increase.</p>	
<p>Help Received Help Received in Doing Project My family across the country helped a great deal by cooperating and setting up experiments at their homes. My parents helped a great deal organizing experiment and assisted in formatting the final report. My school assisted by supplying a microscope to work with.</p>	