CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY

Name(s)
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Project Number
J0614

Project Title
Ground-Truthing THEMIS Using Infrared Readings

Abstract

Objectives/Goals
The objectve was to ground-truth THEMIS an infrared spectrometer on the Mars orbiter Odyssey. To see if you could find out the size and composition of rocks using thermal inertia.

Methods/Materials
I choose 12 different kinds of rocks for the study. I then took 10 readings with a infrared thermomiter for each rock in the field. Then I took on bag home of each kind of rock to test the thermal inertia. I then put a little bit of each kind of rock in a plastic contanier a put it in the freezer over night. The next morning I took the rocks out and took five readings of each rock every 15 minutes to deturmine the thermal inertia. I then repeated that exparament for an oven to test the thermal inertia of the cooling down of rocks.

Results
The size had a major part in determining the thermal inertia. The smaller the rock the the less thermal inertia it had. compositon also made a little bit of difference.

Conclusions/Discussion
On the basis of my results i found out that THEMIS is trust worthy, But THEMIS was looking at bigger ranges of the sizes of rocks.

Summary Statement
To test the thermal inertia of different kinds of rocks to tell if THEMIS's approach was based on solid work.

Help Received
Mother helped buy the infrared thermometer and to design the project.