CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)
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Project Number
S1703

Project Title
Testing Meteorite Impact Distances on Triton

Abstract

Objectives/Goals
Create an accurate model of Triton to test physical impacts from a meteorite. The use of the model helped to understand how different distances and angles change the force at which the meteorite would impact the moon, seeing whether the impacts are deep enough to bore through more than one layer of rock or ice.

Methods/Materials
To make the model of Triton as accurate as possible, the model had to have the same density as Triton. Calculations on density, velocity, and acceleration were used when making the model and testing the force of impacts. Each layer of the model was divided equally and frozen the same amount of time in order to account for the geysers on the moon that constantly recover the surface. Once the model was complete, it was tested multiple times or until the model showed severe damage. The force was then calculated based on the information collected before testing.

Results
Certain effects of the surface were more common than others. The distances and angles from the model did change what happened to the top surface and the layers underneath when shot by the bearing. Based on the data and observations, higher forces had a greatly different effect on the model than the lower forces. The highest force was about was about 0.4 Newtons, which occurred when being closest to the model, and the lowest force was about 0.0019.

Conclusions/Discussion
Some tests had large impacts while other tests merely made a chip in the surface. Every test did have some effect to the moon. With this, many more theories can be constructed to test further on the impact depth each meteorite creates.

Summary Statement
A model of Triton was created to test whether the angle or distance a meteorite is from the moon will affect the force at which it impacts the surface.

Help Received