

modeling lunar seisms in class

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Students are taught that the internal structure of the Earth has been described by analyzing seismometer data collected at the surface of the Earth. With this in mind, a group of 17-years old students asked whether lunar seisms could be used to explore the internal structure of the Moon.

Seismometers placed during Apollo 12, 14, 15 and 16 missions recorded many seismic events. The signals obtained on the Moon are different from those recorded on Earth and are due to meteorite impact, lunar tides and thermal variations. Students tried to model meteorite impacts and thermal moonquakes to determine whether they can be distinguished based on their seismic signature. To this aim, the impact of meteorites were modeled by a metallic ball falling in sand and thermal moonquakes were modeled by storing hydrates rocks on a freezer during a week and then upon a bain marie. Signals were collected in both conditions with microphones.

Data showed distinctive features depending on vibration origin.