

## **Remote Sensing of the Moon: The Past, Present and Future**

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Remote sensing is arguably the most powerful tool in modern planetary science and over recent years, has provided some of the most important data that we hold of the Moon. The Apollo and Luna missions together returned over 380kg of rock and soil samples, but were limited to a small number of sites located on the nearside equatorial regions of the Moon. Remote sensing data from the Clementine and Lunar Prospector missions have now provided a global view of the composition of the lunar surface for the first time. In addition they have given us a more complete view of the shape, gravity and magnetic anomalies associated with Moon. This talk will highlight the importance of remote sensing in studies of the Moon and review its history from both ground-based and space-based observatories and spacecraft. An overview will be given of what can be learned from different kinds of observation and measurement: photographic, X-ray, gamma-ray, near infrared and ultraviolet, as well as gravitational, magnetic and topographic data.

Future missions will be reviewed, highlighting the areas in which they will advance our current knowledge of the Moon. Finally, a short review of the talk will provide the basis for a discussion regarding the types of remote sensing instruments we should use on future space-based missions, and why we should use them.