Magnetic field observation in a lava tube on the Moon: its purpose and significance in Lunar science

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Magnetization that exists near the surface of the Moon is related with the magnetic environment of the Moon when the materials obtained magnetization. Thus, the magnetization can provide information on the period when the lunar dynamo operated, the variation of the lunar pole, activity near the lunar surface, and so on. Lunar surface magnetization is measured using rock samples obtained by Apollo projects or estimated from spatial distribution of magnetic anomalies on the lunar surface obtained by satellite magnetic field observations such as Lunar Prospector and SELENE-Kaguya. However, the rock samples and magnetic anomalies represent magnetization of different spatial scale, and the relationship between them are not trivial. There might exist local magnetized regions where no significant magnetic anomalies were observed by satellite observations. Therefore, information on local magnetization obtained by in-situ magnetic field observation can provide new information on the cause of magnetization and the period of lunar dynamo operation. In this presentation, the purpose and significance of magnetic field observation in and around a lava tube, which is considered as a part of UZUME project, for lunar science are discussed with magnetization near Marius Hills Hall as an example.

Keywords: Moon, Magnetic field observation, lava tube

