

Characterization of LUNA 24 regolith for deciphering the magmatism history on Mare Crisium

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Lunar regolith is the mixture of fine grains/powders found on the surface of the Moon, and is considered to be the result of mechanical disintegration of basaltic and anorthositic rocks, caused by continuous meteoric bombardment over billions of years. Since LUNA 24 samples classified into Very-Low-Ti (VLT) basalt were dated as the youngest lunar rocks/soils of 2.9 Ga [1], it has been generally considered that VLT basalt magmatism is the most prolonged magmatism on the Moon (about 1.4 billion years from the oldest age of 4.35 Ga of monomict breccia, Kalahari 009 [2], to the youngest age of 2.9 Ga). However, in the chronology of regolith, it should be taken into account that individual grains have a different origin. Moreover, late impact events might have disturbed the radiometric age, making the age younger apparently. Therefore, comprehensive studies on both elaborating mineralogical description and the high-spatial resolution dating are required to decipher the precise history of VLT magmatism. Here, we report the characterization of LUNA 24 regolith collected from Mare Crisium at the depth of 130-132 cm and the future-plan of in-situ U-Pb dating.

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