

オリエンターレ盆地における 20 億年前の溶岩流噴出 Young Mare Volcanism in the Orientale Region Contemporary with 2 Ga PKT Peak Period

長 勇一郎^{1*}, 諸田 智克², 春山 純一³, 平田 成⁴, 保井 みなみ⁵, 杉田 精司⁶

CHO, Yuichiro^{1*}, MOROTA, Tomokatsu², HARUYAMA, Junichi³, HIRATA, Naru⁴, YASUI, Minami⁵, SUGITA, Seiji⁶

¹ 東京大学地球惑星科学専攻, ² 名古屋大学大学院環境学研究科, ³ 宇宙航空研究開発機構/宇宙科学研究本部, ⁴ 会津大学コンピュータ理工学部, ⁵ 神戸大学自然科学系先端融合研究環重点研究部, ⁶ 東京大学大学院新領域創成科学研究科複雑理工学専攻

¹Department of Earth and Planetary Science, University of Tokyo, ²Graduate School of Environmental Studies, Nagoya University, ³Japan Aerospace Exploration Agency/Institute of Space and Astronautical Science, ⁴Department of Computer Science and Engineering, Univ. of Aizu, ⁵Organization of Advanced Science and Technology, Kobe University, ⁶Department of Complexity Science and Engineering, University of Tokyo

The crater retention ages of the mare deposits within the Orientale multi-ring impact basin are investigated using 10 m resolution images obtained by Selenological and Engineering Explorer (SELENE, nicknamed Kaguya) spacecraft, in order to constrain the volcanic history of the Moon around the nearside-farside boundary. Precise crater-counting analyses reveal that mare deposits in the Orientale region are much younger than previously thought: ~2.8 Ga mare basalt in the eastern part of Mare Orientale and ~1.7-2.2 Ga mare deposits in Lacus Veris and Lacus Autumni, maria along the northeastern rings of the basin. These results indicate that the central and peripheral regions of the Orientale basin experienced volcanic activities ~1 and ~1.8 billion years after the basin-formation impact, respectively. The dominance of uniform surface age across the mare deposits in the peripheral regions strongly suggests that these volcanic eruptions are contemporary with the elevated volcanic activity episode proposed for the Procellarum KREEP Terrane (PKT) region on the lunar nearside at around ~2 Ga and that this activity peak is much more widespread than previously estimated.

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