

嵐の大洋の3つの火山性地形群を貫く線形質量異常構造についての考察

Linear mass anomalies going through three volcano complex areas in the Oceanus Procellarum

*山本 圭香¹、春山 純一¹、大竹 真紀子¹、岩田 隆浩¹、石原 吉明¹

*Keiko Yamamoto¹, Junichi Haruyama¹, Makiko Ohtake¹, Takahiro Iwata¹, Yoshiaki Ishihara¹

1.宇宙航空研究開発機構 宇宙科学研究所

1.Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency

In western part of the Oceanus Procellarum of the lunar nearside, there are several large-scale volcanic complexes, in which volcanic geographical features are highly concentrated. In this study, Gravity Recovery and Interior Laboratory (GRAIL)-derived lunar gravity field data is used to investigate the geophysical relevance of the major volcanic complexes in the region. One of our concerns is whether the volcanisms of these complexes are caused by common factors or not. We estimated Bouguer gravity anomaly in the region and investigated the directions of the linear structure of the anomalies. The result shows that there are linear mass anomalies, which connect the mass anomalies at the volcano complexes of Aristarchus Plateau, Marius Hills and Flamstead Basin. The observed linear structures lie inward of the large quasi-rectangular pattern revealed by Andrews-Hanna et al., and much shallower than the pattern. Considering that, the observed linear structures should have been created later than the quasi-rectangular outer structure. After the quasi-rectangular pattern was created, magma rose to the surface through the cracks. The observed linear structure is supposed to be created through cooling of the overflowed magma. The geological units, which the linear structures go through, are younger than that of the outer quasi-rectangular pattern. The linear cracks created by cooling are weaker than other locations. Therefore, magma probably rose easier than in other area. That may be why the three currently observed volcano complexes lie on the same linear structure.

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