

月の裏側のクレーター空間分布の評価

Assessment of Hemispherical Spatial Distribution of Craters on the Lunar Farside.

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The impact craters on planetary surface show random spatial distribution. However, lunar surface expect to have a bias of spatial distribution of crater because the Moon have same rotation and revolution periods.

The previous research showed that rayed crater density at the apex (0 N, 270 E) is highest than antapex (0 N, 90 E). I compared crater size-frequency distribution of apex and antapex side about craters of over 20 km in diameter. In the result, the crater size-frequency distribution of the antapex side was higher than the apex side.

Purpose of this research is to develop an algorithm to assess spatial distribution of craters on lunar farside by using clustering analysis for finding where bias of craters is. In this algorithm, I apply the nearest single-linkage clustering (S-LINK) to simulated and actual craters, and assess whether the crater is random or not by comparing both of results. As a result, 2870 of 3112 craters were decided to non-random (1403 craters are at the apex side, and 1467 craters are at the anapex side). I investigated the crater frequency variation with longitude and latitude. The high frequency of non-random craters was found at north high latitude region, apex side (210 to 270 E) and antapex side (90 to 150 E).

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