Secondary Crater Morphology with Distance from Primary Crater

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Craters are categorized as primary or secondary. Primary craters are created by the initial impact of interplanetary debris and secondary craters are created by the ejecta from that primary impact. Copernicus, a primary crater, has been heavily studied and therefore makes an ideal study case for this research investigation. The question investigated was how the distance from the primary crater affects the morphology of the secondary craters. In this study, the morphologies, including depth and diameter, of secondary craters were analyzed and compared to the distance from the primary crater. Data from Java Mission-planning and Analysis for Remote Sensing (JMARS) and Lunar Reconnaissance Orbiter Camera (LROC) Quickmap were used to determine the depth, diameter, latitude and longitude, the distance from primary, and the morphology description of the craters. By using this data, an analysis was performed to determine whether the distance from Copernicus affected the secondary crater morphologies. Results from this study support that the distance from the primary crater does affect the morphology of the secondary crater, as is apparent in both the depth and diameter data. However, the data also indicates the shape of the crater is not influenced by the distance from the primary crater as originally hypothesized.

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