Study of the state of matter in lunar impact craters based on high-resolution orbital photogrammetry

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The study of lunar craters, despite its long and rich history, is experiencing its "golden age" today. At the heart of this situation, as the last 50-60 years show, is going into space. Or rather—to the circumlunar orbits and to the surface of the Moon. Thanks to space methods, it was possible to understand the nature of lunar craters and prove their impact origin. The authors consider in this paper the materials of the orbital survey of the Moon performed during the period of its space research. The analysis is based on high-resolution orbital images, starting from the time of the "lunar race" (1966-1972) and ending with modern low-orbit photography. For the period of half century, an extensive array of orbital images of the lunar territory has been accumulated. The surveys were taken from different orbits, with different cameras, by space agencies of different countries. Many of them are collected in databases and stored on websites in open access mode. The report presents specific examples of examining the structure of impact craters from high-resolution images to study the state of matter in these craters. The selection of craters, preparation of images for analysis, measuring properties of images and methods of orbital photogrammetry used for the survey are discussed. The report shows what opportunities open up when studying the structure of relief elements in young impact craters using orbital photogrammetry methods.