

Shock-wave processes on the Moon on the example of the Aitken crater

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An attempt was made to analyze the structure of individual elements of the crater relief from the point of view of its evolution after the completion of the main crater-forming event (MCFE). Of particular interest is the structure of the central crater peak, the substance of which is in a special state due to its formation as a result of a response conical shock wave during the MCFE. A clear indication of this condition is the glacial tongue sliding directly from the southwestern slope of the central peak to the bottom of the crater, the structure of which we studied using the three-dimensional model we built earlier. This is also indicated by the structure of the craters formed later by the MCFE on the slopes of the central peak itself. There is not a single impact crater with a clear outline of the wall. Instead, deep crater funnels with a smooth surface turned out, on which it is impossible to find the boundary between the outer and inner slope of the wall of the named craters. The reason, apparently, is unlike the outer wall, where material in a condensed state should be expected, the material of the central peak gives the impression of a viscous rarefied medium, the mechanical properties of which differ significantly from those of solid rock. Another example of shock-wave phenomena is the processes in the region of the “bulbous fields”, the mechanism of their formation do not have a clear explanation today. One of the five craters has a very unusual topography. Its floor is not flooded with cooled lava. The excess pressure created by the impactor formed a shock wave, under the influence of which the domes of the “bulbous fields” were formed.