

## a scaling law of crater's excavation amounts

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We performed impact cratering experiments to measure the mass of material ejected from an impact crater. Polycarbonate and aluminum projectiles were accelerated by a single stage gas gun. Impact velocities ranged from 30 to 320m/s. The impact angle to target surface was vertical. We used soda-lime glass spheres with mean grain diameters of 220, 80, and 40micron as the targets. In order to measure the mass of ejected material, we used a paper board with a circular hole to cover the target surface. When a projectile impacts at the center of the hole, ejecta are thrown out through the hole. After the experiment, we collected the ejecta on the board and measured its mass. From these measurements, we derived the relation between the mass of ejected material and the mass calculated from transient crater volume. The dependences of the mass of ejected material on the projectile density and the target grain size were also investigated. Based on these results, we will discuss a scaling law for the amount of ejected material in impact cratering.