

The Research Analyzes Structure of Ray with Crater

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1. Purpose of this study

Ray is a pattern that spreads radially around a crater. We found the way to be able to do a crater creation reproduction experiment. Based on our experiments we considered the way to reproduce a Ray. In this study Based on the meteorite collision theory, we conducted reproducing experiments using dogtooth violet starch and baby powder, and we researched whether ejecta that make up the Ray is made from the Meteorite itself or the ground of the moon. Consequently we found out that most of Ray is made by the ground of the moon. We also researched only about a spreads of the ejecta made by the ground.

2. Research methods

Ray was minute grains of substance. We considered scale effect, we used starch powder and baby powder to meteorite. We tried kinds of powder, for example cocoa, and sugar powder, and we selected starch powder and baby powder. collision we were easy to measure kinetic energy, we fixed the height and be freed fall meteorite model. (Meteorite is a globe made of starch powder and iron)Globe of powder made with two measuring spoons.

Casel. Globe was dropped on a floor without powder

- 1) Make a ball made of starch with two spoons.
 - 2) Drop balls from fifth a height on a black sheet from a height of 25,50,75, and 100 centimeter.
 - 3) Regard the powder spread as Ray, and recorded the radius and the shape.
- i) An angle was divided into eight sectors. Splashed distances were measured the radiuses at eight parts.
 - ii) The average of the eight values was defined as the radius of the Ray.
 - iii) We took of photos the whole looking.

Casell. powder was dropped on a floor with powder

- 1) Made blue and red starch.
- 2) Make a ball made of red starch with two spoons.
- 3) Spread blue starch on a white sheet with as diameter was four times as long as the red balls.
- 4) Drop 2) on 3), and the looking about the powder spread was observed.

Caselll. an iron ball drops on the covered with floor with powder.

- 1) Set up a thin plate made a hole some quantity of baby powder.
- 2) Drop the iron ball into the holl.
- 3) Observe spread of Baby powder scattered out of holl.

3. Result

In case I ,a positive correlation is observed between the kinetic energy in collision and diameter of ray system. This result coincides with the earlier study. We could confirm a pattern resembling ray system in case I and II . We will give a presentation about the result and the consideration of case III in detail in poster session.

4. Conclusion

Ejecta that make up the Ray originates from both the Meteorite itself and the ground of the moon. But the percentage of the ground origin is high at whole Ray.

We consider that a substance in the ground is related to Ray formation big.

5. Problems in the future

The conditions of this research was different from the surface of the moon, because there are air resistance and gravity. Therefore, we examine validity of reproducible experiment.

In case I and II, we couldn't mechanize hand-operated work when we drop the powder. Therefore, the conditions were not same.

We considered the result of case II visually, so that we want to think about exact information processing method.

Keywords: Crater, Ray, Ejecta, Simulation experiment

