

Thomas Medina-Williford & Gavriela Chavira
Dirty Snowballs

Comets are just big lumps of rock, ice, dust, and frozen gases that revolve around the sun. While they may look beautiful by their glowing appearance, they are speculated to have been responsible for wiping out an entire species of dinosaurs. It seems as though the size of that comet had to be extremely large to cause such significant and deadly damage to the creatures inhabiting the earth millions of years before us. However we do not know how big the comet was before it struck planet earth. This study explores these very questions: Do large comets melt at a higher volume when exposed to heat than smaller comets? Does the amount of debris affect the melting volume of a comet?

This particular experiment involved creating comets that closely resemble the ones that gravitate around the celestial universe. In this experiment two different comets were constructed, three large comets with the starting volume of 350 ml and three smaller comets with the starting volume of 250 ml. Each of the comets was exposed to heat (representing the heat source from the sun) for two minutes, while the accumulated water was averaged from each trial and recorded. In extension to the research and to get a better understanding of how actual comets melts and how much water is melted off, the group added six more trials, but this time adding sand, to resemble the debris and ice that coalesce to make comets.

Conclusive data indicated that smaller comets have an 8.7% greater melting volume than larger comets, refuting the suggested hypothesis that larger comets would have a higher melting volume than smaller ones. The debris “snowballs” on the other hand, demonstrated findings that the comets with the greater amount of sand had a greater melting rate than the ones with less sand, while keeping the size constant. This newfound data also refuted our original hypothesis that greater amount of debris in a comet would decrease the melting volume.

In hindsight the results demonstrate that smaller comets have a greater melting volume than larger comets, and that the amount of debris in a comet also affects its melting volume. The implications of the data have lead the team to believe that size is not the only factor when considering melting volume of comets, other variables need to be accounted.