

Emma Frantz

*The Effect of the Sun on Cloud Formation and the Earth's Climate*

Some scientists believe that solar flares, or coronal mass ejections can reduce the formation of clouds and change Earth's climate. It is known that solar storms reduce the number of cosmic rays hitting Earth. If solar storms decrease the number of cosmic rays, and if cosmic rays create clouds and change our atmosphere, then it might be a natural cause of global warming. Therefore, global warming might be partially caused by the sun's cycle where every eleven years solar activity increases. I hypothesized that as solar activity increases, then cosmic rays, and clouds, would decrease.

My experiment tests this theory by simulating Earth's atmosphere and cloud formation during solar activity. I built a cloud chamber which simulates cloud formation, and a magnetometer to measure solar storm activity. I measured the number of condensation trails formed by the cosmic rays during different amounts of solar activity.

My results show that for almost every degree of solar storm activity, the number of condensation trails stays the same. For each value of the Kp index, a measure of solar activity, 0,1,2,3,4,5,6, and 7, the average number of condensation trails were about 30 per minute. This disproved my hypothesis.

My experiment led me to believe that solar storms have little or no effect on condensation trails, or "clouds". Solar activity does not seem to be a natural cause of climate change in my weather simulator.