The Effect of a Solar Eclipse on Muon Count Rates

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The purpose of this project was to determine whether the sun is a major source of cosmic rays. The question at hand was how does a solar eclipse effect muon counts? It was hypothesized that if the sun is blocked by the moon, then muon count rates will decrease because the sun is a source of cosmic rays. In order to complete this experiment one must construct a telescope, collect data during the eclipse, and analyze that data in a rate study format. The data showed that there was a lower average count rate during the eclipse when comparing the averages of each study; however, the baseline data does not support this dip. These lower counts are most likely due to the fact that muons could easily hit outside of the telescopes projected angle and then decay into the path of the telescope. Therefore, the data from this experiment did not support the given hypothesis.

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