CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY

Name(s)
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Project Number
36427

Project Title
Effects of Particulate Matter on Precipitation

Abstract

Objectives/Goals
The purpose of this project is to determine if the source and size of airborne particulate matter (PM) can affect precipitation rates. While conservative water usage is an important factor to consider during the drought, understanding precipitation formation and patterns is vital as well. The reduction of dust and other PM10 may be contributing to the minimal precipitation.

Methods/Materials
Testing was done with three common particulates; pine smoke, dust, agricultural burning (grape drying paper), and a control. To test these variables, a cloud chamber was constructed.

Results
Dust produced the most condensation at an average of 8.3g of condensation. The control had an average of 7.9g of condensation. The pine smoke variable had an average of 7.3g. The results showed that the dust created more condensation than the control.

Conclusions/Discussion
This study#s hypothesis showed to be correct. It stated the dust would have the greatest amount of condensation produced when compared to the control. Dust is PM10 and provides a larger surface for the precipitation to condense around, thus creating more condensation. Pine smoke and agricultural burning are measured to be PM2.5, therefore providing a smaller surface for condensation to form.

Summary Statement
The purpose of this project is to determine if the source and size of airborne particulate matter (PM) can affect precipitation rates.

Help Received
I recieved help from from environmental consultant Paul Humphrey, owner of Paul Humphrey, E.P.