



CALIFORNIA STATE SCIENCE FAIR 2008 PROJECT SUMMARY

| | |
|--|---------------------------------------|
| Name(s) Mikayla R. Jundt | Project Number J0911 |
| Project Title Water Purification with Solar Energy | |
| <p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of my project was to improve the efficiency of my solar still from 2007 by testing modifications to improve evaporation and condensation. The 2007 solar still was based on the El Paso Solar Project model and used to purify saline water.</p> <p>Methods/Materials The El Paso Solar Still from my 2007 project itself was an improvement using aluminum backed rigid insulation for the box. My research revealed two areas of possible improvement; evaporation and condensation. My 2007 solar still (0.372m²) was tested using my 2007 model recording 2008 temperatures and humidity, inside and outside my solar still. Production differences were also recorded. I then added a solar pump and spray nozzles inside my solar still to test evaporation production increases. I then changed the condensing cover from plastic to glass and reran the test. Finally, I changed the single glass cover to a dual glass cover and repeated the testing. Each test was compared to the 2007 solar still project without modifications.</p> <p>Results The unmodified 2007 solar still results were recorded as the baseline to compare the results of each test. The 2007 results were 2.0 liters/ meter square/ day. The solar pump increased results 40% to 2.8 liters/ meter square/ day. The glass cover increased results 90% to 3.8 liters/ meter square/ day. The dual glass cover caused my solar still to reach more than 180° F inside the box and increased production 185% to 5.7 liters/ meter square/ day</p> <p>Conclusions/Discussion My experiment proved that the efficiency of the solar still could be improved by making modifications to increase evaporation and condensation. The solar pump production increase was disappointing for the cost and additional work required to keep the pump operating properly during testing. The other improvements seemed the best because I did not have to repeatedly check my solar still during testing.</p> | |
| Summary Statement The purpose 2008 of my science project is to my 2007 solar still test modifications to improve the production of my solar still. | |
| Help Received City of Fresno Waste Water Treatment Plant adn Mr. Steve Hogg, Plant Manager, and Mr. David Trauger, Senior Lab Tech., provided advise. The local hardware store and father helped me construct my solar still modifications. School advisor made presentation and project experiment suggestions. | |