



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Casey E. Gorish	Project Number S0606
Project Title Dust Is in the Air	
Abstract Objectives/Goals The purpose of this project is to find if the amount of haze coming from Owens Valley has been reduced from 1997 due to Los Angeles Department of Water and Power's dust mitigation procedures. Methods/Materials A sun photometer is assembled from an LED, operational amplifier, a breadboard, and two batteries. The photometer is then calibrated to find the Extraterrestrial Constant (ET). A dark reading and a sunlight reading must be taken at each measurement. The following conditions must be recorded at each measurement to calculate the Aerosol Optical Thickness (AOT): sun angle, time, pressure, wind speed, and direction. The AOT can then be calculated by the following formula: $(\ln ET - \ln \text{signal} - (0.10599 \times M) \times (P/1013.25))/M$. The AOT shows how much sunlight is being transmitted through the atmosphere. Results Five months of data was collected over three years, 1997, 2002, and 2003. Each set of data was plotted and compared on a graph. Calibrations were performed to find the ET. Conclusions/Discussion When the graphs of the AOT points are compared, the AOT values were lower in 2003 and 2002 than in 1997. This shows that the sunlight transmission levels are higher than in 1997. This is compelling evidence that the LADWP's Owens Lake Dust Mitigation is working to lower the amount of air pollution coming from Owens Lake.	
Summary Statement This project measures the amount of dust coming from Owens Lake, and found that the LADWP's measures to lower air pollution have worked.	
Help Received Mr. Glenn Harris gave me research links and information, Father helped in general with several things (transportation, help building the photometer, etc.)	