



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Wei Jing; Steven Tan	Project Number S0802
Project Title The Effects of Man-Made Structures on Wind Patterns	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals This project aims to analyze urban winds to harness wind power.</p> <p>Methods/Materials Two types of experiments were conducted regarding wind patterns. Data was collected from 11 different locations at the Gabrielino High School campus and was compared with model results. At each location, anemometers and timers were used to collect wind velocity in 2 minute intervals.</p> <p>Results Data showed that urban structures create localized areas with higher wind velocity. A difference of 3 meters in height between areas A & C and the area B induced an average increase of 1.5 km/hr in wind speed of the higher area. As wind passed over 119m the field, it increased an average of 1.65 km/hr</p> <p>Conclusions/Discussion The taller a building is, the stronger the updraft of wind over the structure. Besides height, disparities in temperature were proven to create stronger winds. In analyzing wind trends based on local orography, the knowledge gained will be significant in designing future buildings and cities for generating wind flow that maximizes the release of heat and the usage of natural energy.</p>	
Summary Statement Our focus is on understanding wind patterns in cities to provide a foundation for greener cities in the future.	
Help Received Mr. Escarra, Mrs. Schramm, and Mr. McClure gave suggestions to improve the project; Aiwen Miao designed an excel template for the data chart; Participant in SCJAS Research Training Program; Other students assisted in collecting some data.	