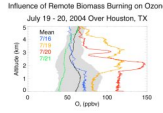


Investigator: Gary Morris

Air pollution

Poor air quality has been linked to a number of health related problems, including increased mortality and asthma development in children. In an effort to better understand the sources and distribution of pollution, my students and I have launched over 300 balloons with instrumented payloads designed to measure ozone, pressure, temperature, humidity, wind speed, wind direction, latitude, longitude, and altitude since the summer of 2004. Launch locations have included Houston, Texas; Las Tablas, Panama; Sapporo, Japan; and, of course, Valparaiso, Indiana. Undergraduate students have filled meaningful roles on this project from the very first summer -- in fact, without them, we would have no data. So far, our data have revealed the importance of local meteorology on pollution levels and indicate that very remote events can affect local air quality (e.g., during the summer of 2004, Alaskan forest fires enhanced ozone pollution at the surface in Houston, Texas).



Physics Education Research

Over the last 30 years, much progress has been made in understanding the way in which students learn (or don't learn) material in introductory physics classes. Throughout my teaching career, I have gathered data on the effectiveness of my teaching techniques and students' affective responses to my approach. Through collaborations with researchers at other institutions, I have also assembled large data sets examining the results achieved by students in a variety of environments on standard physics diagnostic exams. While this area is not my primary research

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focus, I have a number of ideas and projects of interest for a motivated student
interested in learning more about science education.

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