

Educating About Statistical Issues Using Large Scientific Data Sets

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TERC researchers are collaborating with STEM educators, curriculum/software developers, scientists, social scientists, and statisticians to explore:

- how large scientific and social scientific data sets could provide a vehicle for secondary students to learn about statistical ideas
- how developing an understanding of statistics could contribute to learning about the science and social science content
- the characteristics of curricular supports and software tools that could promote rigorous engagement with statistical ideas among secondary students

The project builds on the increasing availability of a variety of large data sets, and on students' inherent interest in data sets related to "hot" topics such as the environment and climate change, the human genome, economic justice issues, space exploration, and medical research. It describes conceptual obstacles and opportunities in exploring statistical issues in the context of large data sets and will develop a set of design recommendations for curriculum and software tools to facilitate such explorations.

This project will produce two reports—one describing the current state of the field with regard to the educational uses and challenges of teaching statistics content through large data sets and one proposing recommendations for software tools and curriculum materials to support secondary students' learning about large data sets. Both reports and other related papers will be presented at academic conferences and published online and in peer-reviewed journals.

PI Hammerman has written and presented three papers at academic conferences:

- Hammerman, J. K. L. (2009). *Educating about Statistical Issues Using Large Scientific Data Sets*. Paper presented at the American Education Research Association (AERA), San Diego, CA.
- Hammerman, J. K. L. (2009). *Informal Inferential Reasoning About Large Scientific Data Sets*. Paper presented at the International Statistical Institute (ISI) Conference, Durban, South Africa.
- Hammerman, J. K. L. (2009). *Statistics Education on the Sly: Exploring large scientific data sets as an entrée to statistical ideas in secondary schools*. Paper presented at the International Association of Statistics Educators (IASE), Durban, South Africa.

These can be downloaded from the Research Library.