Speaker:
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Title: Climate change in the mathematics classroom: a local approach to a global challenge
Intended Audience: High School
Type of Presentation
Preferred: Long Presentation (60 minutes)
Description:

I have been concerned for some time about the issue of climate change and have sought ways to relate this concern to my work as a university mathematics education researcher and educator.

My vignette summarises some key ideas about climate change as they relate to mathematics education. The main components are:
•   The mathematics of climate change, including the observation that much of this mathematics is accessible to school students
•   The role of citizens in the debates about climate change and about how to respond to climate change, including the idea that participating in these debates requires an understanding of some key mathematical ideas and processes (e.g. modelling, non-linearity)
•   Critical mathematics education—the idea that mathematics plays an important role in organising our society, but is not a neutral tool, and that mathematics teaching can help students to understand the powerful nature of mathematics in society.

To illustrate how these ideas might then inform activities in the mathematics classrooms (and how one might go about developing such activities), I draw on publicly available climate data for Ottawa. Similar data is available for hundreds of locations in Canada, so the approach can be adapted to many localities. I show how data can lead to graphs that can lead to discussions about some subtle and important mathematical ideas, as well as discussions about climate change.

If the vignette is selected for inclusion in the conference, I would organise an hour-long session in three parts:
1.   A brief presentation on climate change, showing a broader range of images and sources. The presentation is designed to raise questions that can be addressed in the classroom.
2.   A chance to explore a data set. Participants would need (to share) a laptop.
3.   A general discussion of the mathematics worked on, and then of how participants could envisage taking the ideas forward in their own teaching contexts.

Note that this session could work for upper elementary and secondary level audiences.