

Mock Summit, Real Learning

An interview with Catherine Gautier, UC Santa Barbara, Santa Barbara, CA by Gina Maranto

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To contemplate Earth's atmosphere for any length of time is to realize how artificial boundaries between scientific fields really are. As a student of physics, geophysics, and finally physics and meteorology at the University of Paris, where she took her doctorate, Catherine Gautier started to see the interconnectedness of Earth systems—and the need to adopt a multidisciplinary perspective. Concluded Gautier, “You have to have a global view to study atmospheric science.”

This conviction led Gautier early on to employ remote sensing data in her studies of global radiation, clouds, and aerosols. By the late 1980s she was looking for ways to convey the Earth systems approach to her students at the University of California, Santa Barbara. With two other researchers, Diane Schweizer and Ray Smith, Gautier put together a proposal that garnered funding in the first round of ESSE grants.

After launching a number of introductory ESS courses at UCSB, Gautier began to feel that the stand-and-deliver, lecture-driven approach to teaching science no longer worked. “There was a tension,” she says, between the old content-centered mode of teaching of teaching and the dynamic concepts embodied by ESS. So she began thinking about ways to take a systems approach to her classroom, one that focused on students and asked them to engage in critical thinking, draw connections, and look at the Earth in an integrated way.

The most notable result of Gautier's reframing was her Geography 135 course, a.k.a. the Mock Environmental Summit, a course so different each semester it runs that students are permitted to take it up to three times for credit. The course casts students in the role of negotiators out to represent the environmental interests of particular nations. Acting as agents of government, NGOs, or environmental groups, the students revisit and amend the Kyoto protocol as a way of learning about climate change.



An intensive, three-week variant of the course even mimics “the pressures and intensity that exist at a real environmental summit,” the course catalog notes.

Gautier herself is not immune to “pressures and intensity.” The course, she says, “takes a lot of energy to prepare—about three months full time to do all the background reading and set up the course,” including a detailed website. The materials need to be prepared in advance, because once the course launches, it is “dynamic and reactive.” It also incorporates a substantial writing component, which Gautier feels is vital to the learning process. Students analyze scientific papers, as well as writing their own summit documents.

In a paper with Stacy Rebich published in the September 2005 *Journal of Geoscience Education*, Gautier noted that “role-playing, argumentation and discussion...heighten [the students'] epistemological awareness and motivation and thereby facilitate conceptual change,” a claim supported by students' concept mapping before and after the course.

Gautier's passion for the Mock Summit is contagious: alumni of Geography 135 have gone on to graduate study and work with international service and policy groups. Meanwhile, UCSB administrators have taken note of the course as a model of teaching excellence. Gautier effectively asks undergraduates, some of whom are not even science majors, to function more like “mini-graduate students”: they carry out original research, interact with one another as quasi-colleagues, and engage in reflective learning, all the while complexifying their understanding of the dynamic Earth.

For more details on the Mock Environmental Summit, see the *Journal of Geoscience Education*, volume 53, no. 1, February 2005, p. 5-16

http://www.nagt.org/files/nagt/jge/abstracts/Gautier_v53n1.pdf

and no. 4, September 2005, p. 355-365

http://www.nagt.org/files/nagt/jge/abstracts/Gautier_v53p432.pdf

ESS at the University of California Santa Barbara

http://esse21.usra.edu/ESSE21/esse1_ucsb.html

Climate Summit 2006

http://www.icess.ucsb.edu/esrg/Geog135_Sum06/135.index.html