



Earth scientists and Munich's Rachel Carson Center – bridging the two cultures?

Geoscientists Seth Stein and Anke Friedrich introduce the interdisciplinary Rachel Carson Center for Environment and Society.

In 1959, English chemist, civil servant, and novelist C. P. Snow argued in a famous lecture at Cambridge University that an intellectual gap existed between scientists and humanists, 'two cultures' who did not understand each other. The two cultures concept has since often been invoked as part of the challenge in addressing problems with both scientific and societal aspects.

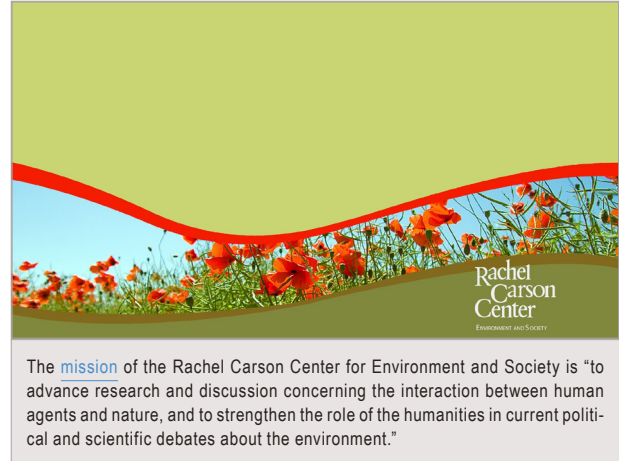
Many important issues – including energy, resources, hazards, climate change – exemplify this problem. Natural processes like earthquakes, volcanoes and floods are hazardous to society because of our cultural choices about where and how we live. Anthropogenic climate change is a problem not because today's climate is 'better' than warmer or cooler climates of the past, but because changes would disrupt societies that are adapted to today's climate. Energy, transportation and land-use policies involve what we choose to do as much as what is technically possible.

Addressing such issues thus involves both cultures. For example, a seismologist could try to estimate how large an earthquake to expect on a fault near a city. An engineer would consider various ways to make buildings there more earthquake resistant, while an economist would try to balance resources spent for this purpose with the city's other needs. An anthropologist would ask how cultural perceptions of risk affect the community's view of different options, and a political scientist would consider how the community could reach informed consensus on a policy.

Historically, such issues bridged the two cultures. John Muir, founder of the Sierra Club, was an amateur scientist and early member of the Seismological Society of America. Today, however, as Snow noted, educational systems typically give members of each culture little appreciation of crucial concepts from the other. A seismologist may have little understanding of the costs and benefits involved in different hazard mitigation strategies. A political scientist may not appreciate the difference between the magnitude of an earthquake – a property of the event – and the resulting intensity of shaking that depends on the distance from the earthquake and the local geology.

Bridging such gaps between the cultures is difficult, in part because of the lack of clear ways to interact with and learn from each other. Each culture has well developed institutions, like EGU, for communicating within itself. However, each often knows little about corresponding institutions on the other side of the gap.

A small example of what can be done are interactions that are starting between Earth scientists and Munich's [Rachel Carson Center](#)



[for Environment and Society](#), an interdisciplinary center for research and education in the environmental humanities and social sciences. The RCC was founded in 2009 as a joint initiative of Munich's [Ludwig-Maximilians-Universität \(LMU\)](#) and the city's science museum, the [Deutsches Museum](#), with support from the German Federal Ministry of Education and Research. It is directed by LMU professor Christof Mauch, a historian with an interest in international environmental history as well as nineteenth- and twentieth-century North American and German history, and Helmuth Trischler, head of research at the Deutsches Museum and professor of modern history and the history of technology at LMU.

The RCC seeks to advance research and discussion about the interaction between human agents and nature, and to strengthen the role of the humanities in current political and scientific debates about the environment. It supports and convenes an interdisciplinary and international group of scholars who study the complex relationship between nature and culture.

The RCC communicates research and advances the environmental humanities through a variety of activities:

- A writing fellowship programme
- A PhD programme in Environment and Society at LMU Munich
- International conferences and workshops
- The [Environment & Society Portal](#), a digital humanities tool
- Book series in English and in German
- A free, online journal called [RCC Perspectives](#)
- Multiple exhibitions at the Deutsches Museum and other venues
- A blog, [Seeing the Woods](#)

Recently, we and other Earth scientists have started to use interactions with the RCC as a small bridge across the cultural gap. Anke



Anke Friedrich showing RCC students and colleagues rock samples derived from the Alps, illustrating how young glacial deposits record older tectonic events and how solid earth processes affect global climate. (Credit: RCC)



Seth Stein on field trip, discussing the challenge of distinguishing natural and anthropogenic global warming. (Credit: RCC)

Friedrich, Professor of Geology at LMU, is a faculty member of the RCC and participates in RCC programmes. This summer she led a field trip to an area south of Munich to introduce the RCC students to geological concepts including glacial deposits, the evolution of the Alps, and the relation between solid Earth processes and climate change.

Friedrich and Seth Stein from Northwestern University, who is visiting Germany as a recipient of an Alexander von Humboldt Foundation research award, taught a joint geology and RCC course 'Defending society against natural hazards in a very uncertain world.' This explored issues such as: How should a developing nation allocate

its budget between building schools for towns without ones or making existing schools earthquake-resistant? Does it make more sense to build levees to protect against floods, or to prevent development in the areas at risk? Would more lives be saved by making hospitals earthquake-resistant, or using the funds for patient care? What should scientists tell the public when – as occurred in L'Aquila, Italy and Mammoth Lakes, California – there is a real but small risk of an upcoming earthquake or volcanic eruption?

RCC Fellow Mike Hulme, Professor of Climate and Culture from King's College London, is using his time in Munich to write a book exploring the idea of climate change using historical, cultural, and scientific analyses, seeking to illuminate the numerous ways in which climate change is deployed in public and political discourse. He and other RCC colleagues also organised a seminar on cultures of prediction in climate science.

In addition, we participate in some RCC activities, such as weekly seminars. These deal with topics including invasive species policy, societal issues in mass transportation, sustainable forestry, and the like. Discussions often deal with issues familiar to us, but from a different view. For example, how could society collectively decide to lower CO₂ emissions by choosing not to exploit existing fossil fuel reserves?

We hope that our interactions with the RCC students and other community members bring useful insights to them. Certainly it is true from our side: it is fun to interact with colleagues, especially bright and motivated students, who are interested in similar problems from a different view.

For example, on a field trip along the Isar river, we discussed river flooding and whether Germany should have a national natural hazard insurance programme. We and the geoscience students focused on the costs and the problem that public insurance subsidises development in dangerous places. In contrast, some RCC students focused on the government's ethical obligation to citizens and citizens' obligations to each other. Often RCC students raise important philosophical, cultural, class, and gender issues that would likely not occur to us.

Based on experiences like these, we think that Earth scientists have much to gain from trying to interact across the gap between the two cultures. Munich's Carson Center is an example of the kind of counterparts that make this much easier. After all, Rachel Carson was trained as a biochemist before becoming one of the 20th century's most influential environmental writers.

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