

Earth Scientists' Perspectives on the State of the Discipline, the Future of the Fossil Fuel Industry, and Environmental Issues

Charlene Miall*

McMaster University, Hamilton, ON
miallce@mcmaster.ca

and

Andrew Miall

University of Toronto, Toronto, ON, Canada

Summary

In this paper, we report on 71 interviews with earth scientists working in universities, industry, and government in 15 Canadian cities, and survey results for another 355 earth scientists. Respondents were nearly evenly divided between the GAC and CSPG.

First, in terms of earth science as a discipline, a majority of respondents agree that traditional geology departments in Canada are shifting to an interdisciplinary focus. A majority also agree that geology departments are shifting from a primary focus on the science of exploration and extraction of resources to a focus on environmental science and environmental remediation. However, nearly all respondents disagreed with the notion that geology is a mature science with nothing new or original to offer to the study of earth processes.

Second, in terms of the fossil fuel industries, a majority of respondents agree that there is a gap between job requirements in the oil and gas industry and training provided in earth science degree programs. A majority also felt that a major challenge for the fossil fuel industry was its aging workforce. A significant majority believe that fossil fuel industries are perceived negatively by the general public as contributors to greenhouse gases. Notably, a significant majority of respondents support the implementation of programs like carbon dioxide sequestration, the prioritization of environmental remediation programs, and the adoption of a "Beyond Petroleum" perspective for the fossil fuel industries.

Third, in terms of the relevance of earth sciences for the study of climate change, although a significant majority responded that climate change over the last few decades has been driven by a combination of natural and human or anthropogenic processes, a significant majority of respondents also agreed that explanations for this climate change have not adequately taken into consideration paleoclimate data. A significant number of respondents indicated that the most influential sources in convincing them that global warming is currently occurring were scientific journal articles and conversations with other scientists. Notably, least influential were position statements by professional organizations, environmental groups, and the movie, "An inconvenient truth."

Finally, in terms of the role of science and advocacy in informing public policy, a significant majority of respondents felt that public understandings and media representations of climate change are not based on good scientific knowledge. A significant majority felt that earth scientists need to become more involved in speaking out about solutions to social problems based on their scientific expertise.