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Q&A: This Professor Talks Climate Change in the Oil Industry's Training Ground

Many of his students go on to careers in oil and gas extraction in a world that needs to keep fossil fuels in the ground.



By Phil McKenna

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University of Texas at Dallas professor John Geissman at work on a coring project in Colorado. Photo courtesy of John Geissman

John Geissman heads the department of geosciences at the University of Texas at Dallas, responsible for the education of the next generation of

geoscientists. He is also a member of the development board of the American Geophysical Union (AGU), a perch from where he works to raise money for the organization. He has included a substantial bequest for the AGU in his will, as well.

Among geoscientists in Texas, however, Geissman is an outlier. He believes the world must keep fossil fuels in the ground to prevent the worst effects of climate change. He was one of the signatories of a petition [urging the board of the of the AGU to stop accepting funding from ExxonMobil](#) [1] because of its role in sowing doubt about climate science.

Many of his students are preparing for well-paying careers in oil and gas extraction, but he believes it is work that contributes to a problem in grave need of resolution.

He spoke with InsideClimate News about the dilemma he faces in teaching geosciences to young students in the era of climate change, and how he reconciles his professional proximity to an industry that is altering the global environment.

This interview was edited for length and clarity.

InsideClimate News: Tell me about your career. How did you first get interested in the geosciences?

John Geissman: Ever since I was a little kid, I was always interested in mineral deposits. I was also interested in chemistry. It was the combination of chemical processes and the resulting concentration of particular elements in the crust of our planet that always interested me. I was supported by the Anaconda Copper Mining Company for my masters and Ph.D. and always thought I'd be very interested in working for industry. With more and more time in graduate school, I became much more interested in academia and independent research.

ICN: When did you first become concerned about climate change?

Geissman: Back in the late '50s to early 60s. My father, a chemical engineer, had always been a staunch environmentalist, but in the context of population control. He would rant and rave about the problems of population explosion on our planet—not necessarily in the context of the effects of CO2 emissions, but overall, the effects of human activity on the planet.

I knew enough about science early on to realize what the effects would be of enhanced output of CO2 and burning of fossil fuels. In my mind it was pretty much a no-brainer. ...What we are doing needs to stop as soon as absolutely possible. I don't care if it's 2 degrees, or 2.1 degrees, 1.9, let's just begin stopping right now. And frankly, I really worry about that happening.

ICN: Most of your grad students go on to careers in oil and gas extraction. What do you tell them, given your concern about climate change?

Geissman: I don't call them fools, and I don't insult them, but at the same time I have rather engaging discussions with them. I say to them 'Well, okay, if this is what you really want to do, I think you should realize the consequences.'

At the same time, I very often say, 'You do realize there are other options in the geosciences. And to investigate those other opportunities, to learn more about what they are. Your best way to do this is to go on to graduate school far, far away from Texas. Go to California, go to Colorado, go to Wyoming, where the geoscience departments are more actively involved in a broader array of teaching and research agendas.'

ICN: What opportunities are there for them?

Geissman: I tell them the extraction industry is going to have to remain because we will need certain entities like perovskites [titanium oxide minerals used in new types of solar cells] for solar panels. We will just be doing things a bit differently, but there is still going to be the need for well-trained geoscientists out there.

ICN: Can you be more specific?

Geissman: What happens if somebody suddenly figures out how to make a solar panel with 70 percent efficiency that is cheaper than current solar panels? Can you imagine what that would do? I suspect that we would see a very rapid change. And these are the kinds of things I talk about in the classroom. Be prepared for the unexpected. That is my air of optimism.

ICN: Are the students receptive?

Geissman: I meet with very little resistance when I walk into an introductory geology class. The generation of students, now at the point of entering higher education, the vast majority of them really get it. They are of course interested in what their future portends in terms of jobs, but they do get it.

ICN: And yet a vast majority of your graduate students still go off to work for the oil and gas industry.

Geissman: Human nature is a tough thing to change, you can talk about the issues [of climate change], but my expectations of initiating any form of change are very low.

ICN: Do you battle any internal ethical dilemmas about what you do?

Geissman: I'm happy to say that I don't teach them to be professional petroleum geologists. I don't, per se, train extraction geoscientists.

I teach geoscience, so I'm not going to be teaching 'petroleum geology,' but I can teach classes that are directly related to the preservation of hydrocarbons in the crust of our planet. The most important of which are structural geology and tectonics. How we deform our planet, how we bury

sediment to reach that oil maturation window.

ICN: Do your colleagues in the geosciences department also accept the need to keep fossil fuels in the ground?

Geissman: I do have some colleagues who have a rather different opinion. Their opinion is focused around the fact that we will need energy to sustain human civilization. They come at it from the perspective that maintaining the status quo is really important...and therefore we need to continue to do, for all intents and purposes, exactly what we have been doing.

I've told them, I really beg to differ. I think that there is an alternative approach to sustaining human civilization as well as the rest of the environment in which we live and that approach is going to involve some substantial differences.

ICN: Have you received any pushback?

Geissman: I gave [the climate activist] Bill McKibben the Geological Society of America's president's medal while on faculty at UT Dallas in 2012. I received a fair number of less-than-pleasant communications from members of the Geological Society of America. Most of those communications came from individuals in the state of Texas.

ICN: The AGU has been under pressure to cut financial ties with ExxonMobil, after revelations about the company's early involvement with the science of climate change and later efforts to sow doubt. What did you think about those revelations?

Geissman: I wasn't terribly surprised. If you realize that what you are doing to make money actually is detrimental to the human race, you've got a real quandary facing you. Do you stop doing it or do you just conveniently slip it under the rug? But we shouldn't single out ExxonMobil. This kind of stuff is being done by a huge number of organizations in different ways, shapes and forms.

READ: [Exxon: The Road Not Taken](#) [2]

ICN: You signed a petition calling for the AGU board to stop accepting money from Exxon. Why?

Geissman: It was nothing against AGU. It was simply that I think we should be making a statement of, 'Thank you very much [Exxon]. We appreciate your support, but times are changing and we are very concerned about taking a different direction in how we support ourselves.'

In the grand scheme of things, what ExxonMobil provided on an annual basis is a trivial amount in terms of the operation of the institution. My point was not to admonish what the AGU had been doing. It was just simply time to get on and really set the tone for the future. I would love to see the situation where AGU did not need to depend on a dime from any industry. The support for a professional scientific organization should come from activities of the organization and the membership, and other potential non-profit donors.

READ: [Exxon's Donations and Ties to American Geophysical Union Are Larger and Deeper Than Previously Recognized](#) [3]

ICN: If the ultimate decision is not to cut ties, what will you do?

Geissman: I will remain a loyal member of the union, simple as that. I will recognize that I am just one voice in the wilderness with maybe 300 or 400, or whatever number, of colleagues thinking the same thing. Life goes on, but I will continue to do what I do as an individual educator and thankful member of the human race who still has the opportunity to speak his piece. My wife and I have already put in a substantial bequest to the AGU in our will and I will uphold that.

ICN: In 10-20 years, what will the oil and gas industry look like?

Geissman: I can't image it looking like it does today. I think that the carbon extraction industry is going to become more and more influenced by the crises that humans are facing. Hard decisions are going to come either from a political front or from the masses rising up and just saying, 'We've had enough, and things must change.' And that growing number of masses is indeed pretty impressive.

ICN: From where you sit in Texas, are there signs this is underway?

Geissman: If you were to ask an active participant in the oil and gas industry right now in the United States, I think they would say the future is very rosy. They recognize the inability of this country to actually make substantive changes in energy resources in a timely fashion. And then you factor in the whole issue of energy independence that resonates with the vast majority of American voters. They are, I hate to say it, in a very comfortable position.

ICN: Are you hopeful that we can solve the climate crisis?

Geissman: One has to be optimistic about this, but at the same time you don't just put your head in the sand with optimism. You work to do something about it. It's like [Bill McKibben wrote in the preface to Eaarth](#) [4], we can't throw up our hands and give up. We have to fight the fight. If you do give up, you've basically given up in the possibility that the human race has any capability of controlling its destiny.

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