

Integrative Writing Assignment: Connecting Kuhn to Abrupt Climate Change

Below are three interesting ways to connect and integrate your reading of Kuhn with your learning about the paradigm-shift story about abrupt climate change. Pick one option and write a 3-4 page paper (double spaced, typed, formal writing style) that attempts to address the questions noted. Please use and cite 3 or more outside sources for this paper, as you did last time. See the Tipping Point-Climate writing assignment online for ways to format cited sources.

This paper is due Friday, Oct. 21 at 5pm in your HAND-IN folder, as usual. Use this format for your filename: "lastname-Kuhnclimate".

1. **Beyond Kuhn to today's science and world.** Kuhn talks a lot about the "nature of science" as a human and social enterprise. His book sheds light, in fundamental new ways, on how we think about work and discovery in the scientific community. What did Kuhn miss about the "nature of the world" itself? In your paper, contrast the task Kuhn set out to tackle in his book with what we are beginning to understand about the physical world and our relationship to it. Speculate on how modern science may have to change to accommodate what we are learning about complex systems (like the earth's climate). Use examples from your learning this term about abrupt climate change to illustrate the direction modern science is taking, in contrast to older science which focused on simpler systems. (You may be able to find new resources using key words like: post-normal science, post-Kuhn, complexity, uncertainty).
2. **Logic, belief, or faith?** What is the role of logic, faith, and belief in the paradigm-shift story presented in the *Physics Today* article on abrupt climate change? Some questions you should address:

- Exactly what beliefs were hard to overcome, and why? What role has belief play in resisting the new paradigm? What are the origins of the beliefs about gradual climate change?
- Exactly what role did logic play, and when, in the paradigm shift to abrupt climate change?
- What about the role of faith? How does it differ from belief in your mind?
- How do your own deeply-held beliefs about the climate relate to these questions? Where are you in your journey to accept abrupt climate change and a new paradigm? What makes this stuff hard to accept for you?
- Be skeptical. Would Kuhn agree that this *Physics Today* story is an accurate representation of history, and why? What words of warning might he give to those of us reading this article?

3. **Progress in science toward...what?** Think more about what Kuhn means by "progress through revolutions" in science (Chpt. XIII, reread carefully!) and how "progress" can be conceptualized in the paradigm-shift story about abrupt climate change in the *Physics Today* article. Questions to address:

- Exactly what kind of "progress" do you think is being made in the paradigm shift from gradualism to abrupt change in climate science, as told in the *Physics Today* article?
- According to Kuhn, what kind of "progress" is made under a paradigm in the practice of normal science?
- What exactly does Kuhn mean by progress toward a "permanent fixed scientific truth" and what exactly is his argument against it?
- (optional) Consider drawing on Steven Weinberg's critique of Kuhn: "The Revolution That Didn't Happen" at <http://www.astro.uni-bonn.de/~willerd/weinberg.html>