

Earth's Climate: Past, Present and Future; Concerns and Solutions
Facilitator: Paul Belanger - OLLI south campus – 8 weeks
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This class will examine Earth's geologic climate history and the data and methods that were used to deduce that history. Climate is controlled by the sun and a combination of physical, orbital and chemical variations of the Earth and its atmosphere. Earth's early climate had "snowball" Earth episodes followed by relatively "hot-house" earth climate for the past 600 million years. We will examine why Earth's climate has slowly gotten colder in the past 65 million years to its present "ice-house" mode where we have been in a relatively "stable" 10,000 years of our present Interglacial. We will discuss why our human activities have changed our atmosphere and why they threaten this "stable" interglacial we've been in.

A field trip to the National Ice Core Lab is set for Thursday May 4th at 10:15 a.m.

The course is intended for those who accept that our climate is changing. We will examine the psychology of climate change denial, myths, fallacies and how to best encounter such misrepresentation by a vocal minority.

Climate change is one part of our sustainability issues to our way of life. We will look at solutions, particularly on energy and biochar as a means of reducing CO₂ in the atmosphere.

Paul Belanger, Ph.D., a retired geologist who has first-hand research background in paleoclimate and paleoceanography using microfossils and stable isotope geochemistry. He has also worked in oil and gas exploration: Amoco, Arco and others.

He is a graduate in geology, with a minor in oceanography from the University of Washington (BS) and Brown University (MS, Ph.D.); he was a National Research Council postdoctoral fellow with the USGS at Wood Hole, MA. His leading the Denver climate study group in talks and discussions on climate change, energy issues, and related socio-economic sustainability issues that have given him a big-picture view of the present and future climate issues expected to occur.

Books/Materials: strongly recommend to buy and read before class: *What We Know About Climate Change* by Kerry Emanuel, 2nd Edition 2012, 120 pages — An outline of the basic science of global warming and how current consensus has emerged. Easy read.

Slides, links, and additional resources posted on the OLLI class link at <http://www.denverclimatestudygroup.com/>.

Class Type: Illustrated Lectures/Discussion; a **field trip** to National Ice Core Lab located at USGS in Lakewood; <http://icecores.org/>.

Materials Fee: None.