

Dust in the Earth system

February 19 2010

Dust is a powerful thing. Not the stuff that we wipe off the coffee table on a regular basis, but the tiny particles floating around in the earth's atmosphere, which originate primarily from deserts in North Africa and the Middle East.

It can affect the oceans, impact the [carbon cycle](#) and even have an effect on global temperature.

[Dust](#), and its impact on our planet, will be the focus of a symposium at the upcoming American Association for the Advancement of Science (AAAS) Annual Meeting, in San Diego, California. The discussion will begin with a presentation by NSERC-funded researcher Dr. Karen Kohfeld from Simon Fraser University.

Dr. Kohfeld is the leader of the climate, oceans and paleo-environments laboratory at the university. Her research focuses on paleo-climate, or using past climates and geologic data to see how well our current [climate models](#) are doing. She invented the Dust Indicators and Records of Terrestrial and Marine Palaeoenvironments (DIRTMAP) database which has been used over the past decade by several modeling groups to test whether their representation of the dust cycle is realistic.

"It has been used to demonstrate that both increases in winds and decreases in vegetation cover were important contributors to the dustiness of the last ice age," she writes.

At the conference, Dr. Kohfeld will present an overview of how dust

changes and interacts within the Earth system, as her newer work has focused on the role of dust as a feedback within the Earth system, specifically its relevance to the ocean carbon cycle.

She says dust in the atmosphere is a constant in climate studies, given that it is almost everywhere and has seen significant changes throughout history.

Dr. Kohfeld stresses the importance of the dust cycle because of its impact on the carbon cycle. Dust contains iron and other nutrients essential for many organisms. Dust deposition in oceans, freshwater and terrestrial [ecosystems](#) can fertilize these areas, resulting in increased growth of vegetation, which in turn leads to less carbon dioxide in the atmosphere.

"Dust is a really good example of how land, atmosphere and climate are connected," she says.

She adds that she is hoping to create better models for understanding the dust cycle and understanding how changes to it will affect the oceans, the carbon cycle and, ultimately, us.

The symposium, entitled "Dust in the [Earth System](#)," will also bring up issues of health in relation to the dust cycle. Dr. Kohfeld says that it is this kind of integration in science that marks the positive effect of conferences like AAAS.

"AAAS is a nice place to see where research is going, and it brings together experts in the field to discuss these things," she says.

Provided by Natural Sciences and Engineering Research Council

Citation: Dust in the Earth system (2010, February 19) retrieved 1 May 2024 from <https://phys.org/news/2010-02-earth.html>

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