

Physics Colloquium

Michigan Technological University

Thursday, February 12, 2015

4:00 pm

Room 139, Fisher Hall

Nanoscale ice crystals--measurements, movies, and meaning

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Abstract:

The complexity of ice crystal shapes has long been widely appreciated ("no two are alike!") and understood to play a significant role in the evolution and radiative interactions of ice-containing clouds. However, until recently, the individual crystal facets were widely assumed to be quite smooth on scales smaller than the effective diffraction limit of standard light microscopes (about 1 micron). I will share new images and movies of ice crystals in ESEM that challenge this assumption directly, but also lead to new questions. The significance of nanoscale relief on ice surfaces will be discussed in the context of our understanding of Earth's cloud/sun/climate radiative balance

Bio:



Nathan Magee is an experimental cloud physicist and associate professor in the Physics Department at The College of New Jersey. Nate's research interests include novel experimental techniques for atmospheric physics, and especially the investigation of fundamental physical processes that govern the growth of ice crystals within clouds. He is also deeply involved in programmatic and curricular development for the training of new high school physics teachers. Nate grew up loving snow in the lake effect snowbelt of Northeast Ohio and now lives in Ewing, NJ with his two kids (Ben 7 & June 4) and his wife Maggie Benoit, who is a well-known seismologist. Nate earned a B.A. in Physics from Carleton College in 1998 and earned his Ph.D. in Meteorology from Pennsylvania State University in 2006.

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