

**Climate Change Science - What do we know?
EC Seminar March 15, 2018 at 2:00pm**

Abstract:

From the beginnings, climate science encountered much skepticism, for example, ideas such as Wegener's plate tectonics or the Milankovich cycles. The reason is that we experience daily changes and the drama of weather, we are familiar with the change of the seasons, but we have no feeling for a 1-degree change averaged over 30 years. Most recently, humans and their every day activities have enhanced the greenhouse effect and changed the energy balance of our planet, a fact that Arrhenius had theorized over 100 years ago. In my talk I will present very basic climate models and fundamental observations of climate change. This will be followed by going over common misconceptions about climate and climate change impacts. Finally, I discuss current issues and limitations of modern climate models and projections into the future.

About:

Dr. Gerald Lehmacher is Associate Professor in the Department of Physics and Astronomy at Clemson University. Together with Dr. John Meriwether he has introduced the course Physics of Global Climate Change to the General Education curriculum and taught it many times since 2009, last time in Fall 2017 to 120 students. His research area is dynamics and turbulence in the mesosphere and lower thermosphere. As experimentalist he uses sounding rockets for in situ observations of density, temperature, and fluctuations. The payloads are designed in collaboration with other institutions, including The Pennsylvania State University, Embry-Riddle Aeronautical University, University of Alaska Fairbanks, and the Leibniz-Institute for Atmospheric Physics in Germany, and assembled and tested at NASA Wallops Flight Facility, Virginia. He also collaborates with the University of Illinois Urbana-Champaign on radar data obtained with the largest and most sensitive VHF radar in the world located in Jicamarca near Lima, Peru.