



# Seminar

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Post-Tenure Lecture

### A Lifelong Quest for a Better Description of Natural Processes

Natural processes in the atmosphere and the oceans affect us all in a variety of ways. Extreme weather is an excellent example. Turbulent mixing and wave motions are small scale processes central to the state of the oceans and the atmosphere. A better understanding and modeling of these processes are a prerequisite to human activities such as making better weather forecasts and coping with climate change. I have worked on these small scale processes, as well as on modeling the oceans, for most of my professional career. In this seminar, I will describe some recent developments in the field, specifically the potential for better monitoring of turbulence in the free atmosphere, through synergistic use of the global radiosonde network, MST radars and GPS occultations. I will describe my efforts to explore the utility of the proposed technique through a field campaign organized and conducted at the Kyoto University MST radar facility at Shigaraki, Japan, in June this year. During the two-week campaign, DataHawk UAVs developed at CU by Professor Dale Lawrence were equipped with IMET sondes and high-resolution cold wire and pitot sensors, and flown autonomously over and near the radar. The unique dataset collected has enabled a better assessment of the radar capabilities as well. Waves generated by mountains and atmospheric phenomena such as convection propagate up into the middle atmosphere and play a vital role in the middle atmosphere dynamics. If time permits, I will also touch upon the potential for extracting atmospheric gravity wave properties from the global radiosonde network.

**Friday, December 4, 2015**

**2:00 PM**

**DLC**

*Refreshments!*