

**Date:** April 29th, 2009

**Speaker:** Christopher McCall, UNC Asheville

**Title:** *Principal component analysis in atmospheric sciences: the multidimensional problem*

**Abstract:** Data analysis techniques are not new to the fields of mathematics or science. With the ever-increasing amounts of data that is collected, it is increasingly important to have a toolbox of methods to not only analyze that data, but to make it as user-friendly as possible. Principal Component Analysis is just such a tool set in which matrices and some basic statistical properties can be employed to this end. A good example of this will be demonstrated using climate and/or weather data and their manipulation by the time-tested fields of linear algebra and statistics. We will use data collected on a multidimensional scale and show how using some easily applied methods we can reduce the dimensions of this data and thus cut down on time, space, and more importantly computing power without losing the usability of the data.

This talk will be accessible to the second or third year undergraduate math major with a basic understanding of Statistics, and at least one semester of Linear Algebra.