

ATMO 579: Boundary Layer Meteorology and Surface Processes Project

The project is worth 25% of your grade. It consists of a written report and a 10-minute oral presentation of your report that will take place during the last class periods. You must submit your project topic to me no later than **September 30, 2010**, however, the earlier the better as you can then begin working on it. A draft of your paper is due no later than **October 28, 2010**, with final papers due **December 7, 2010**.

You should choose a topic that you are interested in related to boundary layer meteorology and/or land surface processes (I give a list of possible topics below, but you are free to choose another topic). Your project may consist of **either** a comprehensive literature review and analysis of previously published work, or a data analysis with results.

If you choose to do a data analysis project, I can provide you with the Oregon State University (OSU) one-dimensional atmospheric boundary-layer (ABL) model which includes a coupled land-surface model (LSM). Note that the coupled ABL model plus LSM is also called the 'CAPS' model, 'Coupled Atmospheric boundary- layer - Plant - Soil' model, hence the file name 'caps104c.f'. The OSU ABL model is also used in the NCAR CCM3 climate model, a version of the NCAR-PSU Mesoscale Model version 5 (MM5), the mesoscale Weather Research and Forecasting (WRF) model, and in the US National Weather Service (NWS) NCEP/GFS (global model), as well as in other models.

Although the length of the report is much shorter than a standard journal article, it should resemble an article in a journal's 'Notes' section (i.e. it should be of high quality in terms of organization, syntax, grammar, spelling). These articles are typically shorter in length than regular research articles but can be just as rigorous. The particular section headings you use will be dependent on whether you choose the data analysis route or summary of current research in a particular subject area.

Paper Requirements:

- papers must be typed, double-spaced, and pages must be numbered
- use standard fonts please (11-12 point)
- papers must be representative of the quality of research notes in our field
- length: 8-10 pages
- data analysis:
 - can be a lengthy process...however you may have much to talk about, therefore keep your dataset short and simple! Please include:
 - brief background information on the subject
 - what are you analyzing?
 - why is this important?
 - what methods or techniques are you using to analyze the data?
 - what are your results?
 - how do these results fit in with the general field? (relevance)
- literature review
 - section headings may not follow usual intro, methods, results, as this is a summary of other's research. Please include:
 - what is the subject area (field)?

- what is the current knowledge of this particular field?
- what is/are the biggest unknowns or questions being researched/possibly debated right now?
- are there different schools of thought in theory, or different measurement or simulation techniques being used? combinations of both?
 - where is this field going in the future
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Oral Presentations:

- you will present key results of your written report to the class in a 10-minute presentation
- you may use transparencies or PowerPoint
- format of this presentation is flexible...it may resemble a short presentation at a large conference or you may engage the audience through interactions similar to a 'teaching environment'.