ATM 413: Weather, Climate Change, & Societal Impacts

Term Paper Instructions

Key due dates:

2/21 – Topic selection
2/25 – Topic rankings
3/27 – Part I
4/8 – Peer review of Part I
4/27 – Part I revisions + Part II
4/29 to 5/4 – Presentations

All components, except the topic rankings, should be e-mailed to me (btang@albany.edu).

Topic selection (due 2/21, 10% of term paper grade):

You will submit a proposed topic. The topic must be related to weather, climate, or the environment and the corresponding impacts on society (a sample list of topics from past students is given at the end). Choose something that interests you. Do not feel limited by what we have already covered in class.

Submit:

- Your topic title
- A brief description of the topic
- A list of possible resources on the science (at least 2 resources) and societal impacts (at least 2 resources) of your topic. These resources can be books, publications, news articles, videos, etc.
- If you have a strong preference to work with one of your classmates, please indicate who. If you have a strong preference to work individually, please indicate that. If you have no preference either way, you do not have to indicate anything.

If you have an idea for a topic, and are unsure it will make a good topic, please speak to me beforehand.

Topic rankings (due 2/25):

I will setup a survey with the submitted topics, and you will rank your top 5 choices. You cannot rank your own topic. Based on these rankings, I will then determine partners. I will attempt to honor your preference on partners, if you indicate so, but I cannot guarantee it.

Part I (due 3/27, 20% of term paper grade):

Part I consists of an overview of the science of your topic. Your paper should contain the following narrative elements:
• Introduction – What is your topic? What is the motivation for studying this topic?

• Science aspects of your topic – In the body of your paper, introduce and describe aspects of the atmospheric or environmental science underlying your topic. 

  Recommendation: Keep it focused by selecting a limited number of aspects to discuss in depth. Cite statistics where appropriate. Choose aspects that will link well to societal impacts.

• Visual content (figures and tables) – It is best to frame your narrative around visual content. All visuals should have captions. You are required to make at least one original graphic, using tools you have previously learned in other classes (e.g., GEMPAK, IDV, Python, GIS, and/or PowerPoint). The graphic can be a map or visualization of data related to your topic, a summary infographic of key points, or any graphic that fits into your narrative.

• Conclusion – What are the main points of your paper?

• References – List references at the end of your paper, using a standard format (e.g., MLA). You should use varied references (including from lecture, if applicable).

Within your paper, any written or visual content that you include from a reference must be cited parenthetically with the author(s) and year. Use your own words to paraphrase written content and do not plagiarize.

Edit, edit, and edit some more. Clarity, grammar, and spelling count, so be sure to edit your paper.

Part I should be about 5–7 pages (1.5 spacing, 12 pt. font), not including figures and references.

Each group should e-mail their term paper to me in Word (.docx) format.

Peer review of Part I (due 4/8, 20% of term paper grade):

You will be randomly assigned to peer review one of your classmates’ papers. You will be given guidelines to follow and further instructions on how to perform your review. You will be graded on the quality of the feedback that you give.

Part I revisions + Part II (due 4/27, 50% of term paper grade):

You will receive three reviews (two from your classmates and one from either the TA or professor). Carefully consider the reviews and make revisions to Part I of your paper.

Part II consists of an overview of the societal impacts of your topic, linking to the science aspects in Part I. Your paper should contain similar narrative elements:

  • Introduction – Reiterate key points from Part I. Provide a transition to the societal impacts that you will discuss.
• Societal impacts of your topic – In the body of your paper, introduce and describe aspects of the societal impacts underlying your topic. Link the societal impacts to the science aspects. Recommendation: Avoid a laundry list of items. Try to go into detail and cite statistics. If links between societal impacts and science aspects are not apparent in your references, then you can make reasonable inferences and/or suggest possible ways to explore these linkages: What questions would you explore? What data would you wish to analyze?

• Visual content (figures and tables) – Same instructions as in Part I, but you do not have to make an original graphic.

• Conclusion – What are the main points of this part of your paper?

• References – Same instructions as in Part I

All other requirements, including the length and formatting, are the same as Part I.

Presentation (on 4/29, 5/1, and 5/4):

At the end of the semester, you will give a 15-minute presentation about your topic to the class. Your presentation should give an overview of the science aspects, societal impacts, and linkages between the two. A good strategy is to “tell a story,” using the figures from your paper, and only include the most pertinent information.

You will be graded on four criteria:

• Content – Is there substantive content on the science, societal impacts, and linkages between the two?

• Organization – Does your presentation tell a clear story (has a beginning, middle, and end)? Does the material flow well? Are you prepared for questions?

• Aesthetics – Are your slides easy to see and understand? Are your graphics effective at conveying your story? Is there a good balance between figures and text?

• Sources – Is material properly cited and drawn from varied sources?

Sample Topics from Past Students:

Severe weather outbreaks (tornados, derechos, hail...)
Hurricanes (Andrew, Katrina, Irene, Sandy, ...)
Blizzards (Storm of the Century, Blizzard of ’78,...)
Ice storms
Wildfires
Space weather
Frost and agriculture
Paleoclimate and effects on past societies
Climate change (current and future changes in sea level, cryosphere, ...), policy, geoengineering
Seasonal climate of international countries
Droughts
Floods
Heat waves
Wind, solar, or other alternative energies