MARS 5470/4470 Spring 2019

Introduction to Scientific Computing

First Presentation Rubric (HW 5)

Oct 1 2019

**Assignment**

The goal of this first presentation is to develop your skills as a presenter and share with the group your data and analysis. Import your data into python using pandas, xarray, or some other method, make some plots and explain your methods and results. You will present this to the class 10/1 in a powerpoint presentation (or similar), along with an introduction to your dataset. The talk format is short, 8 min including questions. There should be about 5 slides, no more than 10. Load this presentation before class into github and call it HW\_5\_yourname.

General ideas about giving a good talk:

* Tell a story: edutainment, pacing, humor have some kind of narrative arc in your talk
* One slide per minute of talk is a good rule
* Make sure your font is legible to the audience, both for text and figures
* Not too many words, but some: bullet points are good
* Pictures to illustrate your ideas, engage the audience
* Explain your figures: axes, etc.
* Minimize and explain jargon
* Speak to multiple intelligences: hearing, reading, pictures
* Highlight your institution, collaborators and funding

Talks should be loaded onto github before the class period.

**Rubric**

Student Name: Olivia Clifton

1. Talk loaded onto Github before class (1 pt)

Technically It was loaded on Github (as a link).

1. Has an introduction/background (1 pt)

Olivia provides a simple background on her and her research but reading her first slide the title “Ozone removal by land and implications for air pollution damage” I can infer what she is about to discuss. The fact that she conducted this research with the organization “National Center for Atmospheric Research” is also telling. I gave a quick search and NCAR seems to do a lot of research on climate, weather, water, and air quality. So the fact that she highlighted her institutions helped understand her background.

The introduction was a bit to fast but helps a lot when she explains her research questions.

1. Methods are presented clearly (1 pts)

Olivia explains her methods and equations very well, they are simplified by highlighting and explaining each portion of equations used to get the deposition velocity, and damage of stomatal uptake. Methods and models used are explained clearly when there is visual ques showing the actual process. For example, when describing the chambers in field or laboratory used to measure ozone uptake by plants.

1. Results are presented clearly (2 pts)

The results are a bit confusing because of the colors chosen in the graphs overlap, particularly in the normalized data of stomatal conductance and nonstomatal deposition, Olivia does however engage the listener and explains these graphs better as the same 3 years being the highest overall which indicates non stomatal deposition control ozone deposition velocity. The results often become blurred but are clarified with proper titles and clear explanations.

1. Discussion of results (1 pt)

Overall discussion of results alleviated much of the confusion between the difficult subject and the sometimes overlapping colors in the graphs. There are blues and greens in the graphs which look too similar, these colors can only be told apart when explained.

1. Slides are legible, fonts good size, not too much text (1 pt)

All slides were presented with appropriate font size and text. An appropriate amount of bullet points were added to explain research background, questions, and takeaways. Even when not watching the presentation on full screen all slides are legible and there is consistency with font size thought the presentation.

1. Figures are formatted for presentation (1 pt)

All figures are easily visible but not all were formatted for presentation, some graphs had better color schemes than others. However overall

1. Speaker engages audience/speaks clearly (1 pts)

Very monotone, from slide to slide. The speaker does however speak clearly and does not speak to fast, however when not engaging the material can be lost in translation from speaker to listener.

1. Speaker keeps on time (1 pts)

For the amount of information and data the presentation was on time as the speaker kept a consistent tone and speed thought the presentation. However less than a minute was spent on some slides and often felt like information was brushed over especially when explaining specialized terms.

**Notes :** The speaker Olivia Clifton started really fast without hesitation which is good but it might be a little hard to keep up with all the text in slides. The beginning introductory slides are packed with a lot of information but they were explained in a simple matter, Olivia immediately introduced the focus in her research (tropospheric ozone layer), going on to say that the tropospheric ozone has “good” and “bad” layers that serve different roles and functions such as greenhouse gasses, smog, or by cleaning the atmosphere from pollutants. The speaker then goes on to show the sites in the United states where ozone pollution has standards of 43ppb(parts per billion) to 106ppb, 60% of the mapped sites have an ozone pollution level that exceeds the standard (71ppb-106ppb) this information is provided by the EPA (Environmental Protection Agency). The speaker also highlights the ecosystem services that would occur if there was a 1ppb decrease in the surface ozone, these benefits range from 1.4 billion increase in the agriculture and forestry economy to an estimated 500-1000 avoided premature deaths in the USA. All text in this slide (3rd slide) is legible from top to bottom, bullet points, legends, and titles are in bold which make it easier to navigate the slide. The next slide is not full of jargon and instead has a diagram with pictures which explain how the ozone can be produced by natural or anthropogenic (human caused) emissions here she explains NOx (Nitrous Oxides) emissions, a transition is made to the next slide where NOx emissions from the time periods 1991-1996 are compared to time periods 2004-2009. Dashed and solid lines show a decrease between those compared time periods, arrows explain the fluctuations of NOx between the seasons, and the title is also worded efficiently to describe this graph. Olivia goes on to include pictures to show and describe ozone deposition in plant stomata, these visual ques are essential without them it would be difficult to understand what she is explaining. The next graph explaining dry deposition as a means to control ozone pollution has a lot of points but the choices in color specifically purple and red make the graph appear less busy. Overall the research question and sub questions are all stated after a proper introduction and background which allows the listener to have a better idea on the focus of this presentation. Each question is separated into sections which is a good method however the graph titled “Strong observed year to year variations at Harvard Forest” as well as other graphs have multiple lines/plots that are too similar in color therefore it is difficult to distinguish them apart when plotted all together, she does explain this graph verbally as differences in ozone deposition by months and years but graphs in these colors still make information difficult to digest. Results are explained properly with enough variability in color and visual ques like circles highlighting important fluctuations in the graphs. Since the research is extensive and involves a lot of data often times the speakers voice can become monotone and takeaways make up for that by summarizing data in bullet points. The takeaway message that I got from this presentation was how plants can functions as sinks by up taking ozone gases through the stomata and how this influences the amount of ozone pollution in earth’s atmosphere with the negative affect of damaging plants. However the damage on plants still needs to be further studied when it comes to nonstomatal dry deposition. Olivia highlights her institution, collaborators, and founding at the end of the presentation one of them which included NOAA which is also related in the study of climate and weather. This has some relation to my research since I will be looking at the before and after plant community of a newly restored prairie. Plants that are damaged by high ozone deposition can cause a lot of severe stress and damage which would in turn affect the growth (height, reproduction) of the newly planted seedlings in my research project. This can have effects on habitat, bird, and animal, communities which correlates to the introduction in Olivia’s presentation where she highlighted the importance and benefits of healthy ecosystems. Total: 10 /10