Due 5/1 by 5 PM

Congratulations! You’ve made it to the last data exercise of the semester. This exercise you’ll get to show off your mastery of IRIDL; which means more freedom and fewer instructions. But let’s ease you into that freedom.

**Part 1: AMO**

1. **Calculate the AMO index**. Rember that the AMO is defined as the detrended, area-weighted average of North Atlantic SSTs. [Here, let’s use the Kaplan dataset.](http://iridl.ldeo.columbia.edu/expert/SOURCES/.KAPLAN/.EXTENDED/.v2/.ssta/) After you restrict the ranges and calculate the yearly average, use this code to area-weight it:

*{Y cosd}[X Y]weighted-average*

and this code to remove the trend

*detrend-bfl*

Ta-da! **Now plot the timeseries.**

2. Make global correlation maps between your AMO index and temperature and precipitation. Use your IRIDL mastery to pick which temperature and precipitation products and color scales to use.

3. Where does the AMO exert the most influence in temperature? Precipitation? Speculate about why this might be the case.

Part 2: Freedom

OK now the fun part.

1. Pick a region you care about, maybe it’s where you grew up, where your research is, where you’re planning to build your Mediterranean retirement villa.
2. Pick a climate parameter. (e.g., Temperature at your ski resort; rain in Temecula; wind in Flagstaff; sea ice thickness near your Russian missile silo).
3. In a few sentences, describe your region and parameter of interest and explain your (research / personal) objective(s) for making this choice.
4. Figure out what controls variability of this parameter in your region. Tell me what one or two or three processes, dynamical modes are most important. **And prove it. Make me maps, or scatter plots to prove that these are important. Based on what you’ve learned from class, describe the dynamics behind this mode that impact your region and parameter of interest.**
5. For this parameter, in this region, is internal variability more important, or does climate change seem to be more important? **Document and explain your reasoning with the appropriate graphs, captions, and a few sentence description.**
6. Imagine you’re in an elevator on the way to a dinner party with your grandmother. She asks you what why {your parameter} changes in {in your region} from year-to-year, decade-to-decade. Write your short description of what you’d say (remember, it’s an elevator ride). Also characterize your confidence in that control - how important is the process to that region in terms of percentage?

**Deliverables**

**Part 1: AMO timeseries, two correlation maps, and your answer to number 3.**

**Part 2: Your answers to 3-5, and the maps/charts/numbers you need to backup your answer.**