GEOG36 Course Content

7/9 version

Week	Course content	Problem set focus	Data sources
1	Weather and extreme climates	Introduction to python: - Data types - Basic functions	https://blogs.scientificamerican.com/eye-of-the-storm/earths-40-billion-dollar-weather-disasters-of-2019-4th-most-billion-dollar-events-on-record/
2	Geophysical context for interpreting climate extremes & Why of climate extremes	- Package loading - Additional data structures	
3	Extreme heat and heat waves	- Plotting	Line graph: - [https://www.globalchange.gov/browse/indicators/us-heat-waves#:~:text=1.-,Heat%20waves%20are%20occurring%20more%20often%20than%20they%20used%20to,per%20year%20during%20the%202010s.&text=2.-,The%20average%20heat%20wave%20season%20across%2050%20major%20cities%20is,it%20was%20in%20the%201960s.](https://www.globalchange.gov/browse/indicators/us-heat-waves) - NAO http://iridl.ldeo.columbia.edu/SOURCES/.Indices/.nao/?sem=iridl%3AClimate-Indices#views Bar graph: - Disaster reporting differences (Extract data from below - compare number of disasters/damage) - https://www.sigma-explorer.com/index.html - https://natcatservice.munichre.com/overall/1?filter=eyJ5ZWFyRnJvbSI6MjAxMywieWVhclRvIjoyMDE4fQ%3D%3D&type=1 - https://public.emdat.be/data Spatial: - Energy (Net radiation) - https://psl.noaa.gov/cgi-bin/db_search/SearchMenus.pl (Net Solar Radiation Flux dataset) - .nc file -

| 4 | Pluvials & droughts | - Writing loops
- Writing functions | - Surface radiative balance equation?
- https://cmsaf.dwd.de/
- Calculating anomalies
- Flood return period
- Revisiting surface radiative balance + land branch of hydrologic cycle?
- Precipitation: https://psl.noaa.gov/data/gridded/data.cmap.html |
| 5 | Tropical cyclones & tornadoes | - Accumulation | |

GEOG36 Course Content

7/1 version

Week	Course content	Problem set focus (5pts & ~1hr /ps)	Data sources
1	Weather and climate extremes	- Intro to python (data types/structure)	https://blogs.scientificamerican.com/eye-of-the-storm/earths-40-billion-dollar-weather-disasters-of-2019-4th-most-billion-dollar-events-on-record/
2	Geophysical context for interpreting climate extremes	- Basics of loading packages/plotting	
3	Why of climate extremes	- Plotting (climate variability) - Write own code referencing codes from week 1 & 2 - Interpretation questions	- AMO + Phase
4	Extreme heat and heat waves	- Writing functions (heat wave)	- Surface radiative balance equation?
5	Pluvials	- Loops (flood return period)	
6	Droughts	- Debugging (water budget) - Using functions from week 4 & 5	
7	Tropical cyclones	- Simple modeling (hurricane economics?)	
8	Extreme thunderstorms and tornadoes	- Accumulation of all above topics (tornado prediction?)	