**ForC Database overview:** The Forest C database (ForC-db) is an open access global C database led by Dr. Kristina Anderson-Teixeira (Smithsonian). ForC is updated and maintained in this Github repository (<https://github.com/forc-db/ForC>) and is visualized (<https://forc.shinyapps.io/global_data_visualization/>). The database contains previously published data on ground-based measurements of ecosystem-level C stocks and annual fluxes in forests globally, along with site information, disturbance history, and information on methodology. It currently contains >17,500 records from >2,700 plots and >2,000 sites, making it the largest and most comprehensive database of its type. These data were obtained from multiple previous compilations and individual published studies, as detailed in Anderson-Teixeira et al. (2016) and Anderson-Teixeira et al. (2018). Go to: (<https://forc-db.github.io/>) for a more detailed review of the database, resources, and guidelines for citations in publications. Since ForC is open-source we welcome its use in publications as long as it is properly cited.

**Goal**: To use the ForC database to ask a question pertaining to the Forest Carbon Cycle and answer it to the best of your ability then communicate your findings to the class.

**1) Coming up with a question**: Read the asking\_your\_question document for guidance and use the shiny app for visualization of your initial thoughts. Explore the data and spend time thinking about it. Asking a good question can take a lot of time. If you’re really stuck in thinking of a question you can look for file ForC\_GPP\_and\_temperature.csv. This file was created specifically to explore the impacts of temperature on GPP. You may want to download this and create a simple scatter plot looking at temperature and GPP. You may also use ForC\_simplified or ForC\_simplified\_edu (a version of ForC\_simplified without disturbed or managed forests) to explore the raw data before delving into the larger database.

**2)** **Research**: Use the background resources your instructor provided to begin then search for scientific publications that deal with your question. You should have at least 5 publications to cite.

**3)** **Data Processing and Analysis**: Download the files you need directly from the ForC database and complete your analysis. It may be best to begin with a simple scatter plot (similar to the structured inquiry) or another simple analysis to do some data exploration.

**\*NOTE\*** Make sure you are doing an analysis that makes sense. ForC has a lot of data and it can be confusing at first. Take time to do some exploratory analyses and refer back to the shiny app for a visualization. It is often a good idea to make sure to exclude disturbed or managed forests (unless you are specifically analyzing them to some degree).

**4) Communicating** **your Results**: Now that you have finished your analysis it is your duty to explain your findings to the class. Your group will be responsible for a short (5 – 10 minute) presentation. You must include the following slides:

1. Cover slide with your question and group members
2. Background slide (on your specific info, not ForC or ForestGEO)
3. A hypothesis slide that also explains your dependent and independent variables
4. A methods slide that (briefly) describes what you did in data processing and analysis
5. A conclusion slide that explains your findings
6. An extension slide that puts your study into the context of our global environment
7. A works cited slide that contains all references you used