Why R? (and what even is R?)

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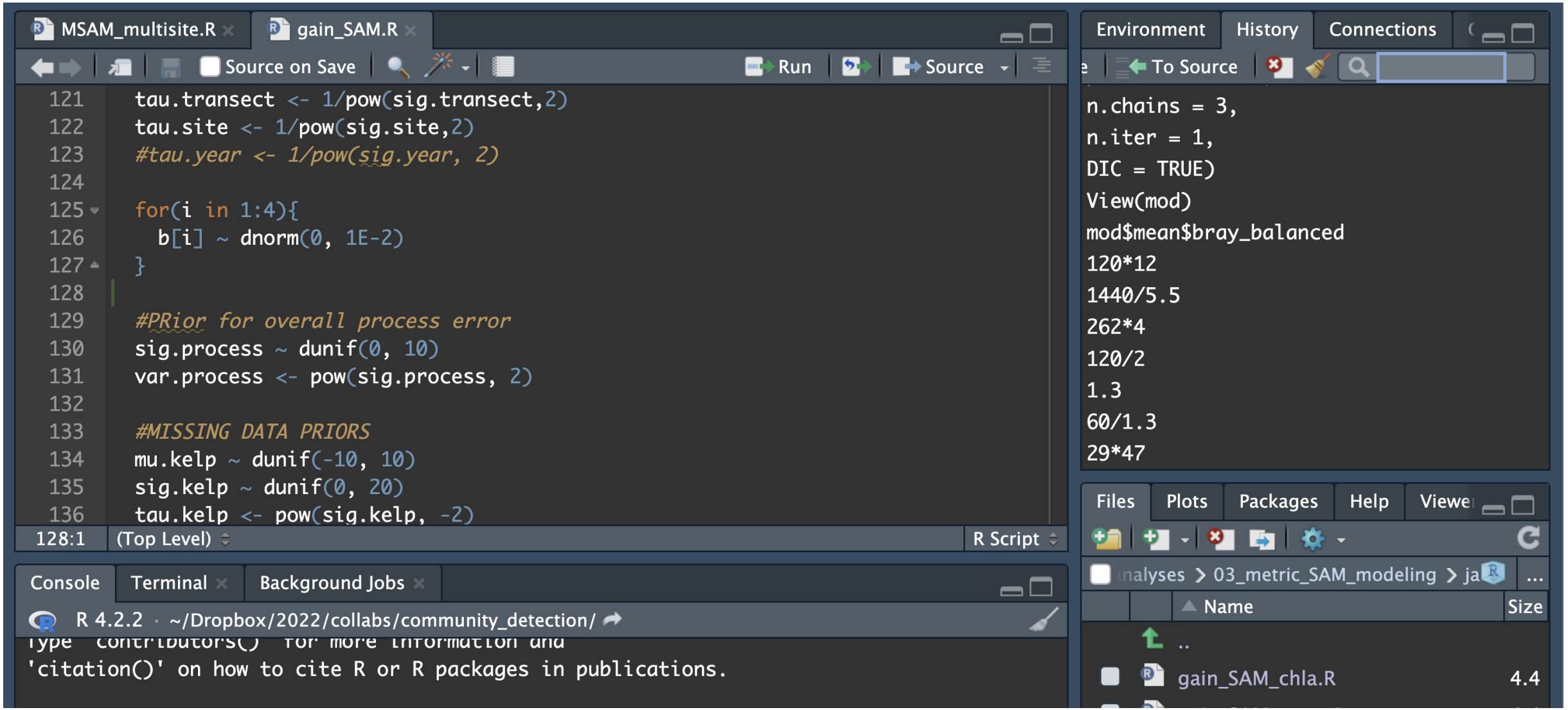
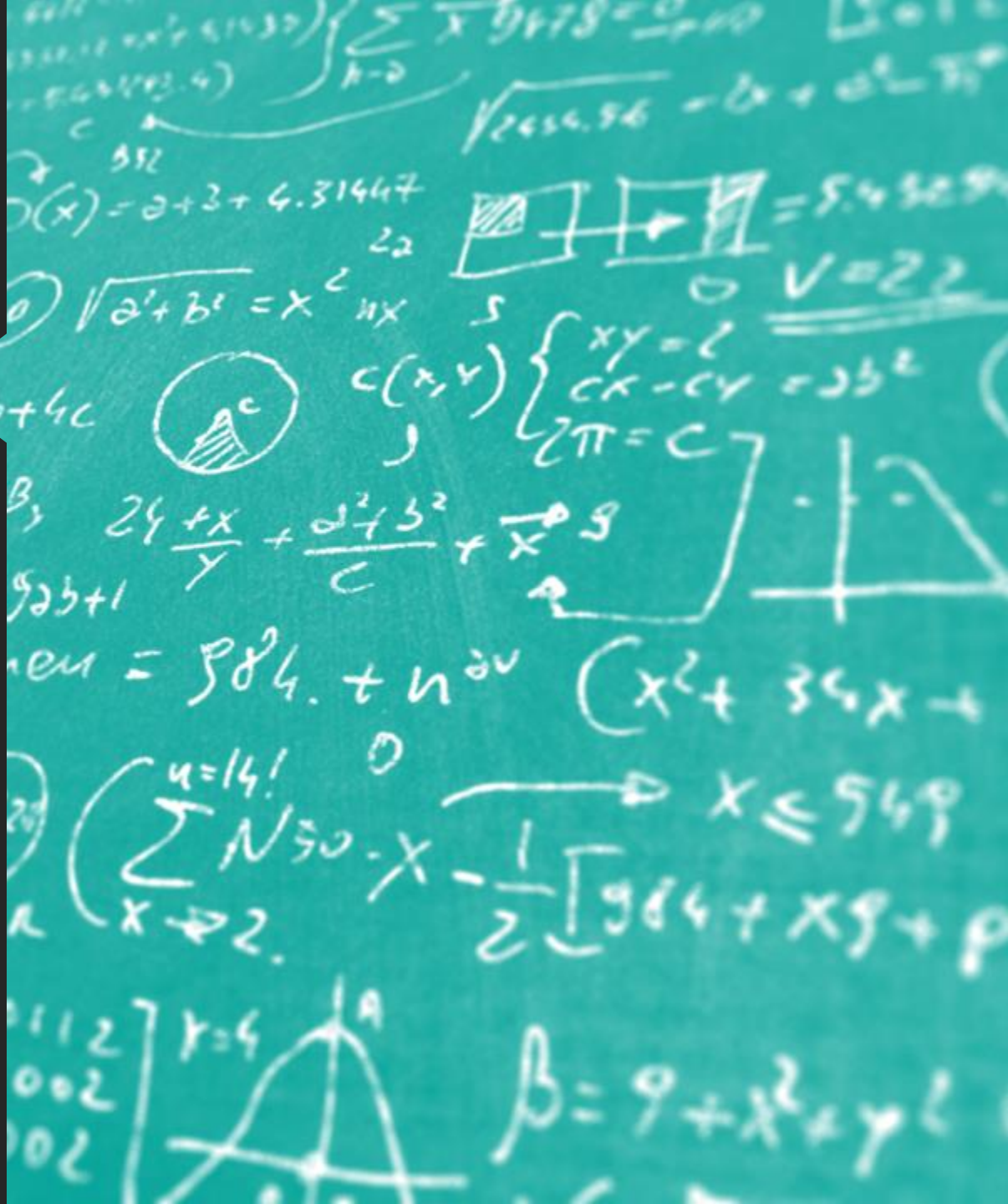

MSAM_multisite.R
gain_SAM.R
Source on Save
Run
Source
121 tau.transect <- 1/pow(sig.transect,2)
122 tau.site <- 1/pow(sig.site,2)
123 #tau.year <- 1/pow(sig.year, 2)
124
125 for(i in 1:4){
126 b[i] ~ dnorm(0, 1E-2)
127 }
128
129 #PRior for overall process error
130 sig.process ~ dunif(0, 10)
131 var.process <- pow(sig.process, 2)
132
133 #MISSING DATA PRIORS
134 mu.kelp ~ dunif(-10, 10)
135 sig.kelp ~ dunif(0, 20)
136 tau.kelp <- pow(sig.kelp, -2)
128:1
(Top Level)
R Script
Console
Terminal
Background Jobs
R 4.2.2 · ~/Dropbox/2022/collabs/community_detection/
'citation()' on how to cite R or R packages in publications.
Environment
History
Connections
To Source
n.chains = 3,
n.iter = 1,
DIC = TRUE)
View(mod)
mod$mean$bray_balanced
120*12
1440/5.5
262*4
120/2
1.3
60/1.3
29*47
Files
Plots
Packages
Help
Viewe
analyses > 03_metric_SAM_modeling > ja
Name
Size
..
gain_SAM_chla.R
4.4

Current work: leveraging long-term datasets

New insights in community and population ecology

Goals of this workshop series

- To introduce you to coding in R and why it's useful
- To gain confidence in the ways that ecologists may use R to explore, analyze, and visualize data
- To try out some skills on your own datasets



What is R?

- R is a programming language and software used to run code written in R

Why use R?

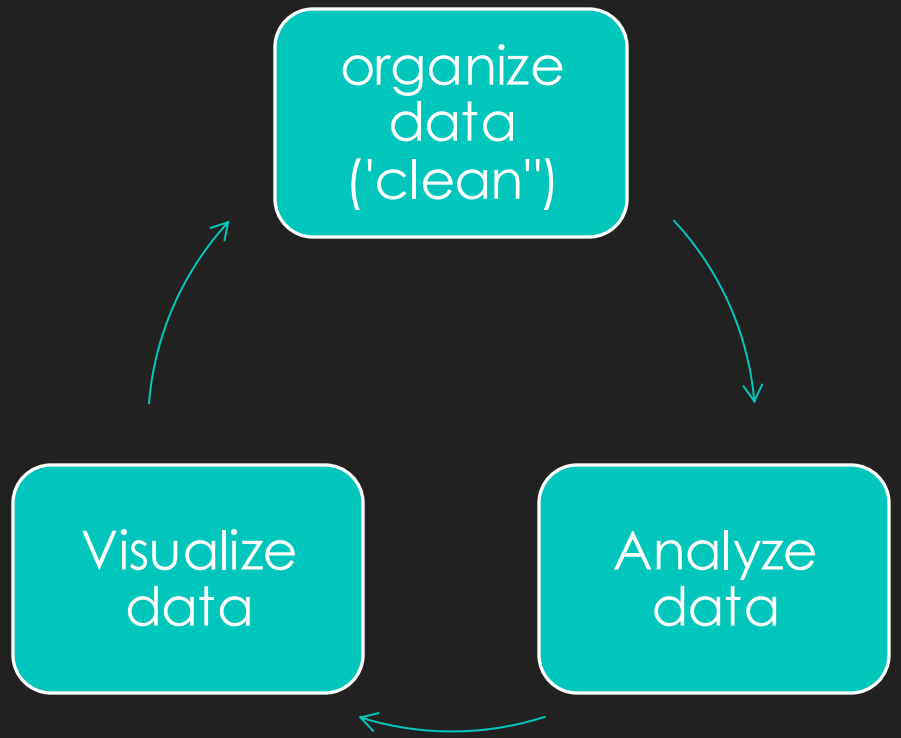
R is multi-functional

R is cross-disciplinary

R is a “transferrable skill”

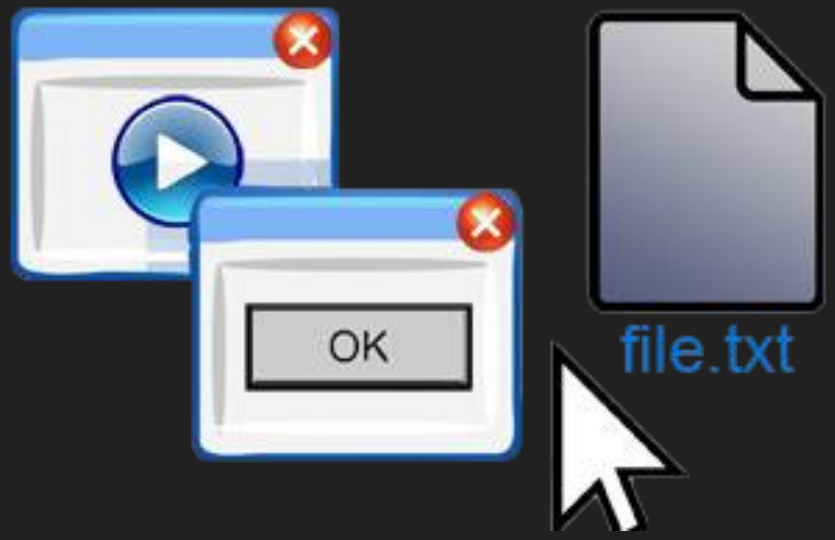
Why R for Ecologists?

R is multi-functional



```
m1 <- lm(log(Init_day) ~ a1000_areamn2,
         data = init_data)
```

VS



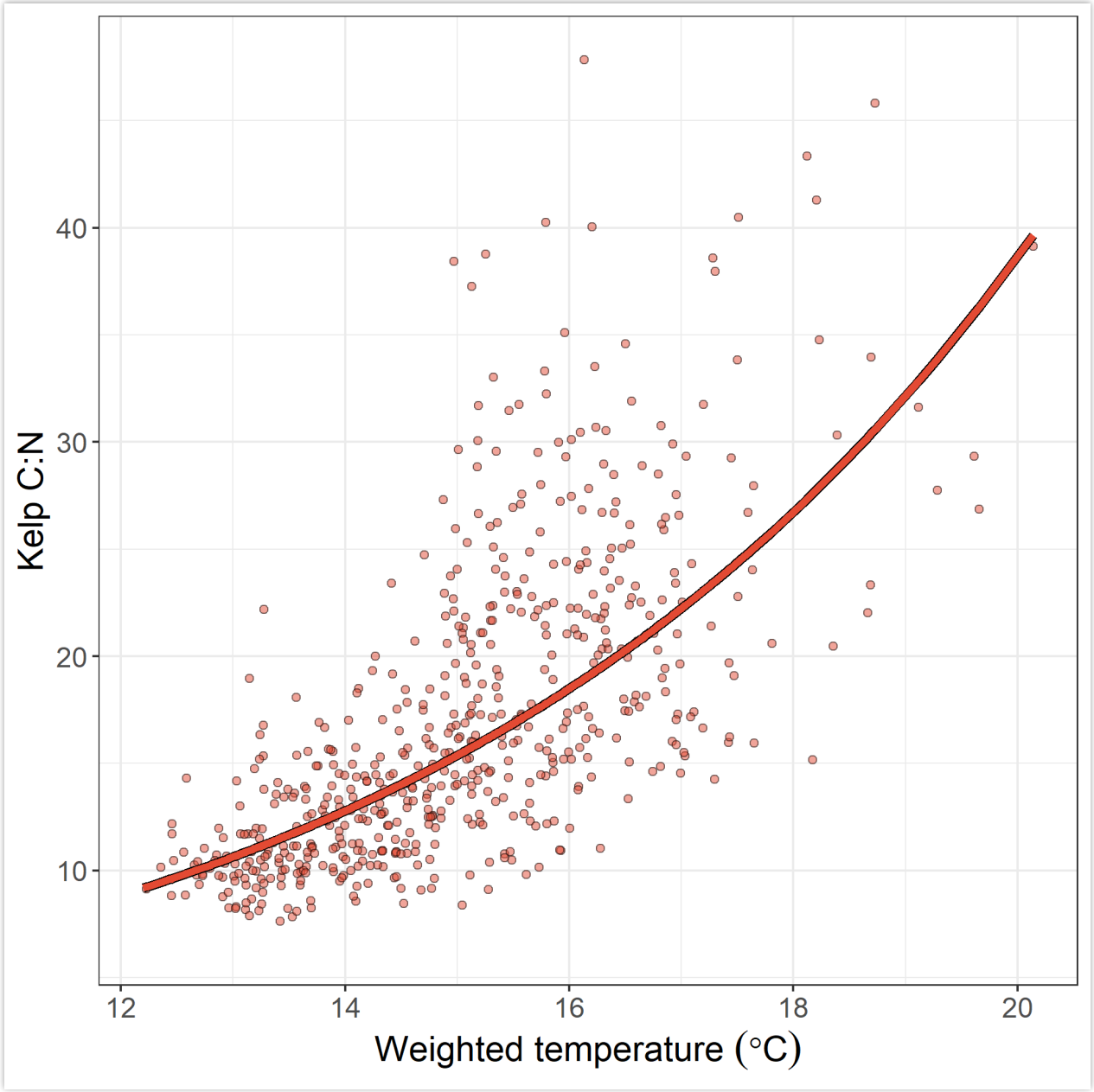
R is “reproducible”

- No pointing and clicking
- Easy to incorporate new data as you collect it
- Easy for others to look at your work and suggest improvements
- Easy for someone (including future you) to re-do similar processes or repeat the same processes later

R works for many kinds of data

- Not limited to a single data type
  - Excel-type data, GIS spatial data, genetics data, etc!
- Can even work with really big data files

You can make pretty pictures in R



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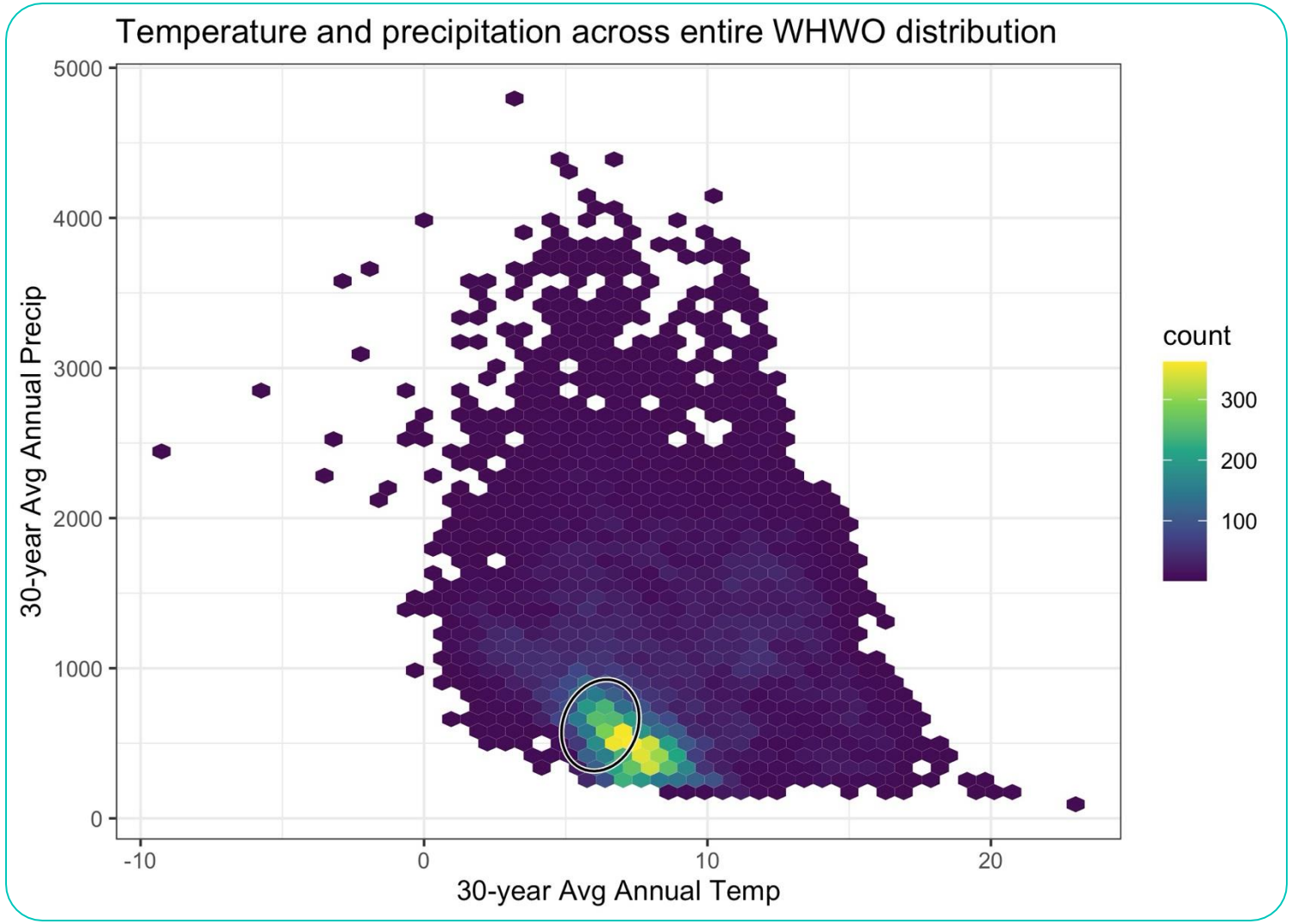

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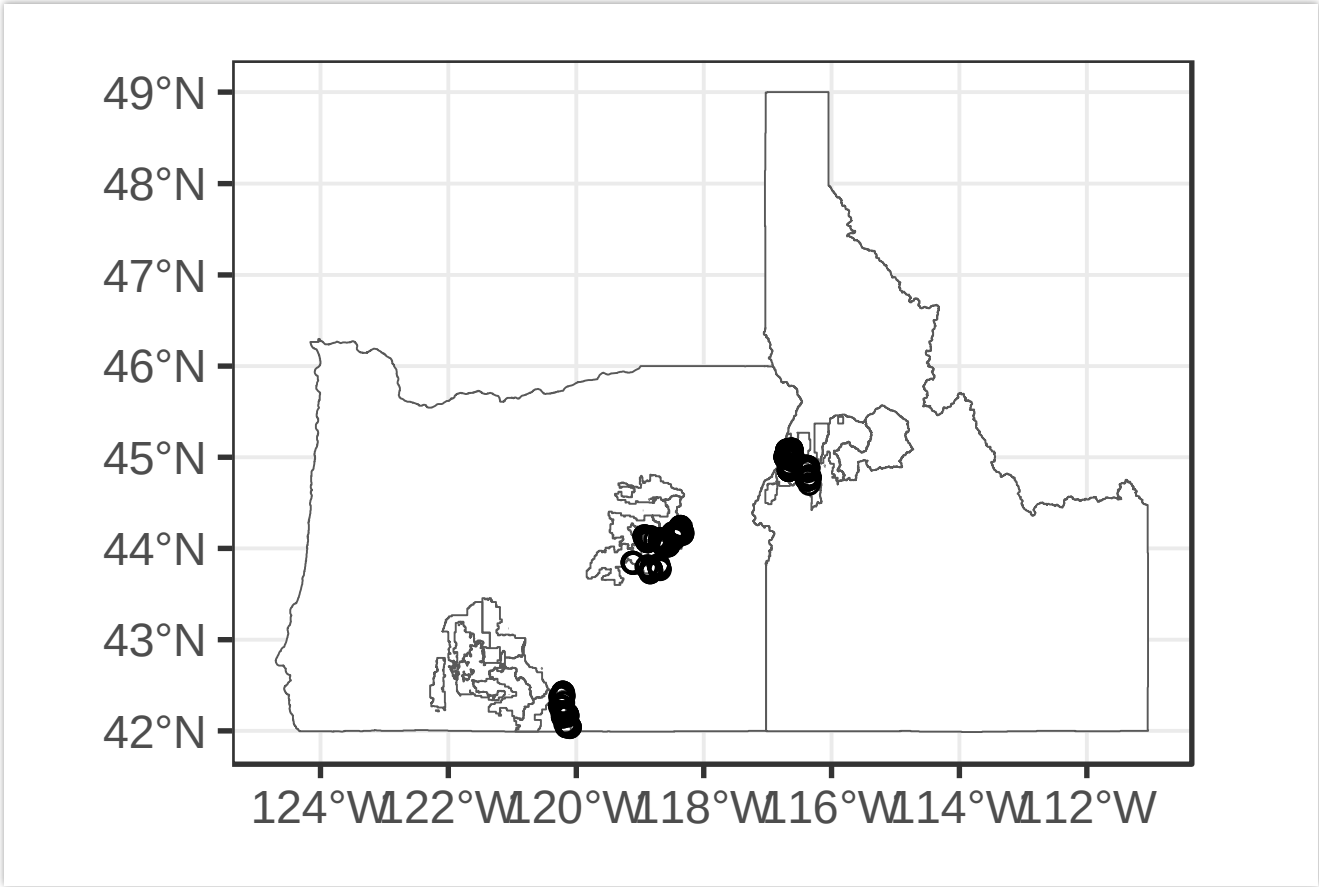

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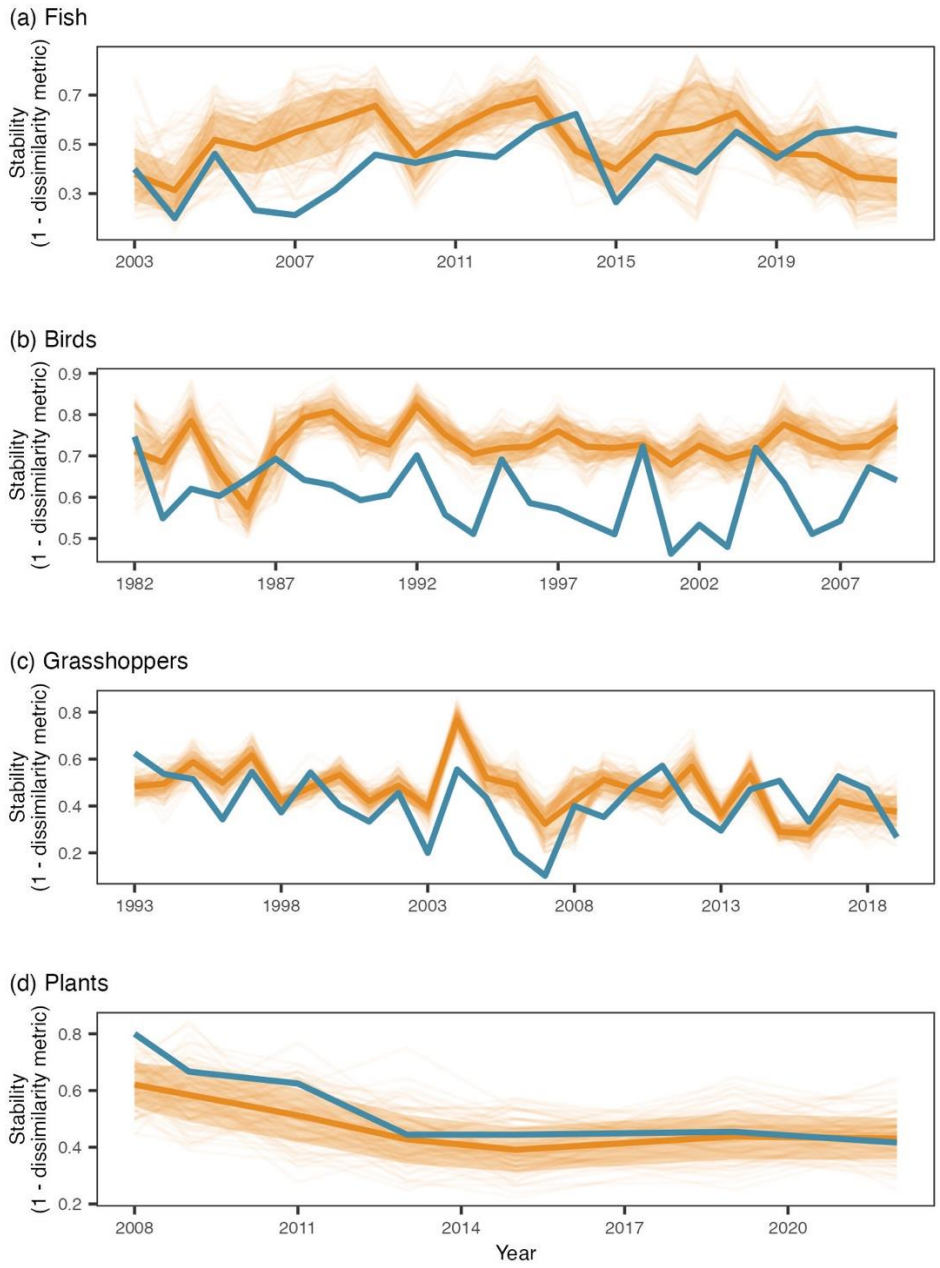


R Beyond Ecology

R is interdisciplinary

- Used across many fields
- Data analysts at Google use the same functionality of R that I use ('transferrable skill')
- Anything from image analysis, text analysis, GIS, time series, genetics, statistics and more can be done in R

R has a great community of support

- Rstudio Community and Stack Overflow can answer all the questions to all your errors
- You can Google an error and find solutions
- Answers are geared toward researchers, since many researchers use R (not geared toward software engineers)

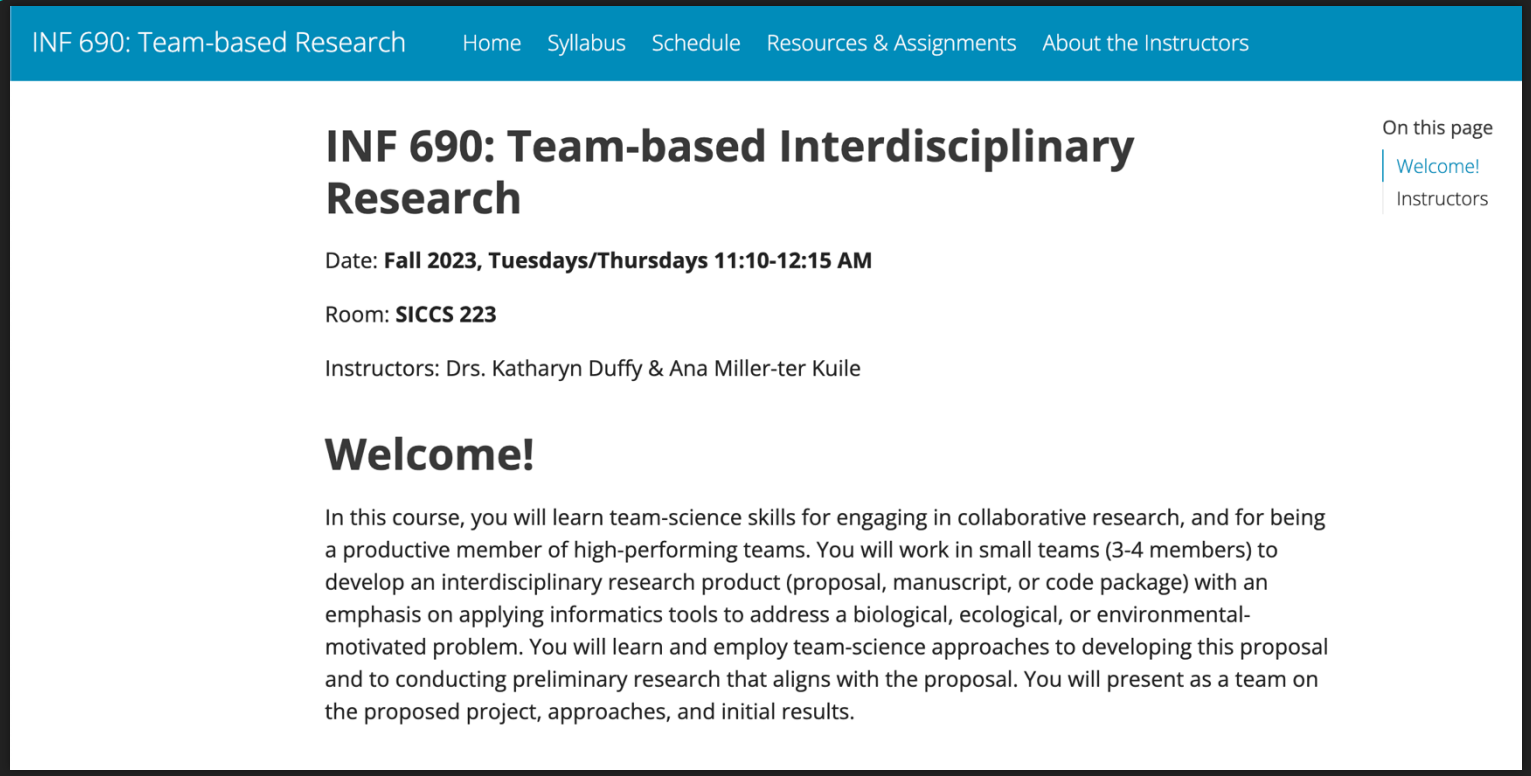
R is free and you can contribute to it!

- You can add your own ways of working with data to R
- Anything created by others in R is free for you to use
- You can use R on Mac, Windows, and Linux

R is multi-purpose

- I mentioned data organization ('cleaning'), analysis, and visualization, but there's even more!
- You can use R extensions to create beautiful websites, books, tutorials, and even interactive data-driven websites
  - R easily interfaces with programs like Quarto, Rmarkdown, and Rshiny to do these things

Websites


INF 690: Team-based Research
Home
Syllabus
Schedule
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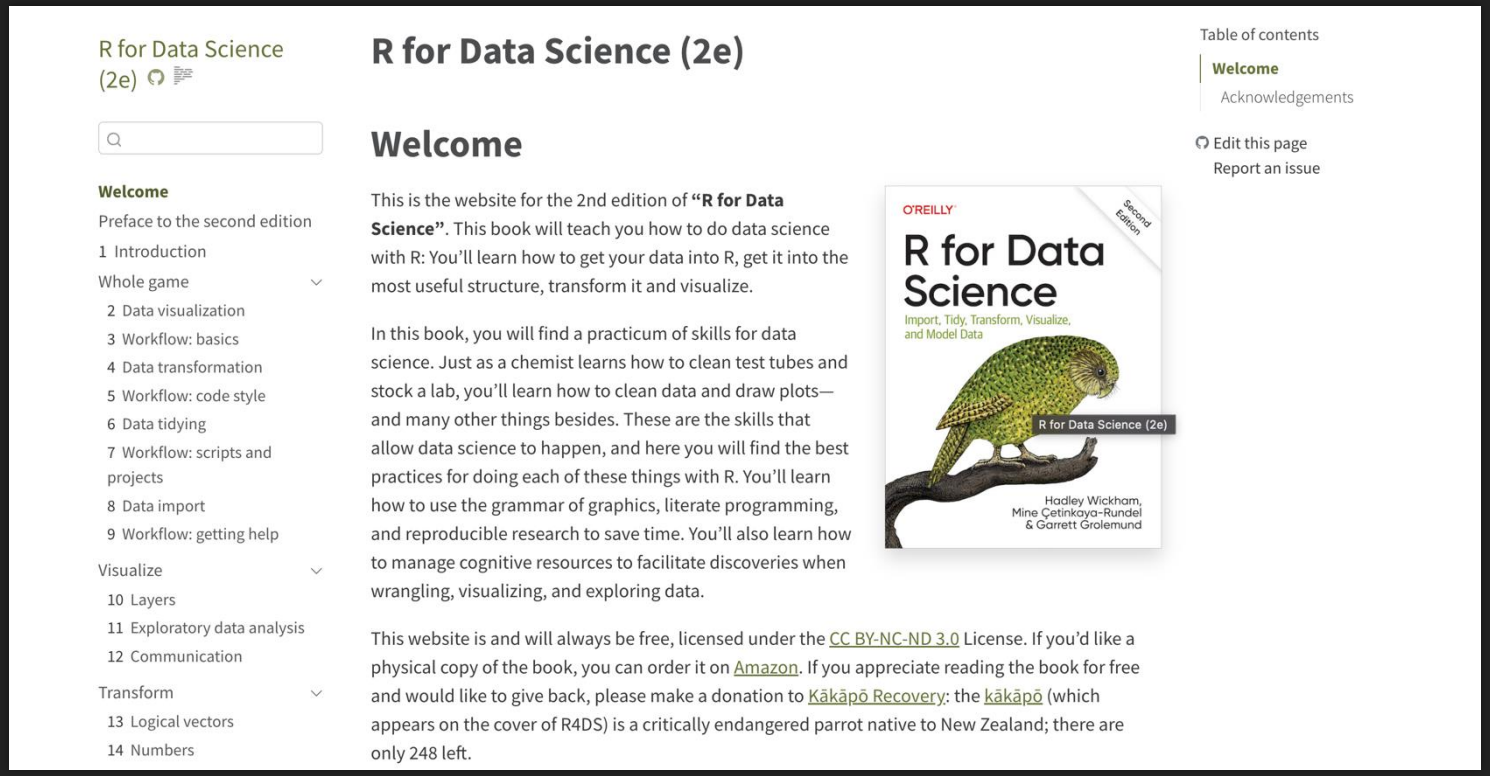
About the Instructors
INF 690: Team-based Interdisciplinary Research
Date: Fall 2023, Tuesdays/Thursdays 11:10-12:15 AM
Room: SICCS 223
Instructors: Drs. Katharyn Duffy & Ana Miller-ter Kuile
Welcome!
In this course, you will learn team-science skills for engaging in collaborative research, and for being a productive member of high-performing teams. You will work in small teams (3-4 members) to develop an interdisciplinary research product (proposal, manuscript, or code package) with an emphasis on applying informatics tools to address a biological, ecological, or environmental-motivated problem. You will learn and employ team-science approaches to developing this proposal and to conducting preliminary research that aligns with the proposal. You will present as a team on the proposed project, approaches, and initial results.
On this page
Welcome!
Instructors

Books



R for Data Science (2e)

Welcome
Preface to the second edition
1 Introduction
Whole game
2 Data visualization
3 Workflow: basics
4 Data transformation
5 Workflow: code style
6 Data tidying
7 Workflow: scripts and projects
8 Data import
9 Workflow: getting help
Visualize
10 Layers
11 Exploratory data analysis
12 Communication
Transform
13 Logical vectors
14 Numbers

R for Data Science (2e)

Welcome

This is the website for the 2nd edition of **"R for Data Science"**. This book will teach you how to do data science with R: You'll learn how to get your data into R, get it into the most useful structure, transform it and visualize.

In this book, you will find a practicum of skills for data science. Just as a chemist learns how to clean test tubes and stock a lab, you'll learn how to clean data and draw plots—and many other things besides. These are the skills that allow data science to happen, and here you will find the best practices for doing each of these things with R. You'll learn how to use the grammar of graphics, literate programming, and reproducible research to save time. You'll also learn how to manage cognitive resources to facilitate discoveries when wrangling, visualizing, and exploring data.

Table of contents
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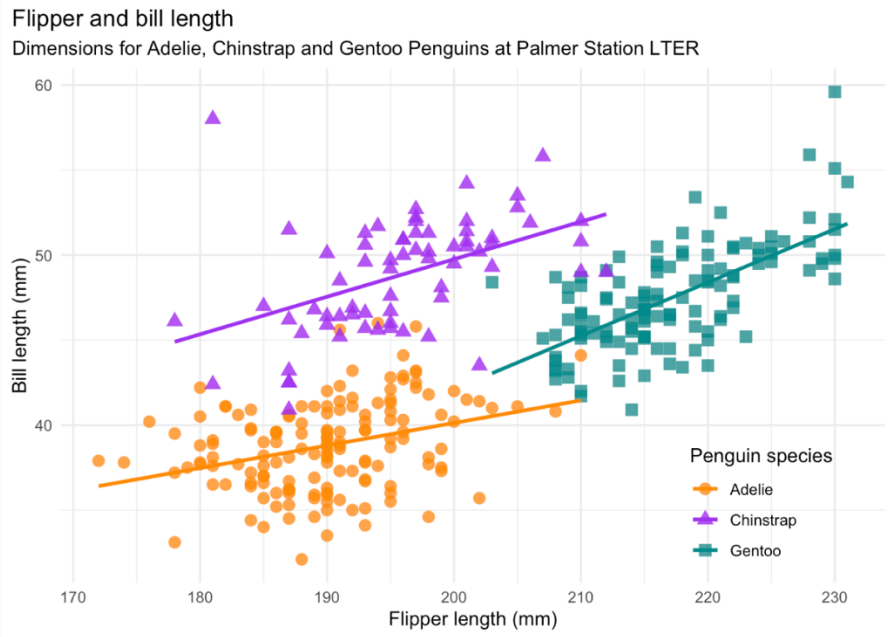
Report an issue

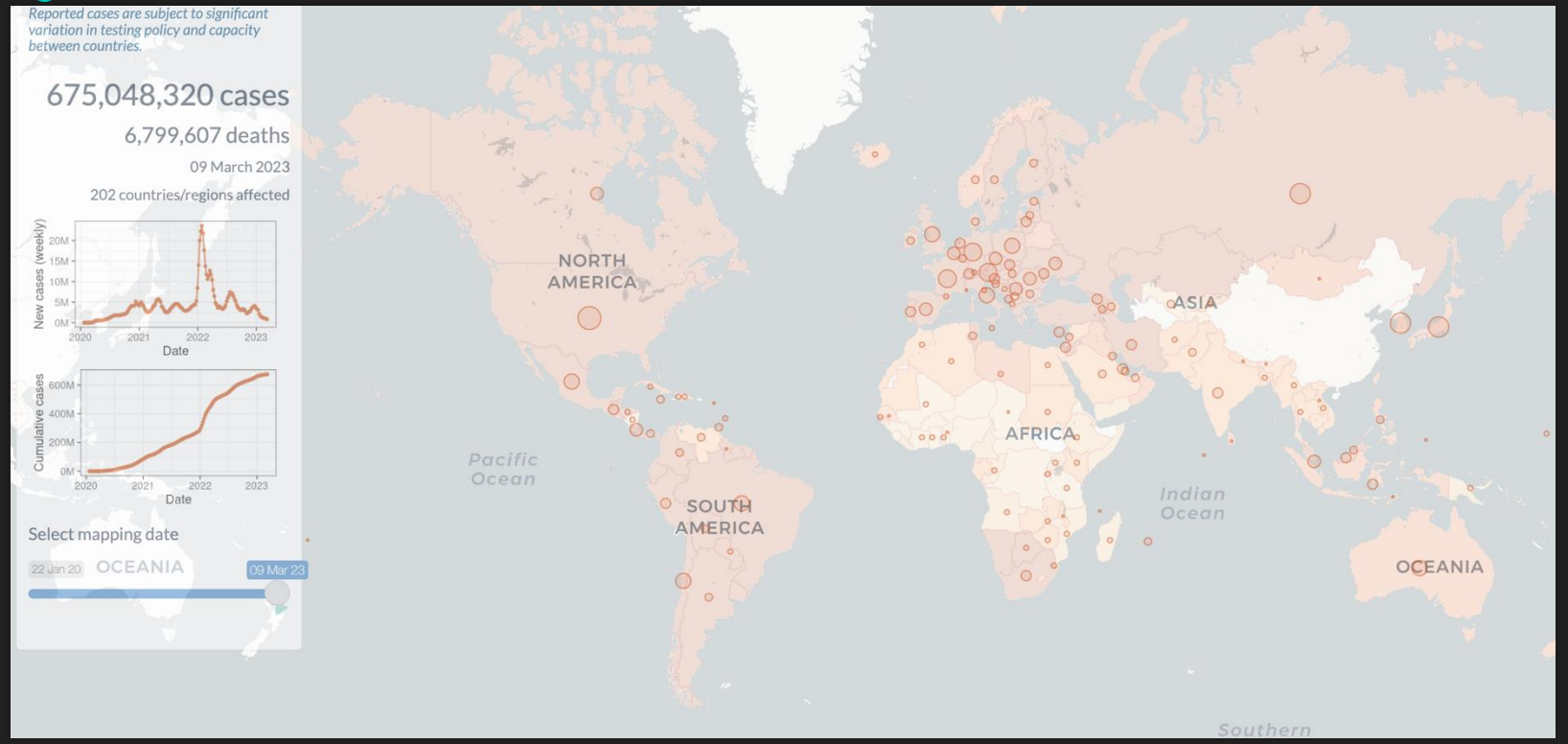
Tutorials

palmerpenguins

The goal of palmerpenguins is to provide a great dataset for data exploration & visualization, as an alternative to `iris`.



Interactive data-driven websites



Getting ready for next week

- Install R
- Install R Studio
- Install packages as a group