LRES 546: Quantitative Environmental Methods

Lab 1: Runoff analysis and hydrograph separation

In this lab you will use some R code to analyze runoff from some gages in the Tenderfoot Creek Experimental Forest of central Montana.

Learning objectives:

After completing this lab, students will:

Understand the rational and curve number methods for estimating flow

Improve coding skills using the RStudio IDE

Understand how to interact with GitHub and download repos

Be able to explain how watershed characteristics might influence runoff and baseflow contributions to runoff

The first step is to install R and RStudio on your computer, if you haven’t already done so. For directions on how to do so, see this link:

<https://rstudio-education.github.io/hopr/starting.html>

Once you have R and RStudio installed you will go to our class bookdown page:

<https://tpcovino.github.io/lres_546_bookdown/hydrograph-separation-lab-module-20-pts.html>

We will be working on chapter 3 this week and into next. Chapter 3 has some background reading and links. Section 3.3 will take you to a GitHub repo where you will download a folder that has everything you need. There will be 3 .Rmd files in the repo. Rmd is an R Markdown file. We will be using R Markdown for all of our work. We will also always interact with R through RStudio, which makes interacting with R easier.

The 3 .Rmd files in the repo are \_blank.Rmd, which has little to no code. \_partial.Rmd that has most of the code but some bits missing to challenge you and get you learning code. And then a \_complete.Rmd that has all of the code. I suggest that everyone start with the partial. It shouldn’t be to overwhelming. So if it’s ok with you let’s all start there? Then we can adjust in the coming weeks based on your experience.

So your task over this week and next is to:

* Read the background reading
* Work through the \_partial.Rmd code
* Try to understand what all the code is doing and how you might change it
* Answer the questions included in the lab