R Studio Quick Start

This is a quick start guide for those unfamiliar with R Studio. R Studio is a freely available, open source Integrated Development Environment (IDE) for the R statistical package. R Studio is intended to make the processing and analysis of data using R more straightforward than using the R package directly, by providing an interface that enables rapid development of statistical code.

Installation

Before downloading R studio, you first need to download and install the R statistical package itself, which is also free and open source. You can obtain this from here: https://cran.rstudio.com/ (follow the download links at the top of the page, selecting the appropriate installation package for your operating system).

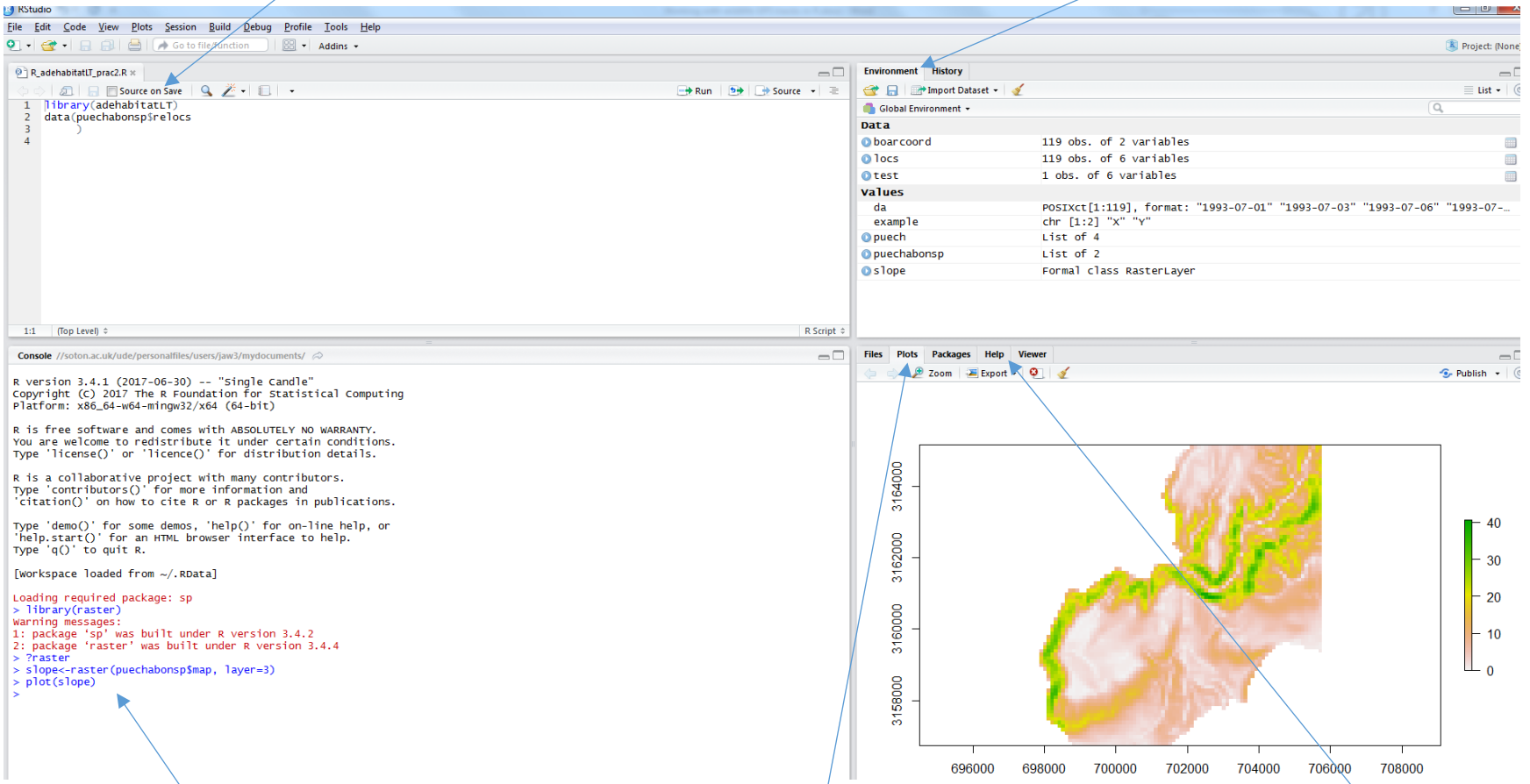
Having installed R, the R Studio package can be downloaded from: https://www.rstudio.com/products/rstudio/download/. Note that you will need to aim for the R Studio Desktop product and choose the Open Source Licence, rather than one of the various commercial licences available.

After installing R and RStudio, the next page gives you a very quick overview of the RStudio interface.

The windows within R Studio:

Copy and paste commands in here to develop programs as R Script

The environment/history window gives you details of data structures and functions held in memory



The R Console – type commands in here

Plots will appear here

Help will appear here in response to typing ? in front of a command, data set, or package name

Saving and organising your work with RStudio Projects

RStudio has various ways of saving and then returning to your work. Of these, perhaps the single most useful is the idea of a project – a collection of input data files, outputs, and R scripts (statistical programming code) all held within the same folder or directory. If you start up RStudio, it is a good idea to create a new project:

- Head for the *file* menu / *New project*… (save your workspace if asked)
- Choose '*New Directory*'
- Choose *'Empty Project'*
- Use *Create project as subdirectory of…* to select the root folder for your project.
- Type in a *directory name* for the folder that will store all of these R materials, then choose '*create project*'.

You can save a project via the floppy disk icon and return to it later via the *file / recent projects* or *file / open project* menu options. A really helpful introduction to working with projects, as well as other key ideas for saving your work in RStudio (e.g. R scripts; workspaces, setting your working folder) can be found here:

http://stat545.com/block002_hello-r-workspace-wd-project.html.

Key data structures used by R: vectors, lists, data frames

Finally, it is a good idea to understand some of the basic structures that R uses to handle data. Aside from fundamental 'building block' (sometimes called atomic) data types that many GIS users will be familiar with (e.g. integer for whole numbers, numeric for floating point or real numbers with fractional parts), there are more complex data structures for storing collections of numbers or text strings. Examples of such structures include vectors (essentially a set of data of a homogenous type, so for example a series of integers) and data frames (crudely equivalent to a spreadsheet).

There are several really good exercises that introduce these data structures, but one way of finding out more would be to work through the materials here:

https://www.sitepoint.com/introduction-r-rstudio/