Plot grid of plots in R.

Learning Objectives

After completing this tutorial, you will be able to:

- Add a variable to the markdown chunk in your .Rmd report.

What you need

You will need a computer with internet access to complete this lesson and the data for week 6/7 of the course.

Download Week 6/7 Data (~500 MB){:data-proofer-ignore=" .btn }

```
# load libraries
library(raster)
library(rgeos)
library(rgdal)
```

```
# import landsat data
all_landsat_bands <- list.files("data/week6/Landsat/LC80340322016189-SC20170128091153/crop",
           pattern=glob2rx("*band*.tif$"),
           full.names = T) # use the dollar sign at the end to get all files that END WITH

all_landsat_bands_st <- stack(all_landsat_bands)
```

Creating a grid of plots

You can plot several plots together in the same window using baseplot. To do this, we use the parameter value `mfrow=c(x,y)` where x is the number of rows that you wish to have in your plot and y is the number of columns. When you plot, R will place each plot, in order by row within the grid that you define using `mfrow`.

Below, we have created a 2 by 2 grid of plots using `mfrow=c(2,2)` within the `par()` function. In this example we have 2 rows and 2 columns.

```
# adjust the parameters so the axes colors are white. Also turn off tick marks.
par(mfrow=c(2,2), col.axis="white", col.lab="white", tck=0)
# plot 1
plotRGB(all_landsat_bands_st,
        r=4,b=3,g=2,
        stretch="hist",
        main="Plot 1 - RGB",
        axes=T)
box(col="white") # turn all of the lines to white

# plot 2
plotRGB(all_landsat_bands_st,
        r=5,b=3,g=2,
        stretch="hist",
        main="Plot 2 - CIR",
        axes=T)
box(col="white") # turn all of the lines to white
```

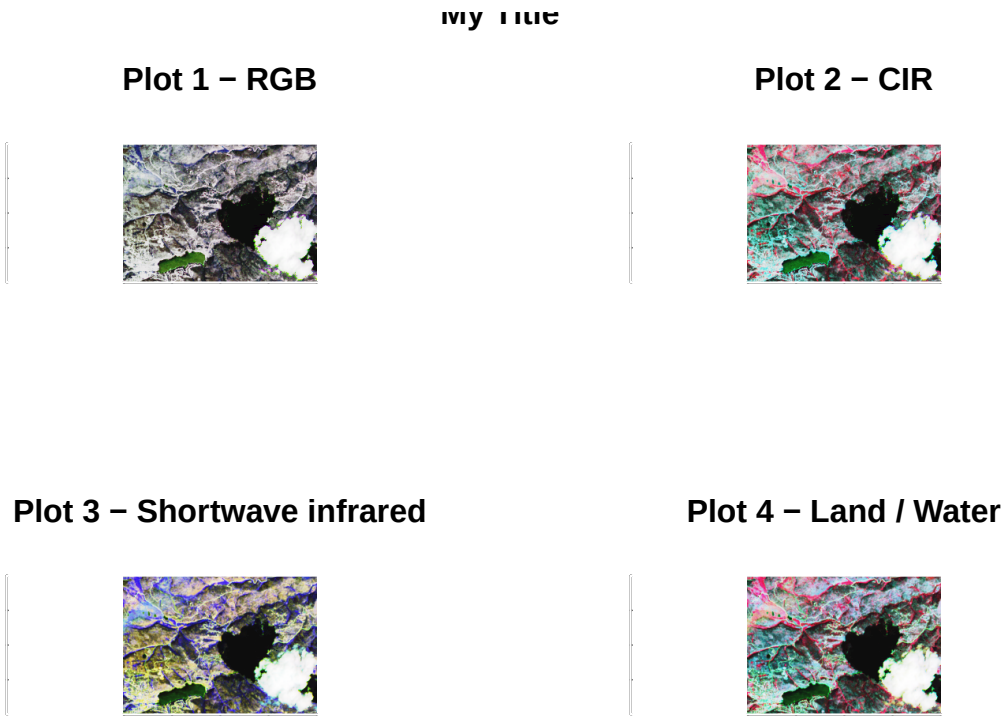

Figure 1: Create 2 x 2 grid of plots.

```
# plot 3
plotRGB(all_landsat_bands_st,
        r=7,b=5,g=4,
        stretch="hist",
        main="Plot 3 - Shortwave infrared",
        axes=T)
box(col="white") # turn all of the lines to white

# plot 4
plotRGB(all_landsat_bands_st,
        r=5,b=6,g=4,
        stretch="hist",
        main="Plot 4 - Land / Water",
        axes=T)
# set bounding box to white as well
box(col="white") # turn all of the lines to white

# add overall title to your layout
title("My Title", outer=TRUE)
```

Above, we added an overall title to our grid of plots using the `title()` function. However the title is chopped of because there is not enough of a margin at the top for it. We can adjust for this too using the `oma=` parameter argument. `oma` sets the outside (o) margin (ma).

`oma=` argument in our `par()` function. Let's try it.

```
# adjust the parameters so the axes colors are white. Also turn off tick marks.
par(mfrow=c(2,2), oma=c(0,0,2,0), col.axis="white", col.lab="white", tck=0)
# plot 1
plotRGB(all_landsat_bands_st,
        r=4,b=3,g=2,
        stretch="hist",
        main="Plot 1 - RGB",
        axes=T)
box(col="white") # turn all of the lines to white

# plot 2
plotRGB(all_landsat_bands_st,
        r=5,b=3,g=2,
        stretch="hist",
        main="Plot 2 - CIR",
        axes=T)
box(col="white") # turn all of the lines to white

# plot 3
plotRGB(all_landsat_bands_st,
        r=7,b=5,g=4,
        stretch="hist",
        main="Plot 3 - Shortwave infrared",
        axes=T)
box(col="white") # turn all of the lines to white


# plot 4
plotRGB(all_landsat_bands_st,
        r=5,b=6,g=4,
        stretch="hist",
        main="Plot 4 - Land / Water",
        axes=T)
# set bounding box to white as well
box(col="white") # turn all of the lines to white

# add overall title to your layout
title("My Title", outer=TRUE)
```

When you are done with plotting in a grid space, be sure to reset your plot space using `dev.off()`.

```
dev.off()
```

Your homework this week should look something like this:

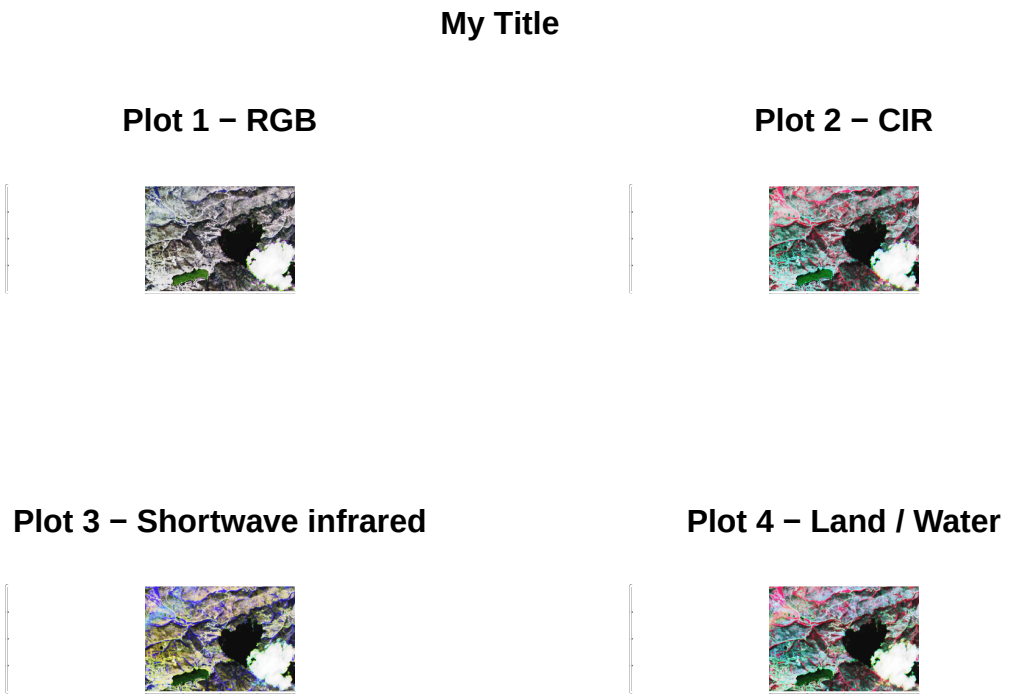

Figure 2: Remove axes labels.

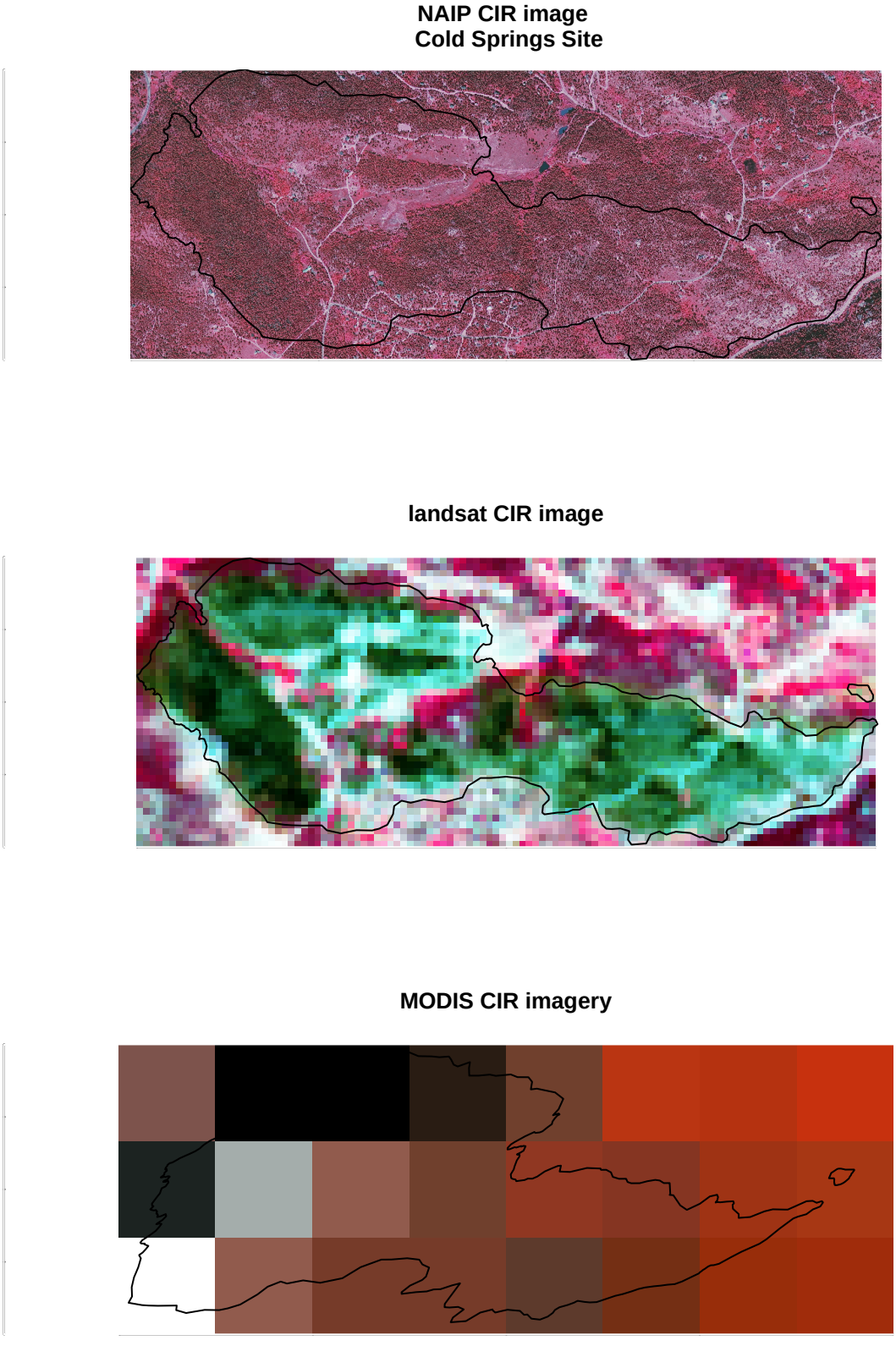

Figure 3: grid of plots