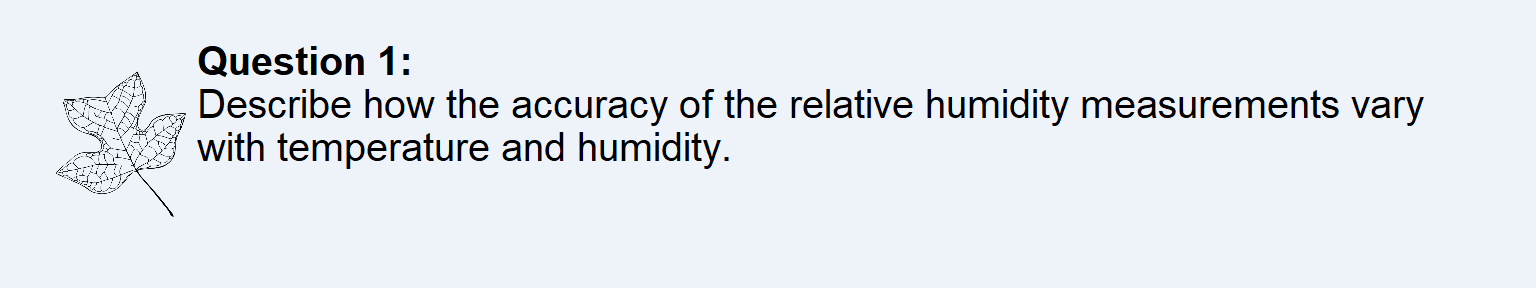
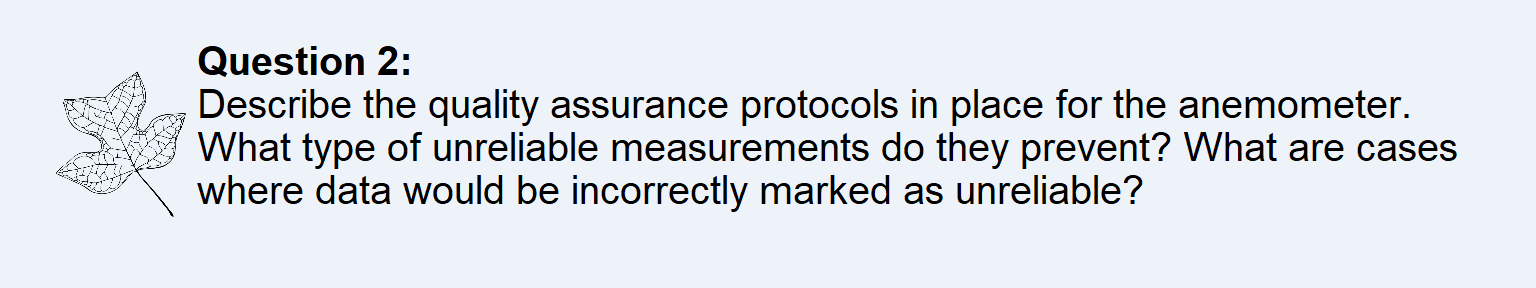
Jillian Johns

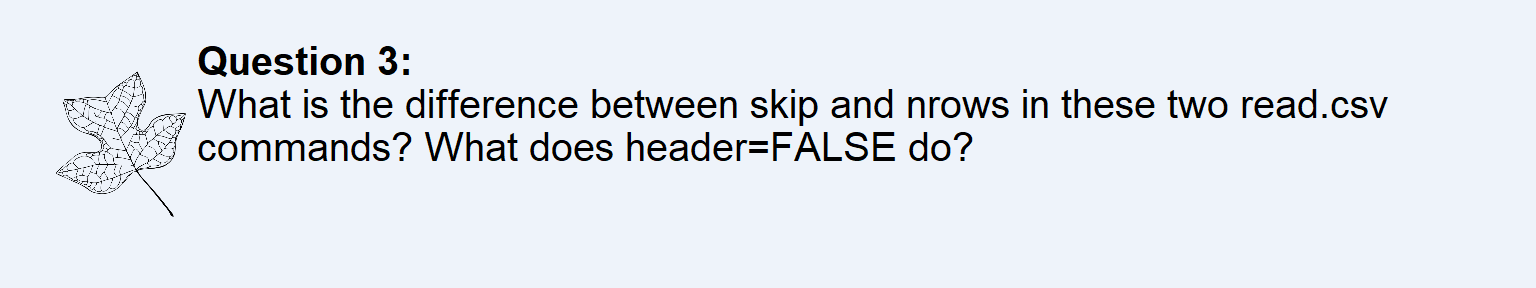
Activity #3



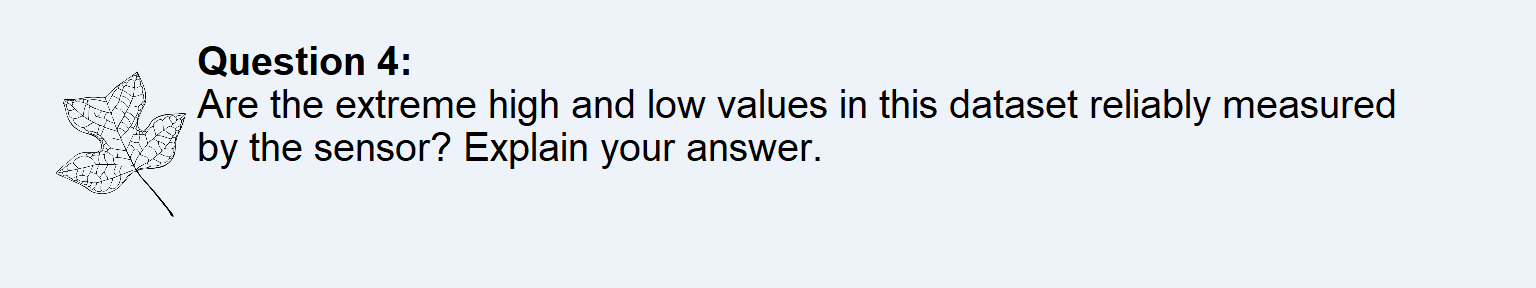
Based on Figure 5, the accuracy decreases as temperature gets over 70 C or under 10 C and if humidity is under 10% and over 95%.



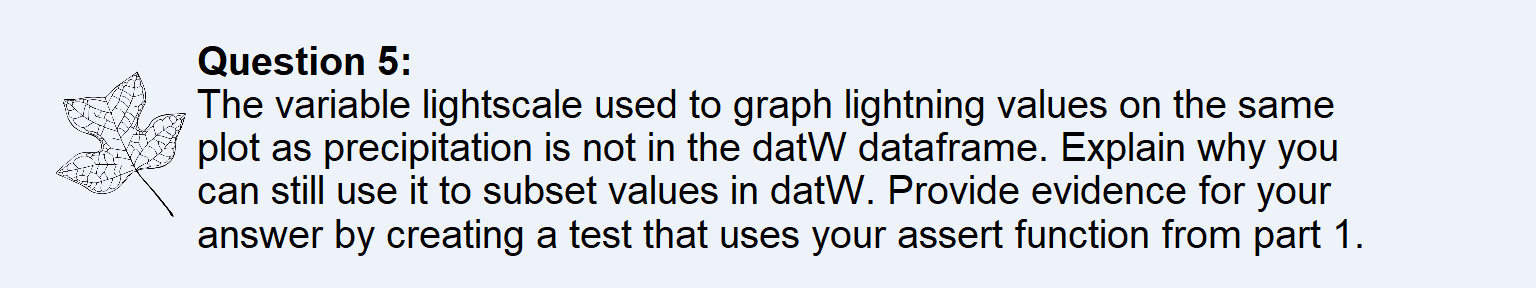
They prevent data that is more than 8 times the running average because they reject it. Unreliable data could be due to large spikes in wind speed.



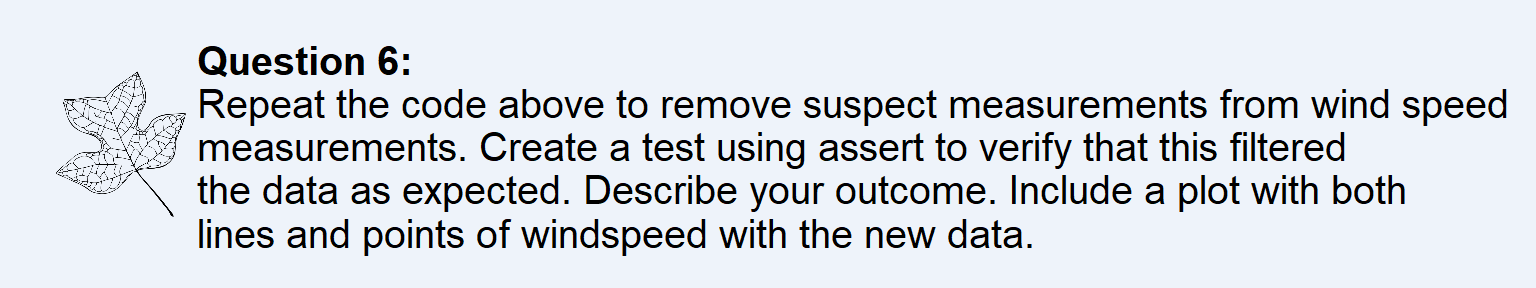
The skip is the number of lines of the data file to skip before beginning to read data while nrow is the maximum number of rows to read in which helps memory usage. Header=FALSE means that there are no names of the variables in the first row of the data, so the first line will be part of the data.



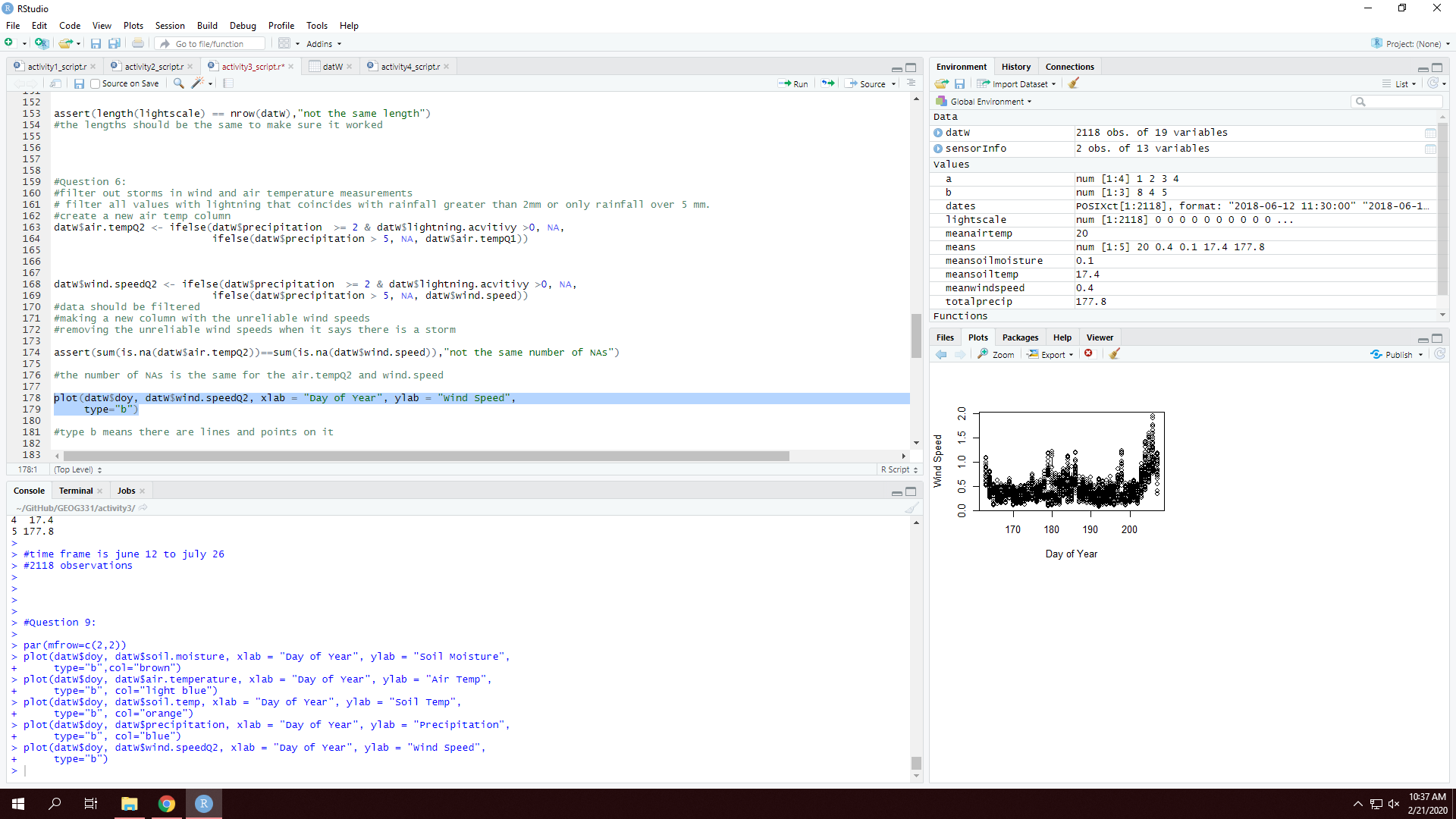
I think the low and high values are reliably measured by the sensor because all the temperatures are not too far off of each other when checking the quantile ranges of the data. If the low or high value was much greater than the other values in the range, then they would not be reliably measured.

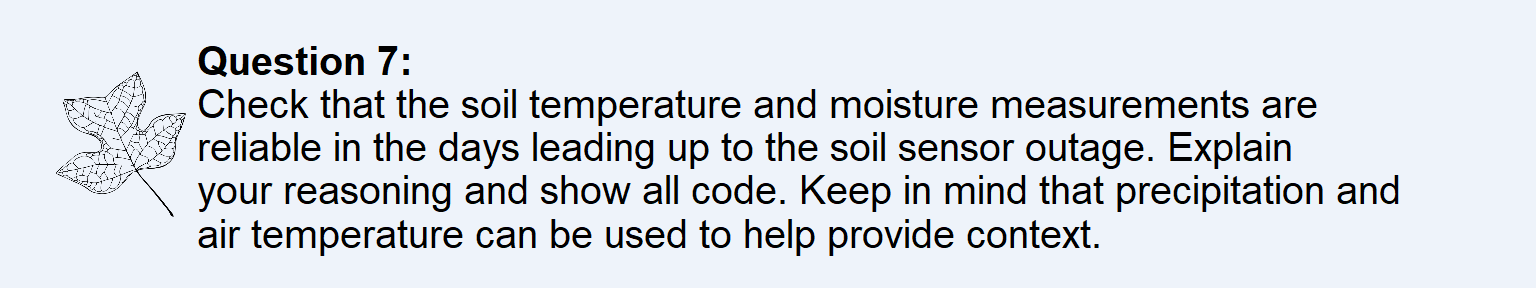


You can use lightscale to subset values in datW because it was created by using data from datW that have different values that will allow subsets to happen. Lightscale is a variable using precipitation and lightning activity from the data sat already, so even if it is not in the data frame, it has tangible numbers that the data can be subset by.

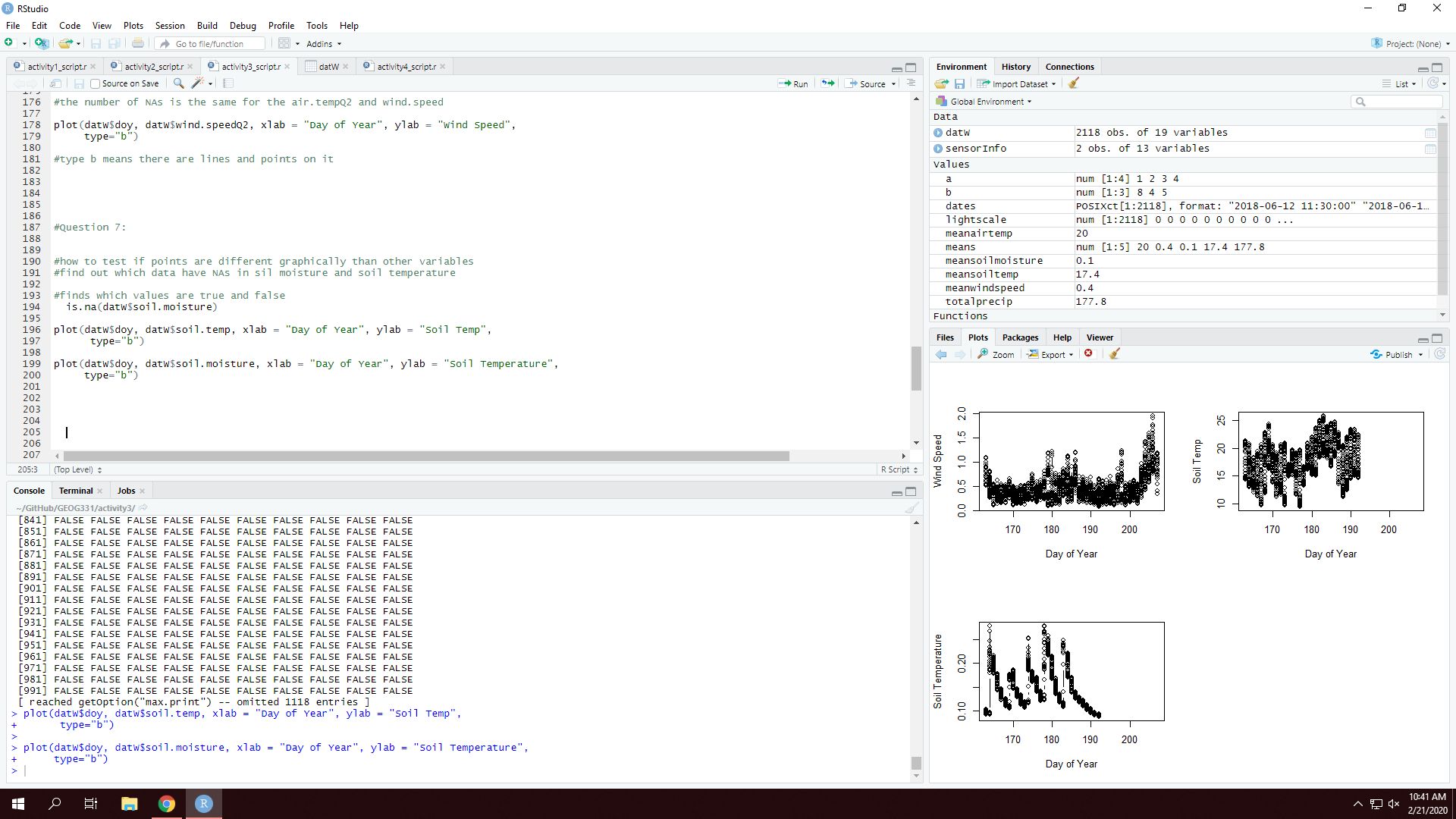


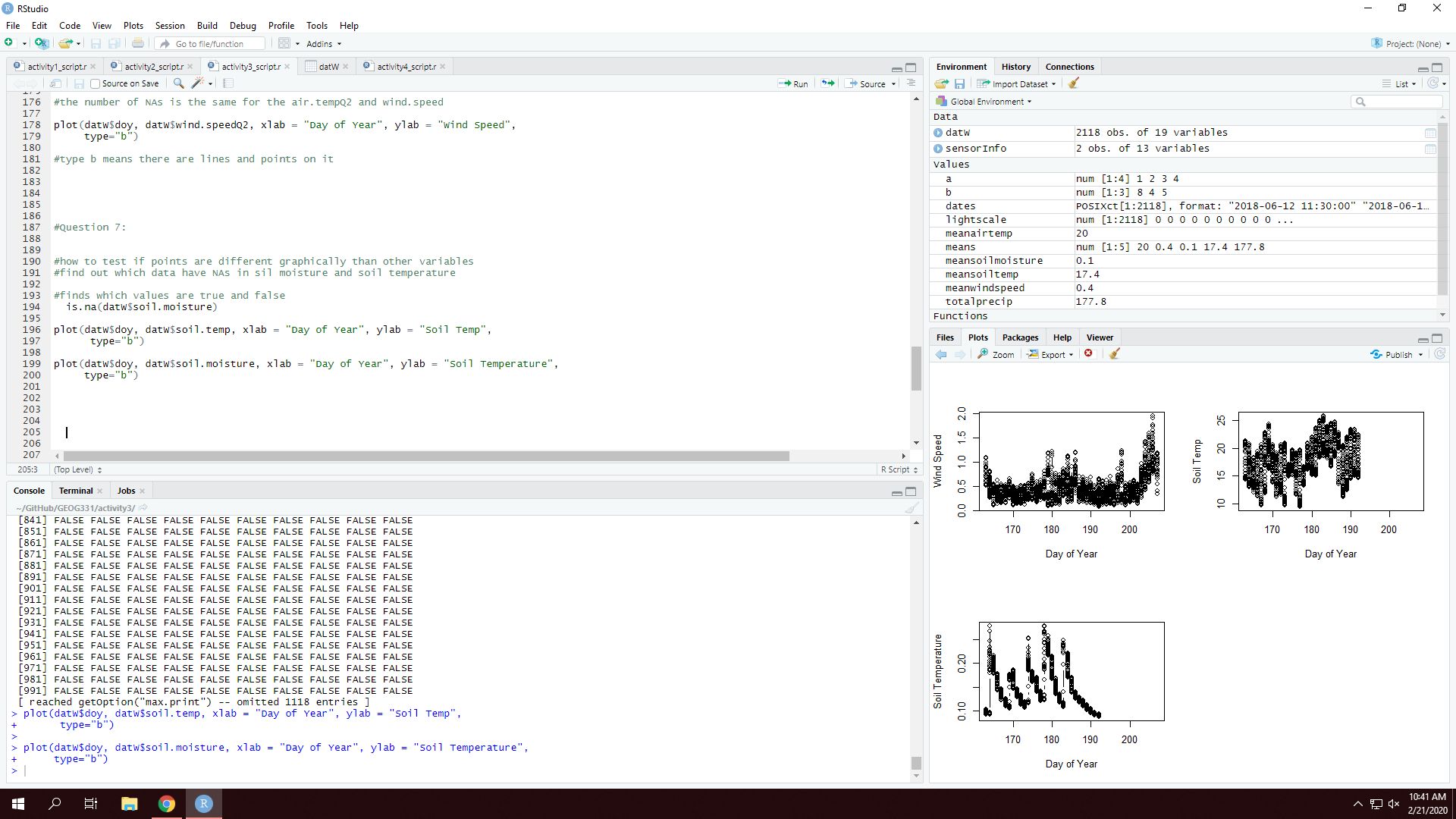
I made a new column called wind.speedQ2 which is the filtered wind speed measurements and the test is the assert, trying to see if the number of NAs is the same for the air.tempQ2 and wind.speed. The outcome is the wind speed that is filtered and without NAs. Since there were the same number, the data did come out as expected.

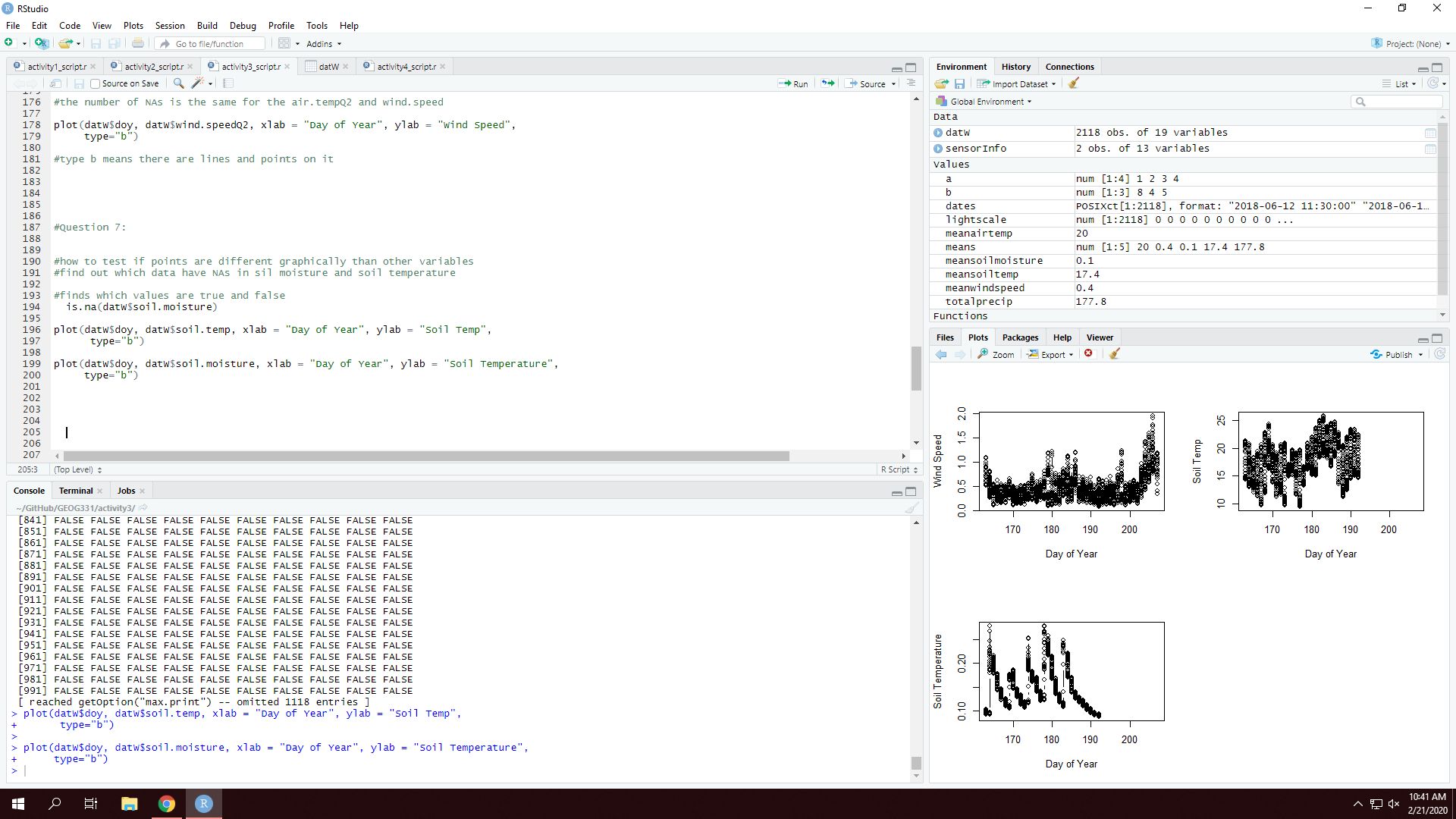


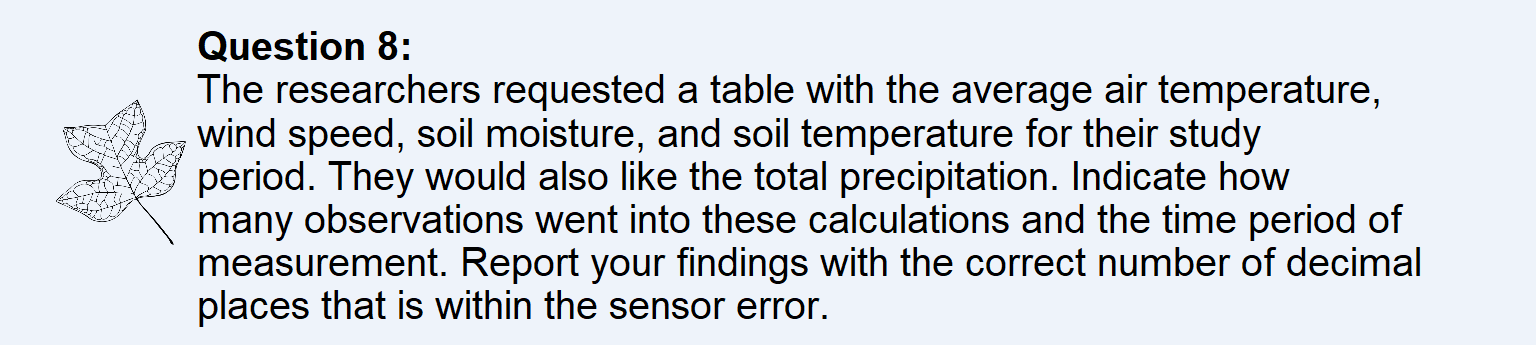


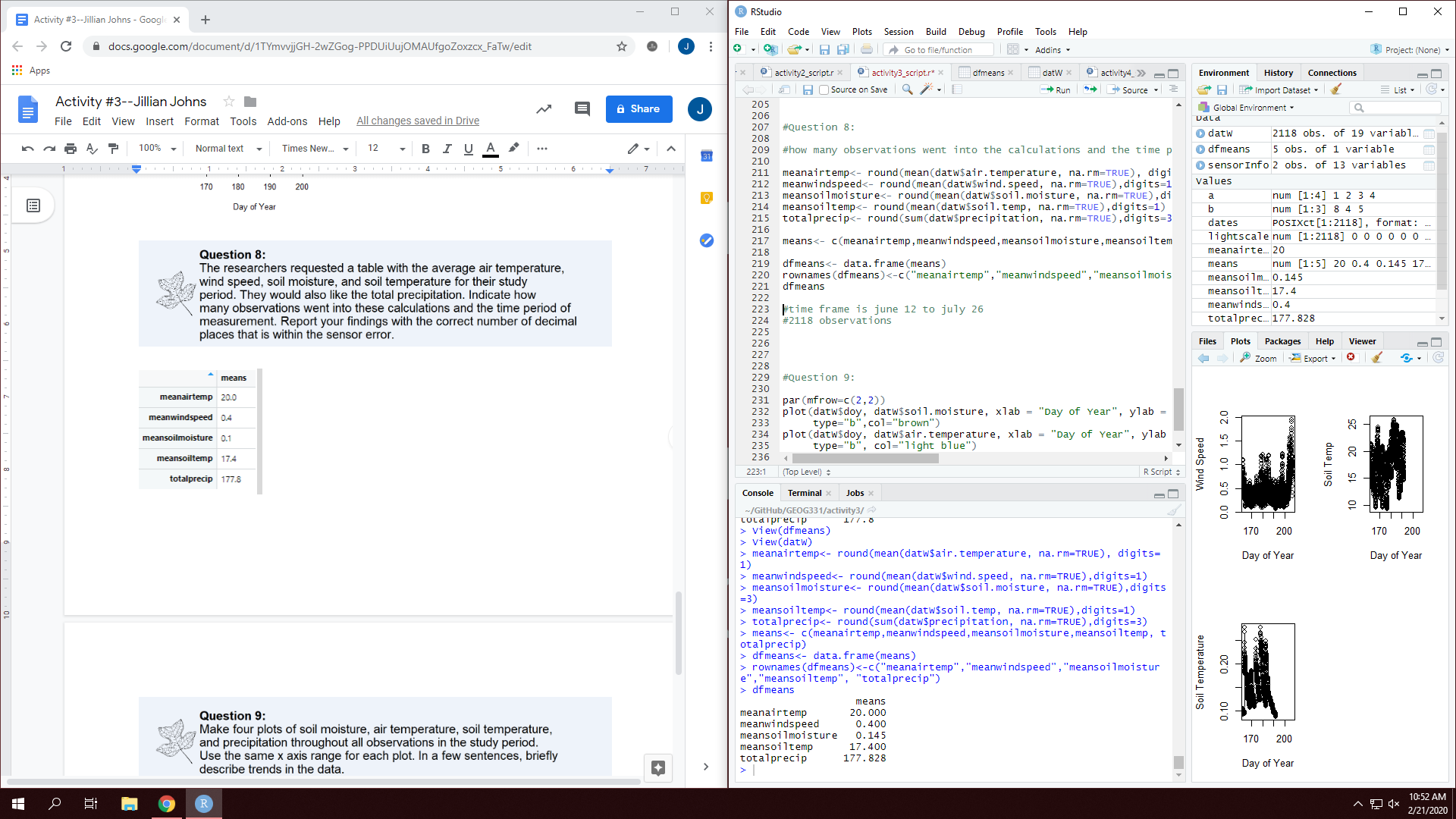
I plotted both the soil temperature and moisture and saw if they looked reasonable and reliable. There were not any noticeable outliers or data that looked unreliable up until the sensor went out around day 192, where the data stops.Soil temperature does start to dip down right before the sensor did go out, which could be something unreliable, but it does follow a similar pattern to data previously, though it does have some spikes in the plot.



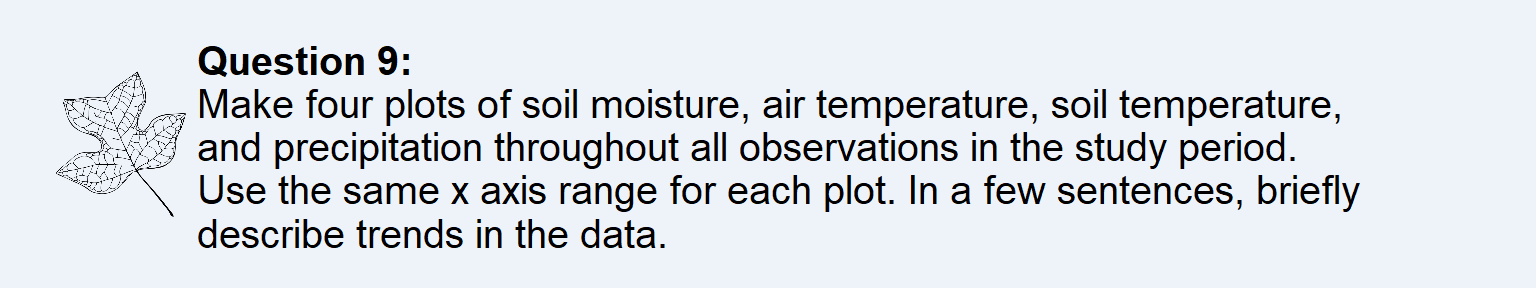


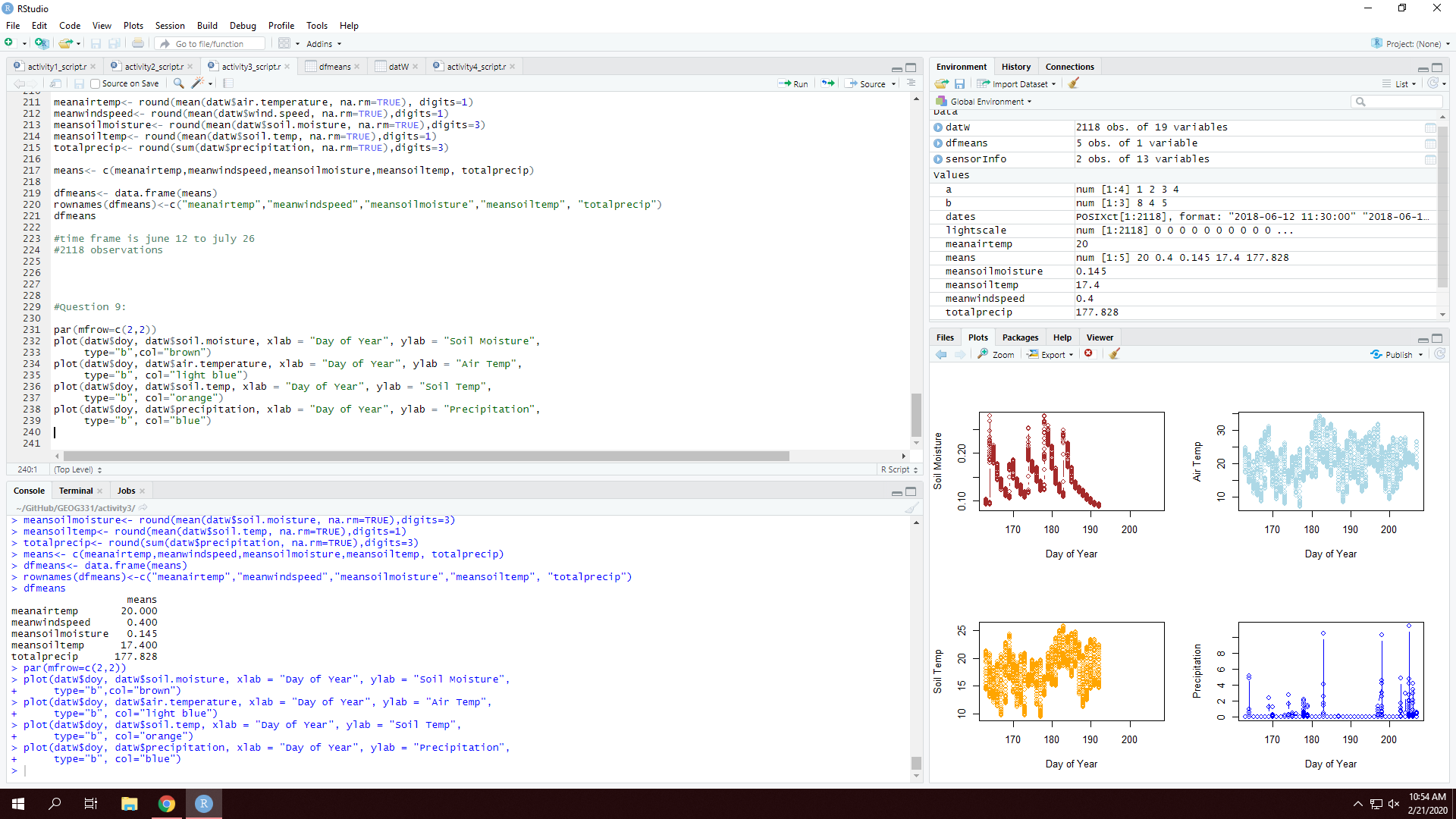




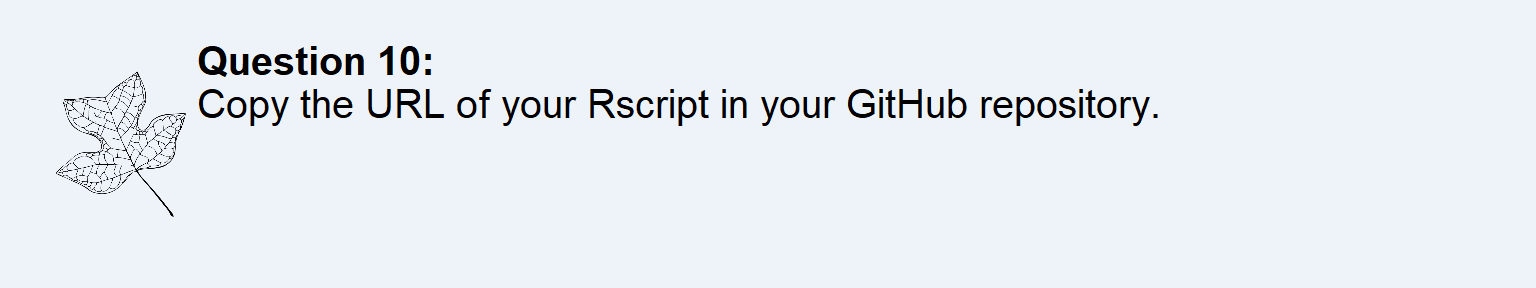


There were 2118 observations and different digits were used based on how many were used in the datW.





I used doy for the x axis because it is easy to read the data trends. Soil moisture seemed to have spikes, which makes sense as there is most likely more soil moisture in the mornings than in the afternoons as the sun is out. The air temperature changes based on time of day as well, but seemed to have similar patterns of decreasing throughout the day. The soil temperature has similar trends to the air temperature, which makes sense as if it is warmer out, the soil will probably also be warmer. The precipitation does not really have a trend, as it just spikes whenever it is raining on a particular day.



<https://github.com/jillianjohns3/GEOG331>