Thanks so much. I will give it a try. T

**From:** [caloprymnus@hotmail.com](mailto:caloprymnus@hotmail.com)  
**Sent:** Thursday, August 8, 2019 12:48 AM  
**To:** [Tereza Jezkova](mailto:jezkovt@miamioh.edu)  
**Subject:** RE: R help

Sure. I am attaching my script and data. Basically, you need an excel sheet with your localities and group assignments (i.e., your 3 species of horned lizards). You import those to R.

To compare climate among the three groups, you first need to dowonload climatic data from Worldclim (you do this within R). You then extract climatic values from all your localities using the extract function. If you use bioclimatic variables, you will have 19 values per each locality. You then run a PCA analysis to reduce your variables. Finally, you can plot your first two PCs to see if your three species occupy different climates. I figured out a nice way to do this. Hope this helps some,

Cal

cid:image001.png@01D54D83.3C15BDD0

**From:** Tereza Jezkova <jezkovt@miamioh.edu>  
**Sent:** Thursday, August 8, 2019 12:42:22 AM  
**To:** caloprymnus@hotmail.com  
**Subject:** RE: R help

Hi Cal,

Sorry, I am new to R so I don’t know how to run a PCA in R. Would you mind sending me your script and data example so I have a template to start with?

Thanks, T

**From:** [caloprymnus@hotmail.com](mailto:caloprymnus@hotmail.com)   
**Sent:** Wednesday, August 7, 2019 11:34 PM  
**To:** [Tereza Jezkova](mailto:jezkovt@miamioh.edu)  
**Subject:** RE: R help

Hey,

You need locality information (i.e., geographic coordinates) for your three species and then you can easily run a PCA analysis in R

Cal

**From:** [Tereza Jezkova](mailto:jezkovt@miamioh.edu)  
**Sent:** Wednesday, August 7, 2019 11:31 PM  
**To:** [caloprymnus@hotmail.com](mailto:caloprymnus@hotmail.com)  
**Subject:** R help

Hey,

I have three species of horned lizards and would like to know whether they all occupy the same or different climatic conditions. Any idea how to do that?

Thanks, Tereza