Intro to R Course - Final project

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Introduction

This is the final project of the course Intro to R. Here I will analyse some aspects of the **Crocodylomorpha** diversity through time using data from the PaleoBiology DataBase and the publication Godoy et al. (2019).

You will write some text here in the introduction, it can be the same as I wrote above, plus anything else you want to add. Then you will proceed to describe what you did to plot the figures (see Results section) and finally, in the Concluding remarks section you will tell me the grade you think you deserve with one or two phrases justifying it. Remember: I will not argue about your grade, but I would like you to reflect about your learning and be honest with yourself.

Packages you will need (or want) to use

In this project you will use the following packages: *paleobioDB*, *viridisLite*, *terra*, *geodata*, *palaeoverse* and *RColorBrewer*. Install them if you still do not have them and **do not forget to load** them.

Some tips

Remember that Quarto uses some specific code to render your chunks the way you like. You will need to play with the settings *echo*, *label*, *fig-cap*, *fig-height* and *-width*, and *fig-pos*. The latter needs to be set to **H** in order for the plots to be shown at the position you used in the code, and not at the end of the document.

Don't forget to cite the figures in the text and including external links if necessary. There is specific Quarto/Markdown code for that. Please check the Markdown Basics and Figures pages.

Results

I want you to describe what you did in the code (remember, the code will not be shown, so try to make me understand what you did) and present the next results following the same order.

Diversity of Crocodylomorpha

You will plot here two figures, one with one column (Figure 1) and another with two xolumns (Figure 2).

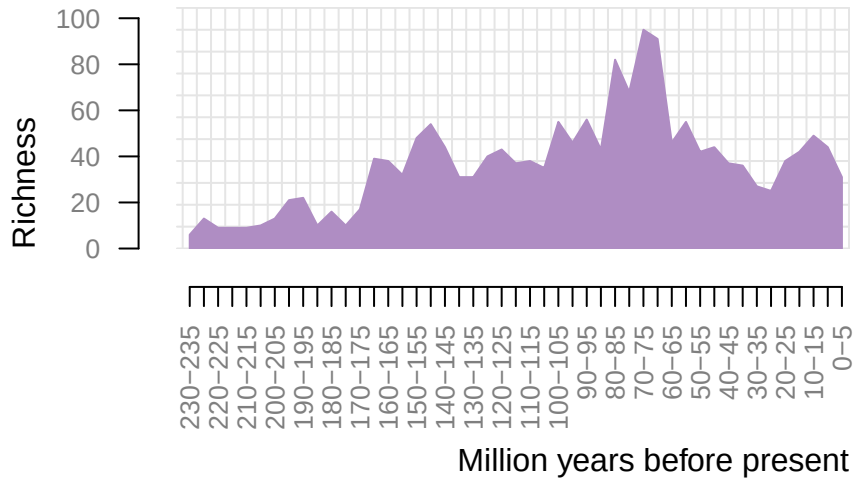

Figure 1: This is a caption

Here is the second plot.

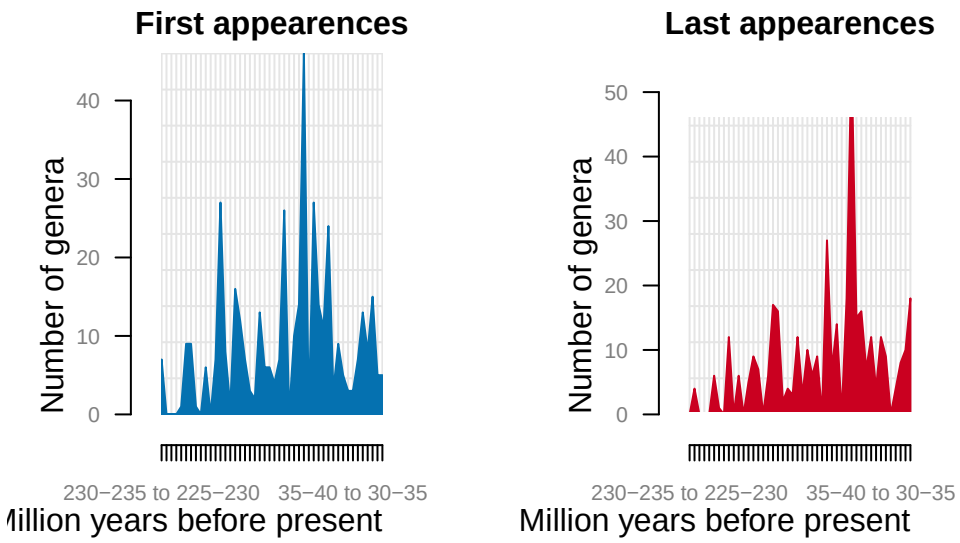

Figure 2: This is a caption

The third plot below (Figure 3) shows the richness of Crocodylomorpha taxa in the world.

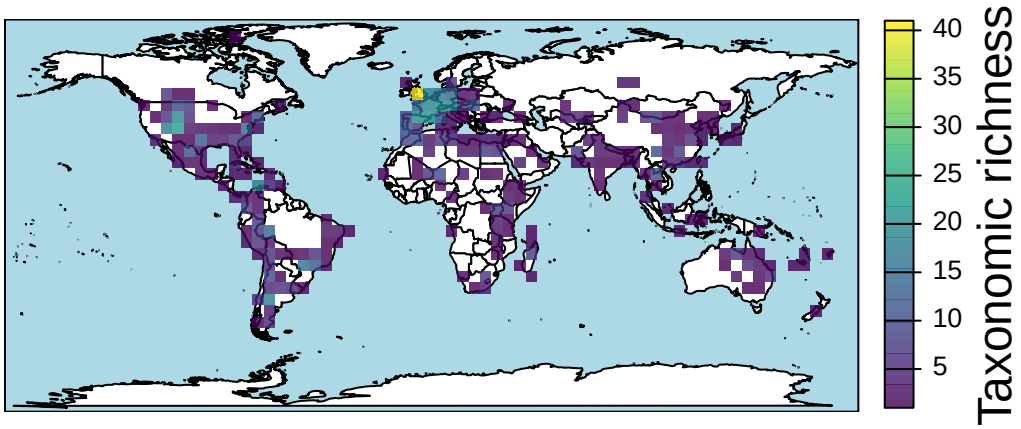

Figure 3: This is a caption

Because there is a lot of known Crocodylomorpha fossils in Europe, I want to see how the crocodylomorph were distributed in this continent. The next two plots show exactly that, but broken into two parts: one with the Mesozoic (Figure 4) and another for the Cenozoic (Figure 5) record.

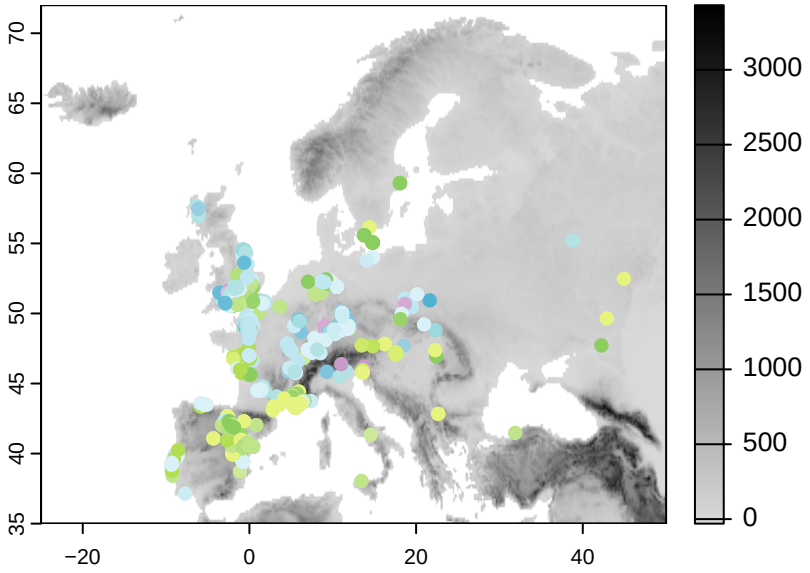

Figure 4: This is a caption

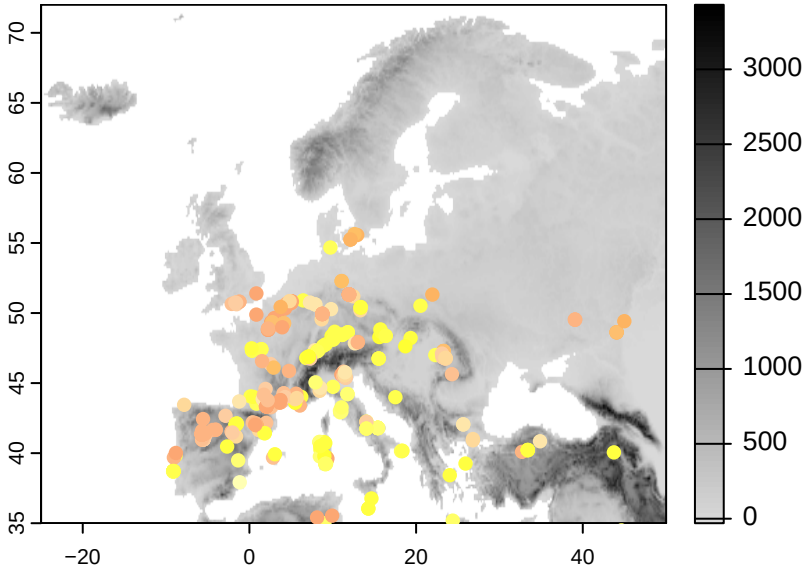

Figure 5: This is a caption

Body size of Crocodylomorpha

Now you should use the Godoy et al. (2019) database to analyse some aspects of body size in Crocodylomorpha. The first thing we would like to check is the distribution of body sizes (Figure 6) in this taxon.

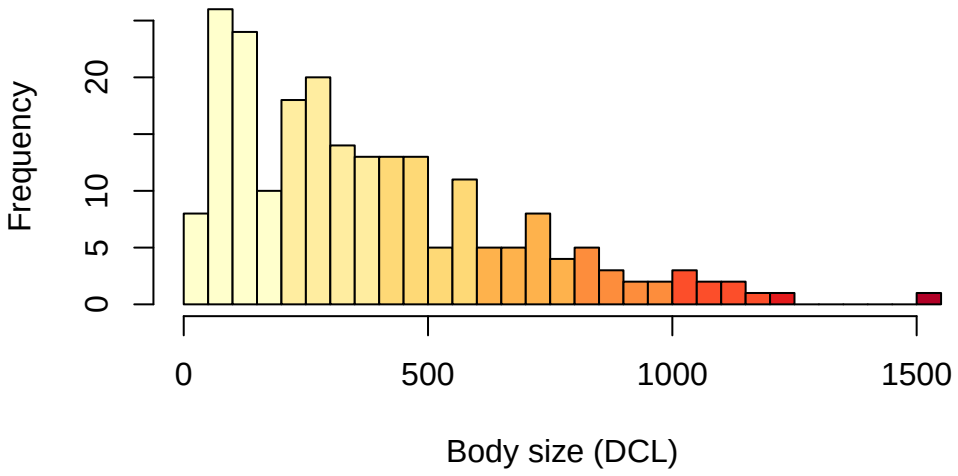

Figure 6: This is a caption

In some groups, body size seems to change with temperature and a good proxy for temperature is latitude. Higher latitudes are correlated with lower mean annual temperatures and lower latitudes with higher mean temperature. In the next plot (Figure 7) you will check that, by not only plotting body size vs. temperature but also testing whether there is a correlation between both values.

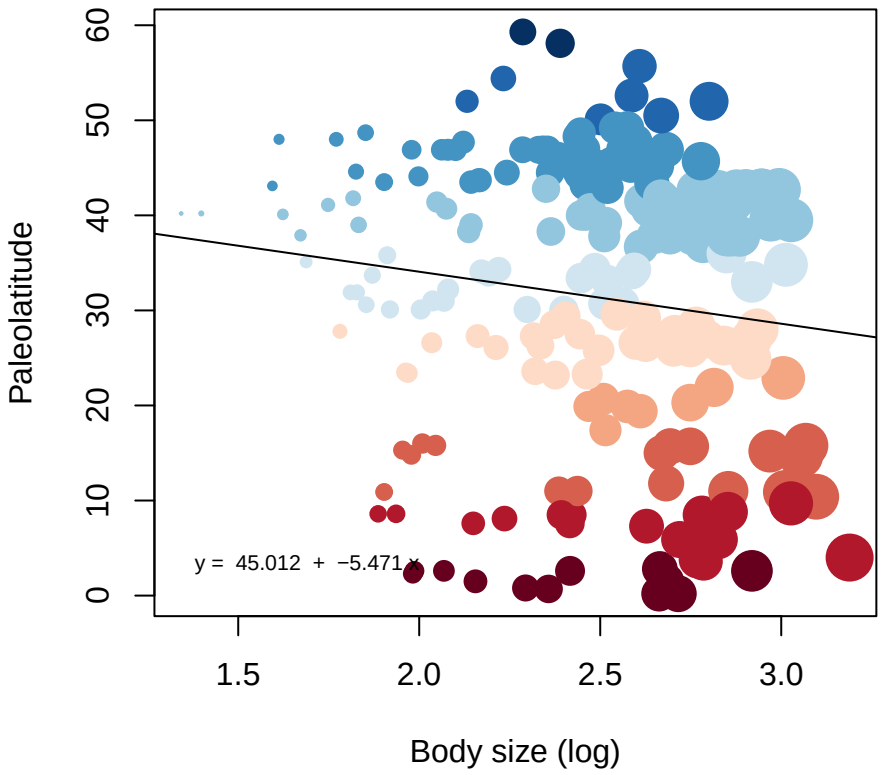

Figure 7: This is a caption

Apparently size decreases with temperature, but, the relation is not significant.

Maybe there is a relation between size and lifestyle? You will test that using an ANOVA test (*aov* function) and plotting (Figure 8) the body size distribution between the different groups.

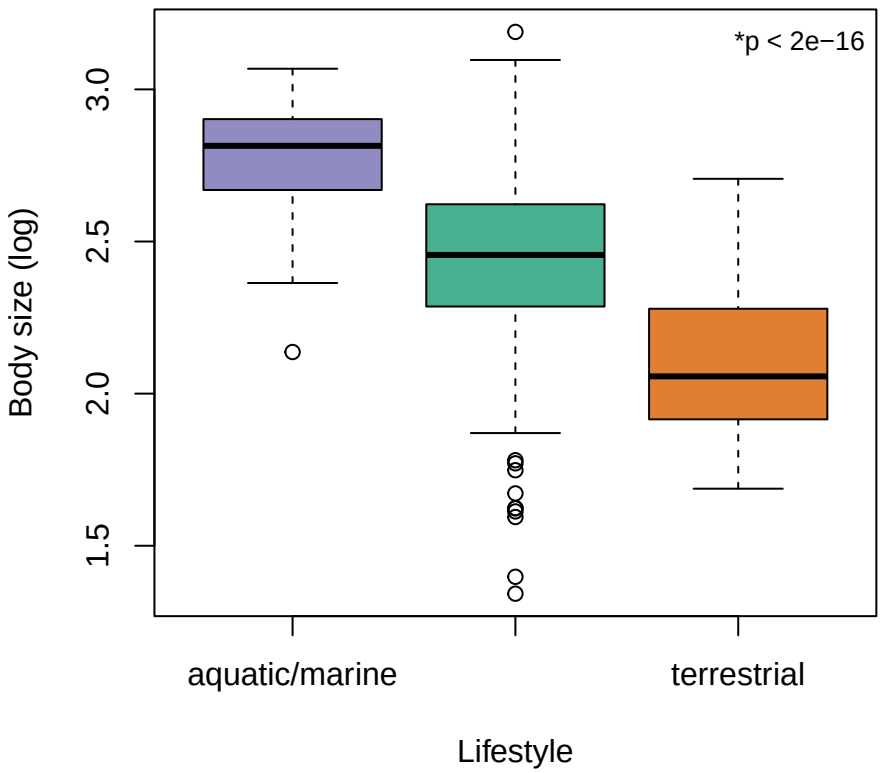

Figure 8: This is a caption

Concluding remarks

Here is where you will tell me your grade and explain briefly why you think you deserve it. I hope you enjoyed the time in the course and learned something that will be helpful to your career and/or private life.