

[SQUEAKING] [RUSTLING] [CLICKING]

**HELENA** All right. So as I mentioned in other videos, in order to work with maps, we need to make sure that they are both  
**VAILLICROSA:** in the same projection to avoid mismatches of the data. And to do so, I'm going to teach you how to check on the projection, how can we extract information about them.

So I'm going to upload a raster map and a vectorial map. The first one is January temperature based on worldclim maps. And the second one is going to be this vectorial map that we already use also that is the shape of the surface of the Earth.

One way to check information about projection is to use the CRS. Clicking on here, we see displayed a lot of information related to this map. But sometimes, we only need this chunk here. This is related to the piece of code that R needs to understand what's the projection we are working on.

So if we want to go directly on checking these, we can just type projection and the map that we want to know about. And here, we have only the chunk of code related to that. We can do the same with the vectorial map. And we see that, in this case, the two maps are in the same projection. So we can work with them with no problem.

Also, as an extra layer of-- just to double-check they match, I'm going to plot them one on top of the other to see that there's actually-- that they actually fit. I'm just going to plot the map right here. And to add the vectorial map on top of it, I just need to add this part in the code. So it means that it's going to add on top of the previous.

And here, we have that the two maps, they match. So we can work with them with absolute no problem. But in case, they wouldn't be in the same projection and we would need to change one to the other, there's this function right here that it's included in the packages that we've been using, that it transforms the projection of vectorial maps.

So I'm going to change from the resolution we were using-- the projection we were using into the Mercator projection. And if I plot this right now, you're going to see that the shape of the map is totally different. And if we want to change the projection in a raster, we would have to use another function because this one is not going to be useful for raster maps.

Now, I'm uploading information about soils that I took from soil grids. Soil grid data comes in a different projection than worldclim data. So I would need to transform one to the other in order to work with them at the same time. So just to show you how this data looks like, in this case, it's the cationic exchange capacity of soils. So you see the shape is slightly different than the other map.

And just to double check that it's a different projection, we just check on the information of the map. We have here on the CRS, we see that the projection is different. So I am going to reproject the temperature map into the soil data extension. And to do that, I'll use this project raster function. This might take a little while because when we work with raster maps we have a lot of information. So it's a very dense grid that makes the times of processing these maps to be a little higher than possibly a vectorial map.

And several minutes later, the process fully worked out. I'm just going to plot to see what we have. And here is the result where we have the temperature map transformed into the soil projection. Just to double check, we can always see how it went from the old one to this projection.