

Exercises tmap course day 3

1. Load the **sf**, **stars**, **terra**, and **tmap** libraries.

terra

2. Read `slo_elev.tif` with **terra** and assign it to `slo_elev`. It contains elevation data. Also read `slo_gm.tif` with **terra** and assign it to `slo_gm`. GM stands for geomorphons, a concept that indicates the type of terrain.
3. Read `slo_regions.gpkg` with **sf** and assign it to `slo_regions`
4. Apply a mask to get the elevation of just the region with NUTS ID `SI041`
5. Read `slo_cities.gpkg` with **sf** and assign it to `slo_cities`.
6. Use `terra::extract` to extract the elevation and geomorphons number for each city.

stars

6. Read `slo_tavg.tif` with **stars** and assign it to `slo_tavg`. It contains average temperature values for each month.
7. What dimensions does this stars object have?
8. Compute the yearly average temperatures

visualization of spatial raster data

9. Create a map of the elevation data. Use a suitable color palette that reflects elevation (look for a 'terrain' type of palette). Also apply a nice basemap.
10. Create a map of the geomorphons data
11. Create a bubble map of Slovenian cities using the output of step 6, assigning population to size and geomorphons to color.
12. Create small multiples of the temperature data (one map per month). Choose a diverging color palette with cold and warm colors, preferably color blind friendly.