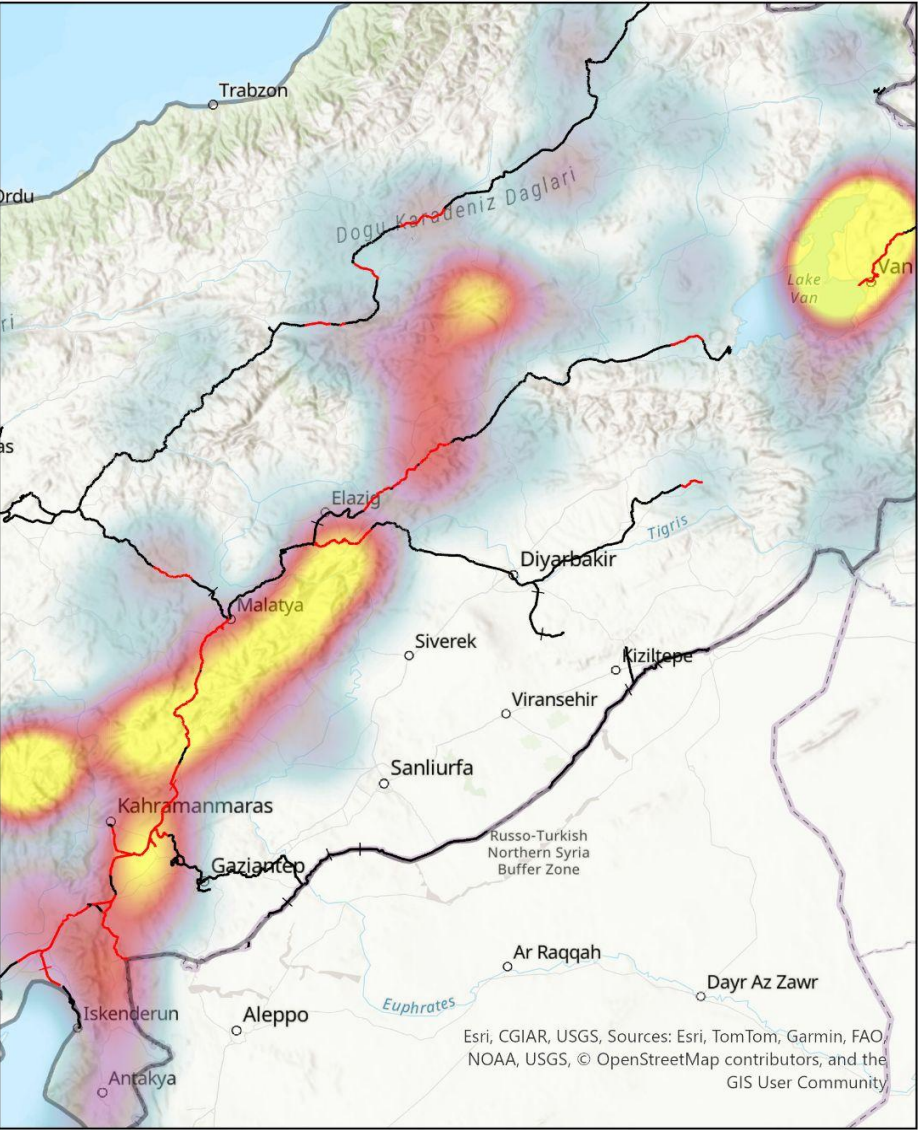
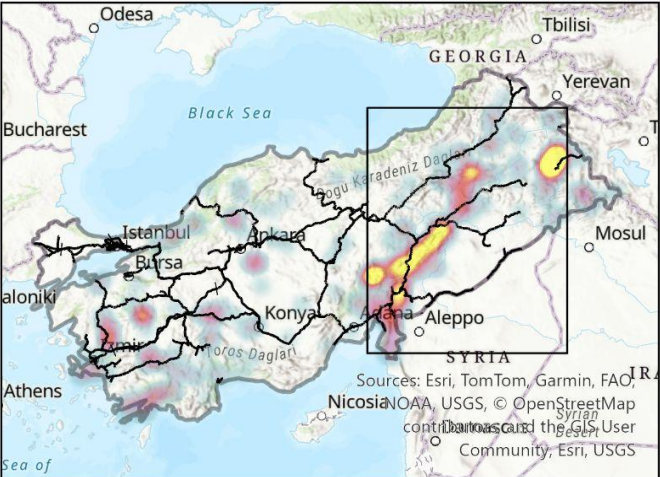


Earthquake Risk and Railroads in Turkey (2000-2023)

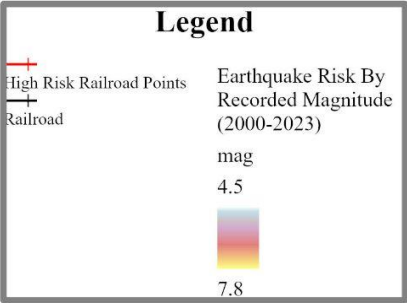
By Alyson Newsome



Region with high-risk railroad lines



This map visualizes the recorded magnitudes of Earthquakes in Turkey from 2000-2023, ranging from 4.5 to 7.8. It also displays Turkey's railroad network to highlight areas most vulnerable to seismic activity. The map visualizes the intensity of Earthquake occurrences, with yellow areas representing regions with higher magnitude Earthquakes and greater potential infrastructure risk. Sections of railroad in red are identified as having higher potential for damage based on their proximity to stronger earthquakes.



2. A paragraph/list (200 words maximum) explaining what you were hoping to achieve with your map. What's the purpose of your map? What insight were you hoping to generate?

My map is designed to visualize the magnitudes of Earthquakes in Turkey and where Earthquakes have accumulated over time as a form of risk assessment, specifically for railroads and train travel. I aimed to show which railroad lines have been affected most by Earthquakes and are consequently at a higher risk of infrastructure damage. My map also focuses on the region of Turkey experiencing the highest magnitude Earthquakes, showing where railroads are most at risk and where it might be advantageous to re-assess railroad building or put new, protective infrastructure in place to protect these transportation lines.

3. A paragraph/list (200 words maximum) that explains the visual elements of your map. Every element of your map should be purposeful. Why did you choose those data? Why did you choose that symbology? Why the projection?

I used a heat map base to display Earthquake concentrations and magnitudes in Turkey, with yellow meaning higher magnitudes and blue meaning lower magnitudes (colors typically associated with danger or risk). I chose this type of map because I felt it made more sense to use than an accumulation of points where Earthquakes occurred, and the heat map base more conveniently shows how concentrated higher magnitudes are in Turkey, better-visualizing risk by location. For the railroad, I chose to use the black railroad track line in GIS because I think it's the most simple way to visualize that data, but also created a layer of those railroads that highlights sections of track at especially high-risk zones (proximity to high magnitude Earthquakes) in red. I chose to use railroad data because rail systems are prominent in Turkey and, if destroyed by Earthquakes, could upend many people's lives. I also used the Turkey Lambert Conformal Conic WGS84 coordinate system because it centers the country on the map and made the most sense to use for this specific project.

Citations

United States Geological Survey (USGS) (2000-2023) [Earthquake Data]
<https://earthquake.usgs.gov/earthquakes/map/?extent=25.36388,18.45703&extent=50.40152,53.61328&range=month&magnitude=significant&listOnlyShown=true&timeZone=utc&settings=true&search=%7B%22name%22:%22Search%20Results%22,%22params%22:%7B%22starttime%22:%222000-01-14%2000:00:00%22,%22endtime%22:%222023-02-13%2023:59:59%22,%22maxlatitude%22:42.294,%22minlatitude%22:35.461,%22maxlongitude%22:45.527,%22minlongitude%22:26.543,%22minmagnitude%22:4.5,%22orderby%22:%22time%22%7D%7D>
[Accessed: February 2025]

Geodatabase with geographic data (Could not find a URL link address/publisher)
<https://glow.williams.edu/courses/4311897/files/312899618?wrap=1> (linked in GLOW, would be happy to edit this if I can get the link to the website it's from) [Accessed: February 2025]

