

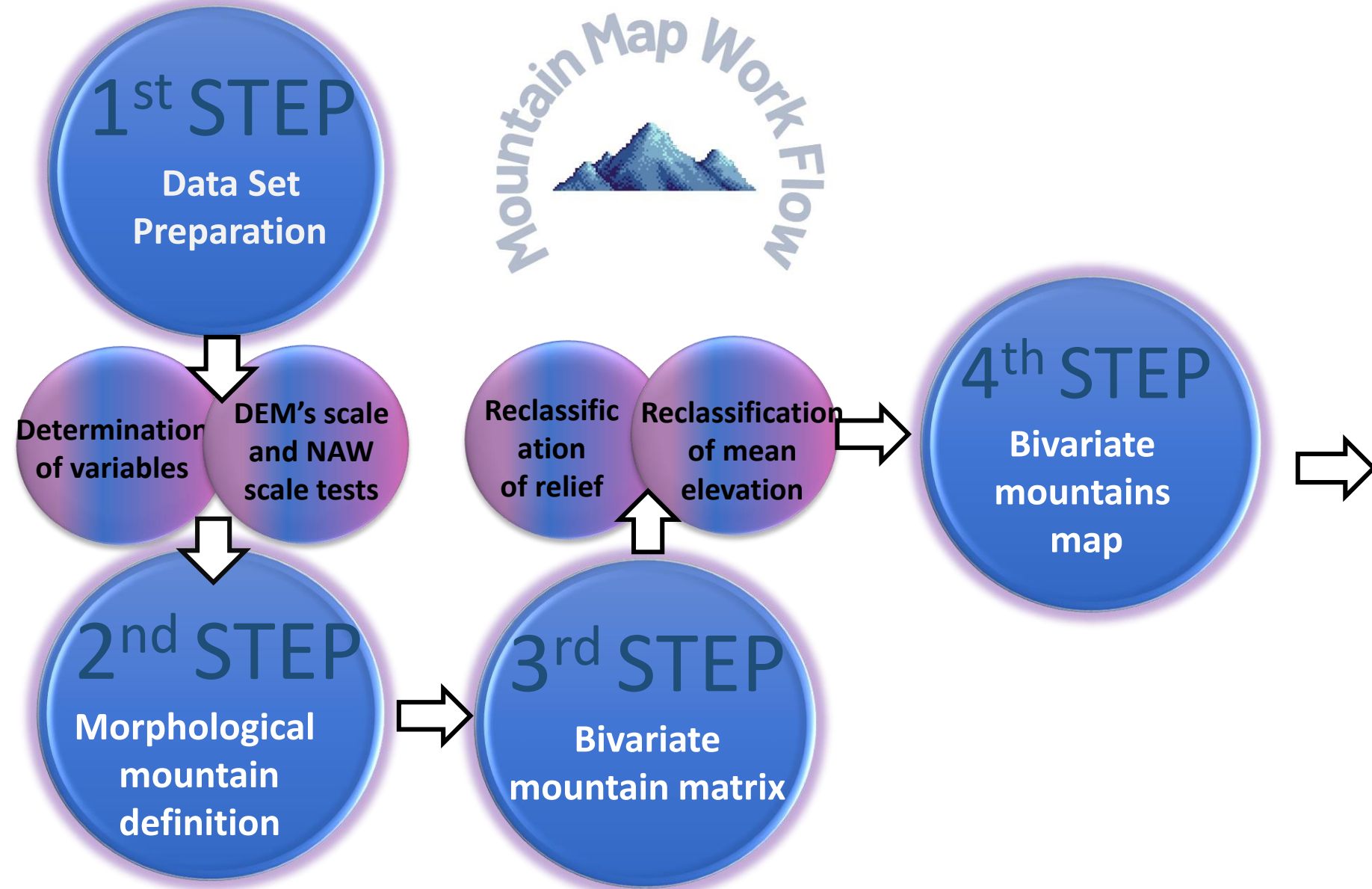
# Bivariate mountain definition of Türkiye mountains

## Motivation

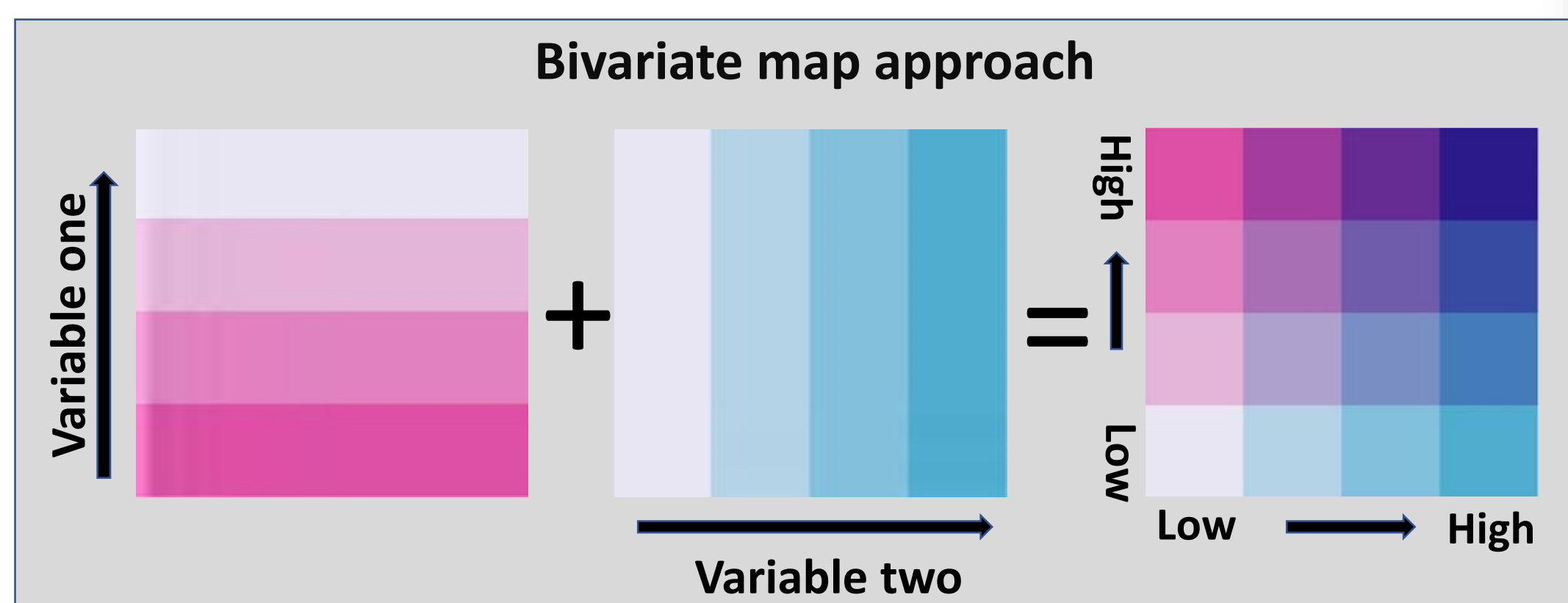
- The survival of mountain regions, which are vulnerable ecosystems, is fundamentally dependent on the definition of mountainous areas.
- Varying spatial and analysis window scales and threshold values in automatic landform classification result in varying landform classes.

## Methods

- Mountains are defined according to a **spatial scale with a resolution of 100 m** and a **NAW analysis scale of 2.5 km** and **relief with a threshold of 300 m**.
- After determining the mountain boundaries according to the **topographic relief**, they were classified according to the **mean elevation**.

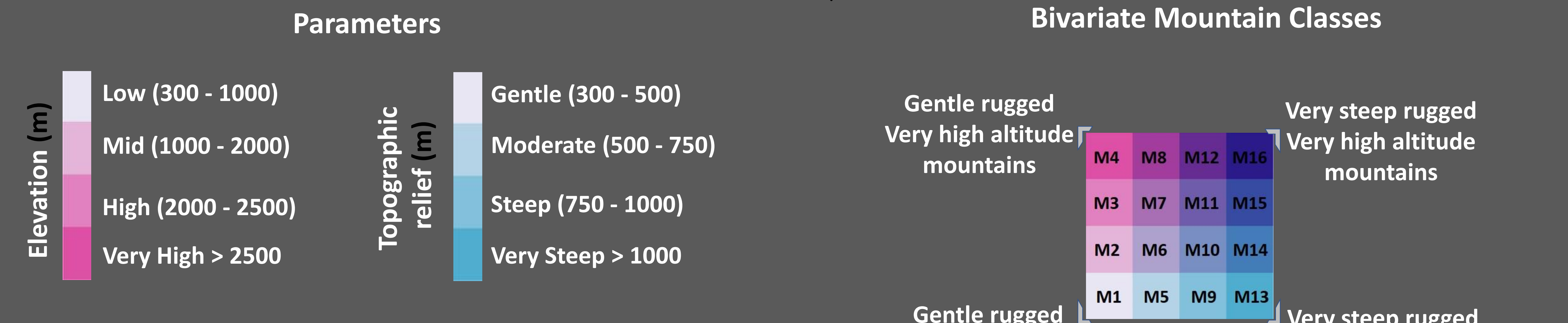
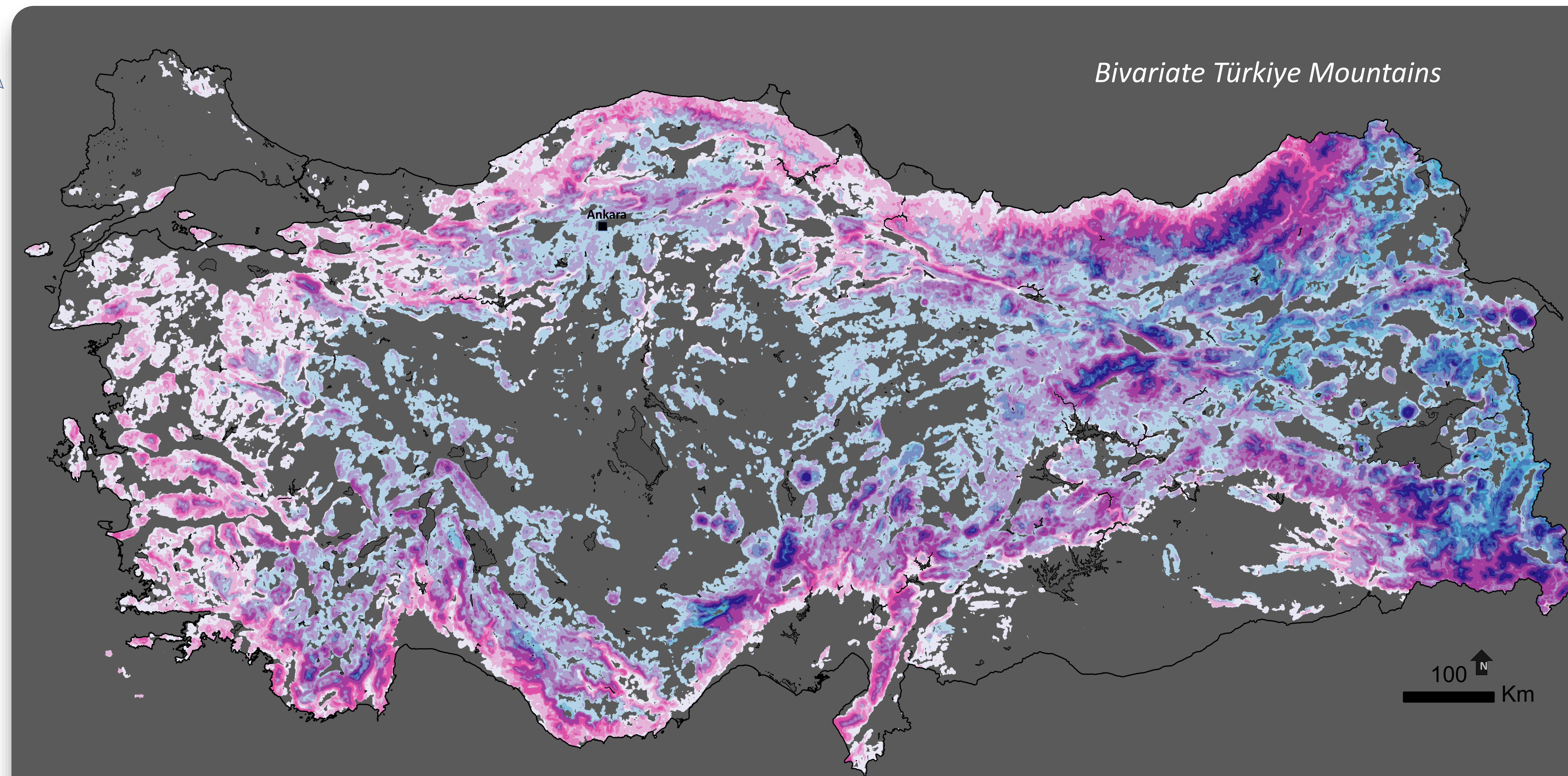
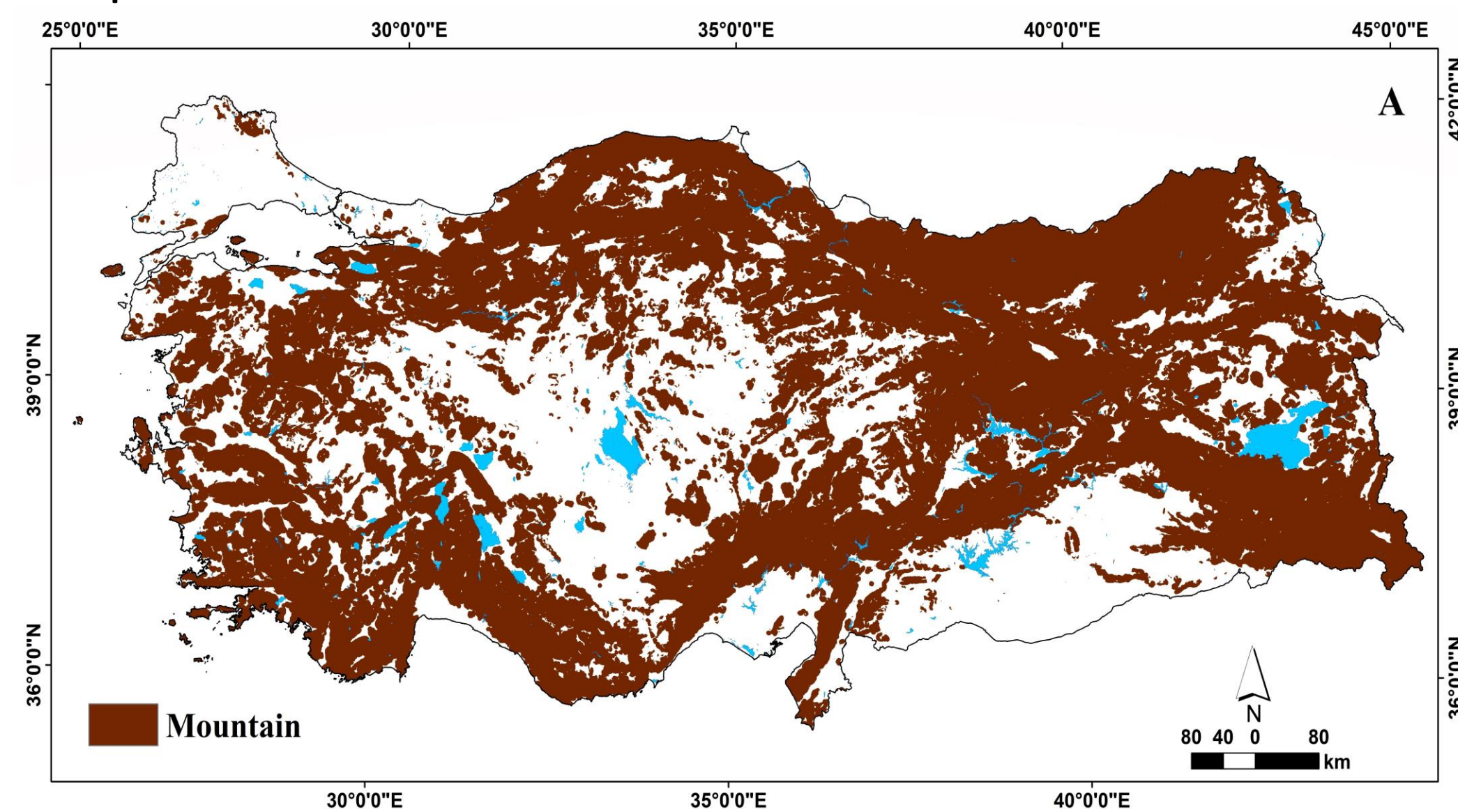


- The combination of the two classes results in the classification of mountain boundaries, defined by relief, according to elevation. The resulting map consists of sixteen classes and has gradual transitions.



## Results

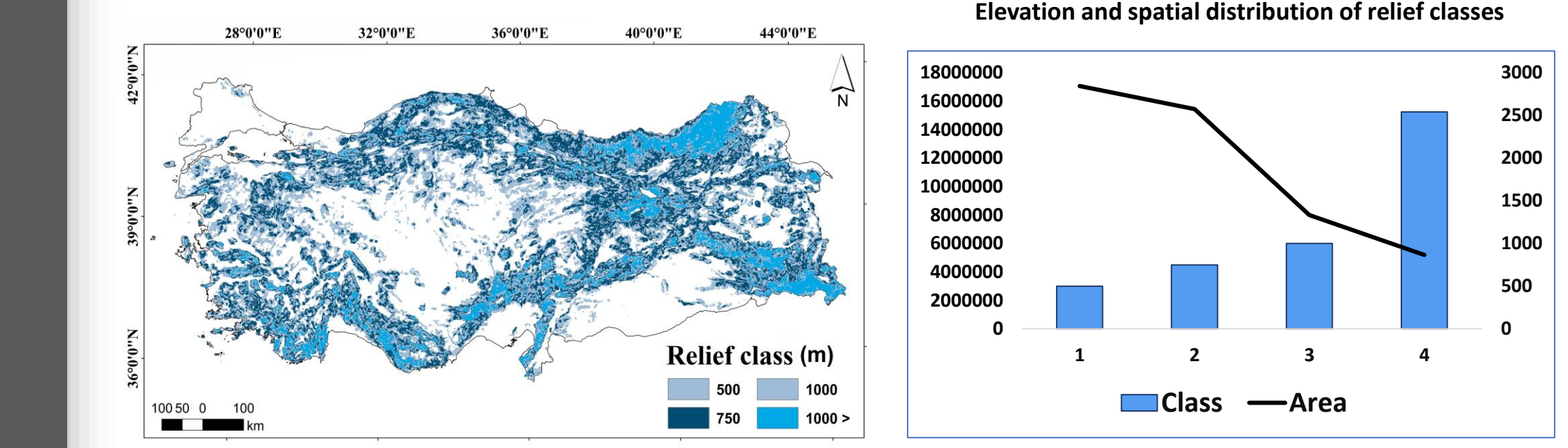
- According to the model, **61%** of the Anatolian peninsula is **covered with mountains**.



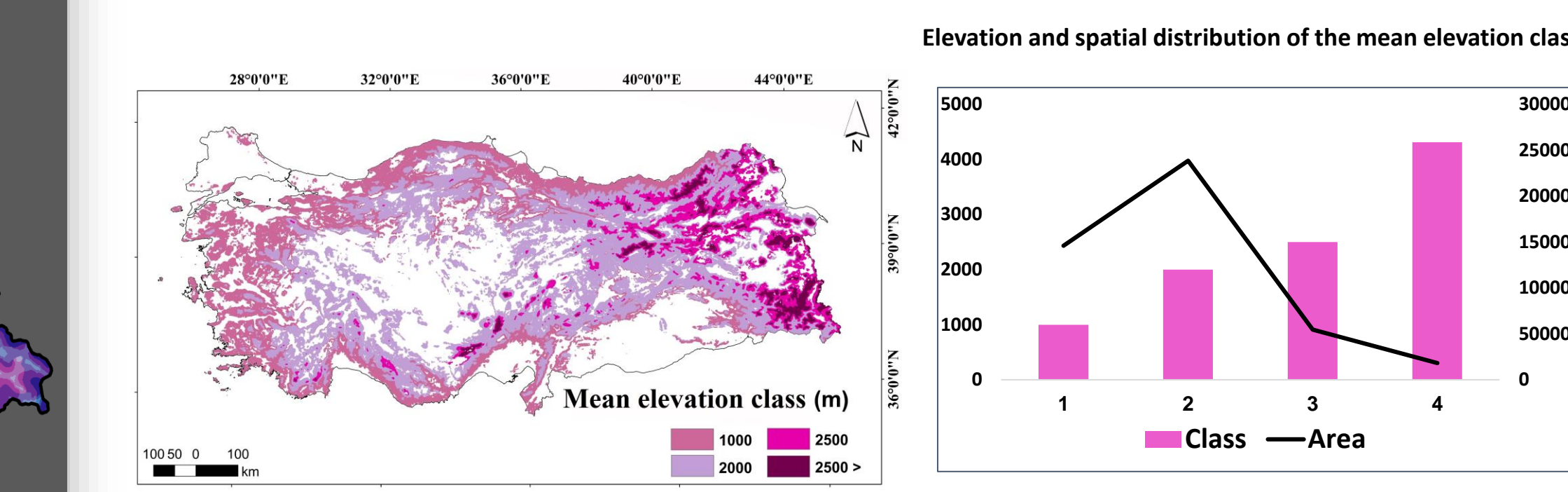
In Türkiye, **gentle rugged** mountains area ratio **37%**, **moderate rugged** mountains **33%**, **steep rugged** mountains **20%** and **very steep rugged** mountains **9%**. The mean elevation of these mountains is over **1000 m**.

.....The classification ranges from **gentle rugged** and **low altitude**, to **moderate rugged** and **mid altitude**, to **steep rugged** and **high altitude**, to **very steep rugged** and **very high** mountains.

- The relief class was created with a morphological threshold of 300 m and a 3° slope mask and has a total area of 457204 km<sup>2</sup>. For the class, the proportion of elevations between **300-500 m** is **22%**. between **500-750 m** is **20%**. The **750-1000 m** range has a proportion of **10%**. Areas with a relief area higher than **1000 m** have a rate of **7%**.



- Areas less than 1000 m high have a proportional value of 19% with 145901 km<sup>2</sup>. The mean elevation between **1000-2000 m** is **31%**, between **2000-2500 m** is **7%**, and the areas higher than **2500 m** have a proportion of **2%**. Towards the 4th class, as the mean elevation decreases, the area they cover decreases.



- Class code M2** : Gentle rough mid altitude mountain,
- Class code M6**: Moderate rough mid altitude,
- Class code M1**: Gentle rough low altitude mountain,
- Class code M5**: Moderate rough low altitude mountain shows a higher distribution there.

