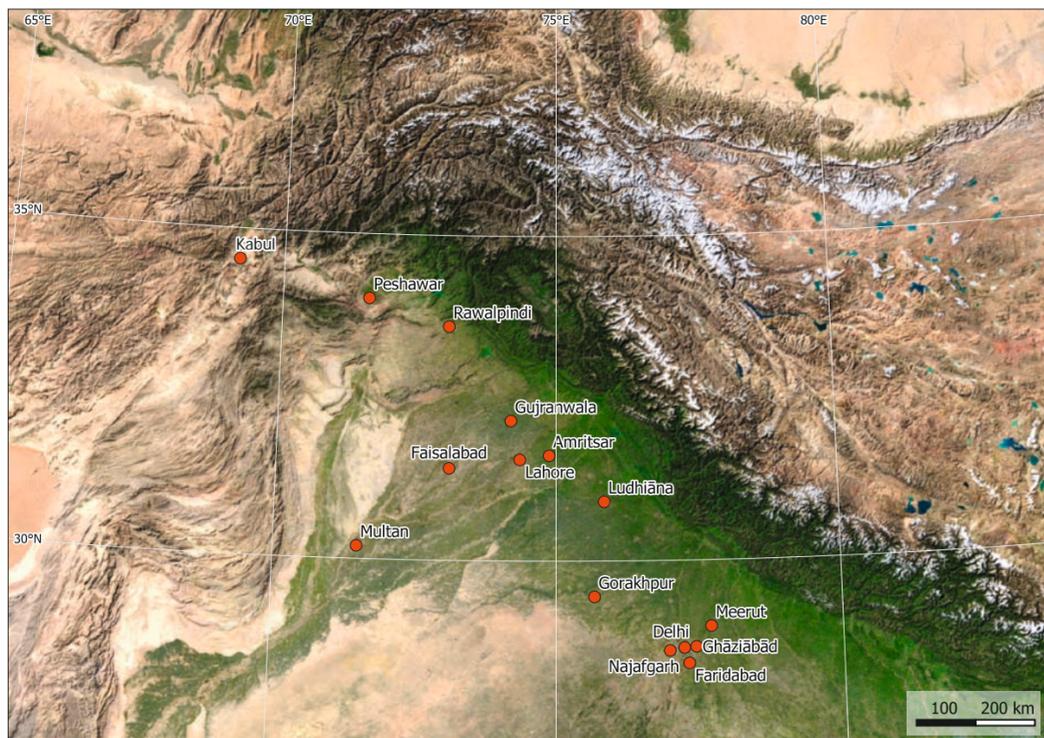


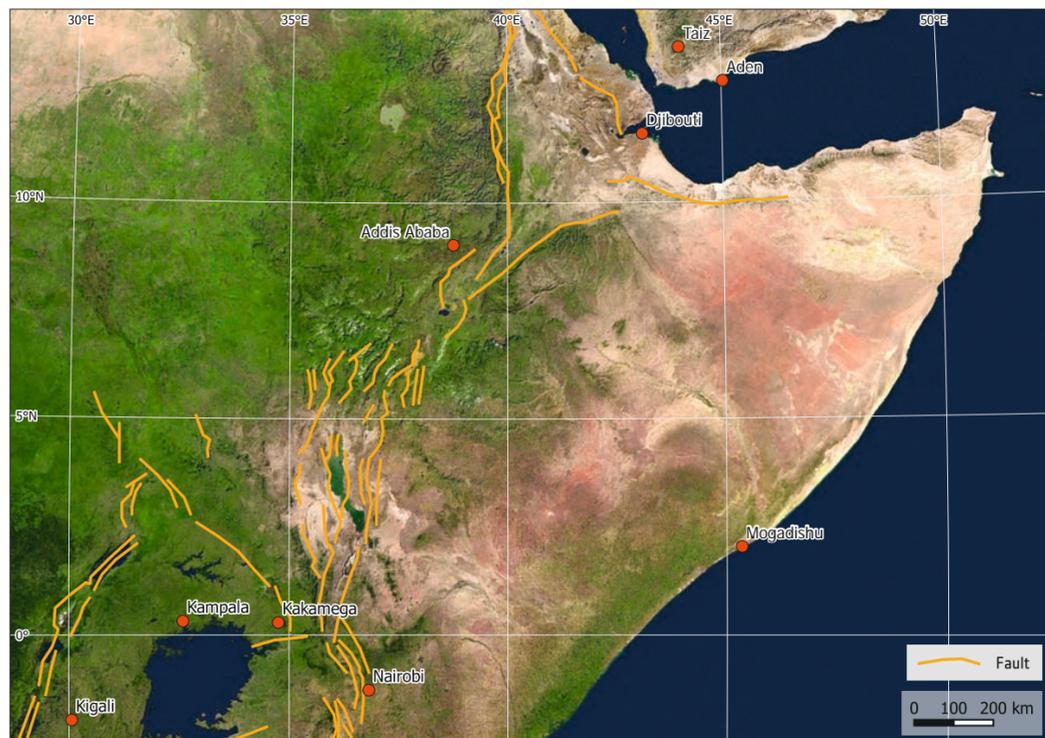
1. Tectonic plates



2. Typical fold structures at the northern slope of the Himalayas, showing rock layers in different colours. Data: Sentinel-2, 2023-08-02.

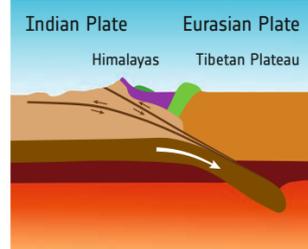


3. The Himalayas are characteristic fold mountains. They are the result of the movement of the Indian Plate towards north, where it collides with the Eurasian Plate.

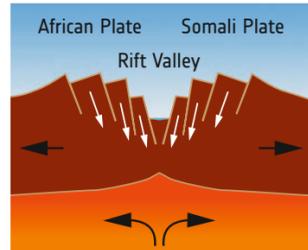


6. Detail view of rifts of the East African Rift Valley east of Addis Ababa, Ethiopia. Data: Sentinel-2, 2023-08-26.

7. The East African Rift Valley is formed by the ongoing separation of the Somali Plate from the African plate, leading to a thinning of the Earth crust around the separation line.



4. Schematic cross section of the Himalayas and the Tibetan Plateau, showing the formation of the mountain chain by the collision of the Indian and the Eurasian Plates.



5. Schematic cross section of the East African Rift Valley, showing the formation of the valley due to the divergence of the African and the Somali Plates.

Tectonic Activities shape the Earth

The crustal movements and deformations driven by the movement of tectonic plates are powerful processes, shaping the surface of the Earth over millions of years. The Earth's lithosphere, comprising the crust and upper mantle, sees immense forces related to the movement and interaction of these plates, leading to the formation of mountains, rift valleys, earthquakes, and other geological phenomena. Examples illustrating tectonic processes are the Himalayas and the East African Rift Valley.

The Himalayas, stretching across South Asia, are the result of the collision between the Indian and Eurasian tectonic plates. This ongoing collision began around 50 million years ago and continues to shape the landscape of the region. The converging plates have caused the uplift of mountain ranges, including Mount Everest, the world's highest peak. The Himalayas exhibit a wealth of geologic processes, including folding and erosion.

In contrast, the East African Rift Valley is the result of divergent forces tearing apart the African continent. The Earth's crust is being pulled apart along a system of rifts, resulting from tectonic plates moving away from each other. This so-called continental rifting is the initial stage of plate boundary evolution. Magma from the mantle contributes to the thinning and eventual separation of continental landmasses. The rift valley's landscape is characterized by steep cliffs, volcanic activity, and lakes.

