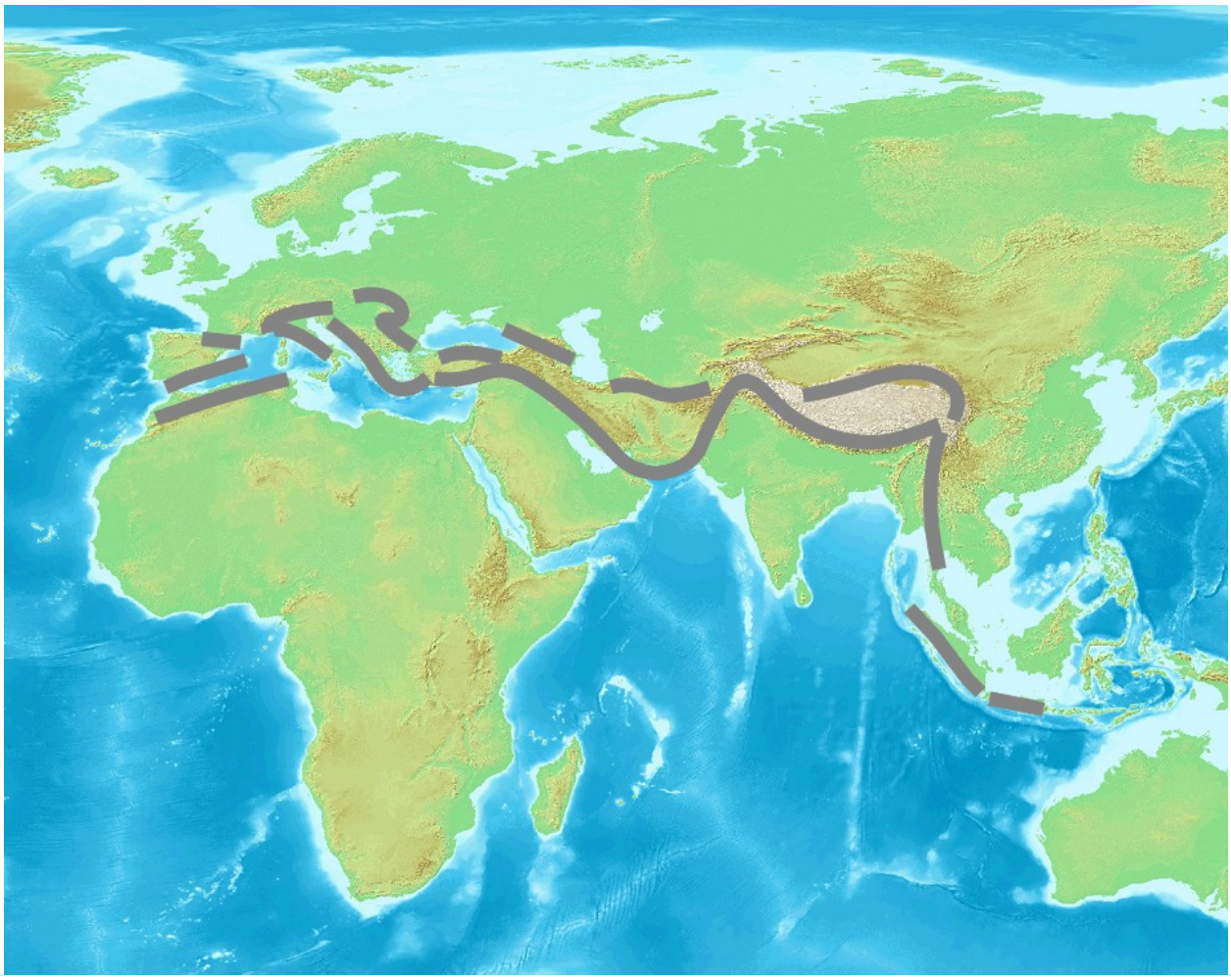
The Alpine-Himalayan system (or Alpide belt) is a 15,000 km-long seismic and orogenic belt forming the world's largest, youngest mountain chain along southern Eurasia. Stretching from Java to the Atlantic, it formed by compressive forces from the collision of Africa, Arabia, and India with Laurasia, featuring major ranges like the Alps, Caucasus, Zagros, and Himalayas.



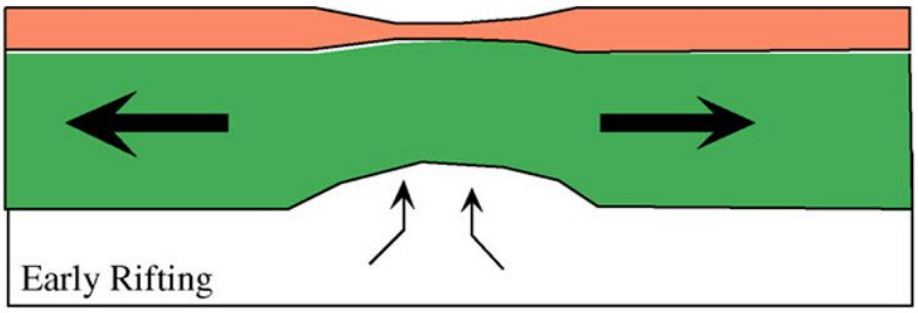
Palaeomagnetism is the study of the Earth's magnetic field preserved in rocks. The discovery that some minerals, at the time of their formation, can become magnetized parallel to the Earth's magnetic field was made in the nineteenth century. Early in the twentieth century, Bernard Brunhes made the startling discovery that some rocks are magnetized in the opposite orientation to the Earth's present-day magnetic field. This led him to propose that the Earth's magnetic field had reversed its polarity in the past. These reversals have subsequently been shown to be non-periodic and the Earth's magnetic field reversal history is now well known for the past 175 million years and more sketchingly understood to the beginning of the Palaeozoic.

What is Seafloor Spreading?

- The seafloor spreading hypothesis was proposed by the **American geophysicist Harry H. Hess in 1960.**
- Seafloor spreading is the **process of magma welling up in the rift** as the old crust pulls itself in opposite directions. **Cold seawater cools the magma**, creating a new crust.
- The **upward movement and eventual cooling of this magma** has created high ridges on the ocean floor over millions of years.
    - However, the seafloor is destroyed in subduction zones, where oceanic crust slides under continents and sinks back into the mantle, and is reforged at seafloor spreading ridges.
- The **East Pacific Rise is a site of major seafloor spreading** in the **Ring of Fire**.
    - It is located on the **divergent boundary of the Pacific Plate, the Cocos Plate** (west of Central America), the Nazca Plate (west of South America), the North-American Plate and the Antarctic Plate.

What are the Reasons behind the Decline of Seafloor Spreading?

- **Growing mountains on the continents** might be one of the factors driving the slowdown (as it causes resistance to seafloor spreading).
    - About 200 million years ago, when the **supercontinent Pangea start breaking**, there weren't any major plate collisions or related mountain chains.
    - The continents were fairly flat back then.
- **Mature Stage of the Supercontinent Breakup**: As **Pangea progressively broke apart**, new ocean basins formed and eventually, the widely fragmented continents started running into each other.
    - This happened, for instance, **between India and Eurasia**, the Arabian Peninsula and Eurasia as well as Africa and Eurasia.
        - This is a **natural consequence of a 'mature' stage** of supercontinent breakup and dispersal.
- **Changes in mantle convection** could also be playing a role as **mantle convection transports heat** from the earth's interior to the surface.
    - A mantle is a **layer inside a planetary body** bounded below by a **core and above by a crust.**
    - Mantle convection describes the **movement of the mantle as it transfers heat** from the white-hot core to the brittle lithosphere.
        - The **mantle is heated from below, cooled from above**, and its overall temperature decreases over long periods of time.



Continued thinning of crust and mantle lithosphere