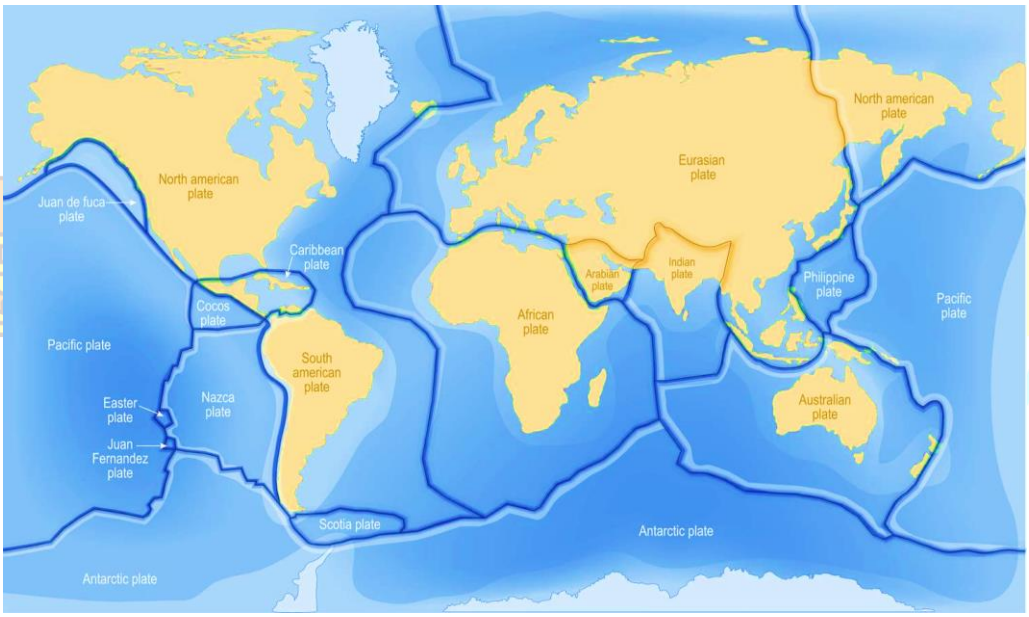
Tectonic Plate Under Tibet May Be Splitting In Two

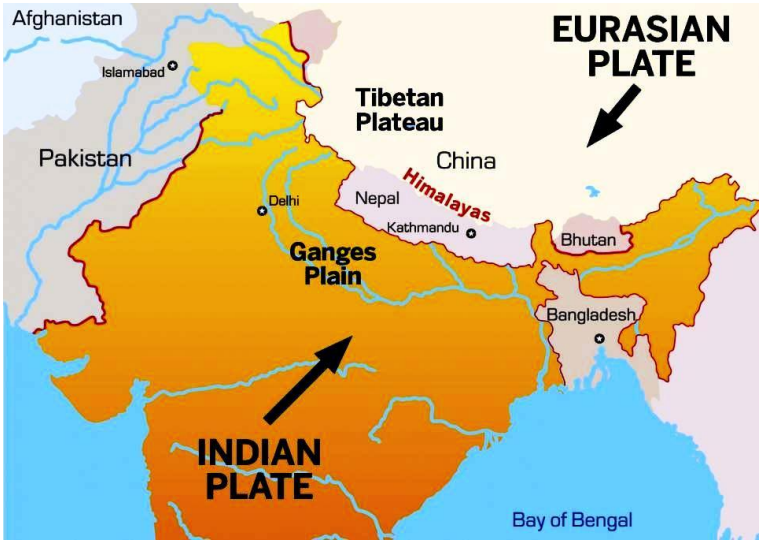
Why In News

- The **Ocean University Geophysicist Lin Liu** along with **American Geophysical Union**, San Francisco have painstakingly come up with a new finding that the Indian tectonic plate is cracking below Tibetan plateau. **Tibet may be tearing in two beneath** the rising Himalayas, with pieces of the continental plate peeling off like the lid off a tin of fish, researchers have discovered.

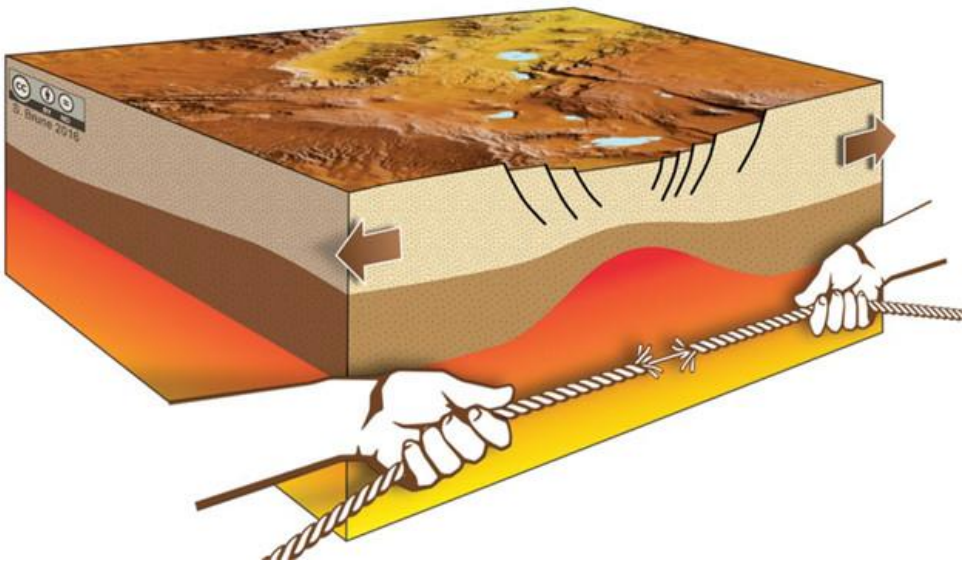


What Does Study Says

- **Indian tectonic plate**, a colossal slab of the **Earth's lithosphere**, appears to be undergoing an unexpected transformation. According to recent research disclosed at the American Geophysical Union's annual meeting and published as a pre-peer-reviewed pre-print, the plate might be splitting into two.
- This significant geological event is taking place as the **Indian plate subducts beneath the Eurasian plate**, profoundly impacting the geology beneath the towering Himalayas.

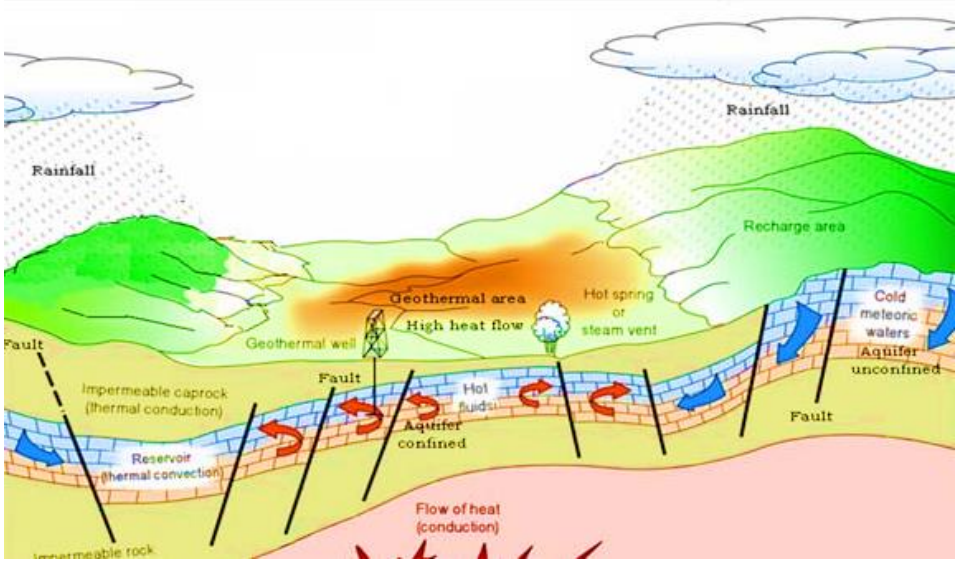


- Understanding the processes that govern tectonic plates is a complex task, especially when it involves the collision of two continental plates.
- Unlike **oceanic-continental collisions**, these interactions are less predictable and often result in intricate geological phenomena.
- The research team delved into this complexity, analyzing earthquake waves to reconstruct images of the crust. This investigative process revealed apparent tears in the Indian plate, hinting at its possible division.
- In some regions, the bottom of the **Indian plate plunges as deep as 200 kilometers**. Conversely, in other areas, it only reaches a depth of 100 kilometers.



- This stark contrast points to a phenomenon known as **delamination or peeling**, suggesting that the Indian plate could indeed be separating into two.

- The research findings align with concurrent geochemical studies, which have reported **variations in helium emissions** from geothermal springs in the region. These emissions serve as geological markers, helping to locate the current boundary between the two tectonic plates.



- The understanding of this tectonic activity carries significant implications. Notably, it might provide insights into **potential earthquake risks** along the plate boundary. By identifying areas where the plate is tearing or delaminating, scientists can pinpoint regions that could be more susceptible to seismic events. This knowledge could prove invaluable in forecasting earthquakes and implementing precautionary measures to mitigate the potential devastation.

- The discovery of the **Indian plate's possible splitting not only broadens** our understanding of plate tectonics but also underscores the relentless dynamism of our planet. It paints a vivid picture of the forces that shape our world, driving home the necessity for continuous exploration and study.
- Researchers have not entirely **dissected how tearing and warping** deep within the crust leads to the buildup of stress at the surface. However, the new study might help them know about the areas of increased earthquake risk around the plate boundary.