Gamburtsev Subglacial Mountains

***Prelims**: Physical Geography| Current events of national and international importance*

Why in News?

A recent study, reveals how hidden mountain chain of Gamburtsev Mountains emerged more than 500 million years ago when the supercontinent Gondwana formed from colliding tectonic plates.

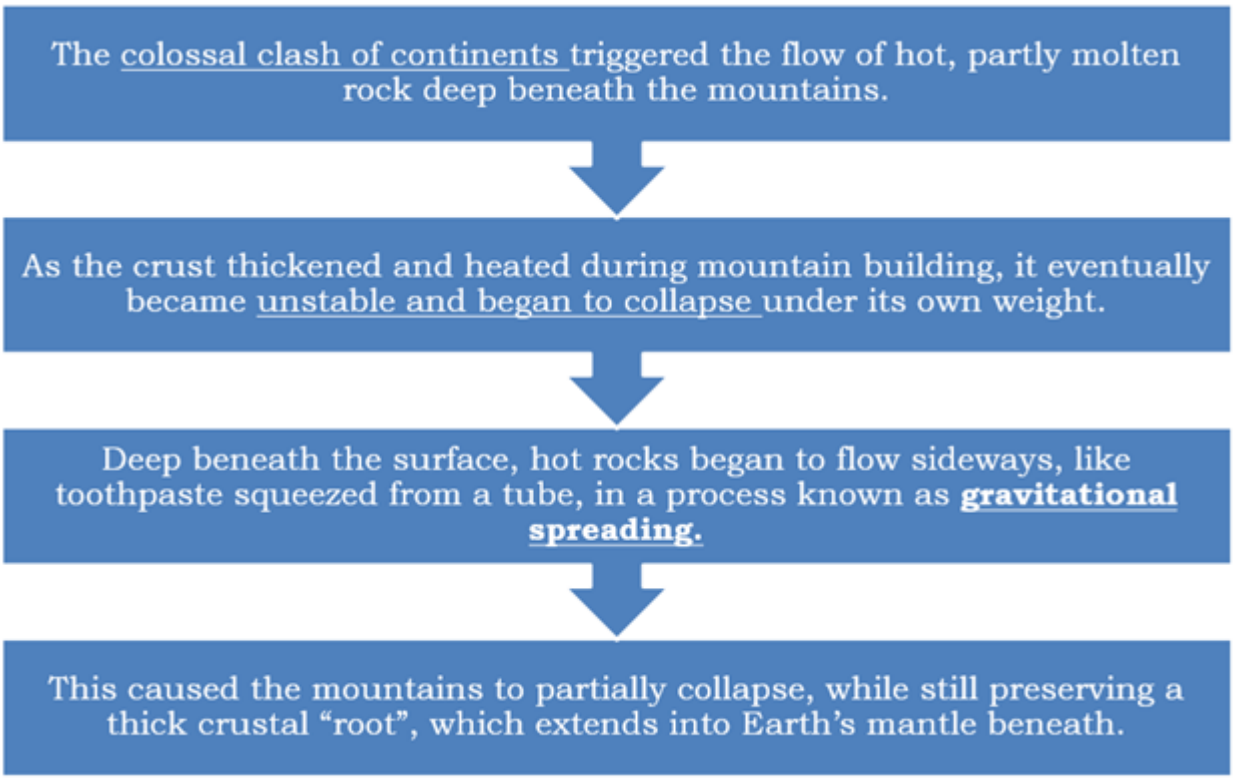
*In **Antarctica**, some peaks, like the towering Transantarctic Mountains, rise above the ice. Others, like the ancient Gamburtsev Subglacial Mountains in the middle of East Antarctica, are completely buried.*

- It is an ancient ***subglacial mountain buried*** beneath the highest point of the *East Antarctica ice sheet*.
- **Discovery** - They were first discovered by a Soviet expedition using seismic techniques in 1958.

> *Typically, a mountain range will rise in places where 2 tectonic plates clash with each other. For example, the Himalayas are still rising today as the Indian and Eurasian plates continue to converge, a process that began about 50 million years ago.*

East Antarctica
• It has been *tectonically stable* for millions of years and plate tectonic models suggest the crust now forming East Antarctica came from at least 2 large continents more than 700 million years ago. • These continents used to be separated by a vast ocean basin. • The collision of these landmasses was key to the birth of Gondwana, a supercontinent that included what is now Africa, South America, Australia, India and Antarctica.

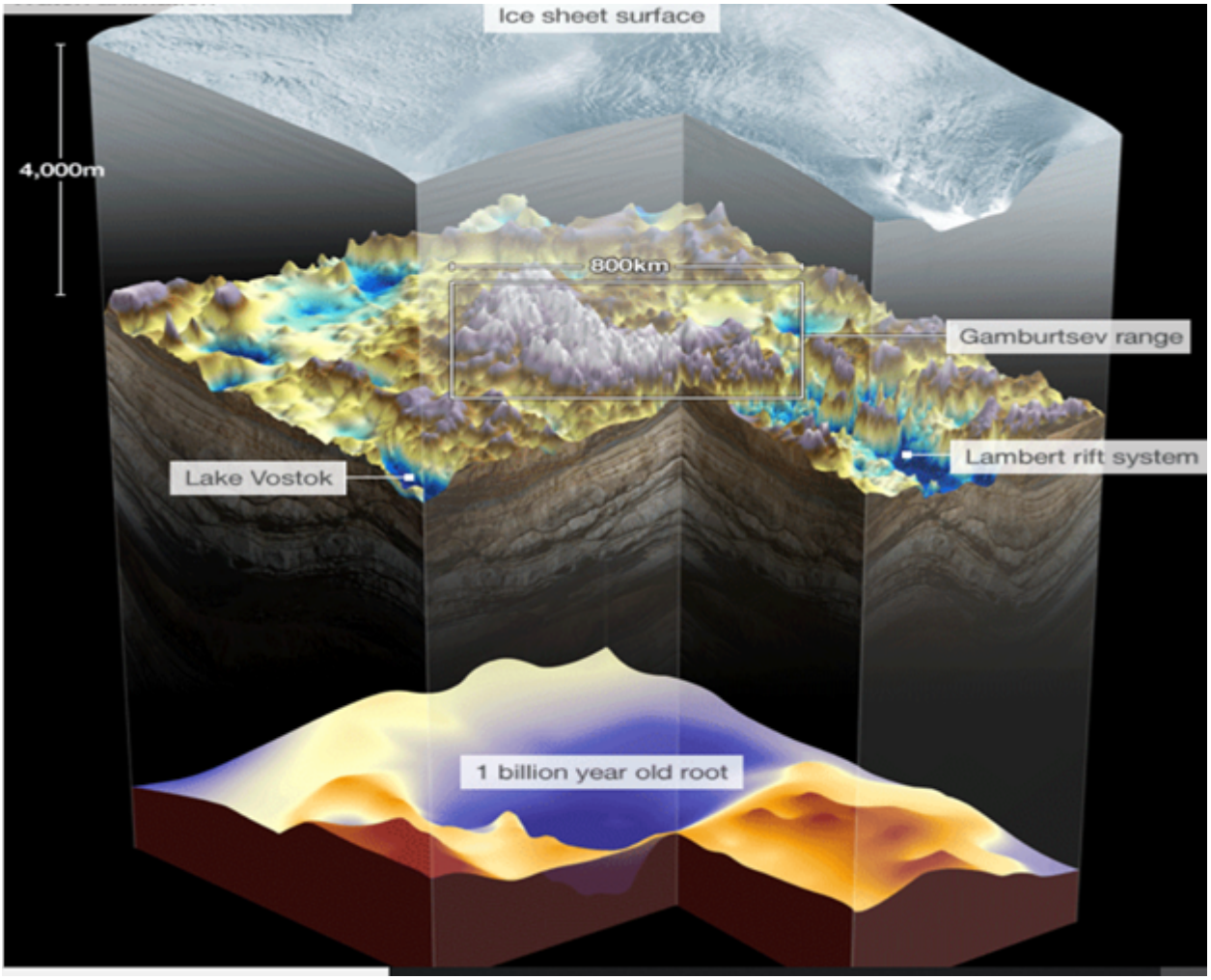
- **New findings** – It supports the idea that the ***Gamburtsev Mountains 1st formed during this ancient collision.***



- **Evidence** - Tiny zircon grains found in sandstones deposited by rivers flowing from the ancient mountains more than 250 million years ago were analysed.
- These sandstones were recovered from the Prince Charles Mountains, which poke out of the ice hundreds of kilometres away.

Zircons *are often called "time capsules" because they contain minuscule amounts of uranium in their crystal structure, which decays at a known rate and allows scientists to determine their age with great precision.*

- The Gamburtsev Mountains began to rise around 650 million years ago, reached Himalayan heights by 580 million years ago, and experienced deep crustal melting and flow that ended around 500 million years ago.
- Because they've been preserved by a deep layer of ice, the Gamburtsev Subglacial Mountains are one of the best-preserved ancient mountain belts on Earth.



*The **Denman Glacier** on East Antarctica's coast uncovered rocks that may be related to these ancient mountains.*

Reference

The Hindu| Revelations of Hidden Mountain of Antarctica

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