NYU Study on Antarctic Glacier

Why in News?

The New York University (NYU) study has pinned the cause of the melting of the Thwaites Glacier of Antarctica.

Why is the glacier important?

- Thwaites or Doomsday Glacier is 120 km wide glacier at its broadest, fast-moving and melting fast over the years.
- Because of its size (1.9 lakh sq.km.), it contains enough water to raise the world sea level by more than half a metre.
- The amount of ice flowing out of this glacier has nearly doubled over the past three decades.
- Its melting contributes 4% to global sea level rise each year, which has been a cause of alarm for scientists.
- It is estimated that it would collapse into the sea in 200-900 years.
- Thwaites is important for Antarctica as it slows the ice behind it from freely flowing into the ocean.
- A 2019 study had discovered a fast-growing cavity in the glacier.

What has the new study found?

- In 2020, researchers from NYU conducted a study that detected warm water at a vital point below the glacier.
- Warm waters in this part of the world, as remote as they may seem, should serve as a warning about the potential dire changes to the planet brought about by climate change.
- The study reported water at just two degrees above freezing point at Thwaites's "grounding zone" or "grounding line".
- This NYU study was funded by the International Thwaites Glacier Collaboration which has been studying the glacier since 2018.

Why is that significant?

- **Grounding line** is the place below a glacier at which the ice transitions between resting fully on bedrock and floating on ocean as an ice shelf.
- The location of the line is a pointer to the rate of retreat of a glacier.
- When glaciers melt and lose weight, they float off the land where they used

to be situated.
- When this happens, the grounding line retreats.
- That exposes more of a glacier's underside to seawater, increasing the likelihood it will melt faster.
- This results in the glacier speeding up, stretching out, and thinning, causing the grounding line to retreat ever further.

How was the warming water detected?

- Scientists dug a 600 m access hole and deployed an ocean-sensing device called Icefin to measure the waters moving below the glacier's surface.
- Such warm water along a section of Thwaites grounding zone where the glacier is melting suggests that it may be undergoing an unstoppable retreat that has huge implications for global sea-level rise.

Source: The Indian Express