

# Pine Island Glacier

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## In news

According to a study by Washington University and British Antarctic Survey, the ice shelves of Pine Island Glacier are breaking apart rapidly and may collapse faster than previously projected

## What does the study say?

- In this study, researchers analysed satellite images from January 2015 to March 2020
- The researchers found that recent changes in the ice shelf were not caused by processes directly related to ocean melting.
- The study revealed that from 2017 to 2020, a large iceberg on the edge of the ice shelf collapsed and glaciers accelerated
- The ice shelf lost about one-fifth of its area in this period, as captured by the Copernicus Sentinel-1 satellites, operated by the European Space Agency on behalf of the European Union.
- The glacier's surface also sped up by 12 per cent in this time.
- The researchers used an ice flow model to confirm that the loss of the ice shelf caused the observed speedup
- High-resolution videos of glaciers stitched together from satellite data showed the sides of the ice shelf were gridded with respect to the coastline.
- But a large crack in the centre of the ice shelf caused a sudden snap.

## Pine Island Glacier

- It is one of the largest ice streams in Antarctica.
- This glacier contains approximately 180 trillion tonnes

of ice, melting of which could result in 0.5 meters or 1.6 feet of global sea level rise.



- It flows, together with Thwaites Ice Stream, into the Amundsen Sea embayment in West Antarctica, and the two ice streams together drain ~5% of the Antarctic Ice Sheet
- It is Antarctica's largest contributor to sea-level rise, causing about one-sixth of a millimeter increase to the sea-level each year or about two-thirds of an inch per century.
- Pine Island Glacier has a large ice shelf, which supports the glacier.
- Recent speedups due to edge weakening may shorten the timeline for the Pine Island Glacier to finally collapse into the ocean.