

Amorphous ice

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Context- Recently, A team of researchers at University College London and the University of Cambridge have created a rare form of ice called Medium density Amorphous Ice.

Key Highlights

Methodology:

- They used a technique known as ball-milling, which grinds crystalline ice into small particles using metal balls in a steel jar, to create the amorphous ice.
- Ball milling is mainly used in industries to grind and blend materials into amorphous forms.
- The study team used liquid nitrogen to cool a grinding jar to -200°C and vigorously shook crystalline ice with steel ball bearings.

Properties:

- The new form of ice closely resembles liquid water.
- It has the same density as that of liquid water, while being in solid state.

Crystalline vs. Amorphous Ice

- Almost all of the ice we see in the natural environment of Earth such as in snow, your freezer, in the polar caps etc is crystalline ice.
- Amorphous ice consists of water molecules arranged in a disordered state, with no such large-scale regularity to their orientations or positions.