ICE JAMS

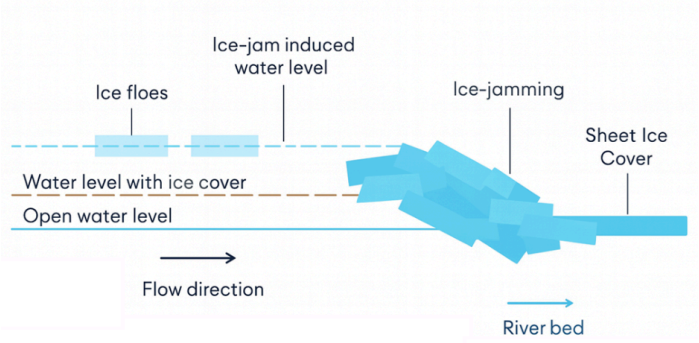
INFORMATION ABOUT ICE JAMS

WHAT IS AN ICE JAM?

An ice jam is the accumulation and congestion of moving ice in a single section of a river, where ice floes block the river's cross-section and form a barrier to the natural flow of water.

An ice jam acts like a dam: upstream of it, the water level rises rapidly, while downstream it can drop abruptly.

Ice jams most commonly form during ice breakup or periods of heavy frazil ice, and they often become a cause of hazardous flood events.



CAN ICE JAMS BE FORECAST?

Ice jams are difficult to forecast.
They can form suddenly due to rapid changes in weather conditions or river flow that cannot be predicted with full accuracy. For this reason, it is essential to always be properly prepared.

THE MAIN FACTORS CONTRIBUTING TO THE FORMATION OF ICE JAMS

There are two main types of river ice breakup: thermal and mechanical.



Thermal breakup occurs gradually, when rising air temperatures and solar radiation cause the ice to melt in place. The ice cover becomes thinner, weaker, and breaks up slowly, with little risk of large ice jams or flooding.

Mechanical (or dynamic) breakup occurs more suddenly and violently, often driven by rising water levels caused by snowmelt or precipitation. A rapid increase in discharge breaks up the ice and pushes large ice floes downstream, where they can accumulate and form ice jams that block the flow. This unpredictable process frequently leads to flooding, posing a serious threat to infrastructure and nearby communities.

WHERE DO ICE JAMS MOST OFTEN FORM?

- In river bends, river mouths, and near islands (where water flow slows down);
- In shallow or narrow sections (of the river);
- Near man-made or natural obstacles such as bridges, riverbanks, dams, reservoirs, and fallen trees



DAMAGE CAUSED BY ICE JAMS

- Strong water flow and drifting ice can severely damage buildings, flood interior spaces, cause short circuits, deform structures, or even lead to building collapse;
- Ice accumulation near bridges or railways can disrupt traffic;
- Large ice masses erode riverbanks and damage road surfaces and bridge piers;
- Ice-jam flooding can erode soils and destroy crops and natural ecosystems;
- The shipping sector may suffer major losses: navigation can be halted and vessel hulls damaged.

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LVĢMC

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