

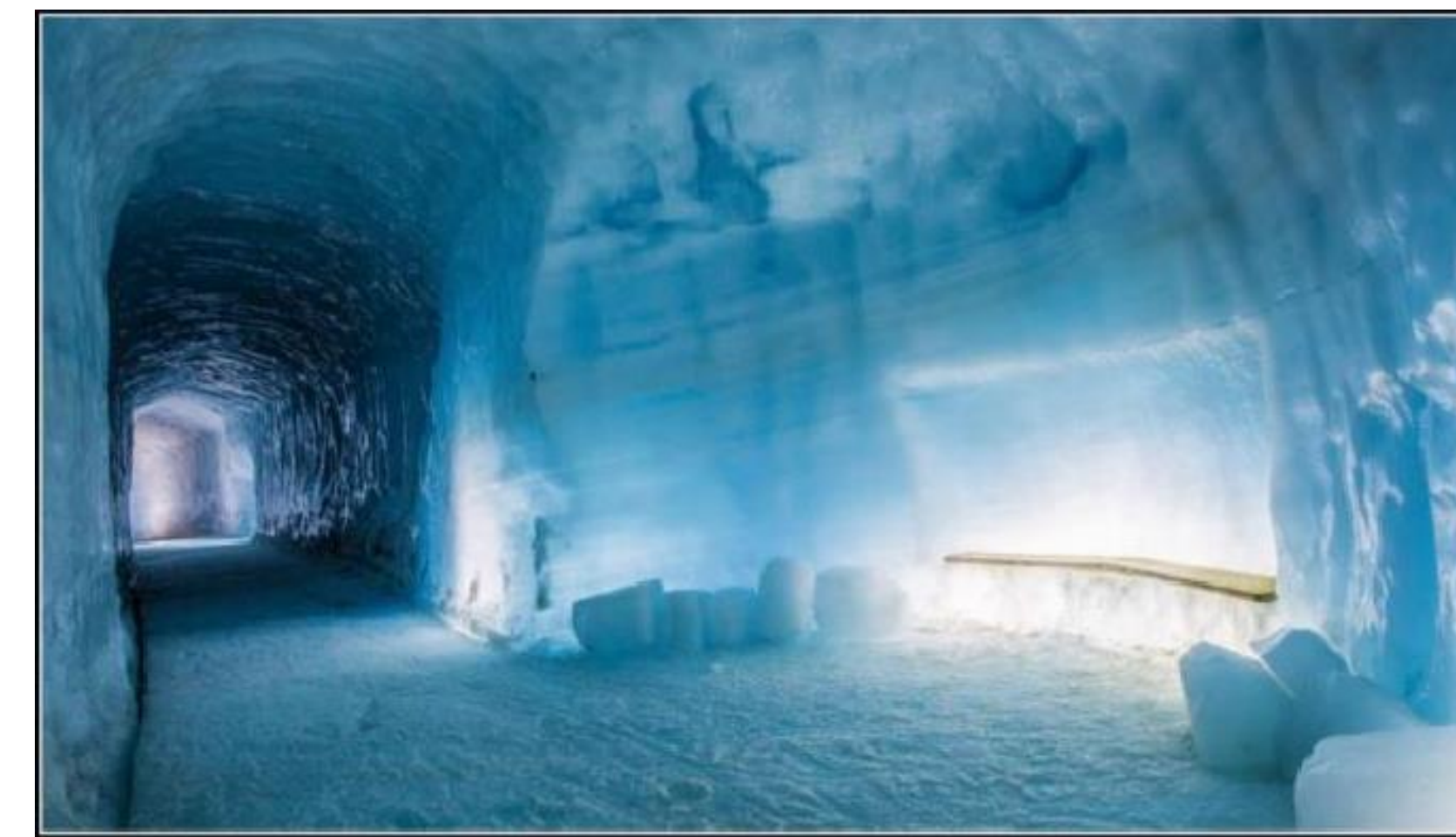
The Icelandic Glacier Tunneling System

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In the year 2010, two pioneers in Iceland came up with the idea to create the first man-made glacial tunnel as an all year around tourist attraction. The idea was to excavate the tunnel down to 30 m depth to experience the dense blue ice. The idea was further developed by EFLA Consulting Engineers and after three years of planning the excavation started in 2014. The tunnel has one entrance and a circle walkway with attractions along the way.



The Icelandic Glacier Tunneling System consisted of a 6 ton excavator with a drum cutter attachment and two telehandler payloaders. The excavation was 5.500 m³ of ice and the tunnel took 12 months to complete. The average excavation rate was 4,8 manhours per m³ of firn and ice. The maximum length excavated during one shift was 20 m/day.

Ventilation was a constant challenge with the risk of snow blocking openings on the top, this was solved with three locations shafts that were drilled vertically up to the surface with commercial ice drills with extensions.

A diesel generator was placed in a niche in the tunnel entrance to power the lights in the tunnel. During construction Christmas LED lights were placed in the ceiling. All the final lights are LED which minimizes the melting of the ice surrounding the lights.

The tunnel is the largest man-made ice cap glacier tunnel in the world.

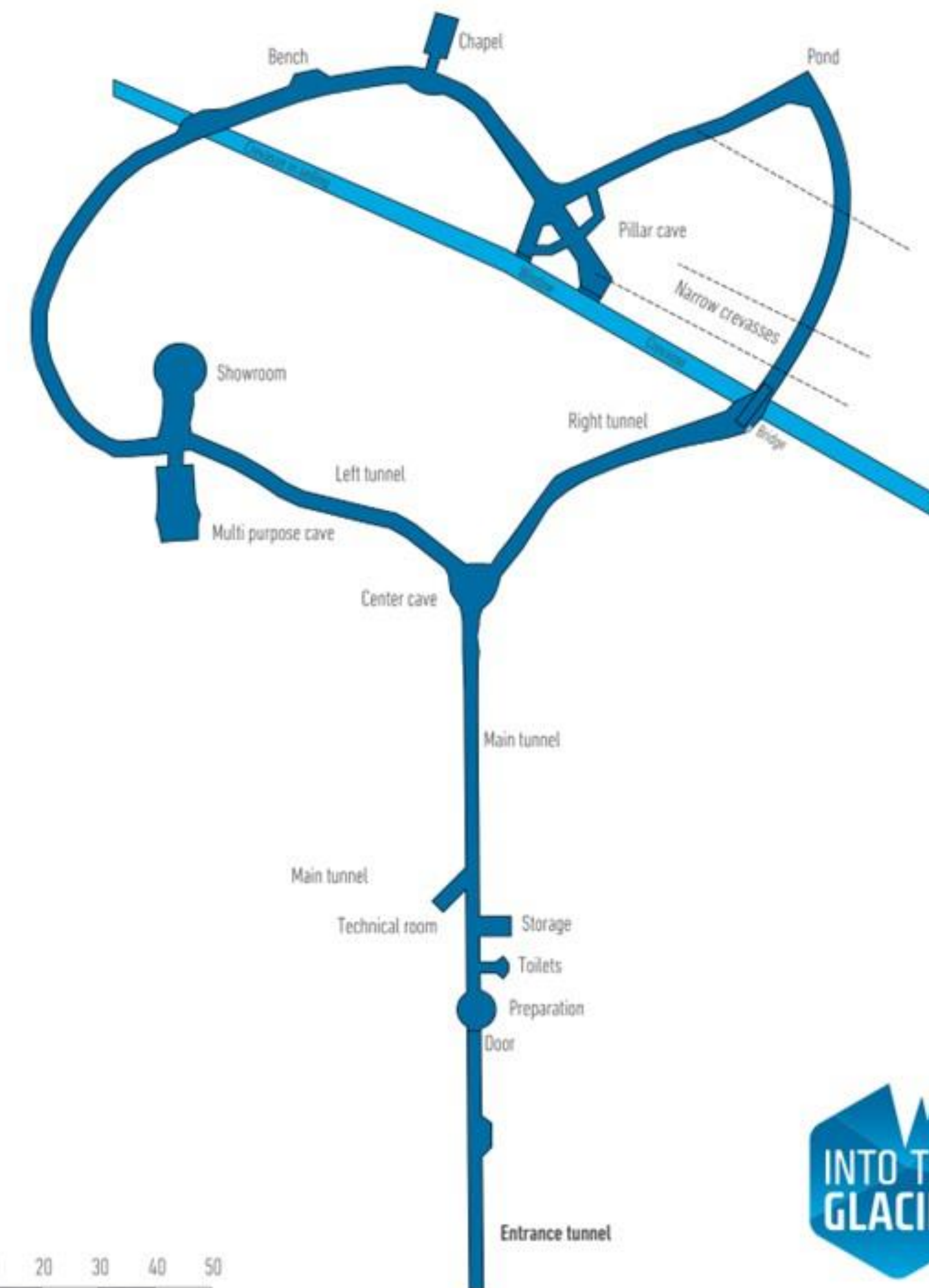
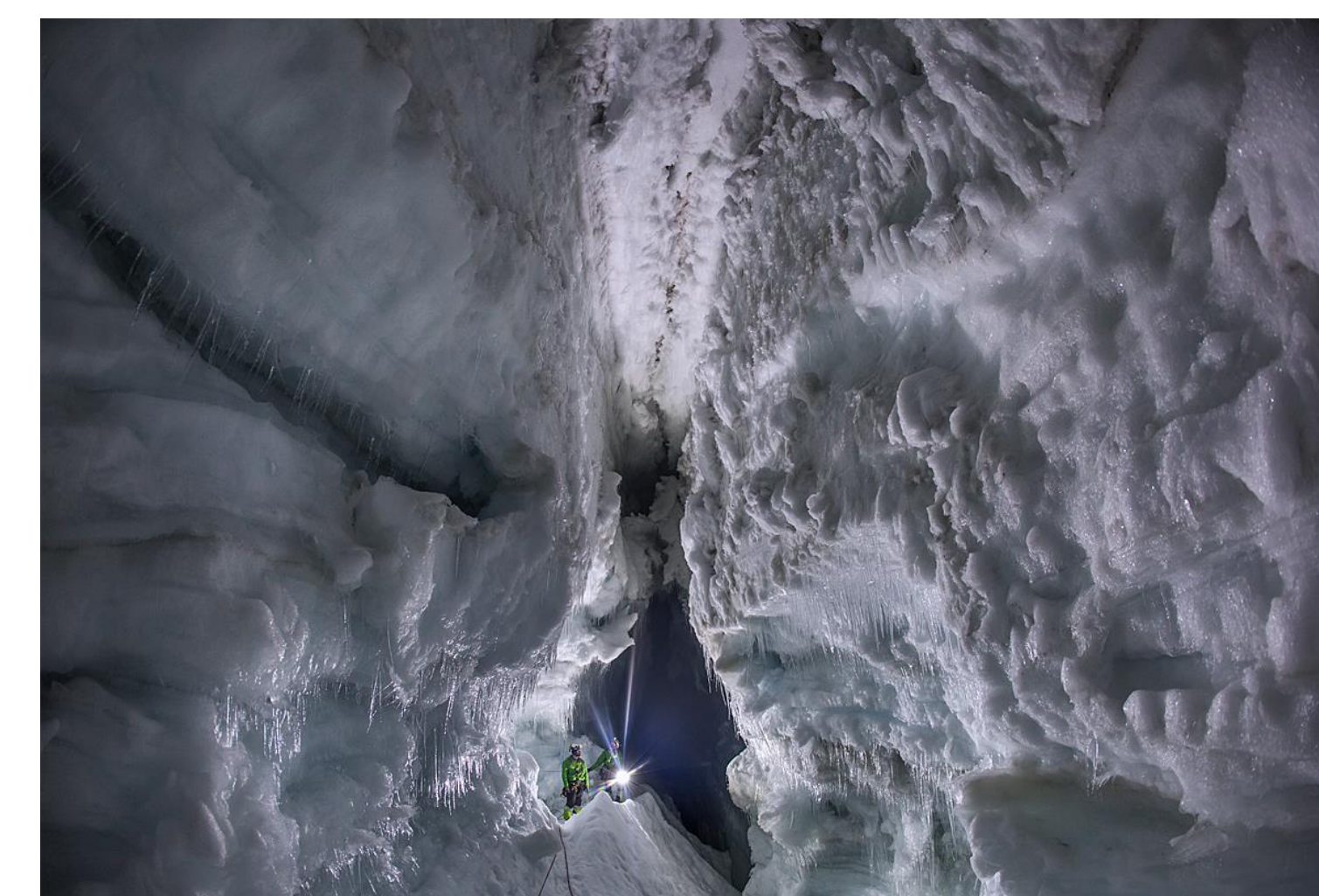
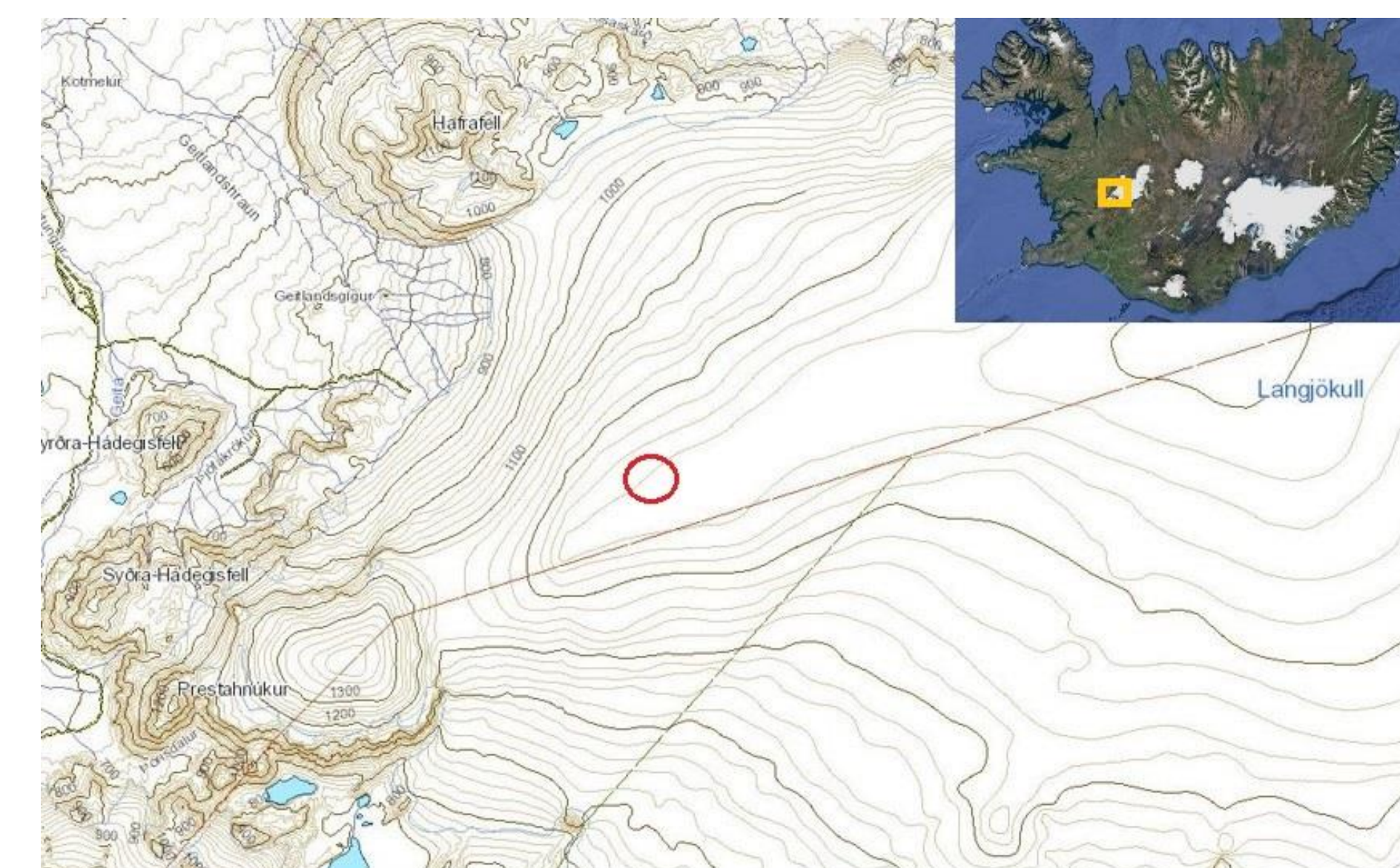


Figure 1. The ice tunnel location.

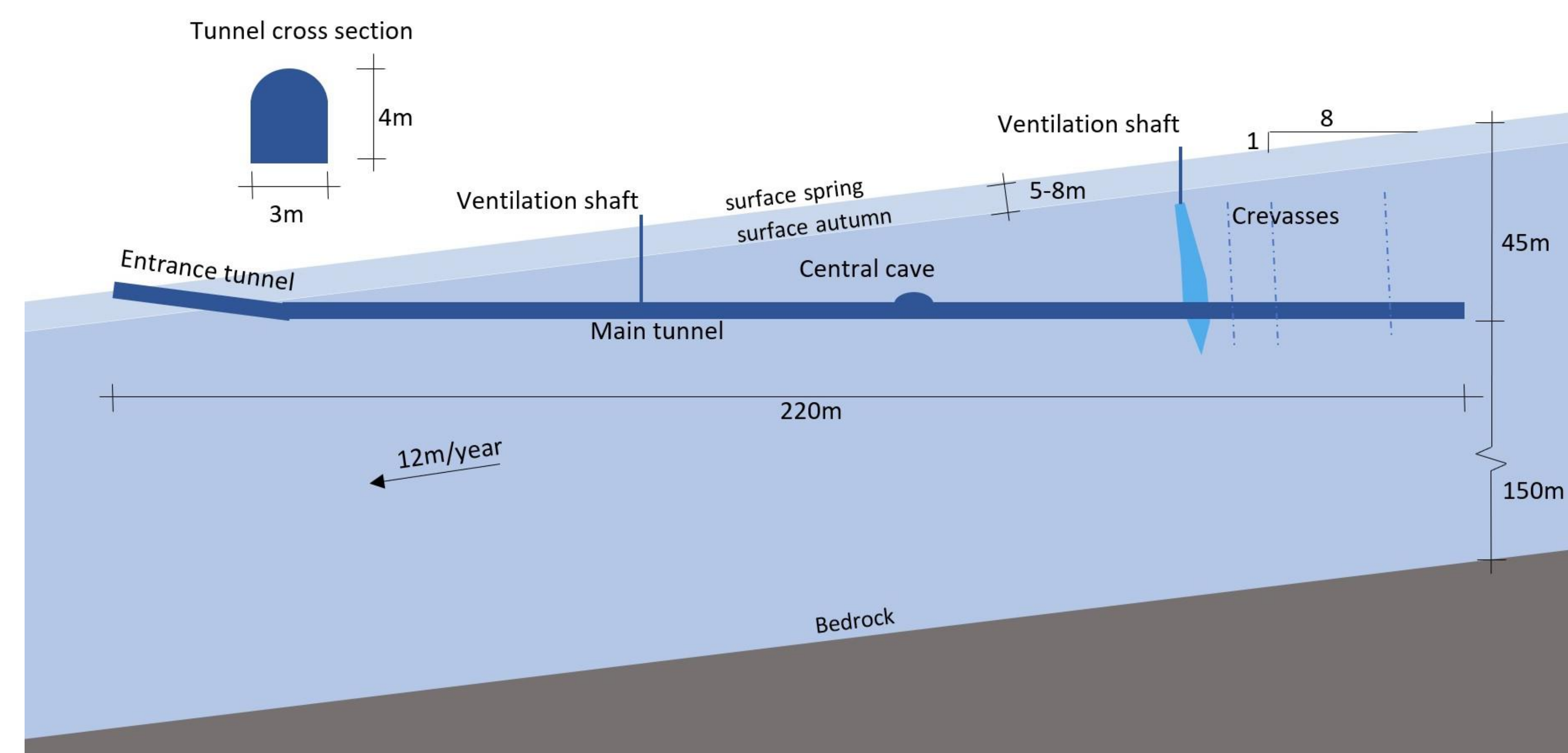


Figure 2. Cross-section and longitudinal profile of the ice tunnel.



Figure 3. Plan drawing of the ice tunnel (Into the Glacier, 2022).

