# VISITING THE SCOTT TURNER ICE CAVE

## WITH GREEN DOG

*Welcome on this dog sledge tour to the ice cave in the Scott Turner glacier. In the following, you will find some facts about the cave - or melt water tunnel as it actually is - and practical information about safety and behavior.*

When you enter the ice cave, you are not going into at crevasse, but a tunnel, formed by meltwater in summertime. You are walking on a frozen stream of meltwater and this stream / river has over the years formed the tunnel. It has polished the walls and made up the bended path of the tunnel. The ice is app. 1000 years old at the bottom of the glacier. The ice is formed from snow which due to altitude does not melt in summer, and then gets compressed by new layers of snow the following winters. Overall the melting is more than the snowfall, so the glacier is shrinking and may eventually disappear some day.

When there is more than 30 m thickness of ice, the pressure on the ice makes it plastic, and the ice then starts to move very slowly, like melted glass or gel. Some years we can see results of this in the tunnel!

The ice in the cave walls has different layers. The white layers contain air bubbles (from the snow) under pressure. The air can be used by scientists to tell us about past times' atmosphere. The compressed air makes cracking sounds when you put the ice in water (or Whisky!). The transparent ice layers are formed when melted water seeped through the snow in summertime and then refroze on the ice. Or it can be cracks in the ice, filling up with melt water which freezes again.

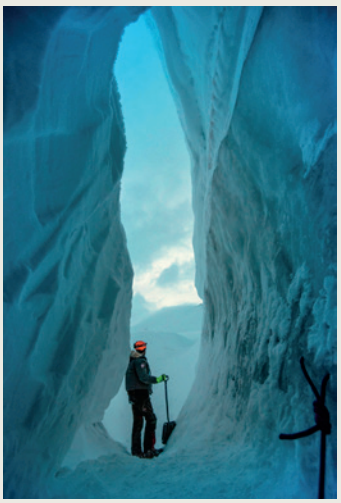
If the glacier has a marine terminus, this clear ice will float in seawater lower than the white ice, since it doesn´t contain air. It is also harder, and more difficult to see, since it is transparent and floating lower. By sailors it is feared and called "Black Ice".

The layered ice is crossed by thin sediment layers. These layers have once been the horizontal surface of the glacier. When the glacier surged (speeded up) in the 1930s, the ice was moving so much, that the layers many places are vertical now. The small surface cracks in the ice are from temperature shift.

The temperature in the cave is minus 2 – same temperature as in Mine nr 7. The temperature reflects the average air temperature of the area.

The small "ice ribs" on the tunnel walls are made from drops of water running down the same place, slowly building it up. It is called "Ice bacon".

The ice crystals are not influenced by wind, and can therefore grow huge and freely.



The gravel in and on the ice is from the river that flows through the cave in summertime. The glacier rivers are very powerful and can transport huge amounts of rocks. Active glaciers can also erode a lot of rocks from their beds – during the ice ages, glaciers carved out deep fjords around Svalbard, such as Isfjorden. Scott Turnerbreen was able to erode its bed during the surge, but not any longer. While dog sledding, the hilly terrain you are going trough are moraines, pushed up by the glacier.

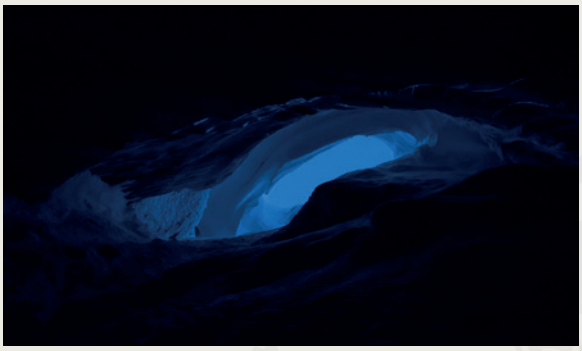
The flat floor in the lower part of the tunnel is the frozen melt water river. The tunnel does not go in a straight line, because of the turbulence in the water which melts the sides of the tunnel at different speeds, and the hollow parts again make the water change direction.

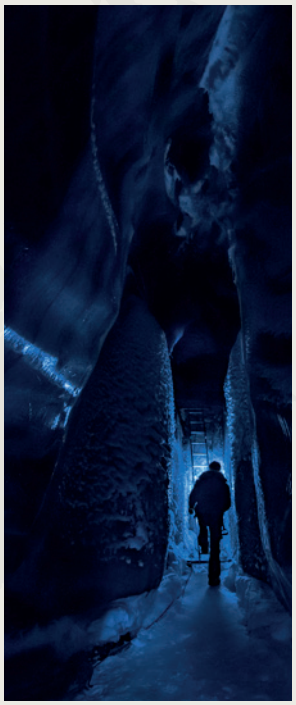
Ice blisters are formed below waterfalls, where a hole in the ice floor is eroded / melted. The water in the hole / pool then freezes in winter, and since ice expands during freezing, it creates a blister. The strings of bubbles trapped in the ice blister forms because the oxygen molecules in the water seek together when the water freezes.

There can be high water falls in the tunnels, and especially at these places the water erodes the ice fast. In some places you can see old / former river floors in the roof and walls of the tunnel.

The tunnel has been mapped by researchers from UNIS and is almost 2 km in length.

***Thanks for joining us at this tour!***





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