

Snow and Ice as a resource for innovative tourist experiences in Northern Sweden, the case of IceTheatre and Ice Music Hall.

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Background

Tourism in high altitude or high latitude is traditionally based on nature based experiences in an environment of snow and ice. The snow and ice covered landscape constitutes a background and substrate for “winter” outdoor activities such as downhill and cross country skiing, snow shoes hiking, dog sledge and snow mobile driving¹ and on ice covered waters cross-country skating, ice-sailing and ice fishing. Recently other motorised snow activities such as driving quads and car racing on frozen lakes have been added to winter activities in Northern Scandinavia.

Parallel to such nature based outdoor winter activities arctic and high altitude areas have a long history of cultural winter activities of the form of winter sports, events and cultural constructions in snow and ice. Cultural winter attractions includes traditional winter markets such as “Jokkmokks marknad”² in Northern Sweden which started already in 1705 and has developed from a traditional trading market into a Sami tourism event³. Also indigenous culture events and traditions⁴ such as aspects of the Sami culture traditions have transformed into tourism and tourist activities such as reindeer races or visiting Sami living places etc.⁵ Winter and snow festivals have a long tradition in arctic and sub arctic countries and have in many cities and communities become a significant cultural event. Famous are events such as the Sapporo Snow Festival⁶ since 1949 which is Japans largest and most distinctive winter event with over two million visitors, the Saint Paul Winter Carnival Minnesota⁷ which in 1886 started after a New York journalist described the town as “another Siberia, unfit for humans habitation.” and features everything from the famous ice palace to bobsledding and ice horse racing.. Other examples of winter festivals are Kiruna Snow festival⁸ since 1986, Alta Borealis festival⁹, Nuuk Snow festival¹⁰ on Greenland, the Anchorage Fur Rondy Rendezvous¹¹ in Alaska since 1935 with dog sledge world championships, and the Quebec Winter Carnival¹² since 1894 which is the world largest winter carnival.

Associated with most winter festivals is the construction of snow and ice sculptures¹³ and snow buildings in the form of igloos and snow castles. The igloo is an Inuit shelter and living construction in the arctic environment¹⁴. In some areas such as in Thule, the northeastern shore of Greenland, igloos were extended to large ice domes as singing, dancing and wrestling competition halls for the community during the long dark winter days¹⁵. Such Inuit igloos have been transformed into tourism attractions in the form of igloo hotels such as the Igloo Village in Saariselka, Finland, part of Hotel Kakslauttanen¹⁶, where the visitor can stay in one of 20 snow igloos or one of the 20 warm glass igloos where to watch the northern lights from the bed. Here the World’s largest snow restaurant offers sitting for 150 guests inside a single snow igloo. The Igloo Village has also an Ice Bar, Ice Chapel and Ice Gallery of ice sculptures. One of the most famous tourist igloo construction is the worlds first Icehotel in Jukkasjärvi¹⁷ which will be described in detail below. The concept of the Icehotel has since its opening in 1989 in Jukkasjärvi been copied in Scandinavia and elsewhere. The Alta Igloo Hotel¹⁸ that opened in 2000 consists of a 2000 square meter ice hotel with 80 beds in 30 snow rooms, icebar, ice gallery and ice chapel. The Bjorli Ice Lodge at hotel Bjorli ski Centre in Romsdal¹⁹ consists if an icehotel building with individually designed guest rooms and a

icebar. The Laino Snow Village Hotel in Finland²⁰, opened in 2000 has a large ice hotel with 20 igloo bedrooms and seven fancy ice suites. It has an ice restaurant and Europe's largest icebar. Outside the Icehotel there is an illuminated ice sculpture park with snow slides and an ice chapel. The Kirkenes Snow Hotel²¹ opened in 2006/2007 has 20 rooms individually decorated by ice artists from Finland and Japan. It has the largest snow dome in Norway eight meters high and twelve meters in diameter which host a large snow bar. The Mammut SnowHotel at the Lumilinna Snow Castle in Kemi, Finland²² has 18 regular rooms for up to five persons and a honeymoon suite. At the snow castle there is a theatre, Ice gallery, SnowRestaurant and SnowChapel

Igloos appear to be popular and pooping up around the world. The German Iglu-Dorf concept²³ consists of a 50 bed hotel that in 2005 has been established in six European mountain ski areas (Davos-Klosters, Engelberg-Tilts, Gasaad and Zermatt in Switzerland, Zugspitze in Germany and Andorra) which all offer an Iglu-bar besides the Iglu-hotel with standard iglu-rooms for up to six persons, double rooms and romantic-iglu rooms. The Iglu-Dorf can also be rented for Iglu-Events such as conferences etc. In 2006 the first ice hotel in East Europe was built at Bålea Lake in the Făgăras Transylvanian Mountains, Romania²⁴. The Ice hotel was built at an altitude of 2034meters and can offers 8 double rooms

The first Icehotel in North America was the Hôtel de Glace, the Ice hotel in Quebec, Canada²⁵ which opened in 2001 and now has 85 beds. The Icehotel is build with 5000 tons of sculpture ice and 15000 tons of snow, forming arches over rooms with 5 meters high over an art gallery, an Ice Café, a N'Íce Club and a 60 feet slide. The hotel also has an ice chapel. Another ice hotel is the Ice and Snow hotel in Harbin, northeast China opened in 2005 in association to the Harbin Ice and Snow World²⁶. This Ice festival was first organized in 1963 and is now the world largest snow and ice exhibition attracting with over one million visitors from all over the world. Attractions are the International Snow Sculpture Art Expo, the "ice lanterns" of illuminated frozen water and the extensive ice and snow buildings of the festival.

The most common form of snow construction, however, is the snow castle and ice palace. The Worlds first Ice palace was constructed in St Petersburg, Russia, build for the Russian empress Anna Ivanovna²⁷. This Anna Ivanovna's Palace was built in the cold winter of 1739-1740 by order of Anna to celebrate Russia's victory over Turkey. The Palace was 24 meters tall and 7 meters wide. Ice blocks were glued together with water and ice statues of birds and elephants were constructed in the ice garden while artillery pieces of ice protected the palace. In this first ice palace also the first ice wedding took place by the order from Empress Anna and the new married couple had to stay over night - looked into the ice palace. Since 2005 a replica of this ice palace is build in St Petersburg.

The first Ice Palace in North America was build in Montreal, Canada in 1883-1895 using 16 000 ice blocks three feet four inches square and fifteen inches thick²⁸. Due to an outbreak of smallpox in Montreal 1885 St Paul quickly in 1886 build a ice palace to take over the tourist from Montreal²⁹. Here the ice palace was build of 35 000 blocks of ice. The city has now build 36 ice palaces and in 2004 the ice palace hosted the NHL All Star Game and was build of 18 000 blocks of ice. Even more famous is the ice palace at the Quebec Winter Carnival in Quebec City³⁰ which was build for the first time in 1955. This ice castle is unique by being build by 9 000 tons of small ice bricks into a traditional shaped castle up to 20 meters high.

In Scandinavia snow castles are rare and the only one is the Snow Castle of Kemi, Finland³¹ which is the biggest snow castle in the world with 20 000 square meters and includes the Mammut Snow Hotel, the Snow Restaurant and a chapel with 50-100 seats. At the theatre many opera singers and dancers have performed. The highest towers have been over 20 meters high and the longest wall was 1000 meters long and the castle had up to three stories. A more unusual place to find an ice palace is Florida where the Gaylord Palms Resort in Orlando near Disney World each December builds a palace in ice, the ICE! walk-through attraction of carved ice winter wonder land.

From this overview we can conclude that snow and ice in a cultural context is commonly used as either a constructed attraction in the form of castles, palaces or igloos or as an art form in snow or ice sculpturing. Such snow and ice constructions are either an attraction per se or occur in combination with winter festivals and carnivals. Other cultural expressions such as snow or ice painting, ice cinema, ice theatre or ice music are more uncommon. The term Ice Theatre (or theatre on ice) is commonly associated to figure skating such as the Ice Theatre of New York³² or American Ice Theatre³³ while traditional theatre performance in a constructed snow theatre is uncommon. Outdoor winter cinemas are uncommon but we can find one of the few a cinema made of snow and ice mad as a drive in cinema for snowmobiles in Kaotokeino in Norway³⁴. Thus the border-crossing of traditional cultural art expressions with snow and ice are still uncommon and undeveloped. The aim of this paper is therefore to present the background of two innovative cases of snow constructions within tourism used in an unusual cultural context, the Ice Theatre at Jukkasjärvi and the Ice Dome Concert Hall in Piteå.

Method

Material for this study has been collected since 2004 both from newspaper articles, Internet search and communications with participants and stakeholders to the Ice Theatre at Jukkasjärvi and the Ice Dome Concert Hall in Piteå. By being direct involved in the Ice Music project at the Ice hotel in Jukkasjärvi and in the Ice Dome project in Piteå the author kept a project diary over meetings for project planning and meetings with stakeholders. From this extensive material the following reconstruction and description of the projects have been extracted.

The Ice Hotel

With the exception of empress Anna Ivanovna's Ice Palace in 1739, the worlds first Icehotel was build on the bank of Torne River in the village of Jukkasjärvi located 200 km north of the Arctic Circle in Swedish Lapland³⁵. The story of the Icehotel started in 1989 when some Japanese ice artists visited Jukkasjärvi resulting in a much talked-about and written-about exhibition of ice art³⁶. One of the local tourist entrepreneurs Yngve Bergqvist saw the touristic potential. In the next year of 1990 he built a cylinder-shaped igloo direct on the ice of the Torne Rive, in witch an art exhibition by the French artist Jannot Derid opened. The Igloo of 60 square meters was named ARTic Hall and hundreds of visitors were amazed at the icy art gallery. During the national ski championships held in Kiruna 17 km north of Jukkasjärvi all hotels were full booked. A friend of Bergqvist, Lars Bylund at the international satellite company in Kiruna had 14 guests from USA, Mexico and Holland who had no where to stay and Bergqvist suggested the Artic Hall. Sleeping bags and reindeer furs were organized and the guests spend the night in the exhibition igloo. In the morning every one was ecstatic over

the experience and the idea of an Icehotel was born. In the season 1992/1993 Yngve Bergqvist and others built the first real Icehotel and then created the company Icehotel AB.

The concept of the Icehotel developed each year and has now become known as one of Sweden's most famous attraction and a brand as famous as Volvo and Ikea. The break-through came in 1994 when Yngve Bergqvist wanted to cooperate with an established company that could be associated to ice. He phoned Absolute Vodka but did not get any response. He therefore arranged some Absolute Vodka bottles at the icebar and let a professional photographer take some pictures and send a press release to 1000 receivers in the USA and the same number in Germany which created a success news story. Absolute reacted by sending some people to Jukkasjärvi to sponsor the icebar. The same year Absolute Vodka started a promotion program in partnership with the Icehotel. In 1997 it got international attention with the Absolute Versace campaign photographed on location in Jukkasjärvi with photos by Herb Ritts of top models Naomi Campbell, Kate Moss and Marcus Schenkenberg light dressed in Versace designs inspired by the Absolute bottle at minus 27 degrees Celsius. After that the Icehotel was also used for other promotions such as Volvos TV-commercial for the USA and a James Bond movie. Today each year 600-700 media companies visit Icehotel.



Figure 1. The Icehotel in 2004. Photo: Hans Gelter

From the original 60 square meters the Icehotel has grown over 80 times and is now the world largest Icehotel with is planned for the season 2008/2009³⁷ to consist of 5500 square meters and build of 21 500 m³ of snow and 900 tons of ice. In the season 2008/2009 the hotel will have 74 cold rooms. These consists of one Deluxe suite designed by especially chosen artists, 30 specially designed Art suites with special design and sculpture, 13 Ice rooms with furniture's of ice and decorating artwork of ice and 29 snow rooms which are simple but spacious snow rooms with a snowbed.



Figure 2. Designed suites in the Icehotel in 2004. Photo: Hans Gelter

In addition the Icehotel had 184 warm beds in 30 fully modern cabins, double rooms at the “Kaamos” hotel with double rooms furnished in a modern Scandinavian style, a chalet with two bedrooms and an aurora house with two separate bedrooms for 3 persons with ceiling skylight for a view of Midnight Sun or Aurora borealis. The Icehotel also contains a reception lobby, a pillar hall, film auditorium and the Absolute Icebar. The temperature in the Icehotel varies between -4 and -9 degrees centigrade, depending on the temperature outside. The Icehotel exists between December and April. Each year the design of the building and rooms change. In 2004 also 140 igloos were erased on Torne River with the help of balloons and “snis” which shortened the igloo construction time by a fifth.

Over 4000 ice blocks 1x2 meter weighting 2 tons are harvested in February-Mars from the Torne Rive by hydraulic equipment and special ice saws which were developed in Jukkasjärvi. Torne River flows 510 km from the mountains down to the Baltic Sea and is one of the few intact and unexploited rivers of Sweden. Its clear and flowing water is said to give the unique crystal clear ice as the river freezes in strong cold and fast-flowing current of 370 m³ per second preventing air bubbles in the ice. Analyses from Umeå University confirm the ice quality where the ice contains less salts and minerals then the water of the river as well as some lower pH-value. The ice starts to form in October-November and grows to 60-70 cm thickness in Mars-April. To let the ice grow even thicker the Icehotel clears it of snow which let the ice grow up to 1m thick.

The ice blocks are stored in a 1500 square meter freezing house – the Icehall Art Centre for the next years building of the Icehotel and for export of ice blocks. The Art Centre is a cool room of minus five degrees Celsius where an ice art snow exhibition is presented for summer tourists to give visitors a taste of the Icehotel. Also five igloos allow guests cold sleeping in the summer. Of the harvested ice blocks 65% are exported around the world as ice blocks to Icebars or as ice glasses “in the rocks” for the Icebars. Over 2 000 glasses can be made from one block. In the season 2007/2008 over 800 000 ice glasses were sold at the different Icebars. In the coming season over 1.4 million ice glasses need to be produces, thus an ”ice plant” will be built. 1500 ton ice is used only for ice sculptures in the Icehotel. Each ice block is therefore valued to 40 000 SEK according to Yngve Bergqvist.

The construction of the Icehotel consists of ix stages and starts in end of October where around thirty local artists and builders start working using 80 million litres of water for the construction. The ice hotel opens is in the beginning of December but each week a new section is opened until the whole Icehotel is constructed to the beginning of January. It all then melts back to the Torne River in end of April. The construction technique is patent protected and developed by the concrete founder Kauko Notström. In the beginning the walls of the Icehotel were built of natural snow. As the size of the hotel grows, it became too expensive to scrape the snow from the surrounding. Instead front loaders, snow canons, snowblower and snowthrower were used to create a snow material called ”snis” (or “snice”) a snow-ice mixture that then is transported to the construction site. The snow canons can also blow the snow directly on the construction. The construction is build so the roofs will not collapse but rather melt away along the walls in spring. The patented methods is based on arched steel mould forms some are as big as 5 metres in height and 6 metres across. The Mould forms are shaped as tunnels that are covered by the “snis” which freezes to the snow walls and roofs. After two days the mould is then moved to form a new section. The huge cupola over the icebar is reinforced by iron armouring – the only building material in the Icehotel that is not snow and ice. The 30 000 m³ of snis is used to build the walls and roof

while the 3 000 ton ice is used to create gables, inner walls and sculptures. The ice pillars give extra strength to the self-supporting snow arches.

By the beginning of December, the main building is almost finished and the interior work begins. This continues until the end of January. With an indoor temperature of around five below zero, working conditions are relatively comfortable compared to the outdoor temperature, which can drop lower than forty below zero. Working to late in the evening, the sculptors cut and work the ice to create things like interior decorations, windows, doors, pillars, furniture, lamps and naturally - sculptures. About 25 specially invited Swedish and international guest artists from 14 countries come every year to design the décor certain rooms which all have unique design and ice installations. The varied styles of the many artists, together with the properties of the ice, create a unique atmosphere filled with mystique and surprises for the visitors as they wander from room to room.



Figure 3. Ice sculpture and the IceChapel at the Icehotel in 2004. Photo: Hans Gelter

The Icehotel was in 2007/220 visited by 24 100 day guests of which 70% are foreigners³⁸. Ca 30 222 stay over night. The rooms were booked 97,5% during December to April in 2007 and 40% of the cabins during May to November. One night in double room Deluxe suite costs³⁹ 3500 SEK per person per night, and a single room 6900 SEK per person per night. A night in a double room Art suite cost from 1700 per person and night to 3200 SEK depending on season and weekday. A double room in the Ice room costs from 1250 to 2700 SEK per person and night and in the Snow room from 1250 SEK to 2050 SEK per person and night. Each guest spend between 1000-5000 SEK and spend on average 2,5 days at the Icehotel staying one night in a ice room and two night in warm rooms. The turnover of the Icehotel was 195 million SEK in 2007 and the Icehotel company employing 141 persons.

The 28th Mars 1992 a first ceremony was held in an IceChapel at the Icehotel and since then the IceChapel opens every year the 25th December when it is taken over by the Swedish church for ceremonial use. About 150 weddings and 20 christenings take place every year and in 2006 the 1000ed wedding took place at the IceChapel. In winter 2000, a new chapter in the story of Icehotel AB began when operations were extended across the Atlantic - and co-operation began with Icehotel Québec un the area of Duchesnay outside Québec, Canada.

In 1994 the Icehotel opened an icebar that has grown as a concept and become the famous Abosult Icebar that enjoys more international fame than the trendiest bars in Stockholm. In June 2002 the icebar concept was exported as a pilot project to Stockholm where the worlds first permanent year round Icebar – the Stockholm Absolute Icebar was established in the lobby of the Nordic Sea Hotel near the Central Station in Stockholm. The 60 m² glass walled icebar and holds a temperature of minus 5 degrees Celsius. Twice each year the ice is substituted with new clear ice from Torne River. The pilot project expected to last three years has now developed into Stockholm's most profitable bar per square meter in 2007 where over 100 000 people have played 125 SEK to put on a silver poncho and step into the cold to get a vodka drink from ice glasses made of ice from Torne River. All ice in the bar disc, walls and sculptures are from Torne River. Each year 10-20 international articles are published and 5-10 TV-companies film in the Stockholm Absolute Icebar each month. The success of the Stockholm Absolute Icebar pilot project lead to an Icebar franchise concept with the opening of the "Below Zero" Icebar in London in 2004 and Icebars in Tokyo and Milano. In 2007 Icebars opened in Copenhagen and Shanghai and the goal is to open 25 Absolute Icebars around the world, all with the same concept of an 80 m² icebar from Torne River. Until today about 50 unique or experimental Icebars have been constructed and over one million people have visited an Absolute Icebar. The concept has generated copy-cats such as the Icebar in Henningsvog at Noth Cape, Norway and elsewhere.

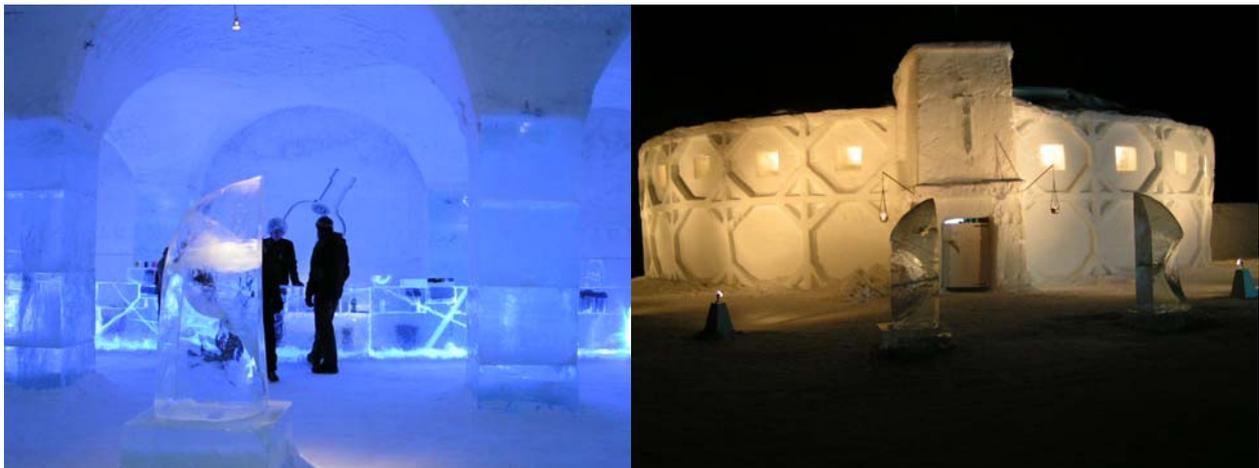


Figure 4. The Absolute IceBar and the Ice Dome Theatre at the Icehotel in 2004. Photo: Hans Gelter

The Ice Globe Theatre

Another new chapter in the history of the Icehotel began in winter 2003 with the construction of "**Ice Globe Theatre**" - a replica of Shakespeare's "Globe Theatre" on the Thames in London. As in the Shakespeare's original Globe Theatre, the performance was beneath the open sky with the guests sitting either on the ground or seated under the roof in a box. The Story of the Ice Theatre begun when the professional actor and theatre chief Rolf Degerlund in 1997 painted an aquarelle painting of an ice theatre and had a dream of being a ice theatre chief. At a lecture for the experience industry the 20th November 2001 he showed his painting and ended with "*I have a dream – to become a ice theatre chief*". The owner of the Icehotel Yngve Bergqvist hear the presentation and presented himself afterward and said "*I buy the theatre for you*". Two weeks later they met in Jukkasjärvi where Rolf told about the Globe Theatre in London where after the ice architect Åke Larsson made the blue print and the 18 December the construction began together with the selling of tickets. The Icehotel opened 13 December 2002. The cost of the construction was 12 million SEK. The building was a highly interesting challenge in its own right, and the goal was to unite that bastion of the Thespian arts, The Globe, with the beauty and magic of Icehotel. The Theatre was build completely in

snow in two floors 7 meter high and 31 meters in diameter. It had eight boxes for 12 persons and 424 standing places on the floor, thus slightly smaller than the original in London with 37 meters diameter and three floors.

The first performance opened the 23th January 2003 with a play of Shake spears Hamlet performed in the Samic language. The performance was one hour and fifteen minutes with a pause where the guests could take a drink in the Icebar. The theatre group was the National Sami Theatre in Norway the “Beaivváš Sámi Teáhter” from Kautokeino and consisted of Sami actors and musicians. On the second day was a premiere for Jasat (meaning snow spots in Sami language). Jasat was a Joik and dance performance under the northern lights and a co production between Beavvas Sami Teatre and Swedish Sami Theatre in Kiruna. A total of 74 performances were given in the IceTheatre during the first winter with 30 performances of Hamlet, 24 of Jasat and in addition 20 guest performances by music and dance groups. All performances were given in the cold under the open sky often -35 degrees Celsius and under a clear sky with northern lights The price was 875 SEK for sitting place and 495 SEK for standing place. The performance started at 10 pm each night and the last performance was given the 6th April where after the sun melted the theatre. In 2004 the performances continued with Shake spears Macbeth in the Sami language, The Laponia IceGlobe cinema, The Opera Falstaff by Giuseppe Verdi, Northern Light Rock Concert with Yana Mangi & Enyojk and others. The IceTheatre could, however, not carry the construction costs and the concept was given up with huge economical loss.

Ice Music

Another way of using ice and snow in a cultural context beside the artistry and ice and snow sculpturing and igloo and castles constructions is to use the material for music. There are only a few musicians in the world that use snow and ice for their music, one of the most famous is the Norwegian percussionist Terje Isungset who plays on instrument made of ice⁴⁰ The worlds first public concert combining instruments of ice with traditional instrument was Terje Isungsets performance at the Lillehammer Winter Festival in 2000⁴¹. In cooperation with Bengt Carling, Isungset created a set of ice percussion instruments that where played for the whole world at the televised New Years Day Millennium Celebration in 2000. Fascinated by this ice music Isungset constructed string instruments and recorded the first ever all ice music CD “Iceman Is” at the Icehotel in Jukkasjärvi in February 2001⁴². A special recording studio was built at the Icehotel using 1 meter thick hard packed snow blocks which proved to be 100% sound proof. For this recording ice instruments such as ice harp, ice horn, ice trumpet, ice bass drum and other percussion were constructed. Since then several ice music performances have been given by Isungset in Quebec City, in IceGlobe Theatre at Jukkasjärvi, at the Sapporo Snow Festival, in Helsinki, Narvik, Geilo and others places

This ice music tradition was picked up in 2006 at the Ice Music festival at Geilo, Norway and has since then held yearly at the first full moon of the new year. The festival consists of music and performance concerts outside and inside an igloo where all instruments are mad of ice and snow⁴³. The festival is held at the frozen waterfall at the 1930 meter mountain Hallingskarvet. The festival is dedicated to nature as the moon decides the datum of the festival and the frozen water and the temperature the quality of the sounds of the ice instruments.

Ice Music at Icehotel in Jukkasjärvi

In 2003 the Swedish Polar Research Secretariat hosted the SSW 2003 Arctic Science Summit Week 30 mars – 2 April in Kiruna⁴⁴: As a conference program and as an experiment and

empirical research on ice music and concerts based on ice music a cooperation between the ice sculptor Tim Linhart⁴⁵ from New Mexico, USA, the Royal Music School in Stockholm and Swedish Polar secretary produced an six person assemble “*Voices of Ice*” which preformed at the Ice Globe Theatre at Jukkasjärvi⁴⁶. The assemble consisted of Gunilla von Bahr, flute, Ulrika Bodén, vocal, Olle Hagson, contrabass, Jonny Axelsson, percussion, Åsa Åkerberg, cello and Susan Baret, cello.

The first performance given the 16th Mars was part of the programs “Science as Art” 16-20 Mars held at Abisko. It was the world premiere for two new written music pieces by Swedish composers, the *Ice Music Fantasy for soprano, speaker, ice instruments and an audience with warm mittens* by Karin Rehnqvist and *Of Ice and Frozen Circles* by Bill Brunson. Other preformed pieces where from Haydn, Bach and Vivaldi. The music was written for classic instruments made of ice. The Ice orchestra consisted of two cellos, one base, ice flutes and percussions. This first performance was a struggle against the weather as the instruments where near to melt in the warm weather Two additional concerts where given 1-2 April in association to the Polar conference held in Kiruna. The Ice artist Linhart worked in Jukkasjärvi since beginning of February to build the instruments in ice by using a unique technique of blending fresh powder snow with water.

At the Queen of Sweden’s 60th birthday the 23 December 2003 The queen got a family gift to spend a night at the Icehotel. Before returning to her night in the ice suite a music performance was given in the Icebar with the queens favourite flute player Gunilla van Bahr⁴⁷. To this performance Linhart again build his ice orchestra. However, the night before the performance for the queen, Linhart shattered the ice cello while moving it. He spent all the night patching it together and it turned out to be the best sounding cello he ever heard.

Tim Linhart builds his first ice instrument 1997 in the form of a 3 m high bas. Working for over ten years as a ice sculpture in the alpine environment of the Rocky Mountains, in places such as Taos and Vail, Linhart had been pushing the outer limits of Ice’s potential as a sculpting material and discovered certain flexibility in the ice. He started sculpturing ice at age 24 hoping to score a free season ski pass in Taos while looking for a place to ski bum. He thus became a self-taught ice carver and had during his years worked for places such as Two Elk Lodge, Cascade Village and Vail Hyatt in the Vail Valley.

While out backpacking in 1997 with his friend Luthier Tony Sutherland, a guitar maker who one night played guitar music at the campfire Tim said he was thinking of building a sculpture of a violin in ice. Tony wondered if it would be able to make any sounds⁴⁸ and from that moment the idea of ice instruments became a life passion for Linhart. He constructed an 8-foot violin, known as octabass with grand piano strings and waited for the first tone of ice. The first not of the instrument sounded as music to his ears but after tightening the string the next sound was a loud pop and the instrument shattered. But Linhart was hooked, coined the word “*Ice Lutherie*” for building music instruments out of ice and decided to build the world first ice orchestra. In winter of 2000 he build an igloo near the Beaver creek ski area summit and at 3500 meters he constructed five instruments, two octabasses, a churchbass and two cellos. In March Tim hired the Colorado Symphony Orchestra to perform an ice music concert in a dug-out snow amphitheatre claimed to be the first of its kind. In 2001 at the “Fiddling While Rome Burns” Ice Music Festival held in Taos Ski Valley, Tim Linhart recorded the 25-track “*Kiss my Ice Music*” with 6-, 10, and 12-string guitars, octabass, two ice cellos and a 10-string Irish bouzouki constructed with Sutherlands help. The concert featured music from Mozart to Hawaii-style and “Ice Cello Blues”⁴⁹.

While learning the art of ice sculpturing Tim learned to mix ice and snow to produce a slush by hand – similar to the technique used in clay sculpture⁵⁰. A considerable skill is needed to construct the hollow instruments sometimes only 1/8 inch (0,3 cm) thick that not explode while playing on them. These instruments have to be played with extreme care and the adjustment of the proper tensions of the strings constitute a critical face of the construction and handling of the instruments. Another critical issue is temperature change which quickly can throw an instrument out of tune. Temperature can be changed both from the musician but also the heat from the audience Two years later in 2003 Tim was invited by the Swedish Polar Research Secretariat to the Arctic Conference and visited the Stockholm Royal Academy of Music to study with Gunilla von Bahr, the renowned flute player, to develop flutes and percussions to his string ensemble. The concerts at the Icehotel at Jukkasjärvi ended with the recording of “*Voice of Ice*”, that integrated Sami joyking and the yodel of reindeer herders with the ice music.



Figure 5. Ice instruments constructed by Linhart at the Icehotel in 2004. Photo: Hans Gelter

After these ice music performances at the Icehotel Linhart developed the idea of building an ice pipe organ. During his time at the Icehotel Linhart met the ice sculpture artist at Birgitta Johansson which he later married. To learn about the construction of pipe organ Tim spent two weeks at Grönlunds Organ Co in Bigitta’s hometown Luleå. Here he builds a fleet of different sized copper pipes. He then packed snow and water onto them icing the pipes and blow warm air through the copper pipes to slip off the ice pipes. The workers at the organ factory where sceptic but when blowing wind through the ice pipes they got enthusiastic. Tim spend then thee month at the Icehotel building a 54-pipe ice organ in an extension area to the Icebar. The construction process attracted much interest among visitors to the Icebar. The construction work was sponsored by the Icehotel and the performance event sponsored by voluntary work by teachers and students from the School of Music in Piteå Under one evening of the 4th April the organ was unveiled before an audience of 450 during two concerts. After that the whole construction melted away back to Torne River.

The concert was produced by Roger Norén at the School of Music in Piteå. The performance on the ice organ was conducted by professor Hans-Ola Ericsson. The program consisted of a mixture of chorus preformed by 26 students from the School of Music in Piteå and ice music where two compositions where special written by Anders Ferm from the Music School in Piteå. The concert theme was produced by an experience production student, Jennie

Lindström which consisted of the interaction between the artic mythology, the artic light and the sounds of ice and music⁵¹.

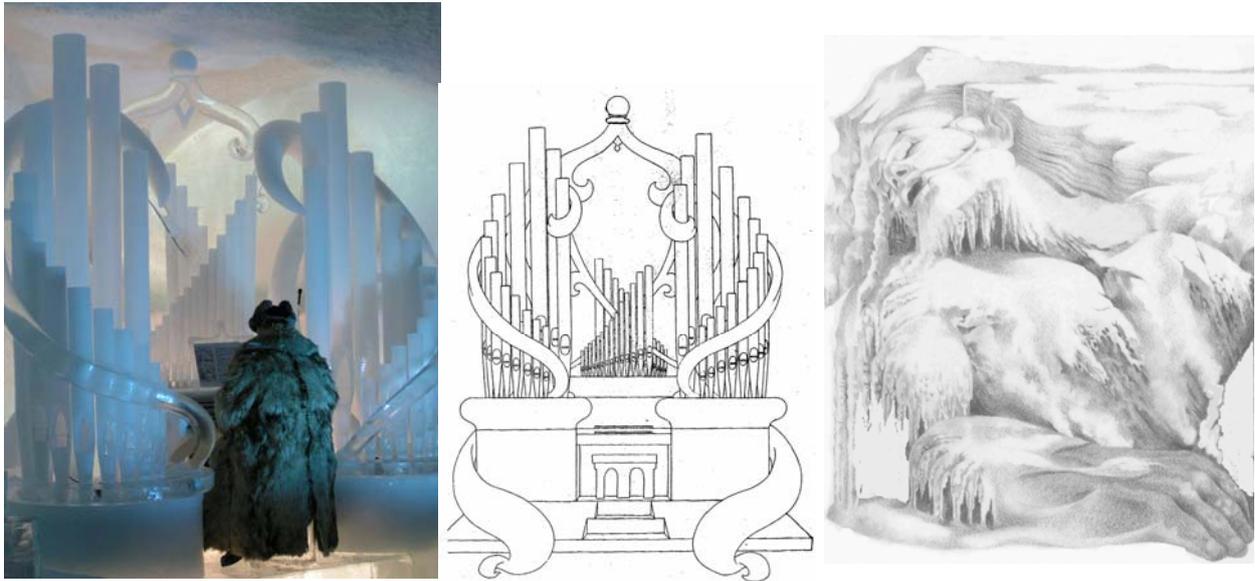


Figure 6. Ice organ constructed by Linhart at the Icehotel in 2004 and the emergence of Ymer as the concert theme. Drawing Tim Linhart (organ) and Jennie Lindström (Ymer). Photo: Hans Gelter

The theme aimed to highlight the cold of the north, the northern light, snow and ice in a mythological perspective. The concert production was based on the thematic story “*The Emergence of Ymer as the ice organ*” and the short story: *The frost giant, Ymer, creator of the Nordic world, once emerged from snow and ice. Tonight, once again – in this northern home of the Aurora Borealis and the north wind, Bore – Ymer re-emerges from the snow and ice in the form of mystical music*. This thematic story determined the dressing of the musicians such as the wolf-clad of the organist, the marketing layout, music composition and lightning of the concert. The special written ice music by Ferm was “*Improvisation on Ymer*”, “*Awaiting Ymer’s re-emergence*”, “*The dance of the Aurora borealis*”, “*Ymer’s re-emergence*” and “*Bore’s dance*”. In addition Hans-Ola Ericsson Played two organ solo “*Improvisation on snow and ice*” and “*Improvisation on the cold*”. This world unique concert was much appreciated by the audiences as well as by all stakeholders and musicians.

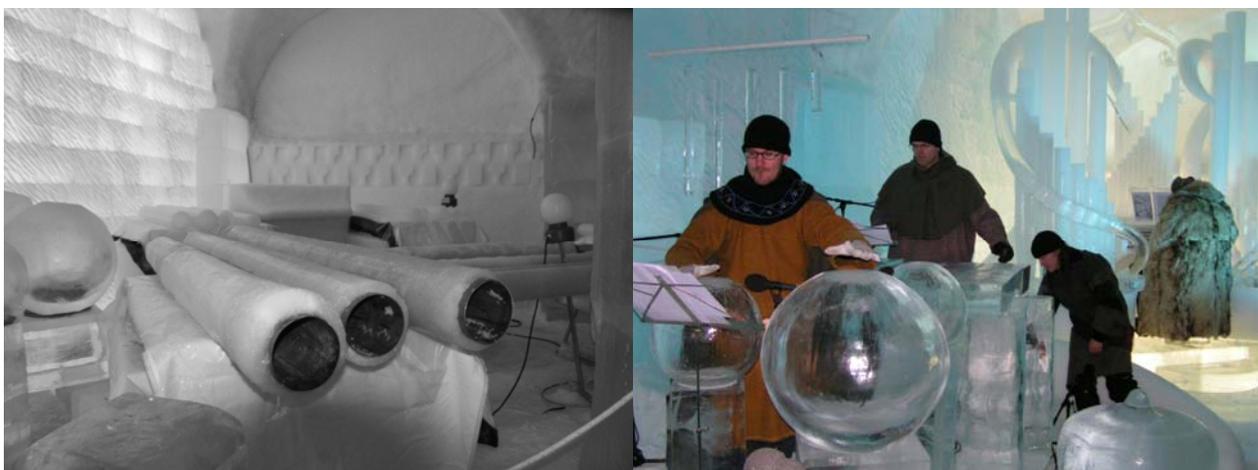


Figure 7. Construction of the ice pipes and musicians at the concert at the Icehotel 2004. Photo: Hans Gelter

During his work with the ice instruments Linhart discovered new possibilities of instruments. When pulling out his arm of a tight ice cylinder he discovered a new sound, and created new instruments he calls the piston drum, bubble drum and unbeating drum. Thus in addition to the ice organ ice instruments consisted of a cello, guitar, flute and percussion. Although the concert was a success the instruments got problems with the temperature change in the Icebar due to the number of people which made the instruments go out of tune. This heat problem made Linhart to design the Ice Dome Concert Hall for performances that would maintain a steady temperature for acoustics reasons. It consisted of a central onion shaped dome with an opening to let the heat out and three ice-igloos for the audience, see figure 8.

This Ice Concert concept was presented at an evaluation meeting between all stakeholders after the concert. After the economic losses with the Ice Globe Theatre Yngve Bergqvist at the Icehotel was not interested of a new expensive “project” at the Icehotel. Therefore Gelter suggested building of an “IceLab” in the form of a larger igloo at the Music School in Piteå to develop and test ice music, ice instruments and train music students for future development of the ice music concept resulting in an Ice Dome Concert Hall as an association to the world’s most northern Music school in Piteå. Gelter presented a vision developed together with Linhart to construct a three igloo dome concert hall on the sea ice outside Pite Havsbad resort which was in the process of developing a “Winter wonderland concept”. The Ice Dome concert Hall could become a world class attraction and Piteå a unique destination based on the border-cross if ice/snow and music with ice music events, and snow and ice decorations on the music theme. This could complement the attractions of the Icehotel in Jukkasjärvi and Snow Castle in Kemi which all three together could attract long distance tourist for an exciting winter experience in the region.



Figure 8. The Ice Dome Concert Hall drawing by Tim Linhart.

Ice Music Ice Dome Concert Hall in Piteå

This suggestion by Gelter⁵² was well received and created interest in local stakeholders in Piteå and a lobbying started both within Luleå University of Technology and the municipality of Piteå. During a meeting in spring of 2004 with the manager of Acusticum the idea of an IceLab as a first step towards an Ice Concert Hall was discussed. The Ice Lab – in the form of a snow igloo filled with instruments created by Tim Linhart would be a perfect experiment setting to learn to play ice instrument, develop new instrument, compose music for ice instruments etc. The enthusiasm among music teachers and music students was however

generally low as “ice music” was probably a too strange concept to adapt. Also Linhart’s expressed his experience with musicians as “*Musicians are some of the toughest to sell on the concept of ice music*”⁵³

This lobbying resulted in a cooperation project⁵⁴ between the school of Music in Piteå and the department of leisure and culture in Piteå Municipality where Per Lenndin coordinated the project. A found of total 105 000 SEK were raised by the stakeholders to hire Linhart to train students and staff at the municipality in ice sculpturing and producing ice instruments and present a first concert at the V.I.P. “Vinter I Piteå” festival 23-27 February 2005. Linhart also gave lectures at the school of Music and contributed in a courses of Experience production where students were o learn ice constructing and ice music experiences. A freezer room was organized to preserve the ice instruments for coming seasons. Together with staff from Piteå Havsbad ice blocks were taken from Piteå River for the ice instruments and 60m³ snow was planed to be used for the igloo construction.

Linhart accepted this offer and negotiated with the Icehotel to hire a balloon to build a snow igloo in the same manner as Icehotel has built their Igloo-village. The Icehotel however, offered Linhart to buy a balloon that was to big for the Igloo-village. Linhart quickly bought this larger balloon of 6 meter diameter and 4.5 meter high and started to build his Ice Concert Hall in the shape of a double igloo in stead if the planed ice-lab igloo. Linhart planed to give full concerts already in 2005 instead of the planed gradual learning and development process. This came to everyone’s surprise and the project had quickly to adapt to this new development. Linhart planed also to bring the balloon to Vail or Beaver Creek after Piteå and return with the Ice Dome Hall to where it all once begun⁵⁵.

The course Linhart was assigned to had quickly to adapt to this new situation and the 12 students at the experience production program started in January of 2005 together with Linhart to built ice instruments and the double igloo of the Ice Dome Concert Hall outside the school of music in Piteå. The double igloo was constructed for 100 persons with the ice instrument in a centre lover ditch and the audience elevated to keep the instruments cold during the concert. Linhart also educated local parks and recreation department staff in snow sculpturing and constructed a large G-clave at Piteå Centrum and a ice mermaid at Piteå Havsbad as a return for the help in harvesting ice blocks from Piteå River.



Figure 8. The igloo-balloon and the double-igloo Ice Dome Concert Hall at the School of Music in Piteå. Photo: Hans Gelter

However, the head of the Music school as well as music teachers and music students never got involved in the preparation for an ice music concert as there was a lack in resources, time, organisation and probably understanding of the innovative qualities of the project. In fact there was no formal organisation of the Ice Dome Concert Hall project. The person from the development office was supportive but had no resources to lead the project. The department of culture and leisure could contribute with manpower and machinery to the project and the teachers from the study program of experience production could due to lack of time and resources only inspire students to take part in the project. As the date for the concert come closer Linhart got more and more and more upset about the slow response of the Music School to supply music students and treated to bring up music students from the Royal Music Academy in Stockholm who where engaged in the first concert for the Queens 60 celebration at the Icehotel. Some day before the concert some students volunteered to play on the instruments and a program for two days with different music styles was planed. Also media students were engaged to record and film the concert on the second day.

At the V.I.P: festival two ice music concerts were planed as part of the Music School Midvinter Festival held yearly at the V.I.P. festival. Both concerts were sold out for 250 persons. The first concert given at Saturday midnight the 26th February 2005 was according to the local press a magic experience with an exited audience. The concerts were kept to 40 minutes not to create too much heat in the igloos. The concert was given by students of the Music school including guest student Carmen Chan, a percussion student from Australia.

At the second concert on Sunday noon Linhart unexpectedly and surprisingly to the audience interrupted the concert which was to be recorded and filmed by students at the music school. His motivation was that the musical quality was to low as the music students had not rehearsed enough on the instruments. This became great news around the world and resulted in a strong reaction from the project owner Per Landin at Piteå municipality which directly fired Linhart and withdraw its resources from the project. Also the dean of the Music School Christer Wiklund broke all formal cooperation with Linhart as he defended the students as just being students and not professional musicians. This was a catastrophe for the promising ice music project. At a crisis meeting with all stakeholders Gelter suggested that in order to rescue all the work and resources that has been put into the project that the experience production student association should take over the Ice Dome Concert Hall and continue to produce ice music concerts. This solution was accepted by both the dean of the School of Music and Piteå Municipality

The students together with Linhart continued by planning six concerts at a mini snow festival called “Snöyran” given at Easter 25-27 March 2005. Professional musicians were invited to play together with music students from the School of Music in Piteå which were still interested in ice music. The concerts were preformed on an ice xylophone, bubble drums, ice cello, the world first ice violin played by Sofia Csakany from Romania, ice guitar, ice trumpets and the experimental organ pipes played by Christina Rödder from Germany. On Good Friday two blues concerts were planed, on Easter evening two concerts with contemporary music blended with folk music and on Easter Day the festival ended with two classical concerts. On Easter Day also a church service was planed and during the days children family activities were planed outside the igloos organised by the students. However, warm weather before the concerts gave troubles with the instruments and during the Easter weekend the outside temperature rose to +10 degrees Celsius. This wet snow condition together with fine weather didn't attract the expected families for outdoor activities at the igloos and also the concerts did not fill the igloo. The first concert attracted only 50 persons

and the following concerts were in the same order. This caused an economical disaster for Student association which got bankrupt as the costs for travel and salary of the professional musicians widely preceded the income from the concerts

Ice Dome Concert Hall at Piteå Havsbad

After this double disaster the IceDome Concert Hall idea should have been dead, but the business development office at Piteå municipality found the concept so unique that the knowledge gained should not be wasted. Instead they contacted Piteå Havsbad where its MD Robert Sjölund saw a great potential to attract international guests to Piteå Havsbad during the winter season as nowhere else in the world such number of ice instruments could be experiences. The Ice Dome Concert Hall could also be a complement to their main winter attraction the Ice breaker that attract over 2000 tourist each year, most international guests from Italy, Spain, Germany and France. Piteå Havsbad also had plans of building a “Winter Wonder Land” at the beach of the Baltic Sea where ice music would fit fine. Sjölund agreed to invest in the project together with destination development resources from Piteå Municipal.

The plan was to start a pilot project to develop the full Ice Dome Concert Hall according to Linhart’s original blueprint with a central high onion shaped dome of 15 meters for the instruments where the onion shape will allow the warm air to leave the dome at the top. Around this onion dome three igloos should give sitting places for the audience. Linhart started to prepare for this project by buying a used warm air balloon and re-sew it as an onion-shape balloon At a preparing meeting between the Piteå municipality, Piteå Havsbad and researchers in snow construction at Luleå University of Technology it was, however, decided that for safety reasons only the three igloos would be constructed in the 2006 project. The three igloos could take 200 guests but at each concert the number was limited to 150 to reduce the heat production as the heat-outlet was not included in this construction. Also each concert was limited to 45 minutes to reduce temperature shift influencing the instruments.

Piteå Havsbad coordinated the pilot project and invested 500 000 SEK and Piteå municipality contributed with 100 000 SEK for the construction of the ice concert hall. The production was not intended to give any revenue this first year but was planed as a test year to learn the building process. By freezing the instruments in freeze room in Öjebyn more instruments could be recovered from the preceding year and be saved for the coming years. Pite Havsbad hired a project leader for the concert production and the construction work began on the beach of the Baltic Sea outside the Piteå Havsbad resort. The construction on the sea ice as the original suggestion by Gelter was decided to be too complicated at this stage.

Eleven professional musicians from Sweden and Switzerland and music students from the school of Music in Piteå were hired to play on the ice instruments. The music program was compiled by Joacim Casagrande. Seven string instruments of guitar, cello, contrabass, violin, and altviolin together with ten flutes, ice xylophone and seven ice drums were used. The instruments were lightened in blue and red led lights to create an exotic experience.



Figure 9 Ice Dome Concert Hall at Piteå Havsbad 2006. Picture by Piteå Havsbad

Six concerts were conducted at an “Ice music festival” at Piteå Havsbad during the 16-19 mars 2006. For the opening concert the 16 mars 2006 120 guests were specially invited and a total of 850 persons visited the ice music concerts in 2006.⁵⁶ The Ice Dome Concert Hall attracted much interest and the Munich symphony orchestra had announced their interest to give a concert in 2006 but had to cancel in a late stage and Linhart had plans to engage *Kraftwerk* who also were interested of the concept.



Figure 10. Inside the Ice Dome Concert Hall at Piteå Havsbad 2006. Picture by Piteå Havsbad

The high construction costs together with uncertain climatic conditions in the future lead to the decision by Piteå Havsbad that they could not by themselves take the full cost of the Ice Dome Concert Hall. During the discussions in the summer of 2006 of the future of the project Linhart went of and looked for sponsors in central Europe for the winter 2006/2007 season. His idea was to build the Ice Dome Concert Hall on a glacier as a year round construction. He managed to get foundlings and financial help from USA for such a project on the top of a glacier in Schalstal in Italy⁵⁷. Here a 2000 meter cableway takes the guests up to the hotel Grawand at 3000 meters elevation. About 500 meters from the cableway station Linhart has build a double-igloo Ice Concert Hall at 3200m elevation on the Val Senales glacier.



Figure 11. Ice Dome Concert Hall at Schnalstal in 2008. Picture extracted from Open PR⁵⁸ and Schalstal.com.⁵⁹

The concert hall is built with a central domed chamber 20 meters high and with side chambers for 160 visitors.⁶⁰ Linhart transported with the help of a freezer trucks the ice instruments constructed in 2005 and 2006 from Piteå to Italy. The Ice Dome Concert Hall opened the 18th February 2007 and has since then regularly given ice music concerts every Sunday and at special Ice Music Festivals⁶¹. This move by Linhart to Italy left the Piteå ice music project to a halt and uncertain future but there are initiatives by Gelter⁶² and others to continue the project.

Conclusions

This report of two innovative snow construction projects that border-cross the traditional cultural context of theatre and music with snow and ice shows the great experiential and touristic potential of such projects. At the same time several problems are associated with such projects. The most obvious that resulted in financial problems both with the Ice Dome Theatre at Jukkasjärvi and the Ice Music Concert Hall in Piteå are the high construction and production costs compared with the relative limited income during a short period available for performances. This problem is accentuated by climate change problems where the winter season even in northern Sweden appear to become more unstable affecting the time available for the return of cost. This has Linhart solved by constructing the Ice Dome Concert Hall at 3200 meters elevation, which however result in other problems such as access and material transport costs as well as high altitude fatigue among workers, musicians and audience.

The projects have however taught us that high quality experiences can be produced based on traditional cultural art in combination with snow and ice. Further research on methods to reduce both construction and production costs and as well as the economical calculations and project management for such projects should be initiated.

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