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Accident report on the avalanche-accident 4th. March 2026 in Trollfjorden, Digermulen, Vesterålen, Norway

Introduction

This report is written by SeilNorge and it is based on information gathered since the incident. Most of the descriptive information was gathered in Svolvær during the days immediately after the avalanche; from the debrief with everyone together, as well as conversations in smaller groups and debriefs with guides and crew only.
The purpose of the report is to be transparent as to what happened. We also try to give answers and discuss how it could happen, and if and how it could have been avoided. We have identified learning points and have introduced new routines and procedures that may contribute to the prevention of such accidents in the future.

In the process of making the report we have asked for assistance, comments and feedback from other relevant and competent people outside our own organisation.

The importance of collective response, support and care

Since the accident our main focus has been on taking care of the participants and the guides and crew involved. Our immediate aim was to keep the group together, debrief well and make it possible to continue the process of getting through this together. As much as we wanted to include everyone involved it was not possible as one of the participants, and later companion, quickly was flown to hospital in Bodø, but they were included to the extent possible with whatsapp-groups and debrief via google-meet.

The group proved to be very strong and caring for each other, participants, crew and guides across, and for this we are very grateful. We are also extremely grateful to their response in the mountain on the day, making this end as an accident we can all learn from instead of a tragic day with loss of life. It is clear that it was the effort of the group to self-rescue that saved the lives of the two that went missing and buried fully under the snow.

Key findings and new routines

In the last part of this report we give our answers to some of the important questions on what happened on the day of the avalanche. We also sum up our key learning points when it comes to the importance of self-rescue, satellite communications and risk-assessment.

In this report we have tried to share everything we know, and any relevant information not included in the report is not excluded by intention. We are also open to feedback and we want to continue to use this accident as an opportunity to learn.

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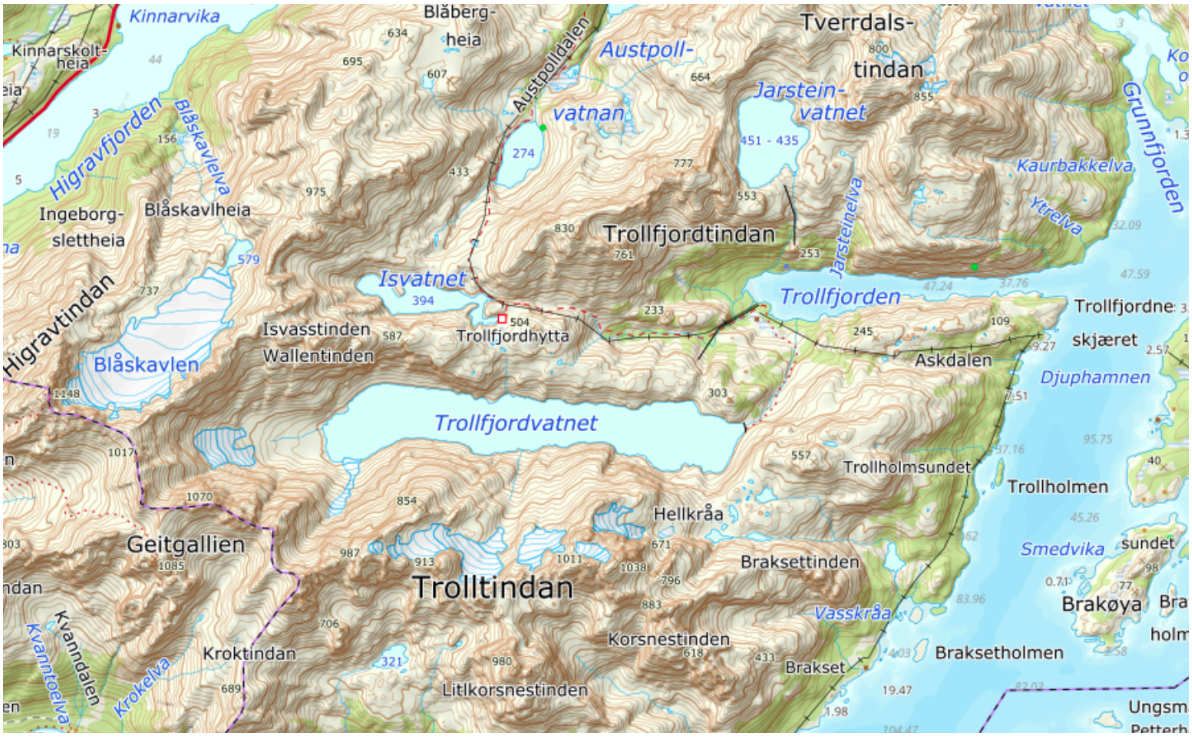
This report is written on behalf of the company by head of operations and CEO, Emil C. Engebrigtsen, who went to Svolvær after the accident and spent time with those involved.

What happened?

- **Time**: 04.03.2026 11:20
- **Position:** https://maps.app.goo.gl/1qbQstsQTzqLf82n8



A group of 13 people in total went ski touring from the sea-level at the end of Trollfjorden, and up in the mountains. On their way from the Trollfjorden lake, up a phase south of the lake, the group was taken by an avalanche coming from their upper right side (south-westerly direction). 12 of the 13 were taken by the avalanche and transported down the slope, some as much as 170 meters. 2 of the skiers were buried fully, but were located and excavated after about 15 minutes. When all people were accounted for, the accident was reported, and the group was after some time airlifted by a rescue helicopter and taken to the nearby town Svolvær. (See more detailed descriptions and timeline below).

The group were participants on a Ski & Sail-trip in Lofoten with the operator SeilNorge, and it was our two boats “Bien” and “Nirvana” that sailed and skied together these days. The group consisted of 2 ski-guides, 10 participants and 1 skipper from one of the boats. 2 crew members

stayed with the boats in Trollfjorden. The participants were from the US, Canada and Australia. The day of the accident was their second day skiing on this trip.

SeilNorge has arranged Ski & Sail-trips in Norway since 2011 and our first trip of this kind was in Lofoten in the same area, and since then we have been here many times, every year. Ski & Sail is a concept where we sail from mountain to mountain and use the sailboat as a mobile base for skiers from all over the world who want an active holiday where we backcountry ski during the day and sail to a new destination in the afternoon.

We arrange these kinds of trips in Lofoten, Lyngen, Finnmark and Svalbard. Up to the day of the accident we've had 1750 participants on Ski & Sail-trips. The trips are 6 days long on average, and each group has roughly the same amount of people. This means that in total we have arranged around 1750 guided randoné-trips This is our first accident of this kind.

For our Ski & Sail trips we contract guides who work freelance for 2 - 8 weeks during the season. We have a clear split of responsibility where our nautical crew is responsible for what's going on at sea, and the guides are responsible for everything happening in the mountains. The guides get paid per planned skiing day, independent on whether we end up skiing all the planned days or not. This is so that the guides do not have incentives to go skiing no matter what conditions. When they go, they do it because they consider it safe and because they want to give our participants and guests the best experience possible and meet their expectations.

We have an established safety-culture in SeilNorge where we train and work hard to avoid accidents, and in the mountains, guides are told to prioritize safety over steep skiing and higher risk. We also require from all participants on our Ski & Sail-trips that they have experience, that they have avalanche safety gear (transceiver, probe, shovel) and know how to use this gear.

The two ski guides contracted for this trip were Jordi Tosas and Alpo Virtanen. They are both very experienced and well trained and have worked with SeilNorge for many seasons. Guide Tosas is the most experienced among all the guides we use. He has extensive local knowledge and experience from Lofoten and the exact area of the accident, and has planned and executed the same trip many times in different conditions. Guide Virtanen had not been to this specific area before.

As the guides have much responsibility and are extremely relevant for this report, we have decided to use the guide's names in the report. It also feels natural and more respectful. If the report was a mere criticism of the guides we would not have included their names, however the purpose of this report is more to show their professionality and trustworthiness than anything else.

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Details about the avalanche

- 12 of 13 people were taken by the avalanche. The first guide, leading the skinning up, was not taken by the avalanche.
- Everyone carried avalanche-gear (shovel, transceiver, probe).
- The guides had VHF radios for communication.
- One of the participants had a tracker, it showed a top speed of 40 km/100 elevation-difference/170 m. distance)
- The rescue was efficient and everyone took initiative, did their best and contributed with different tasks. Most of the members of the group were actively searching using their beacon in search mode.
- 10 skiers were partially buried, but were quickly localized/managed to get out by themselves.
- 2 skiers were buried and had to be searched for using beacons and probes, before they were found and dug out after 15 minutes (approx).
- These two were unconscious when found, but quickly regained consciousness.
- One person was found under 130 cm of snow. The other was found at 140 cm. (approx).
- After the two buried skiers were found and became conscious, the group withdrew from the avalanche area, and went out on the lake. One skier had pains in her foot (ankle) and knee, and needed assistance to get out of the runout zone.
- At the boat the crew received VHF-radio messages from the first guide and could hear something about an avalanche. The messages were not so clear, but the skipper decided to go full throttle out of Trollfjorden to get GMS coverage in order to as soon as possible make a full alarm calling 112. The boat-crew called at 1232, and informed 13 people were missing, asking for immediate assistance, and then the helicopter came after 35 minutes.
- When the rescue helicopter came they took 11 members of the group with them, except the injured skier and one guide. In the second round the helicopter took on board the injured skier, plus the rescueman and the doctor. One guide was not airlifted as he had moved towards the boats to make sure they had received the message about the avalanche, but returned at the time of the second helicopter lift, and then returned to the boats again.

The timeline for the main events (times are approx):

1120: Avalanche hit
1155: Radio call was made to the boat
1205: All were out of the debris-area
1232: Emergency call was made from the ship to the Police.
1307: Helicopter arrived
1311: Rescuman arrived on the lake
1319: Doctor arrived on the lake

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Communication

Both guides had VHFs for communication, but guide Virtanen who skinned up as last person lost his VHF in the avalanche, so it was guide Tosas who sent the mayday-message to the boats over VHF.

The guides did not have satellite phones or InReach with them, although this was recommended in the SeilNorge guide instruction since the GSM coverage in this area is very poor with coverage only at certain spots/peaks. If the guides had satellite communication they could have asked for help quicker and independently of the boats. Satellite communication is now mandatory for our guides, and we come back to this and other learnings towards the end of the report.

The guides' evaluations in advance and on this day up to the time of the avalanche:

This was the third day of the trip, the second day skiing. The guides checked the forecasts many times. Varsom.no said risk level 3 with avalanches possibly class 2. In Norway, as many other places, we use a risk-for-avalanche scale from 1-5 and as well we categorize avalanches from 1-5 depending on their size, volume, force etc. Read more at varsom.no

The guides had used different tools to do their evaluation, varsom.no and weather forecast was part of it. They used the Varsom-forecast for the Wednesday that was online the afternoon before when the boats entered into Trollfjorden and went out of coverage. (We later checked with Varsom and the forecast did not change from the 3 to the 4th April).

The actual day the temperatures were quite warm, above 0 all day, with no significant forecasted difference in temperature between morning and afternoon, and cloudy. This told the guides that the risk would not increase significantly at some stage during the day, as the sun would not warm up significantly. The guides had a flat hierarchy between them, and talked a lot, discussed a lot, questioned each other and both described afterwards that communication as being good.

The group was a relaxed group, not pushing in any way and they took it very nice and slowly. On their approach from the boats to the lake and looking at the phase for ascent the guides did not see any red flags in the terrain, or signs of increasing risk, even though they assessed actively. Some members in the group voiced concern about the conditions, and had questions, and some of these were discussed and replied to, and some of the concerns were not considered relevant by the guides.

When the guides saw the phase for the ascent from the lake they saw an old crown far up the phase, and they understood there had been an avalanche 1-2 days ago where they planned to go up. Therefore they found it safe to skin up the area where the old avalanche had been so tensions in the snowpack were gone. The old crown was over the convexity of this slope where

they had planned to skin up. They also did not see the face as a terrain trap, because it was a widening slope towards the lower/bottom part of the phase towards the lake.

The slope itself was mostly around 25-30 degrees, but in the middle some smaller parts with convexity at around 32-35 degrees, but this area was already purged (previous avalanche). In the middle (2/3s to the left) there was a spine, and they thought this spine would protect against any activity from the right side and upper right side. It was their evaluation that in the case of an avalanche it would come from the right, but not from the left side. Before the last ascent from the lake the guides spent 10-15 minutes discussing and assessing, and both agreed it was safe to continue.

A member of the group was concerned about the new layer (5-6 cm.) of wet snow on top of the hard pack, but as they skinned up on top of the old avalanche and the pack was very hard, with a thin layer of wet snow on top, so they felt safe and also decided that they with this snow-pack would not be able to remotely trigger an avalanche. Just before arriving at the crown of the old avalanche, the avalanche came from the right with an aerosol cloud and much force.

About being two guides and one group, the guides had made the following considerations;

- In general being two guides you have more resources. Things may take more time, but still worth it.
- Especially for the first part it was efficient for the second guide to be one group
- Both guides were comfortable guiding together.

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Screenshot of the avalanche forecast for the day of the accident:

Avalanche warning for region Lofoten og Vesterålen
Wednesday 04.03.2026

Select date

Danger level 3 - Considerable avalanche danger

Published: 2026-03-04 06:44 AM

It may be very easy to trigger avalanches where windslabs are present. Remote triggering may be possible. Avoid all avalanche terrain, including runout zones.

Avalanche problems

Persistent weak layer (slab avalanches)

You can very easily trigger avalanches on some steep slopes. Avalanches can get large enough to bury or even kill you (size 2). Remote triggering is possible.

Buried weak layer of faceted snow above a crust

Wet snow (slab avalanches)

Avalanches may release spontaneously on a few steep slopes. Avalanches can get large enough to bury or even kill you (size 2).

Buried weak layer of faceted snow near the ground

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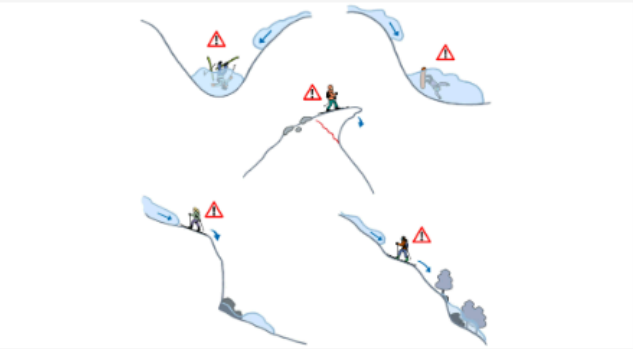
Advice

The bulletin is a planning tool and may differ from the actual situation. Always make your own evaluation. To be 100 % avalanche safe, avoid all avalanche terrain.

Wet surface: Avoid terrain steeper than 30 degrees. Avoid also runout zones.

Dry surface: Avoid terrain steeper than 30 degrees and runout zones. Remote triggering of avalanches is possible.



Avoid terrain traps.

Avalanche risk assessment

I lavlandet svekker regn og mildvær snødekket, og enkelte naturlig utløste skred kan gå ved bakken.

Over mildværgrensen på rundt 400-500 moh har vind og nysnø gitt snøtransport inn i leområder. Det kan være svært lett å løse ut skred der det er fersk fokksnø, da denne kan ligge på svake lag med kantkorn. Fjernutløsning kan være mulig.

Unngå alt skredterreng, inkludert utløpsområder.

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Picture taken before the avalanche

Here you see the guides discussing/evaluating, and the old crown up in the slope

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Picture after the avalanche:
Here you see both the old and the new crown, as well as snow having come off the boulder to the right

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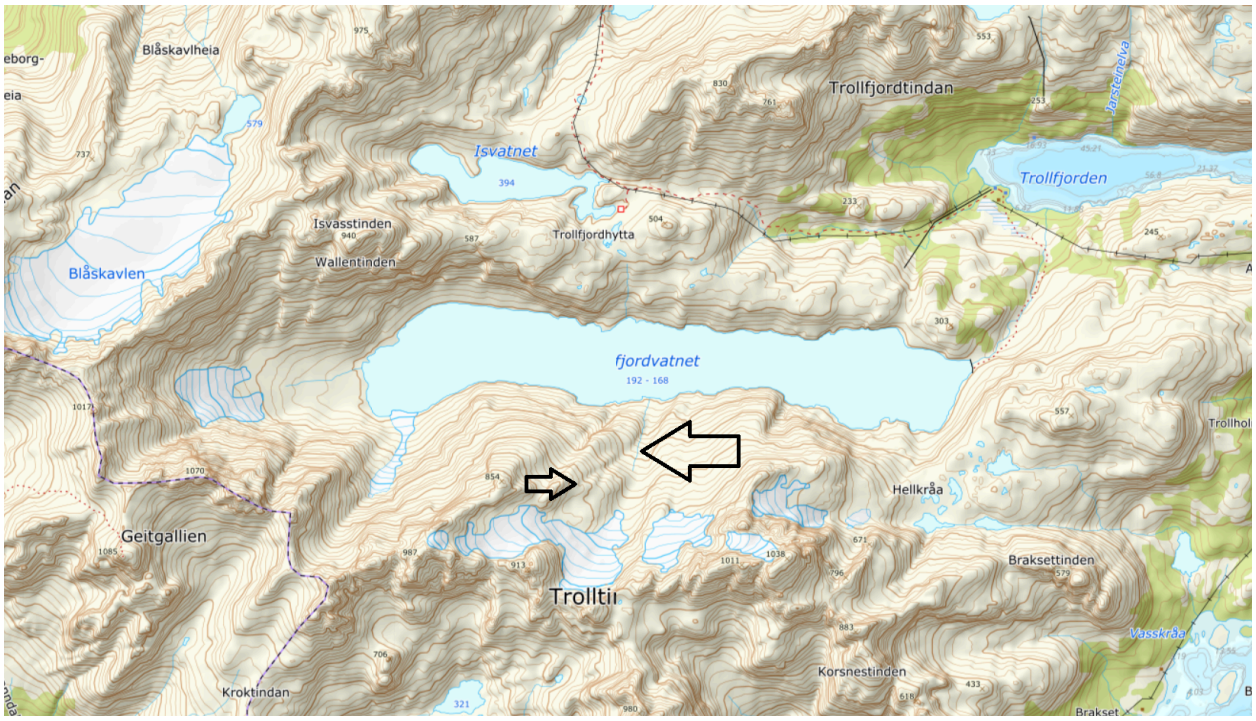
Findings and conclusions about the avalanche itself:

Our findings indicate that this was a naturally released avalanche from around 700 meters altitude. This due to the following:

- The group was skinning up on an old avalanche and the snow pack was hard and without tensions in it. On top of this hard pack was a new wet-layer of snow (5-6 cm). According to the guides it would not be possible to remotely trigger an avalanche from where they were, and we support this understanding.
- When the group was hit by the avalanche it came with much snow, speed and force, telling us it had already been moving from far above.
- The debris snowpack after the avalanche was soft and deep, not hard. When searching in the debris they walked around with snow up to their hips (Guide Virtanen's description). This supports the understanding that the avalanche came from higher altitudes, as the snow around the altitude of the impact was more wet.
- Visually one could see from the lake where the avalanche started high up.

Guide's understanding:

- Width of avalanche at the bottom: about 150 meter
- Height of the snow pack at the bottom of the avalanche was around 2 meters, maybe more
- The speed and size of the avalanche, as well as other factors run through simulation models, indicates a Category 3 avalanche.



Big arrow: where the avalanche hit the group
Small arrow: where the avalanche started from

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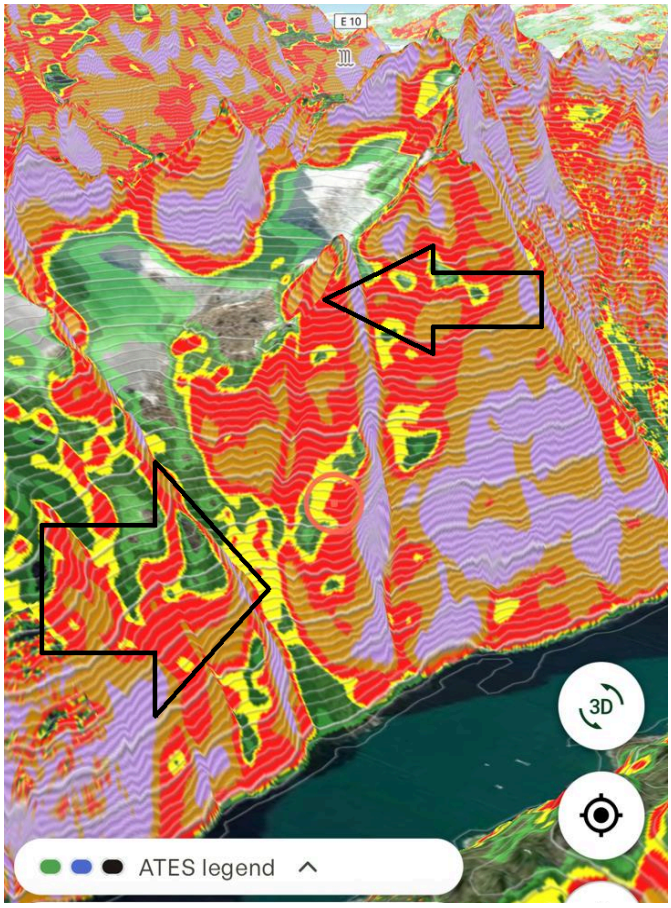

Lower arrow: where the avalanche hit the group first
Upper arrow: where the avalanche started from

An observation by the rescueman (later registered on Varsom) done after the avalanche;

https://regobs.no/registration/454103
In this report it seems the observer (on board the rescue helicopter) thinks the avalanche was released by the skiers, but it is not clear.

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The guides description of the preparations and the incident:

What kind of planning and preparations were done by the guides, between the guides and between guides and participants?

Tosas reports that each guide checked the weather forecast and avalanche forecast (R3/C2). Then did a double check and discussed with the other guide and the participants. Then he proposed a plan to the guests which was; we go up and see if we can ski up to TM7 and then we go to the cabin. If conditions are not good, we go only to the cabin.
Virtanen reports that the guides checked Varsom, Yr, Windy, as well as maps, then the map together. They made a plan and suggested this to the guests. The plan was to go up to TM7 or ski on the glacier, then go to the cabin, and back to the boat. They agreed that being two guides gave them room to adjust or split the group during the day if necessary.

Were the participants requested to comment and be involved? What were the comments or questions by the participants?

- Tosas reports that they talked about the plan altogether the night before and in the morning, and no one protested or had special questions or comments. During the skinning up we discussed some signs of wet snow and some spin drift from the rock walls in punctual places, but I did not receive concerns from the group.
  Virtanan reports that the plan was gone through the evening before, after the skipper and guide meeting. He did not receive any questions and participants also agreed with the plan, without followup questions.

What tools and references were used? varsom.no, Regobs, yr.no, steepness maps, KAST, other apps?

- Tosas used varsom.no, yr.no, Meteoblue, Ates map, Norgeskart
- Virtanen used varsom.no, yr.no, Norgeskart & steepness map, Windy.

Which evaluations and afterwards which conclusions were made around the choice of route this actual day for this actual group?

Tosas:

- On this day we had Risk 3 conditions with concern for Class 2 avalanches, so from the first moment we were evaluating all kinds of signs. We did not observe rolling balls, no loud sounds from far away activity, but some ice falling from rock walls. Regarding the risk of

remote triggering, we did not see it as significant, as we had only 5 cm. of wet snow on a hard pack. In general we did not see signs contradicting the Varsom-forecast.
- When we arrived at the slope over the lake we checked that the main slope had been cleaned by an older avalanche. The crown was in the convexity and did not represent a problem. One side of the slope was sheltered by rock walls. The other was exposed to possible activity. One rib was separating the exposed part from the sheltered part. So, expecting Class2 activity we skinned up protected by the rib and the rock walls. Spreading the group on more than 150 m.+. This according to the R3/C2 Varsom-forecast.
- Based on our evaluations afterward, and also by the input from the rescue team, we think the risk predicted was not accurate. If it had been a forecasted risk for Class 3 avalanche we would not have been there.

Virtanen:
- We evaluated in the morning based on the information gathered from Varsom, Yr & Windy. We talked and discussed as we skinned up, and asked each other if we could see any signs around us for a higher risk. We did not observe signs of danger and the visibility was a bit better than predicted; peaks visible here and there, and we had a visual view of overheads.
- At the slope up from the lake we evaluated the old avalanche and saw that the crown was higher than the steepest section and this avalanche had cleaned the slope. Above it the terrain flattens out more. Left side being steep rock walls and right having more load on it. The slope had spine formation with some visible rocks on it.
- Our conclusion was to follow it (guide on the front and back, guests split between with distance) as snow was firm and as we would have protection from the spine to reduce consequence if some unexpected happens.
- Skill level in the group was ok, two guides increased it.

What is the experience-level of the two guides?

Guide Tosas' experience and certificate level:
34 years working as UIAGM mountain guide and guide instructor, with international experience from Antàrtica to Greenland, Himalaya to Alaska from South America to India and Africa. Has been guiding 6 complete Ski & Sail-seasons with SeilNorge and two more winter-seasons landbased (dec/jan) in arctic Norway (Lofoten, Lyngen, Tromso, Senja, Narvik, Alta and Finnmark).

Guide Virtanen's experience and certificate level:
9 years of guiding experience in Scandinavia, holding Nordiskfriluftsguide-education with Nols WFR and Svelav Pro2 -certificates. Been guiding in north-Norway with SeilNorge since 2021.

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Heuristic traps in ski-touring, relevant for us?

Heuristics are rules of thumb that we use in everyday life to make quick decisions and solve problems, almost subconsciously. Within ski-touring one tool that is often used to identify these heuristic traps is the acronym FACETS. We include it here in the report as it may have some relevance.

F: Familiarity. Things that are more familiar to us feel safer. This trap is often like: This looks like a slope we've skied dozens of times before, with no bad consequences, so it makes us feel safe.
A: Acceptance. This is about the desire to fit in. This trap is often seen in mixed-gender groups. Mixed-gender groups are found to expose themselves to more obvious hazard indicators than single-gender groups.
C: Commitment or consistency. We've come all this way, we can't turn back now. You've committed to friends, you've spent hours, and good money to be here.
E: Expert halo. Someone in your group with high knowledge or expert skiing ability, or simply the confidence they exude can influence the entire group and dampen all other concerns. If there is a perceived expert in the group, other group members might not speak up if they have alternative opinions, thinking that the "expert" must know what they're doing.
T: Tracks/scarcity. The race for first tracks can cloud our judgment. In addition, the thought that the resource (fresh powder) is quite limited and you must go now while the getting is good.
S: Social proof or social facilitation. Previous tracks on a ski slope will give you a false sense of security and therefore does not mean it is safe. Just because other people are in the same zone, does not mean that zone is safe.

In hindsight some of the above factors and traps may have played a part leading up to this accident.

- *Familiarity* by the most experienced guide and *Expert halo* around both guides can have played a role.
- Both *Acceptance* and *Commitment* is of course also important, the participants have come a long way and spend a lot of money to ski in Lofoten these exact days, so we want to show them the best places.
- *Tracks* did probably not play any role here as they were alone in the area. *Socia*l proof did probably not play a role, but a variant of it, the fact that there had just been an avalanche and that the slope thus now was safe, can have played a role.

These above considerations however are very simplified, and the guides also have training in how to avoid and work around these kinds of heuristic traps.

10 weeks later - key questions and our take on them

Since our ski-group ended in an avalanche we did something wrong; the guide's evaluation of the conditions and avalanche risk proved to be incorrect. However this we know in hindsight, and hindsight is always easy. The question is if the guides could have or should have known better in advance. Our conclusion is that they likely could not.

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That the avalanche was naturally released supports this; they were at the wrong place at the wrong time. However it may be that the guides took a higher risk than the group was ready for. And as the guides didn't see indications of this being a risk, they did not discuss this with the group. In the following we give answers to critical questions about what happened, and discuss them.

The police investigation

After the accident the local police opened an investigation into whether or not the products that we are offering and marketing are safe, it is normal procedure.

One of the key elements of their investigation was in regard to the qualifications of the guides. After about 5 weeks they concluded that SeilNorge as operator had everything in place when it comes to necessary routines and qualifications. The police stated that “Among other things the investigation shows that the company used highly qualified guides with experience and knowledge of the local area, and who made evaluations about the avalanche danger”.

The police also said that the evaluation of avalanche risk is complicated and involves various considerations and factors. “Even if an evaluation in hindsight proves to be wrong, it does not entail that it was unwise when it was conducted”. Link to the related article from nrk.no here.

Did the guides take too high a risk?

The short answer is no and yes.
When we ski-tour we need to be aware of the risk of avalanches, and to some extent be ready for it. However some conditions will give us avalanches with more force and danger than other conditions, and thus it is the dangerous avalanches we need to avoid. If we do not want an avalanche at all, we need to avoid all avalanche terrain. On this day the guides did not “avoid all avalanche terrain” and thus accepted some risk, but it turned out that both the risk for avalanches and the risk for bigger avalanches was higher than they thought in advance.

One could perfectly well argue that since all survived, the guides' risk assessments were not completely off. However, one then accepts a very high risk, and a much higher risk than we want to have as a travel company. We have to talk about margins, and the margins we had this day were definitely not big enough for how we want it.

The question then become; how methodological and well were the calculations done in advance? In hindsight things are relatively easy. As our group was taken by a Cat 3 avalanche one can say the guides misjudged the risk. However the key question is if the guides could or should have known this before the event. If they could they would have, so no, probably not.

The next question is: Could they have done more to find out more about the conditions? If yes, what? They could have split the group in two and let half the group wait to see if the first half was taken by an avalanche or not? But if they thought the risk was that high, they would not

have skinned up there at all. They could have sent one guide up all the way up and down to check. It would have been a long wait, and it would also not be safe for the guide. And in the end, as the avalanche was naturally released it could have been fine with one person, and then later the whole group could have been taken by an avalanche just because they were there at the wrong place at the wrong time.

Could the guides have arrived earlier in Svolvær and go around in Trollfjorden some days alone before the guests arrived. Yes, they probably could. Would it have helped them on the day? Hard to say. This shows that they probably could not have done more to find out about the conditions exactly at this place, at least not things that are reasonable to expect.

The Varsom-forecast played a big role for the guide's decision-making. The guides said that they generally are ok with the risk of avalanche Cat. 2, however, if there is a risk for Cat. 3 they are not ok with it. Since the Varsom-forecast said 2, they went skiing. So one way to conclude here is that if Varsom says there is a risk for Cat. 2 avalanches, then that is too close to Cat. 3 so you should not go. (For more on the forecast see below)

Our conclusion anyway is that we need to avoid avalanches in general, not only the bigger ones. The margins we had this day, although they were on our side, were not as big as we wanted them to be for our Ski & Sail-trips. Going forward the guides shall take less risk.

This is however not a change in protocol or something new. It’s SeilNorges culture that we prefer safe skiing before risk of avalanches, and it is also the norm across operators. But the accident is a reminder and makes us more alert.

Did the guides take a higher risk than the participants thought?

Yes and no.

Normally when a group of people does something together it is important that everyone is aware of and “happy” with what the activity entails, what it means, what it can lead to, and what are the potential consequences and risks. In ski-touring this is especially important and this is part of the social factors playing a huge role in the mountains. It is important that every skier in a group is happy with the actual plan, trip and risk-level, and one often stops several times during a day to check-in on the members of a group on these issues.

The fact that one or more of the participants in this group afterwards stated that they were not aware of the risk/felt that they were brought into danger, points in the direction that the guides should have done more to talk about the risks involved this day.

At the same time the guide's inclusion of the participants is a very delicate balance. On the one hand you want to give your group the best possible skiing experience and as well include the others in your thinking and your considerations. But if they spend too much time talking about risks, the group can get afraid and lose momentum, and you may end up not getting to places you really want them to experience, with good snow and good skiing.

A conclusion here is that we all can be better and train more on how we communicate very precisely with regards to what risk we are willing to take for ourselves and people we feel responsible for.

Is risk-taking really what we are talking about here, or is it something else?

Generalized and simplified yes. However it is much more to it. Instead of talking about risk-taking we should understand this with the concept of comfort zone; the guides and people who spend much time in the mountains have a different comfort zone than those who are less so. The guides did not see it as risky both because they are used to this kind of view in general, and this exact place in particular, since they have been there before. This of course is linked to familiarisation above. So in a sense maybe we can say that the guide's expanded comfort zone, due to familiarization and systematic training and adaptation to mountains over a lifetime, in the end may lead to putting the group at risk, opposite of the intention of having a guide in the first place. It is not because the guide takes higher risk, but because the guide is more used to and more comfortable with risk than normal skiers.

If we continue on this we can say that sometimes it is the natural and untrained skier's reaction to a scary view that may be the most accurate understanding. If so, what we can learn from this is the importance of good communication between the guides and the guests, and the importance of questioning each other's understanding; talk about risk, ask questions, and voice each other's concerns when skiing. We all know it is important, but we can do it in an efficient way. Efficient communication is different to talking.

In the debrief after the avalanche some of the group-members regretted they had not voiced the concerns they had before the avalanche, and they felt guilt because of it. The feeling of guilt is itself interesting and something we should be aware of when handling emergencies of this kind, however the important point here is that an accident may be easier to handle for the individual afterwards if we can reduce the "what if I had" questions spinning around afterwards. So one of the guides' tasks is to make it easy for people to talk and vent concerns in an efficient way. As mentioned before, this is not easy.

After the accident one of the participants expressed a feeling of being "dismissed" by the guides, that his/her concerns were not taken seriously. What is our understanding of this?

When it comes to the participant's feeling of being dismissed our understanding is that this has most to do with communication and language barriers between participant and guide. The participant expressed concerns to the guide for avalanche risk based on things seen and observed; some of the points were observations of a previous avalanche, snow-balls rolling from the cliffs and a 4-6 cm. layer of wet snow. The guide did however not agree to those specific observations posing an avalanche risk in themselves. The guide had the impression

that the participant was worried by observations not posing a risk, and tried to say it was not dangerous.

However, that is not to say that the guides were unaware of the avalanche risk that day. Finally the avalanche that took the group came from high above and was naturally released, so the guides proved right dismissing those things the participant had pointed out, but were wrong in regards to their evaluation of the risk of a natural avalanche in this specific area.
It is relevant here to mention that none of the group members voiced being unsafe or a wish to turn around. If someone in the group wants to turn around the procedure is to turn around.

Was this the day one should have chosen not to ski and do something else?

According to Espen Nordahl, writer and journalist based in Lofoten, it was. If you are based in the area and can ski every day and if you have done most of these trips before in good weather, you have time, you've already been there, and it is easier to do something else and pick the best days throughout the season. If you however are a guide whose job is to find a way, even in tricky conditions, or if you have travelled far to ski in Lofoten, it is not so easy to say we don't ski today. Had it been forecasted as a day with risk 4, this would have been easy. But since the forecast said Risk 3 this is a more difficult decision. Again, maybe this was a “Risk 4 day” after all, and that we can say in hindsight.

Was the forecast for this day incorrect?

The Varsom application forecasting avalanche risk is quite general and it is one forecast for a huge area, i.e. Lofoten, and it will thus never be correct for every hillside within this area. The forecast is also meant to be an aid for people in the mountains. The guides are expected to know more than the avalanche forecaster and do their own evaluations and decisions. For a guide a forecast is just one of many factors, while a normal person with less experience will likely base their evaluation to a bigger extent on the forecast.

In the case of an avalanche accident the society, media and police will pay much attention to the forecast for this day, and be skeptical to a group going skiing when the forecast is 3 or higher. This we also experienced. The effect forecasts have on guide’s decision making is a big field in itself, and we can not discuss it more here, however it is clear from our findings that the guides paid quite a lot of attention to the Varsom-forecast and maybe trusted it too much.

The fact that the forecast predicted cat 2 avalanches, and we got a cat 3 avalanche, and that we got an avalanche from south-west while the forecast did not include that compass direction as a risk, and the fact that it was a natural avalanche while the forecast mentioned remotely triggering as possible, points in the direction that for this area, which is only a small area within the big area of Lofoten, the avalanche risk of the day was actually higher than risk level 3.

However these considerations are made in hindsight, and these are ours. Also it is not really relevant, because the guides should always anyway, and normal people too, make their own

decisions and use any forecasts or opinion by others as one of many sources for their decisions and we nor a guide can never blame forecasters for ending in an avalanche. However it is one of the many small things that contribute to the big picture.

Have SailNorge trusted the guides too much?

We do not think so. We use guides because mountains, snow and skiing is their profession. When conditions are difficult they will try to find a(nother) way, and they constantly evaluate and adapt. Skiing with a guide it is not always easy for the average skier to understand how the guide thinks, what they look for etc. Also communication can sometimes be difficult; there may be communication challenges due to language barriers, different cultures and personality differences.

If we stop trusting the guides the split of responsibility may become unclear. Therefore we have no choice, we must trust our guides in the mountains and we must trust our skippers at sea. We can support and train and prepare, but on a day to day basis we have to trust the people who work in the field. They are the ones who are there, and they know best.

Did we choose the right guides for this group?

It will always be an advantage to have much local experience and guide Tosas and Virtanen already had our full trust. We have full trust in all the guides we use, if not we would not have them on the team. If we have a guide for a trip who's not been in the exact area before, we always try to team him/her up with someone who has. On this trip Tosas was the local in the specific area, and Virtanen was new. To have these two perspectives together we saw and still see as a good setup. On this exact trip however it also played a major role that one of the organizers of the participants had specifically asked for Tosas to be their guide.

Would it have been different if the guide was local or Norwegian?

Of all the guides we know of with experience from this area, guide Tosas is the one with the most trips in this exact area over the last 5 years. He is thus the most local guide you can find, although he is not Norwegian and he does not live in Lofoten.

Will we still use the two guides?

Yes. The guides have taken the situation very seriously and it has had a big impact on them personally and professionally. The way they are marked by the event and the way they have worked themselves through it, and still are, have given us renewed thrust in them. Now they know more and are even better guides than before. The same applies for everyone involved in the accident, we all can learn from this if we want and come out of it better and stronger.

SeilNorge

Relevant media-articles in norwegian press:

Immediately after the incident we were contacted by Norwegian media, both local and national press. We have included two of the articles here below.
Link here to the first article on nrk.no some days after the accident.
Link here to the second article on nrk.no.

Going forward, what have we learned, what do we change?

Self rescue is essential
In ski-touring having the capacity within the group to self rescue is what may save your life. We already knew this, but this was a reminder for everyone! In our guide-instructions it has always been obligatory to do a SAR-excercise at the beginning of every trip. Sometimes it has not been done, for different reasons. Going forward we will pay more attention to training and excersizing self rescue.

Satellite communication
The guides did not have satellite phones or InReach with them, although this was recommended in our guide instructions. If they've had satellite communication they could have asked for help quicker and independently of the boats.

Having a satellite phone or InReach does not prevent avalanches, and it is another thing that may make you feel more safe in the mountain which in turn can influence how much risk you take. However if the group had not managed self rescue as they did, having satellite communication in order to get help faster, would possibly and probably have saved lives. Therefore it is now mandatory for all guides to have Satellite communication, also the boats.

Guide evaluations and risk-assessments
At sea we use checklists, and now we have started to use checklists also for the guides, as well as an obligatory morning and afternoon report to be filled out. This can possibly contribute to more thoroughness around evaluations, decision making, as well as more awareness in the office of what is going at the operational level, group by group.

However checklists and forms are made to support the guides, not to control them. And we do not want guides to spend too much time doing paperworks. The guides will still be 100% responsible for what happens on land, and that is important. It will be the same for a skipper; a skipper can never blame a bad checklist for going on the wrong side of a navigation mark and everything on board will always be her full responsibility anyway.

Handling an accident demands all hands on deck
After an accident people directly involved need a lot of follow up. They need to feel taken care of and they need to feel safe, and it takes all you have of available resources. From previous

incidents we have learned that staying together as a group is important, and we are happy we managed that this time also, although unfortunately we had one injured person with company at the hospital in Bodø not being able to be part of the follow up in Svolvær.

It was also important for us to arrange a debrief as soon as possible and to be able to talk and share whatever for everyone involved. In these circumstances we have the rule that everything is allowed to say. This was important and worked well, although it was tiring for the involved as they re-live the accident itself and that is the point.

A learning point for us who are sailors is that even though we have the boat as *our* safe spot, it's not like that for all. We thought the best would be for the involved participants to return to the boats to stay on board to recover. For them however land was their safe spot, so after a day we got the group on land in hotel rooms and it helped them.

Another learning was that those who had been under the snow and been missing seemed to handle the situation best psychologically, while for the others who had been under a lot of stress to find and save these two, it was more difficult afterwards. It is in a sense counter-intuitive, and therefore interesting.

At the time and place of this accident we were fortunate to have quite a lot of crew available who turned around and helped out in the situation, and as we were in Svolvær there were facilities available for meetings, debrief, food etc. If the accident had happened in a more remote place with only one boat and little crew available, our ability to support the involved would have been different while the need would probably still have been the same.

We must be prepared and accept the risk

Our trip is about getting out in nature in many different ways during the year, and there are risks involved. Everyone involved in the activities we are dealing with, at all levels from booking managers, sales and marketing crew, to CEO and boardmembers, need to know the risk involved in what we are doing, and try to be prepared for it. Especially, the participants, the crew and the guides need to be aware, be prepared and talk about it thoroughly. Going forward we will make sure there is more talking within groups not only about conditions and plans, but also about expectations and risk, both willingness and acceptance.

Skitouring in Norway is increasingly popular, and there will be more avalanches in the mountains, also climate change may also make risk evaluation more complicated. We must do our very best to prevent fatal accidents from occurring, but at the same time we need to be prepared for it and we need to accept that there is a risk.

Learning from each other’s mistakes

In SeilNorge we use a lot of time to debrief and analyse all kinds of failures and mistakes, as we see these as valuable opportunities to learn. When someone makes a mistake and shares it with the rest of the team, we highly reduce the chances that it happens again. It also makes us

more awake and alert, and reminds us about risk. As a small team we can learn from each other's mistakes, and as a community of skiers worldwide we can also learn from each other.

Thank you again to everyone who has contributed, and thank you to all who were directly involved; you have been amazing.

On behalf of SeilNorge
Emil C. Engebrigtsen
CEO