

OBSERVING SKI TOURING AND DECISION MAKING IN THE ALPS  
WHAT ORDINARY PEOPLE DO or NOT DO, AND WHY?

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**Abstract:** Recreational avalanche accident prevention seems to be based on a universal understanding of snow and avalanche science. This has led to an impressive diversity of planning and decision-making tools the past decades. Today there is an emerging understanding that these rational tools are not being used among ordinary people as intended. In this work we ask if cultural bias and tradition override the rational decision-making within recreational backcountry skiing. Different national ski and mountaineering heritages might give the universal white snow colours we haven't mapped within avalanche risk acceptance and management. Since we import and export avalanche accidents to each other, we hope this issue is of interest domestic and internationally, expanding our perspectives within the well-known heuristic traps. In this preliminary work – based on case studies in the French, Swiss and Austrian Alps 2016 - we have observed how ordinary people tour. Observing another culture and tradition, as an outsider should give insights locals can't see often blinded and restrained by their own habits. Our findings show that even avalanche educated people with their traditional approach to the mountains - are often unknowingly static and rigid - despite entering a dynamic environment. As an example, we observed people choose a particular route based on the avalanche danger score, without further communication or considerations. Therefore a true understanding of "What people really do – or not do – and why", should be an upcoming focus area to better understand the irrational minds we are targeting.

**KEYWORDS:** Ski Touring, Decision Making, Risk Cultures, Tradition, Qualitative methods, Avalanche education

## 1. INTRODUCTION

Despite all efforts within the ski and avalanche communities, there is a prevailing amount of avalanche accidents within recreational ski touring. We have an all time high of accessible facts and rational decision making tools. Our contribution seeks a qualitative approach in the quest of reducing avalanche fatalities.

## 2. BACKGROUND

Qualitative research is hard to get to within recreational skiing/touring with focus on cross cultural background issues as an explanation for irrational behavior and avalanche accidents.

This perspective has been a crucial issue organizing the full season International Ski & Avalanche course and Ski & Avalanche Workshops ([skiogskred.no](http://skiogskred.no)) in Norway, Switzerland and France the past 15 years.

This cross-cultural exercise triggered questions asking why people perform so differently with universal tools. Asking informally people through the years, revealed a pattern concerning trust in guiding heritage. Limited by the following options, skiing on an exposed mountain, the Swiss guide was usually preferred, then Austrian, German, French, Italian and finally Russian. This order and the reasoning why, increased our curiosity to get a better understanding of risk assessment and decision-making in avalanche terrain within different mountaineering heritages.

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## 2.1 Cultural bias and tradition

Atkins (2000) points at Aviation as one of several industries with relevance within human errors. A several hundred year old culturally based hierarchy, was revealed as a main human error issue among Korean Airline pilots. This lack of a dual pilot relationship resulted in several plane crashes until 1999 (Kirk 2002). The Korean culture of not opposing authorities and the consequently miscommunication, proved fatal during critical decision making in the cockpit. There was no culture for an open - minded relationship.

Lane Wallace (2012) points out the latter within Alpinism and the guiding heritage Europe has in comparison to the United States. She wrote the article "Why is Mont Blanc One of the World's Deadliest Mountains? (Atlantic Magazine). Her article is based on her personal experiences attempting Mont Blanc with local guides. She uses reference opinions from American Climbing instructors Ed Crothers and Adien Loehr. Crothers comments "Europe takes a really different approach to risk and death in the mountains than we do here. Europeans are far less risk - averse ... But its not just that higher risks are more tolerated in Europe. Europeans have a different approach to climbing itself ... a result, he believes, of a long history of guided climbing in the Alpine climbing culture". Adian Loehr says "Guiding isn't the problem. It's the approach to guiding there that's the problem. So its just a different dynamic. In Europe, the guides are more likely to teach you enough for you to follow them, not enough for you to really develop a skill or understanding of the risks and how to manage them".

## 2.2 Rational decision-making within ski touring

Rational decision-making refers to planning, using the avalanche warning, weather forecast, reduction methods, planning tools and check lists. The past decades the professional and global avalanche communities have developed many options for domestic and international skiers (e.g., Brattlien, 2008; Daffern, 1992; Ferguson & La Chapelle, 2003; Fredston & Fesler, 1994; Jamieson, 1997; Krontahler & Zencke 2006; Landrø, 2007; McClung & Schaerer, 1993; Munter, 2003; Tremper, 2008).

Some of these tools are proven to be efficient in the aftermath of accidents - if being used under those circumstances (McCammon, I. & Haegeli, P. 2005, Langeland, Skjølsta & Øvrebotten 2011). Despite this, there is an emerging understanding

that rational planning tools are not being used among ordinary people as intended (Zweifel & Haegerli, 2014). Avalanche education has also been questioned, since it seems to increase your chances of getting avalanched (McCammon 2000 and Tase 2004).

We will look into cultural background issues through McCammon's (2002) recognized six heuristic traps influencing rational decision making in avalanche terrain: Familiarity, Consistency, Acceptance, The Expert Halo, Social Facilitation, and Scarcity. It would be interesting if we could find out which of the heuristics traps that dominate a heritage, survive and are therefore passed on within European skitouring and mountaineering cultures. It is hard to find cultural perspectives in existing avalanche handbooks.

## 3. METHODS

Looking into human factors in avalanche accidents, Dale Atkins (2000) pointed out that "we need a better understanding of the dynamics of human errors and how they lead to accidents". Zweifel's more recent work together with Techel (2012) - using avalanche accident reports and surveys - and Haeggeli (2012) underlined this same need for new approaches through qualitative methods to reveal more within the decision making processes. "When we see that decision making in avalanche terrain is very complex, it is hard to gain detailed enough data from online studies. Probably qualitative methods from social science can give better results in the future"(Zweifel 2012).

Our objective is therefore to respond to this and take the qualitative approach one step further by pursuing the following research questions:

- What people really do ski touring in avalanche terrain?
- What people don't do?
- and why?

To answer these questions we prefer an ethnographic approach where the eventual "interview look and feel little different than an everyday conversation" (Hoey 2014). Through participant - observation we wish to observe what people do, trying to understand "why". Questions are not fixed in advance. We want to stay open minded ready for anything within mutual safety margins. As observers, our level of participation is difficult to plan because of varying circumstances and unforeseen safety issues. Referring to Spradleys book on *Participant Observation*, Hesjedal (2016) points out, being totally unknown

to the situation is accordingly the best approach to get new insights. This isn't possible in our case, but as Norwegian observers we are cultural outsiders with a different heritage. To be in the midst of it, we have to blend in as clever enough skiers with analytical skills. Presenting our research, we have no special focus on decision making since this easily gets people on the alert mode experienced by Hesjedal (2016). Making notes, filming or audiotaping when ski touring seemed too impractical, in addition to the risk of jeopardizing participant behavior.

In general, representative goals are impossible and our results cannot be repeated for reliability. It is time-consuming in relation to the amount of data. Our presence may change the behavior of the observed. There are possible ethical issues lacking consent. Being deprived from asking questions because of the risk of ruining the ongoing decision making process is obvious. It is also a risky fieldwork. We have to know when to pull out on own or participants behalf.

Despite this, we believe this type of qualitative approach gives us insights hard to obtain otherwise. Hesjedal (2016) emphasizes the need to observe the uncertainty during the decision-making, since anyone can be an expert before or back home. What people don't do consciously or not might only be possible to see as an observer. Zweifel (2012) experienced this challenge since participants have a hard time remembering and sorting out what really happen when interviewed afterward. Our experience working with students and participants during ski and avalanche workshops and courses confirms this. Debriefs seldom get to the crucial issues without an outsiders observations.

Our fieldwork is validated by personnel independent of our research project and by qualified colleagues.

## 4. FINDINGS and DISCUSSION

### 4.1 Case 1 France

Our first case implied ski touring in the French Alps. Low visibility, snowfall, wind and persistent weak layers, resulted in avalanche danger level 4 around and above tree line. There had been several fatal avalanche accidents in the region earlier that week. A group of 15 senior skiers organized by the French Alpine Club where off to a cabin demanding a traverse exposing them in

avalanche starting zones. The French Mountain Guide in our group tried to warn them determined to stick to their program despite the conditions. In this case, with conditions demanding a conservative approach, they didn't express any flexibility. According to a recognized approach like Werner Munter's 3 x 3 (Munter 2003), you would normally reconsider your initial planning. Our guide commented that he often experienced the French Alpine Club tours having a static approach because of their guiding heritage. "You have a program with a defined goal and expectations to fulfill - despite conditions. It's typical French".

These possible underlying cultural issues support the agenda pointed out by Wallace (2012) attempting Mt. Blanc. They also pinpoint the consistency heuristic as a possible heritage issue.

### 4.2 Case 2 France

Our second case is a ski tour in a remote area/national park in the French Alps. The avalanche danger was lowered to moderate (2) despite disagreements from local experts, after a level 4 and 3 period resulting in fatal accidents in the region. Deep persistent weak layers were presumably still intact because of prevailing cold temperatures. We followed previous ski tracks identical to the route on the touring map. The tracks were exposed. Especially passing a severe terrain trap the weak persistent layering was obvious. In open terrain we observed old and new tracks. One group of 3-5 skiers descended exposed northeast terrain similar to where several large slab avalanches had released the previous days.

Interesting this day, was the route selection made when the avalanche danger was higher. All tracks followed marked route suggestions, despite safer options. This might express an underestimated dangerous familiarity heuristic in the Alps, trusting the route heritage, guidebooks and touring maps more than universal dynamic planning tools. According to rational planning tools, more terrain would be accessible that day without exposing your self in the manor revealed. Taking into account the level 2 avalanche danger with a persistent weak layer level situation, this responds to Harvey's (2002) findings that "experienced" skiers encountering avalanche accidents (2002) during lower avalanche danger. Unfortunately, we do not know the experience level of those making these tracks, but they reveal that people stick to a route heritage/tradition despite conditions.

#### 4.3 Case 3 France

This took place during a Ski and Avalanche Workshop in France including participants from Norway, Sweden, Switzerland, England and France. During one of the tours attended, the self pronounced tour leader ended up in a dead end situation. Limitations piled up to the point where it wasn't possible to continue according to the plan. Twisting the situation into seeing the possibilities, resulted into a more flexible approach "shopping" for the safest skiable snow.

Many of the French participants expressed a need for a defined goal including a peak or a pass during the planning sessions. They were introduced to the "shopping" concept where you roughly plan according to conditions, enter the area without fixed ideas or tracks, searching for the best and safest snow ending up on a summit or pass as a bonus. This will normally mean that you can't present a detailed plan the day before, since it will make your approach static, restrain your options, your attitude and perhaps make the skiing worse with less safe options. The "shopping" concept worked in this case as an eye opening contrast to the French participants since lacking of flexibility resulted in lower skiing quality compared to those "shopping". They concluded themselves that they had grown up in a heritage where consistency seemed to be a dominant issue.

#### 4.4 Case 4 Switzerland

We attended groups organized by the Swiss Alpine Club (SAC). The first tour was part of the local SAC program. The visibility was poor and the groups entered conservative terrain with a danger level 3/4 according to the official avalanche warning from the SLF. The noticeable persistent weak layer over approx. 2100 m resulted in wide spread collapse with a remote release size 2/3 slab avalanche. Without visibility, this uphill slope was initially dismissed as a concern by the local tour leader. The goal for the tour/day was for smaller groups of 5-6 to orientate to meeting points ending up at a pass. The participants didn't express the significance of the weak layers, alarm signals or the importance of altitude and snowpack history. The descending skills as a group didn't qualify for any avalanche terrain.

It was difficult to get hold of discussions taking place in the different groups. It seemed like the group as a whole was affected by the familiarity

trap and expert halo. Luckily the area chosen was well known and had the necessary buffer in relation to the remotely triggered avalanche despite significant micro terrain features. The participants were very focused on the orientation. It seemed that they trusted the overall avalanche assessment performed by the responsible SAC tour leader without critical remarks.

#### 4.5 Case 5 Switzerland

Still in the Swiss Alps, this tour was planned the evening before with SAC participants. Two suggestions included ascending a peak along ridges above tree line. The shallow snowpack and persistent weak layering prevailed. The local mountain guide responsible dismissed one of the tours because of too long exposure to forecasted wind, complex terrain, low visibility, wind drift and avalanche danger level 4. A local guide within the SAC said the alternative tour was ok in relation to wind, pointing at an automatic meteorological station in the area with a low wind score that evening. We were 11 participants - including observer - starting from the village. It was snowing and the route through the forest followed an old avalanche path. Asking, we were reassured it was skiable because of grazing. Previous starting zones were secured with avalanche fencing. One of the previous tour leaders joined us. No one initiated a beacon check. The snow crystals falling displayed proof of strong winds higher up. There was no stop to review the situation as a group. Entering obvious avalanche starting terrain, there were no precautions like spacing out, until the lead party encountered a collapse on the steeper section of an exposed tree line ridge. The wind increased noticeably at tree line and the wind drifts into the starting zones and the supportive snow fences was significant. After pushing head wind 100 meters, with increasing snowdrifts, avalanche danger, low visibility, minus 15 C and an unknown large group, the local senior group leader agreed that it was best to abort. But he reassured me, that he knew the area so well, that he easily could have done the tour under the prevailing conditions. Regrouped, the descent followed the younger local guide more eager for powder skiing. The ascending senior guide, using narrow skis, made him tail guide. There was no obvious guiding in the avalanche starting zone. We followed the "safe" avalanche path we used ascending down to the village.

Safely down to the after ski café, there was no initiative for debrief from anyone. Everyone was

stoked by the powder skiing. I asked for debrief, hoping to secure facts and discover new issues. There were still no comments from anyone in the group if it might have been a bad idea to expose the group for the circumstances, or the need to reconsider earlier. One of the female participants told me face to face, that she felt insecure during the ascent entering the exposed ridge just before the wump. I asked her why she didn't speak out loud. She didn't want to make a fool of herself. The weather we met above tree line still seemed to be a big surprise for the whole group. The high and increasing avalanche danger was never a topic - until the collapse and obvious snowdrift.

These findings reveal a possible static approach with obvious high avalanche danger. The tour was not questioned by the participants planning. Despite attempts from the local mountain guide and the observer, to stimulate for safer and more dynamic plans, they still planned for exposed summits. It seems like they follow their leader no matter what, with little or no discussion. Their knowledge of general and local weather conditions were surprisingly low or suppressed. Also here it seems like they mostly plan according to the guidebook, touring map or expert local knowledge, not taking too much else into consideration. In this case it seemed to be a blend of familiarity, consistency, expert halo and social facilitation rooted in a tradition dominated by men, respected by the participants to the extent - that it has similarities to the Korean airline issue.

#### 4.6 Case 6 Austria

We are in Western Austria. This day in February was according to people we met, the first blue bird touring day. Earlier the snowpack was too thin or nothing below 2000 meters. We chose our mountain randomly on a touring map. Our main focus was to observe non-organized groups or individuals and see what they do. Our approach to informants was based on random conversations and ongoing observations skinning and skiing along the traditional route.

The Avalanche danger in our region was 1 below and 2 over 2000 meters because of the old snow problem. We couldn't exclude it in north facing bowls at lower altitude since our peak exceeded 2000 meters. Parking issues revealed a popular touring mountain. Just above tree line the track was exposed to avalanche starting and runoff zones, not mentioned by any we spoke to that day. We spoke first with a Germany couple that had been there previously with a Mountain guide.

Without map or other preparations they wanted to copy the same tour. Further up I spoke with three elderly men. One seemed very experienced and spoke fluent English. Without asking, he gave us advice for our descent emphasizing that the traditional descending route didn't have to exceed 30 degrees. The bowl below the summit revealed serious north faced avalanche terrain. Meeting him again he said "So - safe or not safe - depends on your destiny". We observed exposed tracks on a neighboring peak - at a slightly higher elevation. There was a natural triggered size 2 or 3 slab avalanche on another mountain with the same exposure as we were to ski.

There were no old tracks in the steeper part of the bowl because of the poor snow cover earlier. The mountain was clearly not known for freeriding. "Just an old people touring place", mentioned by the younger German couple.

We met a large Swiss group with two guides (12 total) on the summit. A client seemed avalanche educated asking about use of reduction methods in Norway? Otherwise, no mention of any planning tools or checklists during the day from anyone we met. We entered the bowl on a ridge. The Swiss group entered the 40 degree steep bowl below and above us. The whole group was soon exposed. One of the guides entered below us and asked if we wanted to ski. We declined since there were so many on the slope. The avalanche danger was 1 for that altitude and we didn't encounter instability skinning up on the old tracks. Our first untouched snow would be in the bowl.

So what did people actually do? All the groups used the old tracks skinning up. Old tracks will normally deprive you from instability information ascending and especially if possible level 2 persistent week layers (Michaelsen 2012). This day we couldn't see any ascending groups leaving the tracks searching for instability information. Instability was only a notion mentioned by the elderly man as a curiosity, more than a real consideration.

Descending, all of the groups searched for untracked or partly tracked snow and therefore untested snow cover. No groups attempted pre-cautious routines when exposing themselves for avalanche prone terrain up or down. It seemed like all the heuristics prevailed this day making the descending situation a questionable issue. Everyone in the area - especially the large Swiss group - deviated from the mentioned professional

standard based on precaution in case of misjudgments. In this case there was a potential of 12-15 people getting caught in one avalanche if the bowl released its potential. According to a Austrian Mountain Guide, the Austrian Alpine Club and Mountain Guides have the same routines in similar situations. In terrain steeper than 35 degrees, regardless of avalanche danger score, you ski one at a time to increase the margins and reduce the consequences. It's hard to believe that rational planning tools flourished that day.

#### 4.7 Case 7 Austria

Case seven was a ski tour guided by a local touring enthusiast in the Austrian Alps. We defined one main observer in our group and our guide knew about our research agenda. She had extensive local knowledge, but we didn't clarify her avalanche assessment skills or discuss any human factor issues within the group.

We planed the trip the evening before based on the avalanche forecast and a touring map. A storm would arrive from the West after noon. The avalanche danger was low 1 reaching a level 2 over 2200 meters. An early start meant the first gondola where we met a lot of skiers. There was no focus on the avalanche situation with slab formation over 2200 meter or any precautions. We entered the backyard of the mountain range dropping into a shoot, told that it was tracked up enough. We skied and skinned up to ridges being exposed to avalanche terrain the whole day. We were instructed to space out on a terrain trap traverse where our guide had never noted avalanches. Without interfering the guiding, we spaced out where we felt it reasonable. The weather made speed an issue entering the last pass when the front engulfed the mountain. Increasing snowdrift increased the relevant avalanche problems and our guide understood the unfavorable development. The day after the same area we toured had a danger level 4 over 2200 meter and 3 below.

It seemed like the ski tour was based on a silent agreement based on the avalanche danger score. There was no communication initiative from our guide or collective reconsideration based on the information we obtained. Expert halo issues combined with consistency (time issue) and familiarity gave the impression that it was a mere "walk in the park". There was no exchange of rescue information "in case". Perhaps our guide, knowing about our agenda and presumed skills,

never needed to discuss standard precautions since we were presumed "experts" in the field. This led us into a expert halo situation often referred to after accidents, since "everyone thought the other ..." and "... didn't want to make a fool of my self". It's easy to suppress that even "experts" are humans potentially making wrong assessments similar to aviation accidents. This situation gets more crucial the lower the avalanche danger gets, underlining the risk of using your knowledge and experience to push the limits or forget the obvious (Harvey 2002, Zweifel 2012).

## 5. CONCLUSIONS and IMPLICATIONS

### 5.1 So, what do people do?

Heuristic traps flourished in our cases with an emphasis on consistency, expert halo and familiarity related to guiding, guidebooks, touring maps and old tracks. People follow tracks and tend to have fixed predefined traditional goals like summits and passes. Our observations are confirmed by Mountain Guides from France, Switzerland and Austria telling us that ordinary people ski tour the traditional routes despite conditions.

### 5.2 Not do?

People seem to be aware of the avalanche danger level score. But, similar to what Zweifel (2012) experienced during his decision making study, we have no obvious evidence of planning tools being used systematically in relation to avalanche problems, taking NO precautions accordingly.

### 5.3 Why?

There seems to be a heritage entering the dynamic mountainous environment with a static approach based on traditional goals, routes and leadership. We encountered low flexibility, lack of transparent leadership and unconscious or suppressed participant involvement.

The same heritage was confirmed by mountain guides as a plausible reason why European Alpine Clubs experience so many avalanche incidents, underlining Wallace's (2012) crucial issue asking why Mont Blanc is one of the words deadliest Mountains.

#### 5.4 Experiences – method

We obtained a vast specter of ordinary ski touring people through our cases. All though our numbers are small we covered a broad specter of ski touring recreationalists, unorganized and organized through e.g. Alpine Clubs. Similar to Hesjedal (2016) experience, participating with the skiers she was observing, it was surprising how little we seemed to interfere ongoing decision - making and human factor issues. We encountered ethical issues concerning consent when ending up in situations we couldn't foresee. Being some of the most rewarding observations, they emphasizing the need of experience and hands on skills focused on own safety and the others involved.

We didn't emphasize obtaining background information during our fieldwork. Hopefully new avalanche incident reports similar to what is developed by the Norwegian Avalanche Centre (varsom.no), seeking more qualitative information, can contribute in that sense.

#### 5.5 Implications for education

Having a fixed plan A and B, or even C, doesn't necessarily mean you're being dynamic in your approach to nature. Approaching the mountains more open minded, searching for possibilities based on a dynamic continuous information flow, might make it safer.

The "shopping" concept presented in case 3, proved beneficial and functioned as a contrast to habits and heuristics based on a heritage that might need revitalization. A possible critic to this approach is that it's too demanding for ordinary people compared to the tools and decision aid developed. But, since ordinary people don't appear to use the rational decision-making tools, what is there to loose? To change habits you might need to redefine the avalanche educational programs. The short courses and quick fix tools into avalanche terrain are questioned. A more long term apprentice and craftsmanship approach based on transparent guiding learning by doing, might change attitudes and eventually a touring culture. This will demand more time for discussions, sharing experience, observations and reconsidering options fluently. A possible frustrating approach for those used to fixed plans, fast tracks and traditional goals.

#### 5.6 Culture and heritage - future research?

Focusing on breaking up traditional gender issues could make a major impact on accident rates. Based on the prevailing male dominance within making mistakes and avalanche accidents (Zweifel 2012), we're confident that further research here could be of significant value within decision – making.

This paper points out that tradition biased with revealed heuristics, seems deeply rooted within ski touring in European mountaineering heritage. What about the USA and Canada? Would the mentioned heritage difference between USA and the Alps make Mt. Blanc a safer mountain? (Wallace 2012) USA still has their toll of avalanche accidents. Digging deeper in to why, through cross - cultural research "why things are the way they are" (Ilesanmi 2009) seeking international and domestic perspectives, might benefit strategies in future avalanche education and accident prevention.

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#### REFERENCES

- Atkins, D. 2000. Human factors in avalanche accidents. Colorado Avalanche Information Center
- Brattlien, K. 2014. Den lille Snøskred Boka. (2<sup>nd</sup> ed). Fri Flyt AS, 167 pp.
- Dafern, T. 1992: Avalanche Safety for skiers & Climbers. Rocky Mountain Books, 192 pp.
- Harvey, S. 2002. Avalanche incidents in Switzerland in relation to predicted danger degree. Proceedings of the International Snow and Science Workshop, Penticton
- Ferguson, S.A. & LaChapelle E.R. 2003 The ABCs of Avalanche Safety 3<sup>rd</sup> ed. The Mountaineers Books, 141 pp.
- Freston, J. & Fesler, D. 1999. Snow Sense. Alaska Mountain Safety Center, Inc. 116 pp.
- Hesjedal, M.B. 2016. På rett sted til rett tid. Norges Teknisk- Naturvitenskaplige Universitet, 20-26
- Hoey, B.A. 2014. A Simple Introduction to the Practice of Ethnography and Guide to Ethnographic Fieldnotes. Marshal University
- Ilesanmi, O.O. 2009. What is Cross-cultural Research. International Journal of Psychological Studies, Vol.1, No.2, 82-96
- Jamieson, B. 1997. Backcountry Avalanche Awareness. Canadian Avalanche Association, 42 pp.
- Kirk, D. 2002. New Standard mean Korean Air is coming off many 'Shun' lists. New York Times 26/3
- Kronthaler, G. & Zenche, B. 2006: Systematische Schneedeckendiagnose. Bergsteigen 4/06
- Landrø, M. 2007: Skredfare. Fri Flyt AS, 169 pp.
- Langeland, Skjølstad & Øvrebotten 2011. Kunne fatale

- ulykker i Norge fra 2005/2006 til 2010/2011 vært forhindret ved hjelp av enkle regelbaserte metoder?
- McCammon, I. 2000. The Role of Training in Recreational Avalanche Accidents in the United States. Proceedings International Snow and Science Workshop 2000, Big Sky Montana
- McCammon, I. 2004. Heuristic Traps in Recreational Avalanche Accidents: Evidence and Implications, Avalanche News, No. 68
- McCammon, I & Haegeli, P. 2005. Description and Evaluation of existing European Decision-making support schemes for Recreational Backcountry Travelers. Canadian Avalanche Association
- McClung, D & Schaerer, P. 1993. The Avalanche Handbook. The Mountaineers, 271 pp.
- Michaelsen, B. 2012. The Art of Skiing Undisciplined during Level 2 Conditions. Proceedings International Snow and Science Workshop, Banff
- Munter, W. 2003. 3x3 Lawinen, Risikomanagement im Wintersport. Verlag Pohl & Schellhammer, 223 pp.
- Tase, J.E. 2004. Influences on backcountry recreationalists to snow avalanche hazards. University of Montana, 82
- Tremper, B. 2008. Staying Alive in Avalanche Terrain (2<sup>nd</sup> ed) The Mountaineers Books, 318 pp.
- Wallace, L. 2012. Why is Mont Blanc One of the World's Deadliest Mountains? Popular article in The Atlantic, 25 th. July 2012
- Zweifel, B. and Haegeli, P. 2014. A qualitative analysis of group formation, leadership and decision making in recreation groups traveling in avalanche terrain. Journal of Outdoor Recreation and Tourism 5-6, 17-26
- Zweifel, B. and Techel, F. 2012. Who is Involved in Avalanche Accidents? Proceedings International Snow and Science Workshop, Anchorage, Alaska
- <http://www.skiogskred.no>
- <http://www.varsom.no/Ulykker/Snoskredulykker--og-hendelser/>