"WHY CAN'T THEY GET THEM OUT?" RISK, SAR DECISION-MAKING, AND FAMILY COMMUNICATIONS IN DELAYED AVALANCHE RECOVERIES INTERNATIONAL SNOW SCIENCE WORKSHOP 2026, WHISTLER, CANADA

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ABSTRACT:

Avalanche training emphasizes immediate search and rescue (SAR), yet operational, environmental, and risk-based constraints can delay recovery for extended periods or prevent it altogether. Drawing on avalanche responder experience, this paper identifies practical lessons for managing risk, sustaining multi-operational-period recoveries, and supporting families facing unresolved loss. It offers recommendations to broaden avalanche education beyond immediate rescue to include delayed recovery operations, responder safety, and family communication.

Drawing on Alaska avalanche incidents in which recovery took more than seven days, together with SAR practitioner experience, we identify five recurring factors that delay recovery and complicate decision-making. We examine the limits of standard search and recovery tools and how prolonged operations expose responders to risks equal to or greater than those faced by the original subjects. We conclude with recommendations for managing recovery risk safely across multiple operational periods.

Families rarely see the risk assessments that guide recovery decisions and may interpret delays as inaction, insufficient effort, or abandonment. To address this challenge, we discuss communication of hazard-driven decisions, responder safety concerns, and operational limitations, and provide example strategies for engaging families during prolonged or suspended recovery operations. By linking avalanche hazards, SAR decision-making, recovery tools, and family communication, this work reframes delayed recovery as a necessary adaptation to risk rather than a failure of response.

KEYWORDS: Avalanche, Recovery, Risk, Family, Communication

1. INTRODUCTION

Most avalanche fatality recoveries are completed the same day as the accident or the day after and this timeline shapes what families, friends, and rescuers expect. American avalanche education, even at the professional level, trains primarily to this timeline. Occasionally, though, a combination of factors stretches recovery from days into weeks or months– or makes recovery impossible altogether. When this happens, normal expectations go unmet, and if communication with families, friends, and the media isn't handled adequately, questions like "why can't they get them out" can start to surface.

The following sections provide a brief overview of the types of situations common to delayed avalanche recoveries, limitations of available recovery tools, suggestions for managing multiple operational period missions and family communications preventing operational realities and risk management from being interpreted as inaction, insufficient effort, or abandonment.

2. FACTORS DELAYING AVALANCHE FATALITY RECOVERIES

Delays in recovering avalanche subjects occur for many reasons. For this paper, we are focusing on incidents where the recovery takes multiple operational periods spanning days, weeks, and months. In the last 20 years in Alaska, Search and Rescue (SAR) teams responded to five incidents where recovery of the subjects took greater than one week (CNFAIC, 2026):

- 2008 Stock Bowl, Turnagain Pass, Alaska: continued high avalanche danger, multiple incidents happening at the same time, and resource constraints delayed recovery for 8 days.
- 2010 Grandview, Turnagain Pass, Alaska; continued high avalanche danger, remote site, and deep burial delayed recovery for 10 days.
- 2014 Rainbow Ridge, Delta Range, Alaska; continued weather and avalanche danger, delayed recovery for 17 days.

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- 2015 Eldorado Bowl, Hatcher Pass, Alaska; unknown subject location, continued weather and avalanche danger, and a deep burial delayed the recovery for 200 days.
- 2025 West Fork Twenty Mile River, Alaska; continued weather and avalanche danger, remote and challenging location, deep burial, and resource constraints took 213 days and 243 days respectively to recover two subjects and the search for the third is in a suspended status.

Looking at these cases there are five factors that contribute to longer recovery times:

1. Unknown Subject Location: The most difficult situations to address are those where the travel routes of the individuals were not immediately known to those reporting the missing subject or the rescue teams. These situations may take considerable time to ascertain the most likely travel route and the possible burial site, particularly during an active avalanche cycle. A larger search area thins out the rescue response. The possibility of multiple burial locations hampers rescue and recovery efforts in these situations, often resulting in recovery not occurring until late spring.

2. Continued Weather/Avalanche Danger: During active avalanche cycles, there are a couple of situations that may delay recovery of subjects of avalanche burials. The continued high avalanche activity may restrict access by ground while aerial approach may not be possible due to storm intensity and visibility issues. Even if there is a safe access route, deep snow may hamper access on foot or by machine. In addition, the potential for multiple incidents in close proximity rises during storm cycles. This may rapidly deplete the available pool of rescue personnel in the immediate vicinity, causing significant delays in response times.

3. Remote and Challenging Sites: Remote locations pose an additional challenge in getting the notification of the incident out to rescuers and the long response times needed for the rescue teams to return to the site of the incident. In addition, canyons, rivers, and other complex terrain features add hazards that complicate and delay recovery.

4. Deep Burials/Reburial: Deep burials and secondary avalanche reburials are problematic for locating and extracting the subjects. Areas may need to be probed multiple times if the subject is buried beyond their reach, more/different areas may need to be searched if reburial displaces the subject from the initial location, and the dense, consolidated debris at depth makes manual excavation slow or impossible until a later date after significant melt occurs.

5. Resource Constraints: In the instance of multiple burials, the number of rescuers available may be quickly overwhelmed by the scope of the task. This may result in the extended time required to locate and extract all those involved in the incident. Resources from outside the immediate area take time and resources to reach the site.

2.1 Recovery Tools and Their Limitations

After weeks to months of a recovery effort, the site changes and so does the utility of common avalanche tools and techniques for locating and recovering the subject.

Locating the Subject: For locating the subject in the cases cited several limitations on our primary tools surfaced. The best-case battery life of an avalanche transceiver is approximately 200 to 250 hours, according to most manufacturers, meaning we can only use them for the first 8-10 days after an incident (if they were worn and powered on) and only if the search occurs within the distance at which a signal can be received. If rescuers are unsure about which area to search, the transceiver offers little help. Probing (spot or lines) is slow and personnel intensive (2010 Grandview) and in the case of deep burials like the 2015 Eldorado Bowl incident even extendable probes may not be able to reach the ground. Debris can also become too dense to penetrate, even with heavy-duty steel probes. Extended recovery periods can present challenges to canine resources such as reduced traction on snow that has transformed into ice, a need for access by dogs and handlers trained in rappelling and climbing, and scent contamination over the course of the effort (2025 West Fork Twenty Mile River).

Uncrewed Aircraft Systems (UAS) are rapidly developing search tools that can allow searching options without putting personnel into actively dangerous search sites. Limitations include acquisition and capabilities of the UAS, having a qualified operator and ideally the same operator(s) over the course of the recovery as well as weather and range limits. RECCO detection requires a bench of trained operators to cover multiple operational periods, and its range is degraded by increasing water content in snow and ice as recoveries last through seasonal transitions. Remote and complex terrain (e.g. canyons) also decrease the effectiveness of helicopter-based units. Other tools include magnetometers

and ground-penetrating radar (GPR), including drone-based GPR. Constraints include terrain, signal interpretation, flight/stability limits, battery life, and mission tempo.

Recovering the Subject: Recovering the subject after weeks to months also can be very different from what is taught in standard recreational and professional avalanche courses. Once the subject is located, and if traditional human-powered backcountry extraction is not feasible (i.e., a shovel team), then SAR looks at other options, such as mechanical excavation (including chainsaws and heavy equipment). As the tools become less sensitive, however, the risk of damage to the subject's body increases. In forming a response strategy, the SAR team must weigh use of the tool versus safety to the team and wishes of the family(ies). The last resort is seasonal melt-out and ultimately- depending on the location, such as on a glacier- this may not even be an option.

3. RISK MANAGEMENT IN MULTIPLE OPERATIONAL PERIOD OPERATIONS

Risk management dictates the strategy and tactics of avalanche response, directly shaping the timeline of operations. Unlike rescue, where time is critical to survival, recovery demands a more organized and methodical approach, a shift in pace that, while necessary, can be difficult for families to accept.

3.1 Responder Safety Considerations

Multiple operational period recoveries present additional responder safety considerations beyond those common to all avalanche responses: avalanche hazards can compound over time; collapse of the work area has to be prevented while excavating deep burials; the potential for the debris pile becoming unstable or re-mobilizing has to be considered; wildlife may move into the area, and working in complex terrain traps presents access/egress, hangfire, rockfall, and logistical challenges. Rivers flowing underneath a debris pile add complications of collapse hazards, flooding from downstream log and debris jams, and the potential for the recovery shifting from the debris to a swiftwater if the snow the subject is in melts or drops into the river. Once a shift from debris to swiftwater is foreseeable, development of a formal river safety plan becomes necessary. In addition, responder wellness needs to be considered as recoveries take a psychological toll both from the incident by itself and the accumulation of stress from multiple difficult recoveries in a single season.

Both the hazard and the toll on responders accumulate over time. Before committing time on or near the site, ask: is this exposure justified by what it buys us? Every hour on site is accumulated exposure, weighed against the probability of hazards including secondary avalanche, debris collapse, swiftwater exposure, rockfall, or fatigue-induced degraded judgment. That risk picture must be based on the team's own explicit assessment, integrating but not deferring to specialty teams or a technical advisor. Where hazards cannot be mitigated to an acceptable level, shift toward methods that keep as many responders off the site altogether as possible using remote sensing, UAS overflight, and mechanized excavation (e.g. chain saws, excavating equipment) — rather than defaulting to hand crews in place for extended periods. Staffing should follow the same logic: a larger, rotational team lets personnel cycle out before fatigue or the toll builds enough to erode judgment, particularly on missions with unresolved outcomes or long gaps between operational periods — but additional personnel only help if the terrain and hazard allow them to work safely.

Responders must weigh all factors to ensure a safe, efficient recovery. Some circumstances may require recovery before snow melts. If the slide zone is over a river or body of water, that will create the possibility of losing the subject to the water. Access may also be more difficult with summer vegetation or moving water crossings. Other circumstances require waiting until the snow melts in the spring, summer, or fall. And as much as it may be hard to accept, sometimes the risk is just too great to take on. The mountains can be harsh and in rare circumstances, the recovery of the subject may not be worth the risk to the rescuers.

3.2 Recommended Practices for Multiple Operational Period Management

For recoveries spanning multiple operational periods, our experience in Alaska parallels the lessons learned from the avalanche accident in the Tamok Valley in Northern Norway, where multi-operational-period efforts spanning five months were needed for mitigation, search, and recovery due to weather, avalanche, and other hazards. Vegard Olsen and Dr. Julia Fielder presented on this incident at the International Commission for Alpine Rescue (ICAR) 2019 Avalanche Commission meeting; four highlights documented in the meeting report by Mountain Rescue Association delegates Henningsen and Finger (2019) are worth repeating here:

- “Teamwork comes with challenges that everyone needs to be aware of”
- “Resources should make pre-plans, develop methods and have a system of coordination”
- “Risk assessment should be systemized and standardized”
- “Everyone wants coordination, nobody wants to be a coordinator”

With these and our experience in Alaska in mind, we offer the following recommended practices:

- **Establish an incident management organization scaled to the incident.** This establishes a formal interface with the agency having jurisdiction over the recovery and promotes continuity in planning and execution. Having an incident management organization for the incident also expands access to and management of additional resources and builds in safety and risk management and lays the foundation for communication with family and any third party involved.
- **Select a core team for continuity and efficiency over multiple operational periods**. This increases the experience and familiarity on scene for increased situational and hazard awareness as well as reduced spin-up time as the members are familiar with the area and situation. Consider tapping experienced technical team members including liaisons/communications who can commit to multiple operations. Limit training assignments when risk is high. As conditions change at the site, incorporate technical specialists (e.g. water rescue specialists, ground penetrating radar techs, and heavy equipment operators) as necessary and consult with them early — integrating their input into the team's own risk assessment and planning rather than deferring to it. Unless specific circumstances (such as needing to be led to the location or taking them back to the scene to recount the event for information to assist the search) are necessary, avoid incorporating family or third-party members into the response to ensure their heightened interests in making the recovery do not detract from safety.
- **Implement incident action planning for each operational period.** Whether formal or informal, incident action planning for each period ensures objectives are updated, safety analyses performed, and tactics are matched to conditions. This process also enables pre-mission familiarization for the responders and provides documentation and the basis for communication with families. Remember to explicitly pause to re-brief when conditions change significantly mid-operational period, rather than adjusting tactics informally under time pressure and conduct post mission debriefs to cycle back into the planning process for future operational periods or missions as well.
- **Practice techniques for challenging situations in advance**. As tactics become more complex and risk increases, table-topping the process and doing walk-throughs/dress rehearsals with gear (e.g. layouts for water rescue, rope work, technical canine work) are effective at ensuring all team members are on the same page, generating efficiency on the operations day, and increasing safety.
- **Follow SAR principles.** Three principles are worth reiterating in the recovery context. First, responder safety is paramount — there are already one or more fatalities, and we do not want more. Ensure everyone knows anyone on the team can call an "all stop" or step back from the mission at any point. Second, uphold the SAR tradition of dignity and respect for the subject(s). Third, plan for psychological impacts: these events, alone or cumulatively, affect participants, family, and friends, and effects may not surface for days, weeks, or months. Build support resources into the plan at every level of the incident and following up after debriefs and after-action reviews.

Taken together, the Tamok Valley case and our own experience in Alaska both confirm that disciplined incident management isn't optional overhead; it's critical to both the success of the operation and as a foundation for communication with the affected family.

4. FAMILY COMMUNICATIONS

Coming to grips with the loss of a loved one is difficult, and inadequate communication between the response organization and the family compounds the emotional toll (Kennedy et al., 2021). When families feel that they are receiving regular and sincere communication, it aids their processing of the event and support for the responding organization. Conversely, if they are feeling out of the loop, the relationship between the response organization and the families can become adversarial and create additional complications to completing the mutual goal of closure by bringing a loved one home.

Below are three examples of the different ways three of the delay factors can be seen:

- **Continued Weather/Avalanche Danger:** The most common delay preventing site access is often continuing and/or incoming storms halting recovery operations. Explaining to the family and friends the weather thresholds, safety triggers, and reassessment timelines gives them the confidence the responders are not stalling and choosing not to go, but instead making a plan timed to resume as

soon as it can be done safely. First impressions matter here: any hint of insincerity makes trust difficult to rebuild.

- **Unknown Subject Location: Sometimes** all that is known is that the subject(s) entered a zone and never returned. During active avalanche cycles when the subject's travel route wasn't known, it can take considerable time to establish the most likely route and possible burial site(s). Effective communication with families will express the rescuers' full disclosure of knowns and unknowns and mission commitment within safety limits. In these cases, the communication can help families understand that suspending an active ground search isn't giving up — it redirects effort into narrowing down where to look next, so the next search is targeted rather than random. Without clearly distinguishing "suspended" from "closed," and describing behind the scenes activity, (route analysis, technology, spring planning) families can interpret a suspension of ground search as the team giving up or concealing and not sharing the information they have — either way, the family stops believing.
- **Physical Extraction Difficulty:** Deep burials are difficult to locate and extract particularly in significant terrain traps. Getting the right personnel and equipment to the site to remove the overburden of snow or address creek/river involvement takes time and organization, even when in a developed versus remote area. Describing what "extraction" actually requires at the depth and site, in terms of equipment, personnel, and staging time, is crucial to having families understand that additional time and planning is necessary to protect responders and have a safe, successful outcome with the body in the best condition it can be. Otherwise, delays can be perceived as a lack of knowledge or competence.

4.1 Communicating with the family and friends during extended missions

Creating consistent and predictable communication tactics with the family and friends is fundamental during extended missions to prevent unnecessary miscommunication or disagreeable conversations. Calm and honest delivery lands better with family and friends who are anticipating devastating outcomes. Here are seven communication strategies to use.

1. Designate family liaison: Having a designated family liaison will improve two-way communication. Good rapport reduces miscommunication or contradictory messaging (Parr et al., 2016). The liaison can help with documentation of communication activity and managing what information is appropriate and necessary to share with family and friends. If not acting as a family liaison, a responder can refer the family to one using language such as:

- *"I'm very sorry you are going through this. I don't have the full operational picture, and I don't want to give you incomplete information. Let me connect you with the family liaison, who has the verified update."*

2. Establish an update schedule: Having a reliable schedule for giving family updates will build trust between the family and the SAR team. Sharing the facts about the operations routinely will keep families from making their own inaccurate assumptions (disorganization; withholding information; abandoning family).

- *"We have not had a significant new finding since our last briefing. Teams searched these areas today, and these are the priorities for the next operational period. I will update you again at 7 p.m., unless something important happens sooner."*

3. Separate facts, assessments, and unknowns: A helpful four-pronged approach is to tell them: (1) What we know: verified facts and completed operations; (2) What we are doing: current operations, next priorities, (3) What remains unknown: information gaps, and (4) What happens next: next operations and decision points.

4. Stay honest without removing hope: Have genuine empathy but don't lie or overstate anything about operations or outcomes.

- *"I wish we had an answer for you. We have not been able to search all segments yet."*

5. Acknowledge the emotional reality: SAR volunteers cannot resolve the emotional tensions, but you can offer psychological first aid resources to family/friends. Emotions can change rapidly between hope, fear, anger, guilt, and determination. These emotions don't necessarily mean hostility or irrationality.

- *"It makes sense that you want to understand every decision"*
- *"I hear how worried and frustrated you are."*
- *"This uncertainty and not having closure is extraordinarily hard."*

6. Explain operational changes: During extended missions, the extent and pace of operations fluctuates. Explain what is changing and the reasons why it is considered. (See Table 1: Communication elements by operational and recovery milestone)

- *"Beginning tomorrow, continuous field deployment will be reduced. This does not mean the case is closed. Investigative follow-up, review of existing information, and response to credible new information will continue. I want to walk you through why this change is being made and what will happen next."*

7. Give the family a role: Families will want to be involved. Provide structured ways to help, and set boundaries around family-organized searching, volunteer recruitment, social media, and public releases of information.

In addition to these seven strategies, there are key milestones in the recovery operation when communication is essential. Table 1 highlights these events in the operational timeline, along with the purpose and content to communicate at each operational and recovery milestone.

Table 1: Communication elements by operational and recovery milestone

Keeping Families Informed: What to Communicate at Each Operational and Recovery Milestone	
Incident occurs	**Set expectations and build confidence and rapport with the family.** • Accident information (what happened / site description) • Qualifications of the responders • Risks to be managed • Communications timeline
Search/Recovery operations begin	**Set expectations and build confidence and rapport with the family.** • Accident information (what happened / site description) • Qualifications of the responders • Risks to be managed • Communications Timeline
Additional resources deployed	**Prevent the family from misreading a resource increase as a sign the situation has worsened.** • What resource is being added (e.g., dive team, K9 unit, drone/aircraft) and why • What it means, and doesn't mean, for the operation • Updated timeline expectations, if any
Information released publicly	**Ensure the family hears developments from their liaison first, not from the news.** • What is being released, and when • Why it's being released What the family should expect if contacted by media, and who to direct inquiries to
Subject located	**Manage expectations and prepare the family emotionally and logistically ahead of reunification and keep them informed afterward, so silence doesn't create new anxiety.** • Whether recovery can occur at this time, or whether additional time/resources are needed • When and where the family can be reunited with the subject • Expectations of the subject's condition • Process and expected timeline for official identification • Role of the medical examiner/coroner, and what the family can expect • Timeline and process for return of remains and personal effects
Incident within an incident occurs	**Maintain transparency and get ahead of the news to prevent speculation or mistrust.** • What happened • How it affects the recovery
Search suspended	**Preserve trust through a difficult decision and reassure the family they have not been abandoned.** • The decision being made, and why • The initial plan for a restart • Who the points of contact will be for the family during the suspension
Search resumed	**Rebuild realistic hope and set expectations for the renewed effort.** • What new information has surfaced prompting the restart • Expectations for what the restart will yield
Recovery determined not possible	**Help the family begin to process the loss.** • Invite the family to describe where they feel the search/recovery stands • Be direct and kind • Give the family space to process the news • Provide resources for next steps
Note: during any extended operation, set a standing update cadence (e.g., contact every X hours) even when there is no new development — a long silence tends to generate as much suspicion as an unexplained change	

5. SUMMARY

Avalanche fatalities are always difficult for everyone affected, and when recovery takes a long time, the toll can be even greater. Responders must sustain sound risk management and decision-making across multiple operational periods, often while managing their own accumulating physical and psychological toll. Meanwhile, families are often trying to understand and participate in a process they cannot fully see.

This paper examined the factors that delay avalanche recoveries and the capabilities and limits of available search and recovery tools. It also outlined risk management practices for sustaining safe operations across multiple operational periods and offered seven family communication strategies with guidance for each recovery milestone. Integrating best practices in incident management and family communications, alongside the risk management principles outlined above, helps maintain safety and makes these situations more manageable.

These skills need to be learned and practiced, but they are not yet formally part of our professional avalanche curriculum. At a minimum, family liaison practices and concepts related to multiple operational periods could be added to the American Avalanche Association's Professional Avalanche Search and Rescue (ProAvSAR) curriculum as an orientation-level topic. Ski patrols and mountain rescue units can also develop their own training and exercises covering recoveries that extend across multiple operational periods, tool selection across different environmental conditions, managing changing risk profiles, and communication with authorities and families. Meanwhile, training officers can draw on existing courses (Family Liaison Officer, All Hazards Incident Management Team, SAR Risk Management and Decision Making) to build competency and experience within their teams.

Ultimately, delayed avalanche recoveries should not be viewed solely through the lens of elapsed time. In these incidents, operational decisions are driven by changing snow, terrain, weather, and responder-safety considerations that may make immediate recovery impossible or inappropriate. Families often experience those delays without detailed knowledge of the risk assessments and planning processes that drive them. By combining sound incident management, disciplined risk assessment, appropriate use of recovery tools, and transparent family communication, responders can help families understand the reasons for recovery delays. Viewed in this context, a delayed recovery is not a failure of response, but an adaptation to changing hazards and operational realities where bringing everyone home safely remains the highest priority.

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