

Part 1: Introduction to Decision Making

1.1 - Anatomy of a Decision

ABOUT AIARE

Learning Outcomes

- Identify that backcountry decision making involves five key components: Plan, Observe, Teamwork, Choose Terrain & Travel Wisely.
- Reference the DMF as a mental map for the decision making process that will be used on this course.

AIARE DECISION MAKING FRAMEWORK

Backcountry decision making encompasses much more than whether or not to ski or ride a slope. The process is a continuous cascade of questions and thoughts that start before the trip begins and constantly affect one's actions until the trip ends. Most backcountry decisions fall into two basic categories: Choosing Terrain and Traveling Wisely.

Choose Terrain: This fundamental choice defines our risk management in avalanche terrain. A group's choice of "where to go" implicitly broadcasts its goals, how stable or unstable they believe the snow to be, their group's skill and fitness levels, level of emergency preparedness, the depth of planning and confidence in each other as backcountry partners. Choosing Terrain occurs at a variety of scales: within the mountain range, within the drainage and across the slope. An example of mountain range scale is choosing to ski east of the divide instead of west of the divide or further north or south hoping to find better conditions. An example of drainage scale is the choice to ski the north aspect of White Mountain instead of the south aspect of White Mountain. Slope scale is the decision to stay on a small ridge feature, or to avoid steep convex rollovers or stick to the sheltered treed glades below the open alpine terrain. Terrain choices reveal how deeply one understands the current avalanche hazard.

The bottom line is that terrain selection in the mountains is a life or death matter. The choice of where to go should be a consensus decision, made by all group members. Teamwork begins when making a plan, resumes as a group gathers gear and information preparing for travel, and continues repeatedly each time that team communicates and decides together at critical junctures in the field.

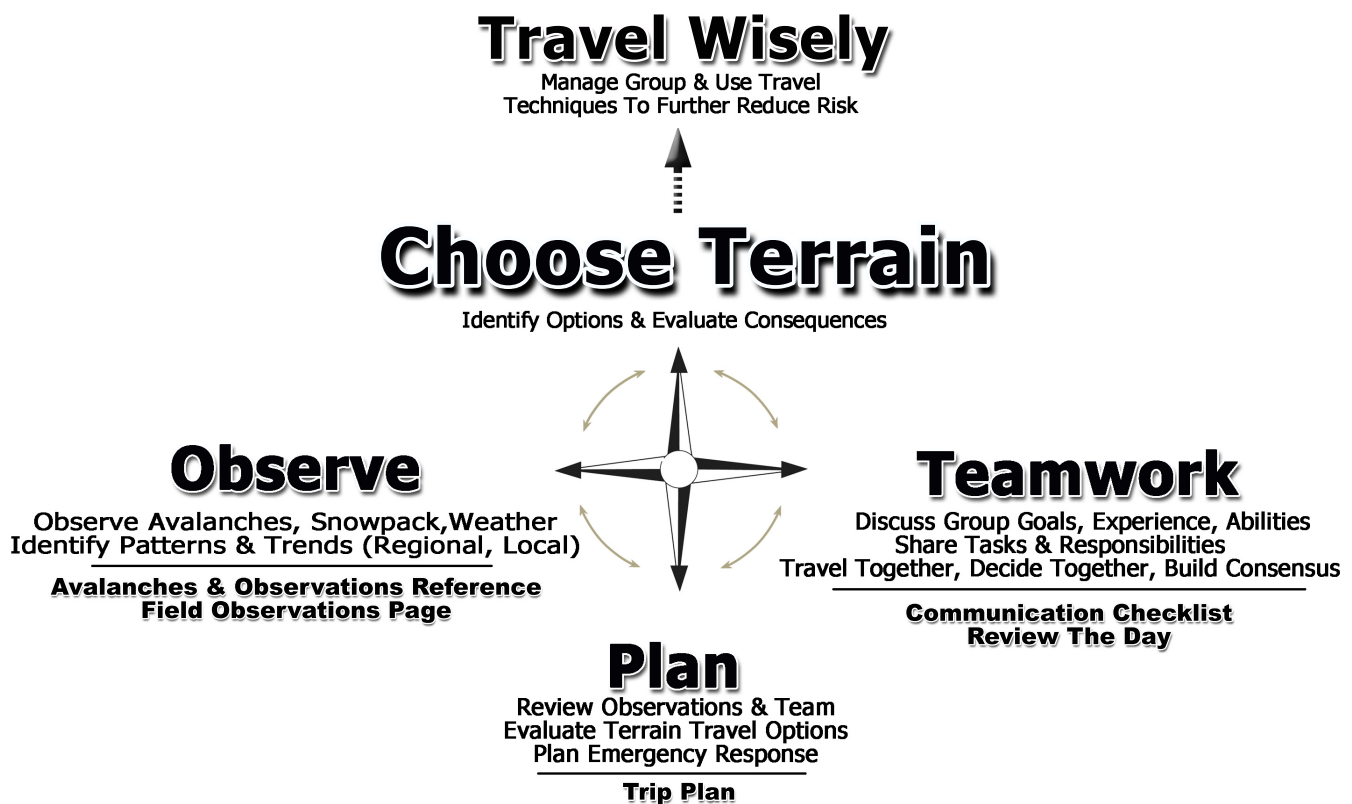
Travel Wisely: How a group decides to manage itself and move through avalanche terrain is integral to risk management. Travel techniques like exposing only one person on a slope while others watch, or spreading out across a series of small avalanche paths can further reduce risk when applied appropriately. Bear in mind, a travel **technique should never be applied to justify moving through a hazardous piece of terrain**. For example, moving one person at a time across an avalanche slope may not reduce the likelihood of triggering the avalanche, only the consequence to the entire team! Travel techniques should be discussed and anticipated as part of the terrain choice.

Decision making is the product of the three interwoven components of choosing terrain appropriate for the conditions. These factors are graphically illustrated in the AIARE Decision Making Framework: 1) Plan, 2) Observe, and 3) Teamwork. *Note the interplay of factors in the discussions below:*

- **Plan:** Trip planning is where most terrain choices begin. Prior to travel in avalanche terrain, a group's effort to establish communication (Teamwork), understand current conditions (Observe), anticipate hazards, and plan realistic options and contingencies lays the foundation for good decisions in the field. Depending on the circumstances, trip plans often detail specific time plans, route options down to the slope scale, where to gather field observations and choose between terrain options, even navigation plans for poor visibility. This process helps prevent accidents from occurring by planning for the day's decisions. Experienced decision makers commonly find it easier to be objective at the planning stage, rather than when facing the emotional lure of an enticing powder slope. Planning options also make error correction easier to implement. Another component, emergency response planning, ensures that the group is prepared to manage unwanted situations like an injury, broken equipment or an avalanche accident.

- **Observe:** Before Choosing Terrain, while building a Plan and in the field, a Team evaluates current conditions through first-hand observation and by gathering information from other sources such as an avalanche advisory or local experts. These observations are made in the three information categories of avalanche activity, snowpack, and weather. It takes practice and experience to assess when observations may indicate avalanche danger. Public avalanche bulletins present and interpret observations at the range and sometimes drainage scale, a complex task for a single backcountry group to do alone. In the field, the group must actively and continuously observe and gather relevant local (drainage - slope scale) information and compare it to the bulletin and other information gathered prior to the trip. Observation quality and quantity directly affect the reliability of a group's terrain decisions.
- **Teamwork:** Appropriate Terrain Choices depend upon the group make-up. Decision makers must learn to recognize how group dynamics and communication impact the terrain selection process, and what group qualities facilitate good decision making. Human factors are dynamic and require constant monitoring. They also contribute to nearly all avalanche accidents. Human factors within the group have the potential to affect trip preparation (Plan), our ability to recognize clues in the field (Observe), and to make safe Terrain Choices. Recognizing and even more importantly pre-empting human factors through communication is a critical component of good backcountry decision making.

AIARE Decision Making Framework



QUESTIONS TO TEST UNDERSTANDING:

1. Why is trip planning an important element of managing risk when travelling in avalanche terrain?
2. How does the AIARE Decision Making Framework assist with decision making?
3. In most avalanche accidents human factor traps have been identified as playing a role. The following chapter includes a case history that illustrates the complexity of making decisions. Describe a situation where human factors played a key role affecting your trip decisions? How could improved communication or a more consistent decision making process have changed your choices?

PRESENTATION NOTES:

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1.2 - Case Study

Case studies are accident accounts that can provide valuable insight into how people make decisions that lead to accidents. Read the following case study (or one supplied by the instructor) and consider how the components of the AIARE DMF apply to the decisions that were made. They are regular backcountry recreationists whose decisions led to unwanted consequences. Note that while this incident affected recreational backcountry users, professionals have made similar mistakes. This story underscores the fact that all humans are capable of making poor decisions. Following the case study is an exercise to complete. While reading, make a note of any factors outlined in the DMF that in retrospect could have alerted the group about the risk to which they were exposing themselves. How could the team have created and chosen better options for the day? How could they have increased their margin of safety and still accomplished their goals?

ACCIDENT REPORT: OHIO PASS, COLORADO

Date: February 25, 2001

Location: East Bowl in the Anthracite Range, 7 miles west of Crested Butte, CO.

The account below is condensed from a report written by Dale Atkins, who investigated the accident for the CAIC:

The day dawned clear and cold after a 10" snowfall the day before. A group of 5 friends - two men and three women - met at the Kebler Pass trailhead and snowmobiled into the Anthracite Range, approximately 7 miles from Crested Butte, for a day of powder skiing in the backcountry. All of the group were experienced backcountry travelers familiar with the terrain, most having lived and skied in the area for 15 plus years. One member of the party was former ski patroller. Everyone had formal avalanche training and carried a transceiver, shovel and probe.

The public avalanche advisory that day reported a danger level of "moderate with pockets of considerable at or near treeline." The bulletin also noted that backcountry skiers in the Crested Butte area had reported triggering avalanches recently but had no information about where or when the avalanches had occurred. That day, the group left early and did not access the bulletin. The day was going well as the group skied laps on 30+ degree slopes in treed and open runs generally on northern facing aspects. The snow was perfect and they experienced no cracking and saw no avalanches. Two other groups were skiing in the same area.



On their last run they decided to ski "East Bowl" one of the available routes down to the snowmobiles. East Bowl, as the name implies, faces east and is a mix of treed and open slopes with a variety of terrain features such as convexities, wind rolls, small cliffs and many small trees. In general it is steeper than the terrain the group had been skiing that day with slope angles between 25-45 degrees. At the top, the group saw two ski tracks leading into the bowl. All was progressing fine when part way down the group split up into one group of 2 and one group of 3 with the plan to meet on a shelf in the trees above the last pitch. The group of 2 (Mitch and Sue) split up with Mitch skiing to the bottom beyond the meeting point and the other, Sue, meeting the group of 3, above the last pitch, in sight of the snowmobiles at the bottom. The group had voice contact with Mitch at the bottom of the run a short distance away and Sue decided to traverse over to where he had skied down. On the traverse to the slope that Mitch had descended she intersected with a steep rollover, triggered and was caught in an avalanche. Sue remained on the surface but sustained a fatal head injury and died at the scene. Crested Butte lost a cherished member of the community that day.

ACTIVITY:

Discuss the case study and the accident summary with your group. Assume the role of an accident investigator. Using both the case study story and the accident summary, seek clues to causes of the accident. List the clues in the appropriate categories below.

Travel Wisely

Choose Terrain

Observe

Avalanche Activity

Snowpack

Weather

Plan

Teamwork

PRESENTATION NOTES:



THE BENCHMARK IN AVALANCHE SAFETY

The new Voltair Avalanche Airbag System. Multiple airbag deployments enables repeat training. Make your reactions instinctive.



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OBSESSIVE DESIGN