Risk and Avalanche Rescue

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The risk to rescuers is of serious concern for the International Commission for Alpine Rescue (ICAR). For good reason, since ICAR receives annually reports of fellow rescuers injured or killed while on missions. In avalanche rescue many call outs occur when the general danger rating is 3 or higher and where conditions are further deteriorating. This means that both the approach and the accident site can be exposed to avalanche danger. Under these circumstances the risk of rescue missions in avalanche terrain can be comparable to settings where explosions, structure collapses, hazardous materials, etc., present a risk to the rescue personnel. This work outlines a decision analysis approach to risk and benefit assessments in avalanche rescue missions. A simulation-optimization model allows for assessing the expected outcomes of rescue missions by considering key variables affecting both rescuers and the buried subject. The large number of input variables, their probability and the interaction between the input variables lead to a level of complexity which is difficult to handle without a well-structured decision making tool.