During a volcanic crisis, probabilistic statements and forecasts about issues crucial to effective decision-making are often communicated to emergency management personal and government officials. Effective decision making during a volcanic event is dependent upon how uncertainty (probabilistic information about evolving events) is accommodated into the situational awareness of these officials and emergency managers (i.e. their assessment and understanding of the available information, the definition of problems at hand, and their ability to act within time and risk constraints). Formal reviews of the recent NZ volcanic emergency management exercise (Ruaumoko, 2007/2008) identified that scientific uncertainty and probabilistic statements created a challenging environment for communication, response planning, and decision making. Psychological research into the public understanding of probabilistic phrases has shown that the framing, directionality and probabilistic format of these statements influence people’s understanding, affecting their action choices. In a volcanic crisis situation, this can result in inappropriate decisions, due to a misinterpretation of a probabilistic warning or forecast and an incorrect assessment of the situation. In extreme situations, this could lead to delayed or unnecessary evacuations. We present a review of the judgement literature on effective communication of verbal and numerical probability phrases. Initial results from a survey delivered to emergency managers and scientists in NZ are also presented. This research examined different perceptions of probabilistic warnings, to identify suitable formats for the effective communication of probabilities between different agencies.