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'Understanding volcanoes and society: the key for risk mitigation'



Using video games for volcanic hazard education and communication

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This study attempted to understand whether video games (or serious games) can be effective in enhancing volcanic hazard education and communication. Using the eastern Caribbean island of St. Vincent, we have developed a bespoke video game – St. Vincent's Volcano - for use in existing volcano education and outreach sessions. Its twin aims are to improve resident's knowledge of potential future eruptive hazards (ash fall, pyroclastic flows and lahars) and to integrate traditional methods of education in a more interactive manner. St. Vincent's La Soufriere volcano last erupted in 1979 and since has been in state of quiescence, in which time 56% of the population has had no experience of volcanic eruptions. The island has an extensive programme for volcano education and outreach which was an ideal platform for the St. Vincent's Volcano game to be integrated. Here, we discuss the process of game development including concept design through to the final implementation on St. Vincent. Preliminary results were obtained during Volcano Awareness Week (an annual week of volcano awareness raising activities) on St. Vincent. This was done through pre and post-test knowledge quizzes for both student (<16 years) (N = 63) and adult participants (N = 23). Both groups of participants demonstrated a post-test increase in their knowledge quiz score of 9.3% for adults and 8.3% for students, and when plotted as learning gains (Hake, 1998) show similar overall improvements (0.09 for students and 0.11 for adults). The results provide indications that a video game of this style may be effective in improving learner's knowledge. These preliminary findings provide a foundation for the increased integration of emerging technologies within traditional education sessions. We also share some of the challenges and lessons learnt throughout the development and testing processes and provide recommendations for researchers looking to pursue a similar study.