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



Minor glacial outburst floods at Sólheimajökull. Hazard identification, monitoring and mitigation of future events

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In Iceland, glacial outburst floods (jökulhlaups) are common from ice-covered volcanoes, particularly when meltwater drains from areas of increased geothermal activity or during volcanic eruptions. This work examines the vulnerability of glacier tourism at Sólheimajökull – a valley glacier subject to frequent, minor jökulhlaups due to geothermal melting of ice. Employees from the four largest tour operators in the area, together with local law enforcement and civil protection officials, were interviewed about their perception of risk of volcanogenic floods at Sólheimajökull and their current strategies for minimizing risk. The July 2014 minor jökulhlaup from Sólheimajökull was closely monitored and the observed changes in the hydrological and seismic data from this event are applied to identify past undocumented floods. The risk associated with minor floods is assessed in light of their high frequency, with emphasis on the currently under-monitored hazard of high concentrations of gas released during minor volcanogenic floods. Suggestions are made for mitigating jökulhlaup risks at Sólheimajökull in light of rapidly increasing tourism in the area. Atmospheric gas measurements and improved public information are recommended for the area, in addition to educational material for tour-guides, outlining steps to be taken before and during a volcanogenic flood to increase safety.