



## **Geophysical Tracking of a Subglacial Flood in Near Real-Time**

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Subglacial lakes and volcanoes in Iceland pose a risk to people, livestock and infrastructure when water drains in subglacial floods. Many of these floods occur every year and efforts are made to forecast them and evacuate in time. The two Skaftá cauldrons are located at the southwestern part of Vatnajökull glacier and usually drain once every two years. However, following drainage in 2010, the eastern cauldron did not drain before October 2015. While water accumulated over these five years, scientists - within the EU-funded project FutureVolc - improved the monitoring network around southwest Vatnajökull in order to record the flood in great detail. The network finally comprised two seismic arrays, a GPS instrument on top of the cauldron, two GPS instruments above the flood path, gas measurements at the glaciers' edge, hydrological measurements at river gauges and osmotic sampler data. We present how the GPS, gas and hydrological instruments allow us to detect the start of and subglacial propagation of the flood. The derived timing is consistent with the approximate time of rupturing of the ice close to the glacier edge and the source movement observed in the seismic signals. The subglacial flow of water is accompanied by seismic tremor, whose source location moves downslope with the flood front. This tremor is followed by about 24 hours of stronger tremor bursts from the direction of the empty cauldron.