

Lava barrier design on the Reykjanes Peninsula, Iceland

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Since late 2023 lava flow has periodically threatened the town of Grindavík and the Svartsengi Geothermal Power Plant on the Reykjanes Peninsula, Iceland. Lava flow simulations have been used to determine good layout for barriers to protect these areas from lava flow and also to estimate the necessary elevation of the barriers. The software HEC-RAS (US Army Corps of Engineers, Hydrologic Engineering Center) has been used, simplifying lava flow as a Bingham fluid. The barriers are now over 13 km in length and the height ranges from 4-22 m from original ground. The total volume of material in the barriers is about 2,5 M m³. In this seminar we will first go through slides designed for the general public that explains the basic procedures behind the design. Then we will take a deeper look at aspects that are positive about the method as well as what the model can't handle but would be very useful for barrier design in the future. Good lava modelling is the key to success in locations where success is possible.