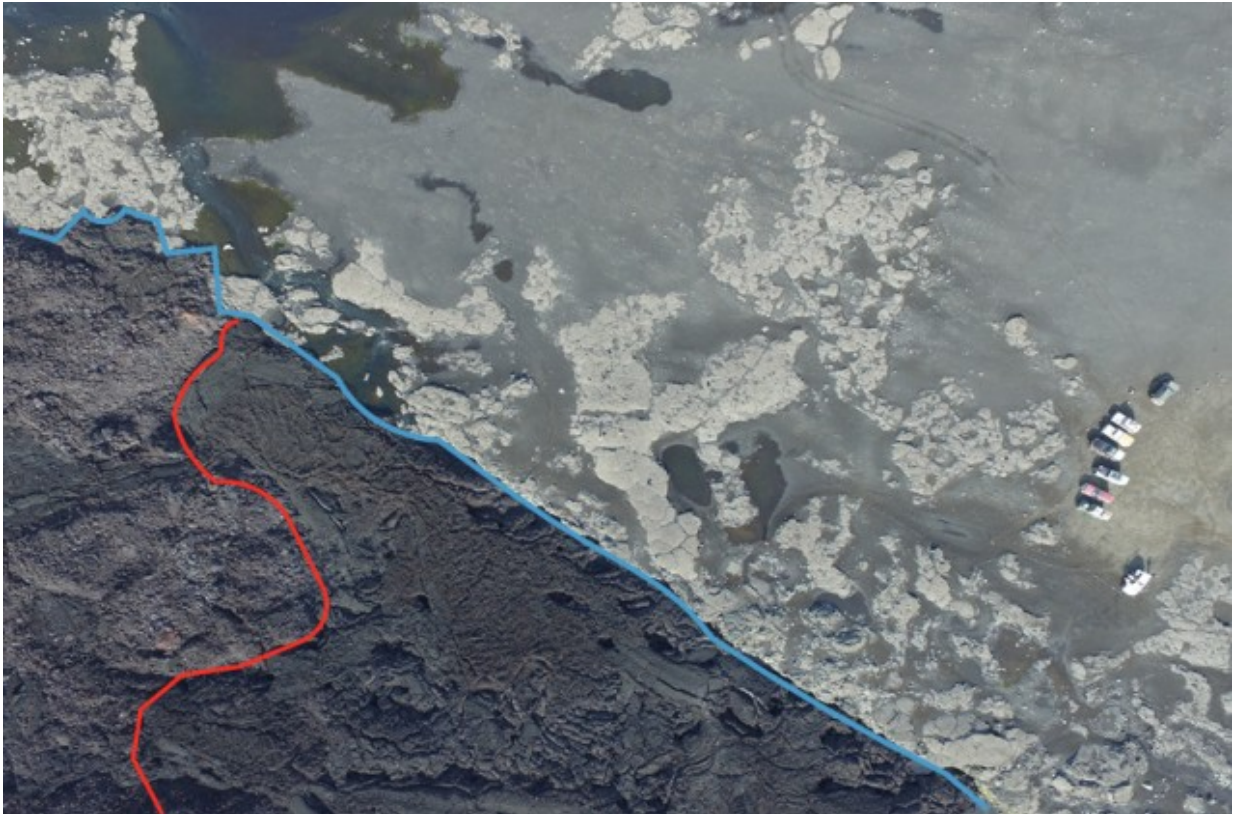


# Mapping lava flows in Iceland

September 10 2015, by Einat Lev And Elise Rumpf

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An aerial photo shows the edge of the Holuhraun lava flow (blue line), where the lava went over a combination of sand and bedrock. Two types of lava appear on either side of the red line: smooth pahoehoe on the right and rubbly a'a on the left.

As volcanologists at Lamont-Doherty Earth Observatory, we love everything lava. Right now, we're exploring how the structure of the

surfaces lava flows over influences how it advances. Does it matter if the lava is flowing on loose sand or solid rocks? On a road or a grassy field or into a forest?

We headed to the "Volcanologists' Disneyland"—also known as Iceland—to find out.

Our destination was one of the largest lava flows ever recorded in human history, the recent flow at Holuhraun. Because the flow is so large, it covers areas with varying ground characteristics: old flows, solid bedrock, subglacial sand, a pebble-covered river bank, a large river, and so on, making it a good site for studying lava-substrate interaction.

We joined a large group of other scientists (17 total, about half of them graduate students) collaborating on the study of the volcanic terrain, led by Professor Christopher Hamilton of the University of Arizona. These were mostly planetary scientists from NASA, the USGS, University of Arizona, Arizona State, University of South Florida and University of Western Ontario, all interested in looking at the Holuhraun flow because of its close resemblance to lava flows on other planets, particularly Mars.

The group brought different instruments to document various aspects of the flow: A LiDAR scanner was used to scan the topography of the main vent at very high resolution (millimeters). High-accuracy mobile GPS antennas were walked along the flow margins and across the flow interior to map them in

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