



# SOUTH DAKOTA MINES

An engineering, science and technology university

## Department of Geology and Geological Engineering GGE Research Highlights...

<https://webpages.sdsmt.edu/~gUstunis/Research.html>

Please visit Dr. Ustunisk's research page to learn more about her research!

**SDSM&T Geology & Geological Engineering**  
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This month in research...

Dr. Gokce Ustunisk's research on mid-ocean ridge basalts (MORBs) focuses on understanding how the oceanic crust forms.

This crust represents 70% of the earth's surface and is made up of lavas and intrusive magmas that form by melting of the Earth's mantle. The processes that form those magmas represents largest geologic system exposed at the surface and is one of the main driving forces for everything that happens geologically, including earthquakes and continental drift.

The primary focus of her work is on the origin of plagioclase ultraphyric basalts (PUBs). These lavas are a component of the array of MORB lavas. Specifically, she is working on understanding how to use plagioclase hosted melt inclusions to define the range of composition of magmas produced in the mantle. Melt inclusions, pockets of magma trapped during crystal growth are an increasingly important source of information on the early petrogenetic history of MORBs because they trap magmas before they are mixing and modified during transport to the crust.

In effect, we are trying to understand the characteristics of the full array of magmas and how they originated. This process is not dissimilar to attempting to understand wheat by studying bread – the processes the materials go through can fundamentally change their character.

To learn more about Dr. Ustunisk's research, please click on the following link:  
<https://webpages.sdsmt.edu/~gUstunis/Research.html>

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