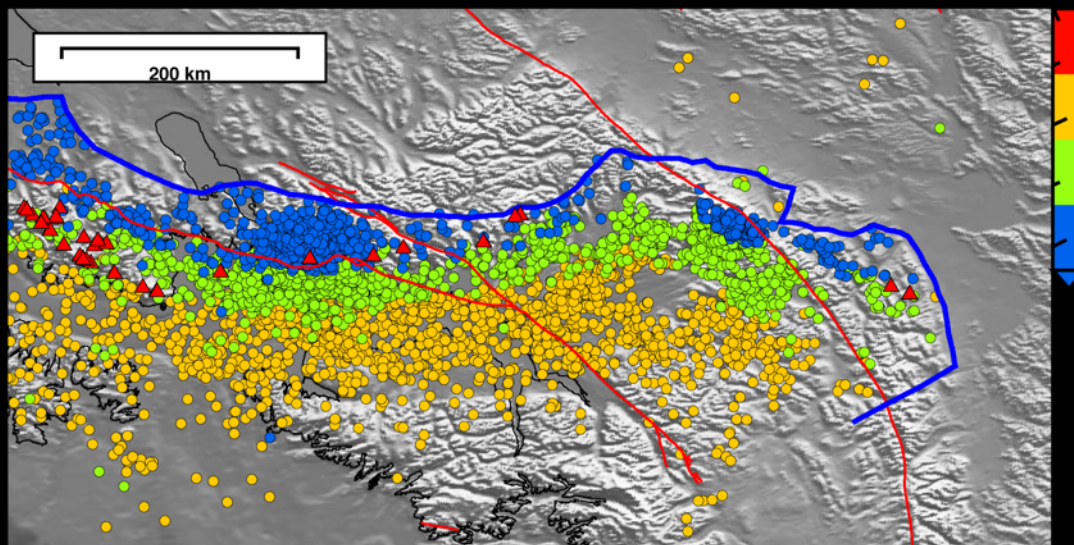
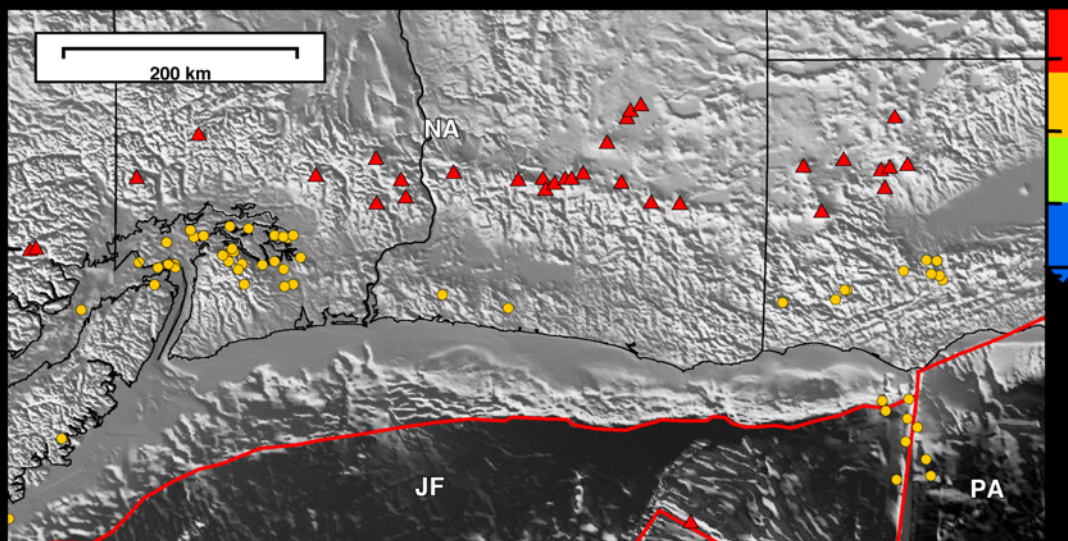
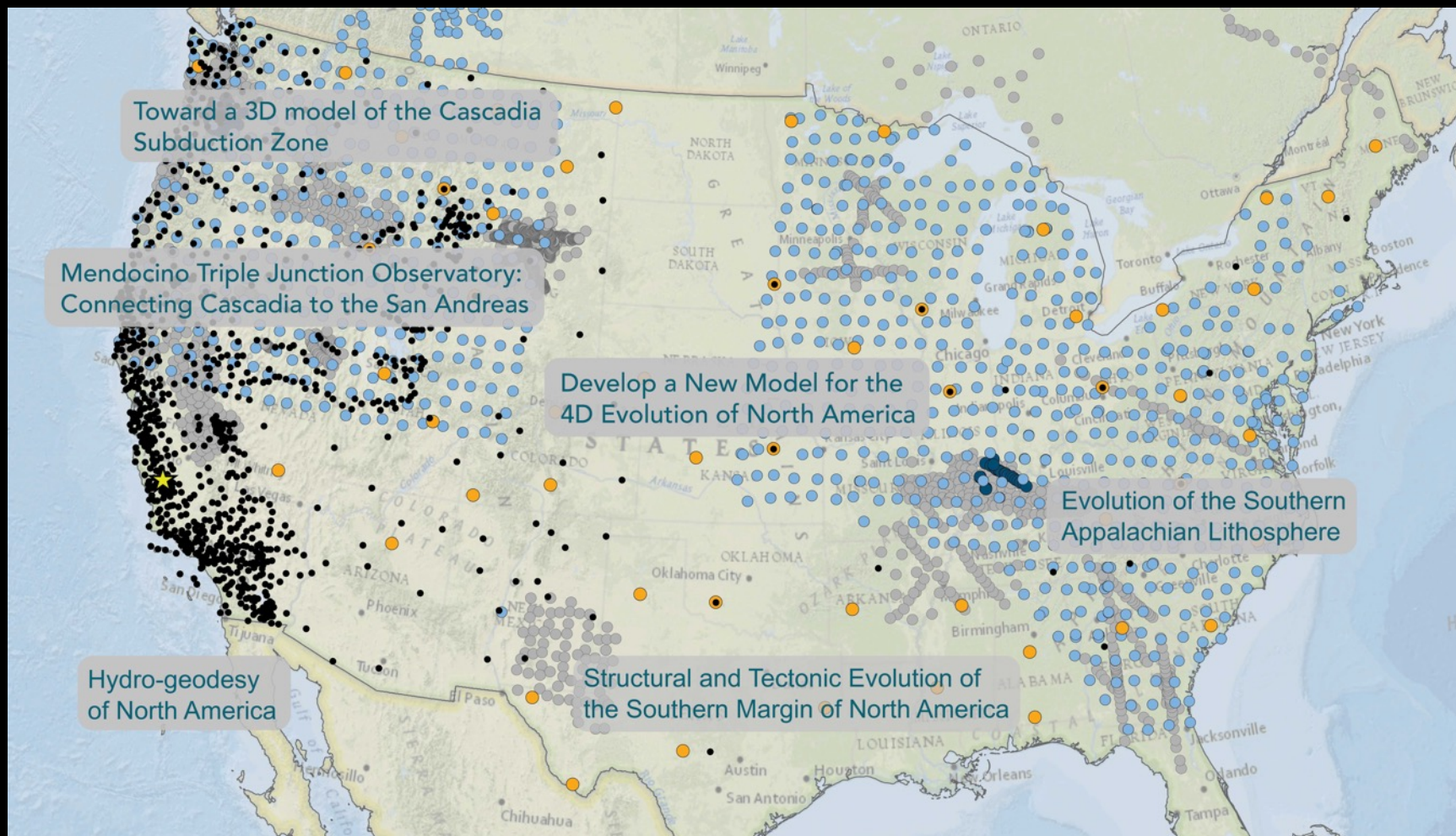
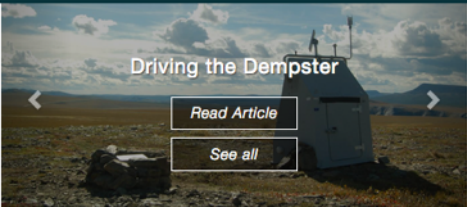


Will you feel an earthquake?



Synthesis Workshops





Driving the Dempster

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Home / Articles / Driving the Dempster



Driving the Dempster

The Transportable Array deploys along a remote Canadian "highway"



by Andy Frassetto - Fall 2016

In summer 2016, instruments of the Transportable Array (TA) were deployed along the Dempster Highway, which traverses vast wilderness in the Yukon and Northwest Territories of Canada. The Yukon is a region larger than the state of California, with a population of around 35,000 people and a few major roads providing direct access to only a small part. The Dempster is one of these, an engineering feat that traverses 736 km of gravel berm built over two decades to serve Canada's economic interests along the Arctic Ocean. The road overlies permafrost in many places, requiring constant maintenance, and is subject to periodic closures due to washouts and avalanches. Near its northern extent, summer ferry crossings and winter ice roads substitute for bridges.

The remoteness of this stretch of road is the exact reason that Jeremy Miner and Andy Frassetto from IRIS, along with Jim Coates and Astrid Grawehr of Darkside Drilling made their way northward from Whitehorse, Yukon in two pickup trucks, a flatbed, and a drill rig on August 21. En route to the active gold rush town of Dawson City, Jeremy and Andy upgraded a communications relay at TA.M30M, and the next day the group drilled and installed new station TA.K29M. Embarking on the Dempster the following morning, they installed two new, complete stations TA.G30M and TA.F31M

From this Issue

Fall Creek, Oregon

Driving the Dempster

Watching a Volcano Breathe

The Multi-Chambered Heart of Mount St. Helens

Fall 2016 Education Corner

Related Articles

EarthScope and Place-Based Education

Triangulation Point, Oregon

Crustal Strength Profiles Across the Brittle-Ductile Transition

New Active Earth Monitor Content Set

A Coast-to-Coast View of the Mantle Beneath the United States

Notifications and Events

12-02 | Synthesis STESMA application

12-12 | 12-15 AGU Meeting 2016

12-14 | ES Science and Synthesis Town Hall

We want to feature your science

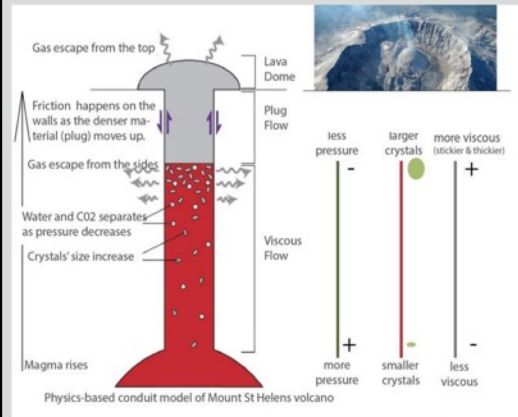
EarthScope's Highlights

1 2

Using models to figure out how magma will move through a volcanic system

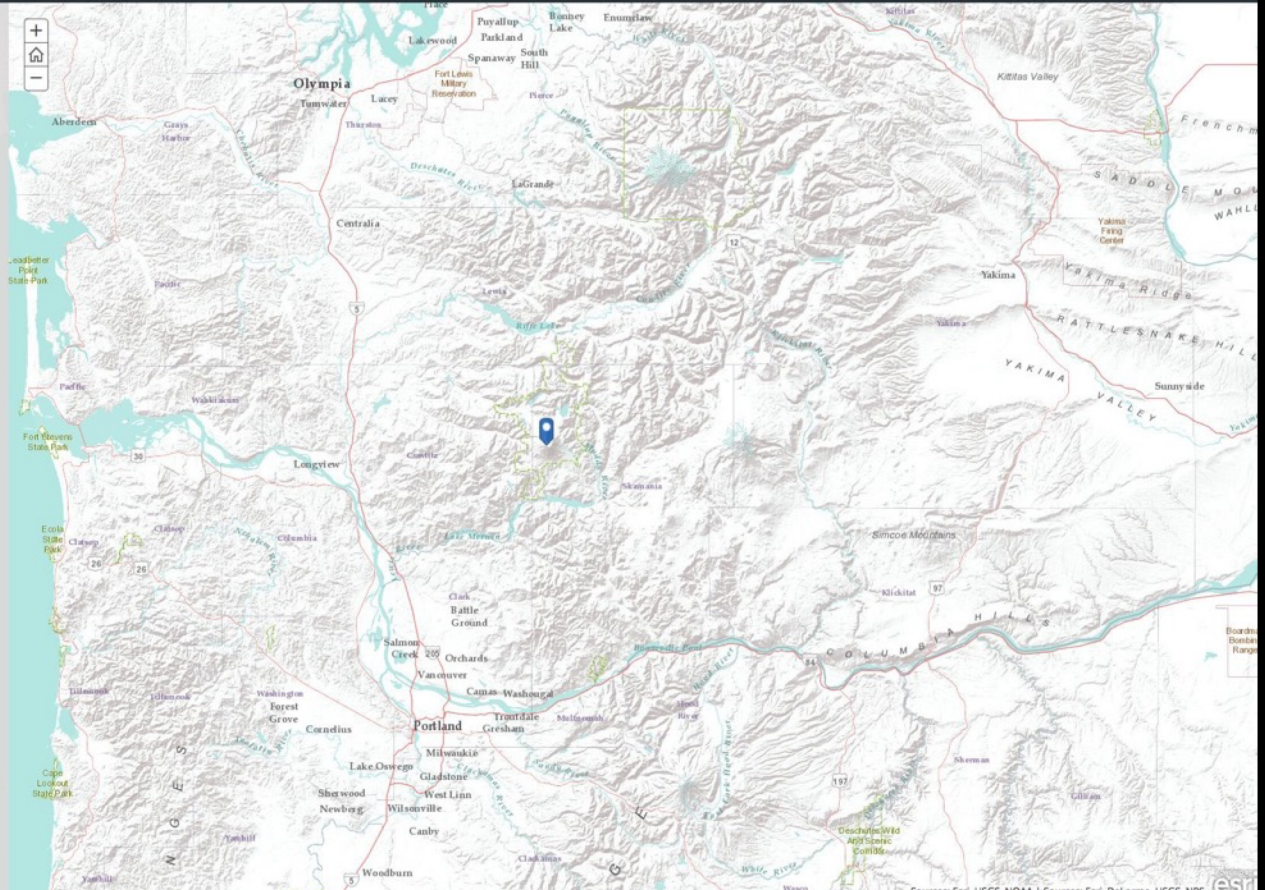
Volcanic systems are complex: magma and gas move vertically and laterally, crystals form at different pressures, and all of this and more affects how the magma flows once it reaches the surface. Earth scientists are combining measurements they make at the volcano with computer models based on the physics involved in volcanic eruptions. The models have grown more sophisticated over time, and are now integrated with advanced mathematical statistics. By integrating diverse geological and geophysical datasets, our team can check the probability of a particular volcanic scenario as the complex volcanic system evolves.

In our study, we considered the dome-forming eruption of Mount St. Helens in 2005. Our volcano model was a cylindrical conduit, and we added to it the ability to lose gas out the top or the sides. In the model, crystals form from the magma depending on pressure—as pressure decreases, the “melt” crystallizes and water and gas (CO_2) evaporate. As the magma rises, the crystals grow and the viscous resistance increases until the magma starts to plug the volcano. At that point, crystals scrape past each other, rather than flowing as part of gooey magma (“plug flow”).



Future work

In this model, one important variable is missing: the volume of the magma. This variable can be obtained with data from how much magma comes out during an eruption, combined with continuous GPS that tracks volcano inflation and deflation. By including those measurements in the future, scientists will be able to determine the likely scenarios



We want to feature you!

"I love that my job allows me to directly impact people's lives."

—Liz Vanacore



"My research has taken me to Rwanda, Burundi, Ethiopia, Tanzania, Malawi."

—Cynthia Ebinger



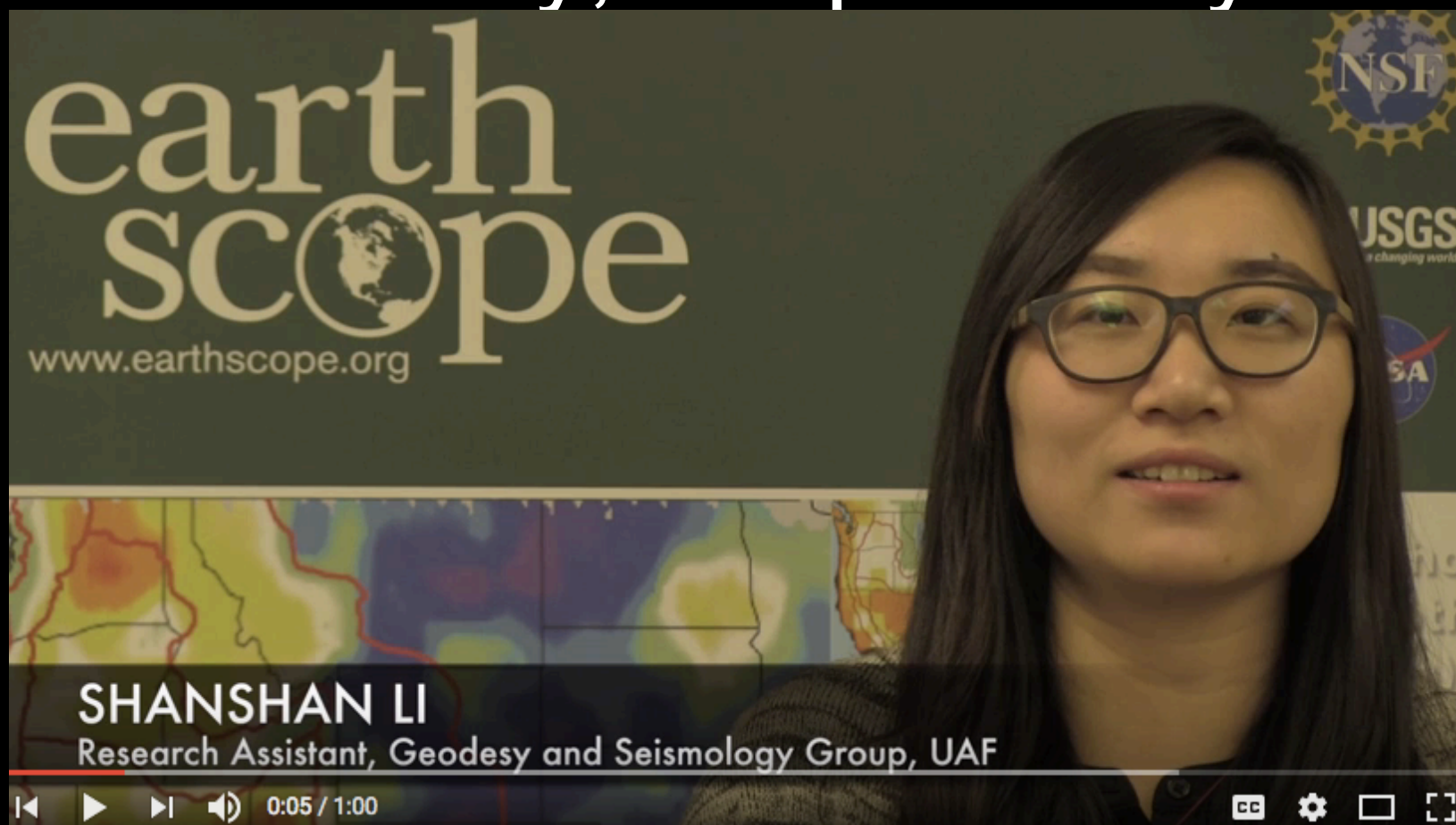
"Field work brings out the thirteen-year old adventurer in everyone!"

—Vadim Levin

Humans of EarthScope

www.earthscope/public/HuofES

Look for a camera at the back
of lobby, 2-3 pm today



Apply to Host a Speaker

Applications now open, close July 1

- Julie Elliott
- Karen Fischer
- Rebecca Flowers
- Beth Pratt-Sitaula
- Carl Tape



Gauge the Impact of E&O

- The EarthScope E&O Subcommittee created a survey to gauge the impact of EarthScope Education and Outreach efforts across NSF-funded EarthScope projects. We ask that Principal Investigators or Co-Principal Investigators:
 - *provide some basic project information,*
 - *answer a few questions related to the impact and scope of your education and outreach efforts*
 - *share the successes and challenges of your efforts.*
- The survey has been sent to all conference participants plus to the EarthScope listserv.

Overview Day 2

- Morning
 - Subduction Zone Structure and Deformation
 - Alaska (part 1)
- Lunch talk: Mike West, "Is EarthScope Really a Benefit for Hazards Monitoring?"
- Afternoon
 - Alaska (part 2)
 - Outside the EarthScope Footprint
- More poster time
 - Posters taken down by 9 pm