[Speaker 1:](https://www.rev.com/transcript-editor/Edit?token=eEuGgvzZQofLHsdSoxZQ2oPzRt70VOiFrKaAKpcQo1Mr4bxMlH3yrGr1PKZ3uirAhoQX4F9xSDEqnoURiiRP3qZ-0R8&loadFrom=DocumentSpeakerNameDeeplink&ts=3.46) The Missouri State Journal, a weekly program keeping you in touch with Missouri State University.

[Donnelson:](https://www.rev.com/transcript-editor/Edit?token=4RdITgUX4z6k3T5cIHvzV7PvHVCq9jQ-GRn6XonXUw3w3_XED_Mru-1ERLOECubXVKpgAJaeQvjYQgNcYglxGtPmj3Q&loadFrom=DocumentSpeakerNameDeeplink&ts=10.09) Hundreds of volcanoes exist in the United States. Most are considered dormant and haven't erupted for more than 10,000 years. That doesn't mean that they can't or won't. I'm Nicki Donnelson. Today on The Missouri State Journal my guest is Dr. Gary Michelfelder, Assistant Professor in the Department of Geography, Geology and Planning at Missouri State University. He's says that though you may not know it, volcanoes affect our lives every day. He explains.

[Michelfelder:](https://www.rev.com/transcript-editor/Edit?token=1N-rQd1evfiBPPydxoGbG5EHbeBGCHgzXoVnbadV-eN2sr59WWxwUk8789cZLwPw0mYSM1v5UewLFky-8HVRaCbk_LM&loadFrom=DocumentSpeakerNameDeeplink&ts=40.38) It can be things from a large volcanic eruption in Indonesia putting sulfur gasses or ash into the atmosphere that can change the climate. The research that I'm working on in Chile, these volcanoes are extremely large and they'll help us inform about what's happening, let's say, at Yellowstone.

[Michelfelder:](https://www.rev.com/transcript-editor/Edit?token=jpN_phGFcydKMLtiAdAh_8LzCxa8dPe3GLlgl5H_7XtHiUForxjckUV7OrstLW1XBINJ5--jyeMIxTYnuz8m7s57TSc&loadFrom=DocumentSpeakerNameDeeplink&ts=59.81) Where Yellowstone might be a little different than the Cascades, people who remember Mount St. Helen's in the 1980 eruptions see volcanoes as one style and they see Hawaiian volcanoes as another style. Well, this is a third style of volcanoes that we don't witness very often.

[Michelfelder:](https://www.rev.com/transcript-editor/Edit?token=mniNl20LuIOP497YKAOLSRC-hlWIJpkNXqVqomBqEY_7T0ziaYM6r0S8XL_2R8cl6cxR7sryUSrTaegf3cjTr3KoKdU&loadFrom=DocumentSpeakerNameDeeplink&ts=78.46) So when we see a large eruption people tend to forget that it can have global consequences in terms of the climate for years to come afterwards, and in terms of changing agricultural yields and how much corn is being produced in the midwest from a volcano that's erupting in Japan.

[Donnelson:](https://www.rev.com/transcript-editor/Edit?token=5uiamTu4-Pxpd4znz_82PzlpMbNpVMuSFYTrdSrRFOqpFybKWbmywycEVVB7ajTBvZWSe9wP-63dlcf1IsubOPlBvEQ&loadFrom=DocumentSpeakerNameDeeplink&ts=101.61) Michelfelder is interested in how the Earth's crust formed, as well as how volcanoes played a role in the formation of the oceanic crust. One way he studies this is by dealing with the magma that's below the surface. The other is by investigating the triggers of volcanic eruptions. He recently returned from a trip to Chile for his research. He elaborates.

[Michelfelder:](https://www.rev.com/transcript-editor/Edit?token=T1IPEaA0bRA9a7QksuD2AwvV4zLMP8o0Kz7OCUgbmcEsdgj1Au5Ab7izj41BF6jUy86vf-tEkmTREeJXYn5u9PWVZSE&loadFrom=DocumentSpeakerNameDeeplink&ts=124.7) I go down there a couple times a year actually for research, to look at the Chilean volcanoes that are part of the Andes central volcanic zone, which is a unique volcanic system comparatively to like Hawaii in that the crust there is extremely thick and it's extremely young in comparison to like the Cascades or Hawaii, which is oceanic crust.

[Michelfelder:](https://www.rev.com/transcript-editor/Edit?token=scKxJ7UmwTc6cRJs9u55H1nO7sgvxOvpl80QJzkyAhc9MxEfZpGj5g6TOHreJjpd0Rh4b-_KwUBcdLuvd48ifTD06Fs&loadFrom=DocumentSpeakerNameDeeplink&ts=148.72) The trip that I was down there working on was actually with a group of students. I took eight undergraduate students from Missouri State here to go down and learn how to do research on active volcanoes, mapping the volcano and trying to determine the volcanic stratigraphy, or how many volcanic units has been erupted at this one particular volcano, [Roscow 00:02:51] volcano, to try to get an idea about how that has evolved and changed the crust over time.

[Donnelson:](https://www.rev.com/transcript-editor/Edit?token=1Nc_Nb86FlYvgSWKVo5ParxsIgP92CyV_hM6PsiwRnlWonPljWIGvOj7W5n23pSPcRRAPFPKf4--3lmws2pEL65aG7o&loadFrom=DocumentSpeakerNameDeeplink&ts=177.86) One of the big questions in our science Michelfelder says is how did the continents chemically form and why do they look the way they do? Studying volcanoes and magma is like looking at a snapshot in time, and he hopes his research is helping the greater scientific community gain some insight.

[Michelfelder:](https://www.rev.com/transcript-editor/Edit?token=hxJdUHVAcWE7OaZ3UudOIu3cIeeATeW244VfMeP-72boNVp3Nmi07PXBgJGoNGCy6VMT1l6xPBAvUDbVSKbeQ66UYoA&loadFrom=DocumentSpeakerNameDeeplink&ts=195.55) Even though the volcano may not look like a volcano anymore, it may not be erupting currently, they are active and dangerous environments, and they are very unpredictable. While we are getting better at predicting eruptions and the styles of eruptions, we're still very bad at it comparatively to what a lot of people think we are.

[Michelfelder:](https://www.rev.com/transcript-editor/Edit?token=7T6oYZnxD0kWXgvw4Vh5hgIs_tF5yTvTkC1ByB1fAHeJNOfIKV6oOf3L-fNVCDIG6mMKUzl7wNdw1zuHr3lE9-75T88&loadFrom=DocumentSpeakerNameDeeplink&ts=220.75) So understanding these volcanic systems even somewhere as far away as in Chile, it's very important for us to understand different volcanoes in different locations just because of the fact that they are so unique and every volcano is its own animal, so to speak, and that it behaves differently every time it erupts, and the volcano that's next to it may behave completely different than that.

[Donnelson:](https://www.rev.com/transcript-editor/Edit?token=A3t43PgECVuG7NQkOytc5Y975JfnarQ5sifky19UMZj1340C6cukBnJD98d94t0W69iAuN9zSeRG1YI9kHuw9u5jbZ0&loadFrom=DocumentSpeakerNameDeeplink&ts=248.94) Michelfelder is taking another team of students to Chile this month. He tells us more.

[Michelfelder:](https://www.rev.com/transcript-editor/Edit?token=skmisxdn6DKxicYtjmRJggAo9ExNhqjYAryMUDQ8_z9Wvb5rJg0Ps4CK97Bf9iTuZL7t-0Jvuv5HtyRuRfySR7mVsJ0&loadFrom=DocumentSpeakerNameDeeplink&ts=254.86) We're going to do a couple different things. The students will be mapping, so they'll be out there physically looking at lava flows and trying to decide if it's the same lava flow where they're standing versus the one that's a few feet away.

[Michelfelder:](https://www.rev.com/transcript-editor/Edit?token=7ML4QemGb2hEM7FCmlx-Z-nT2YwbWYqDi9zWsfpAKKdYJeKnVM8lWVd0UG5fONPXnojO2M0oArWKwO3lxyRMGCvLimI&loadFrom=DocumentSpeakerNameDeeplink&ts=269.05) We'll also be taking down drones and flying drones around the volcano to map the volcano with drones and get very detailed imagery on the volcanoes, which will be one of the first times this is done in South America.

[Michelfelder:](https://www.rev.com/transcript-editor/Edit?token=1nTXq6Mqs2zNh87GanMbFAWKfi8GNIfez6UJhIr3coXYjhkPQN6pKRKnJptwYSluc0islzy1skMXeM9Wfg4RI4MBNPA&loadFrom=DocumentSpeakerNameDeeplink&ts=283.17) It's a new emerging field in volcanology that should really be able to give us a better understanding of how these systems behave and evolve, and well be able to get a lot of data that we cannot get otherwise. A drone can go places that humans can't go. We can send a drone down into the actual crater of the volcano and measure the temperatures, measure the gas contents, and that would be a very dangerous thing for a human to go down and do.

[Donnelson:](https://www.rev.com/transcript-editor/Edit?token=lqCbbtnU-xo2aHHj3Lu3AzUn0hdhI6PPFtOm3NhvXlFusr17ZmN2c7fR2Mn8qwMI8Yw89WqEO_aIDjkf01wVvxtjNus&loadFrom=DocumentSpeakerNameDeeplink&ts=313.27) That was Dr. Gary Michelfelder. I'm Nikki Donnelson for The Missouri State Journal.

[Speaker 1:](https://www.rev.com/transcript-editor/Edit?token=GXOS67e_iinsSEFTNFeGAY8Xhh_tcyLlzhRQHOFrjrTyIod8S2ldP2MFeGTD0lMbu7Ey6NihAobtvtFzrpAPRaeTaj0&loadFrom=DocumentSpeakerNameDeeplink&ts=318.7) For more information, contact the Office of University Communications at 417-836-6397.