CALIFORNIA STATE UNIVERSITY
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TITAN REPORT

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Geologists Called to Ridgecrest: Mapping Seismic Shaking

In sweltering triple-digit heat in the middle of a remote area of the western Mojave Desert, Cal State Fullerton earthquake scientist Sinan Akçiz trekked miles of sandy rugged terrain in a race against the clock. For a period of two weeks, over three separate trips, he combed the land in search of ruptures in the surface following the pair of powerful earthquakes that rocked Ridgecrest over the Fourth of July holiday. His goal was to record evidence before it disappeared beneath a bed of silt.

"We're trying to map the delicate rupture trace and measure the surface offsets before they quickly deteriorate and disappear," shares Akçiz, assistant professor of geological sciences. His student, geology major Salena Padilla, an intern at the Southern California Earthquake Center, joined him in the field.

Geological mapping is drawing the contacts between different rock units on a topographic map. "In this case, we follow the surface rupture and record its trace with GPS," Akçiz explains. "This will produce a map of the earthquake and will include information on how many faults were involved with the earthquake rupture, how wide the deformation zone was at each fault, and how much displacement of the surface occurred along the fault.

"This information might also end up getting used to design structures, including homes and office buildings, to withstand the distributed cracking and expected shaking."

DISCOVERING THE KEY TO SUCCESSFUL LEADERSHIP

What is it that makes people want to follow and perform well for a leader?

Ryan Gottfredson, assistant professor of management at Cal State Fullerton, explored this question in his study, "Leadership Behaviors and Follower Performance: Deductive and Inductive Review of Theoretical Rationales and Underlying Mechanisms," which was recently honored with the Journal of Organizational Behavior Best Paper Award. Gottfredson found that people are more likely to follow and perform when they perceive that they have a good relationship with their leader. This finding broadens the scope of current leadership theory, emphasizing this critical relational element rather than focusing solely on leader behavior.

"We essentially pitted different proposed explanations against each other and found that the primary reason why positive leadership behaviors lead to effective job performance is because such behaviors enhance positive relationships between leader and follower, and when these relationships exist, employees perform at a higher level," he said.

LEAPIN' LIZARDS! RESEARCHER DEVOTES LIFE TO STUDYING LIZARDS

Since childhood, alumnus Jason Wallace has chased lizards in the Mojave National Preserve. His fascination for creepy-crawly creatures like western banded geckos, desert iguanas and Mojave fringe-toed lizards began with family trips to the eastern Mojave Desert.

Later, as a Cal State Fullerton science student, his trips to the Desert Studies Center at Zzyzx for class field trips, and then for graduate research, opened his eyes to a career as a defender of desert animal and plant life.

Today, Wallace lives and works at the Desert Studies Center, an off-the-grid research and educational outpost — located about 60 miles northeast of Barstow in the Mojave National Preserve. Last fall, the researcher in herpetology, vertebrate biology and desert ecology stepped into the role of station manager of the center, operated by the California State University's California Desert Studies Consortium. The consortium includes seven CSU campuses, including CSUF, which provides administrative oversight.

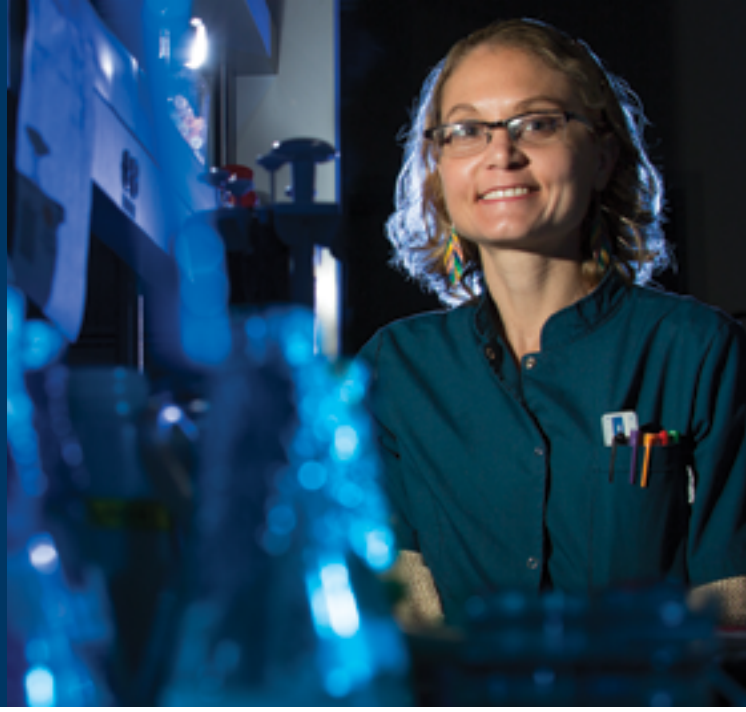
ANTIBIOTIC-RESISTANCE RESEARCHERS SHED LIGHT ON SUPERBUG HOSPITAL INFECTIONS

A team of Cal State Fullerton antibiotic-resistance researchers are one step closer to shedding light on why Acinetobacter baumannii, one of the most powerful and deadly bacterial pathogens, is so hard to eradicate in people with weakened immune systems and in hospital settings.

Their latest study, published in July in Frontiers in Microbiology (Infectious Diseases section), calls attention to how this superbug is able to grow and live by adapting to its environment inside the human body.

"Our results show how this pathogen can overcome harsh environments within the host by switching its metabolism to survive and persist," said María Soledad Ramírez, assistant professor of biological science, who led the research team and is a co-author of the paper.

The study's findings will help researchers develop new potential treatments or strategies to combat A. baumannii's infections.



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