

## SAN DIEGO ASSOCIATION OF GEOLOGISTS

[www.sandiegogeologists.org](http://www.sandiegogeologists.org)

### *SDAG MEETING ANNOUNCEMENT*

#### **DATE CHANGE**

to accommodate our guest  
speaker's travel

**WEDNESDAY  
NOVEMBER 10th 2021**

6:00 PM - Happy Hour

7:00 PM - Meeting Begins

**\*\*\* VIRTUAL MEETING \*\*\***

*Join Zoom Meeting*

[https://us02web.zoom.us/j/](https://us02web.zoom.us/j/85798184239?pwd=SHI4S3FIRTVVV1hQM0pJekZ1MUxZdz09)

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**Meeting ID: 857 9818 4239**

**Passcode: 461844**

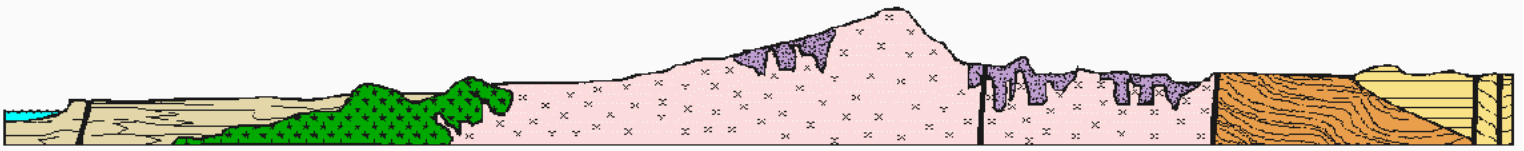
#### *TITLE:*

Source detection and discrimination for  
small-magnitude events (~M1-3) at local scale

#### *GUEST SPEAKER:*

Dr. Ruijia Wang  
University of New Mexico, USA





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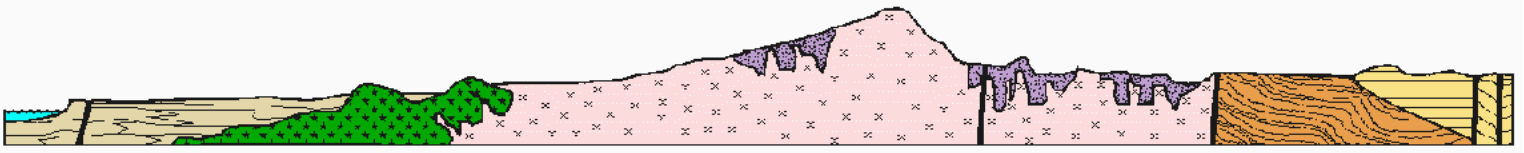
### ABSTRACT

Regional seismic monitoring for intra-plate regions is not limited to capturing large tectonic earthquake sequences. With denser seismic arrays deployed around the world, abnormal earthquakes like explosive sources and induced seismicity gain rising interests from the public, industry, and academia.

This presentation will share our experience in utilizing a machine-learning-based picker to detect and locate  $M < 3$  events. We successfully captured  $\sim 10,000$  earthquakes from a nodal array in the Raton basin, a region with active methane extraction and wastewater injection. The cluster distributions and focal mechanisms suggest more complex fault settings than previously known. Taking advantage of the dense array again, we also achieved excellent discrimination (nearly 100% accurate) between  $M < 3$  earthquakes and explosives in a continental volcanic arc setting near Mount St. Helens using P/S ratios (i.e., energy ratio between two seismic phases). The discrimination ability is further improved if combined with magnitude-difference metric (i.e.,  $ML - Mc$ ) and have been successfully applied to four diverse local-distance datasets. Both projects are highlighting the advantage of array data for low-magnitude event detection and discrimination.

### SPEAKER BIO

Ruijia Wang is a currently postdoctoral research fellow at the University of New Mexico and she will move back to China for a faculty position at the Southern University of Science and Technology. Before joining UNM, she received her Ph.D. from the University of Alberta in 2018 and worked at the University of Western Ontario for a year. She is an observational seismologist interested in intraplate earthquakes, especially the abnormal ones associated with anthropogenic activities.



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# EXCITING NEWS!!!!

## SAVE THE DATE

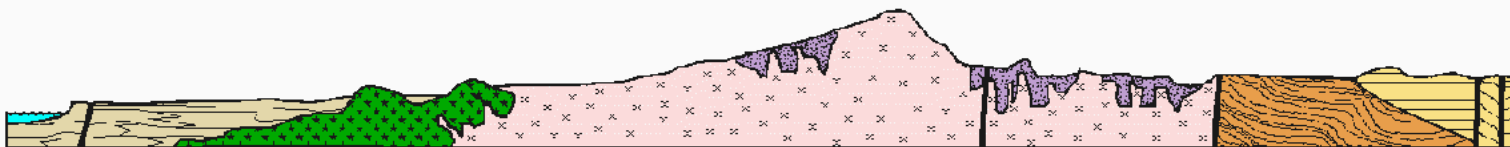
### DECEMBER MEETING

WEDNESDAY 12/15/2021

6 PM - AT THE NAT



THIS WILL BE OUR FIRST **IN PERSON** MEETING  
SINCE MARCH 2019. MORE INFORMATION TO FOLLOW.  
HOPE TO SEE YOU THERE!



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SDAG invites members to submit articles on their current research or an interesting project they are working on for publication in the monthly newsletter. The article should be no more than 1 page in length. Photos are welcomed; too. Please submit articles to the SDAG secretary via email.

### SDAG RESEARCH TOOL

A comprehensive listing of all papers published by SDAG, whether as annual field trip guidebooks or special publications, is available on our website. Entries are sorted by primary author, or chronologically by date of publication, starting with our first guidebook in 1972, out to Calico and the Mojave Desert in 2018, and finally up to the Temecula wine country for a return visit in 2020. These can be accessed or downloaded as .pdf files. They are fully searchable in Adobe Reader or Acrobat, so if you are researching a topic, "oikocryst" for example, you can search for that keyword. This listing will be updated as new books are published.

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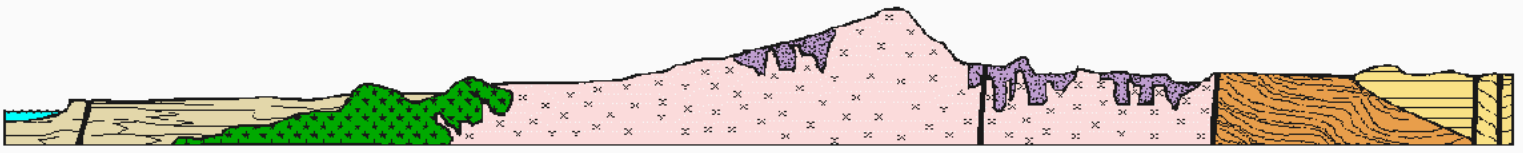
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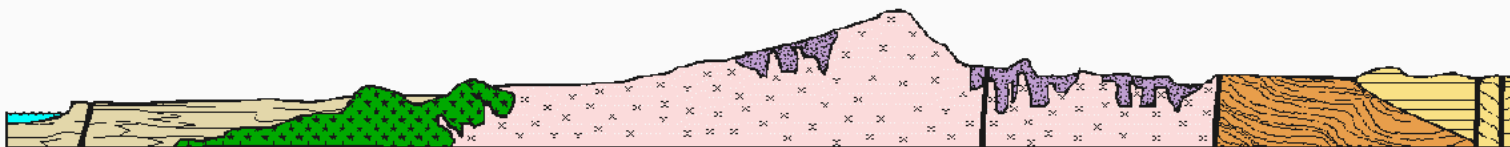
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