

## Geology of Amboy Crater

### Information

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Date/ Time: Saturday, November 5, 9 am – 3 pm

Meet at: [Amboy Crater National Natural Landmark](#), Amboy, CA

Instructor: Alessandro Grippo, Ph.D.,

### Overview

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Designated a National Natural Landmark in 1973, Amboy Crater was recognized for its visual and geological significance. There are a number of dormant volcanoes in the Mojave Desert and the southwestern U.S., and the Amboy Crater is a perfect example of a cinder cone, very similar to the other volcanoes found throughout the region. Cinder cones are small basaltic volcanoes that spit fragments of lava up to an inch or two in diameter. These fragments, or pyroclasts, land after being ejected into the air, either as liquid lava that cools on its way back to the ground or as fragments of pre-existing rocks, forming deposits called tephra. Once the gases contained in the underground magma are exhausted, lava flows along the side of the volcano. Both of these activities are present at Amboy. Some of the gases dissolved in the lava are released during the cooling process, causing the formation of a lot of air pockets (vesicles), giving some rock fragments a typical “Swiss cheese”-like appearance. This makes the rock somewhat lightweight. Join Professor Alessandro Grippo on this all-day field trip.

### Itinerary

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- 9:00 AM meet at Amboy Crater Parking Lot
- 9:15 AM brief introduction to the hike and the geology
- 9:40 AM start hike
- 12:00 PM lunch (bring your own food)
- 12:30PM continue field class
- 3:00 PM return to vehicles

### What to Bring to the Course

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#### *Optional Class Materials*

- Compass/GPS device

- Camera
- Binoculars
- Field guides

### **Suggested Reading:**

*“Roadside Geology of Southern California”* by Arthur Gibbs Sylvester and Elizabeth O’Black Gans  
Available at the Joshua Tree National Park Visitor Centers or [joshuatree.org](http://joshuatree.org)

### ***The 10 Essentials: Every day in the Desert***

- Day pack
- 4 quarts of water
- Closed toe hiking shoes-No sandals or equivalent
- Lunch and snacks
- Clothing layers
- Hat
- Sunglasses
- Sunscreen
- Notebook and pencil/pen
- Whistle

### **Fitness Requirements**

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Participants must be in good physical condition for courses/activities in a desert that may be hot, dry, windy, and sometimes surprisingly cold.

### **Hike Level**

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Moderate This hike will ascend the volcano flanks on a trail of lava. Black rock may add to the heat of the day. Optional descent into the volcano is available, but remember if you go down into the crater, you must hike back up.

### **Guidelines**

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- You are responsible for your safety.
- Park your car in designated areas only. Parking along the side of the road is dangerous to you and the environment.
- Rattlesnakes are present in the desert. Avoid contact with wildlife. Put your hands and feet only where you can see them.

- Only you know your limits, please let the instructor or Desert Institute Representative know if you do not want to continue. This is a long hike; only go if you are confident in your balance and scrambling skills.
- Stay with the group. If you get lost, stay put.
- Drink plenty of water. If you run out, notify the instructor or the Desert Institute Representative.
- Before leaving the class, check out with the Desert Institute Representative.

### **Instructor Biography**

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Alessandro Grippio, Ph.D., Geological Sciences, University of Southern California, has done research and taught geology, oceanography, stratigraphy, environmental geology and field classes at Santa Monica College and several California State University campuses. Alessandro has a keen interest for the geology of the American southwest and loves been out there exploring, learning, and sharing his passion for Earth and its history. Alessandro also worked in the oil industry between his M.S. and his Ph.D., was a fellow faculty member at NASA-JPL for one year, and brought his students from Catalina Island to Nevada, from the Salton Sea to northern California. His interests and study, together with his passion for photography took him throughout Europe and the Americas looking for geological features.

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\* The Desert Institute staff/instructors will attempt to accommodate participant's needs; however we reserve the right to deny a student participation in the course due to concerns regarding health and safety issues.