

“Pressure Cooker”



The inner north wall of *Cerro Colorado*. This structure is about one kilometer (3300 feet) in diameter, and about 110 meters (360 feet) deep. You can just barely make out our vehicles in this image. They are the small white dots, across the crater, along its rim. A dark lava flow can be seen in the distance.

Just across Arizona’s southern border, on the way to the Gulf of California, lies one of the Sonoran Desert’s most spectacular geologic features – the *Pinacate Volcanic Field*. Few of the many thousands of tourists that each year visit the party-place we call Rocky Point (Puerto Peñasco to the Mexicans) even know that it is there. That’s a good thing, too, for part of its beauty is its desolation. It is one of the most similar places to the surface of the Moon that you will find anywhere on Earth. Not because of its loneliness, though.

From the highway to the coast, you cannot see that out there in that barrenness lie a number of impressive craters. Get up in the air, however, and it looks much like what you see through a telescope focused on the lunar landscape. Massive, ring-shaped, and deep, those craters show that the now-quiet countryside was once a pretty violent place.

Previously, I’ve written about the explosive San Francisco Peak(s) of northern Arizona, towering above Flagstaff, and not hard to miss at all. But the craters of the *Sierra Pinacate* region of Sonora are not readily apparent until you are right there.

This area lies within a Mexican National Park – the *Parque Natural del Gran Desierto del Pinacate* – which also features a sea of sand dunes, lava flows, and a number of volcanic cinder cones. It is not the kind of place you want to venture into light-heartedly, with your passenger car and beach clothes. Take a lot of water – that is some good advice, too.

To me, the craters are the most interesting things to see, and these are some *really good ones*. They are different from craters on the Moon, though, because the lunar ones were formed by impact – asteroid, meteoric. Same with Meteor Crater, near Flagstaff.

The Pinacate craters were created by relatively shallow explosions in the crust of the Earth. They are a type different even from the volcanic craters and cones of northern Arizona, like Sunset Crater. In “geology-speak”, they are called *maars*, and these happen to be some especially young ones.

The Gran Desierto (Grand Desert) is a dry, dry place. Yet, deep underneath the sparse desert scrub that does exist there, is groundwater, or very recently was, apparently. That water occupied layers of rock, in turn overlying lower rock units that become hotter with depth.

Remember, and I’ve written about this in many other articles, that this part of North America is very active, geologically. Earth’s crust is and has been breaking up in this zone, and the fractures run deep. Molten rock can move upwards along those fractures, eventually making its way to the surface, hence the cinder cones and lava flows.



Cerro Colorado from the west.



Crater Elegante is too wide to fit into one picture.

In the past, here in the Pinacate Field, some of that molten rock moved upwards, and encountered groundwater deposits (known as *aquifers*). When it did, it converted the water instantaneously to steam – massive amounts of it – and the ground literally exploded outward, creating maars.

Then, at least in some of the cases in the Parque Natural, those exploded chambers collapsed back into themselves, expanding them additionally into structures known as *calderas* – gaping holes in the ground. There are at least ten of these maar / calderas in the Volcanic Field.

It is possible that humans witnessed some of the eruptions. *Hohokam* relics have been found along some of the erosion surfaces in the area. Studies show that the blasts occurred within the last few million years, and some only within the last few thousand years. Very jagged, black, and barren, the *basalt* lava formations that you drive by between the craters look like they flowed yesterday.

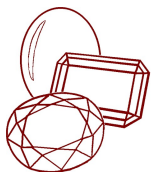


Basalt lava flows cover the Gran Desierto del Pinacate.

As you can see, the starkness of the vista adds much to the other-worldly look of this place, so if you can't make it to the Moon (and most of us won't have that chance), you can at least get an idea of the lunar scenery by visiting the Pinacates.

Breathing is easier there, too.

To learn more about the Sonoran Desert's fascinating geology and archaeology, visit www.gemland.com. There you will find interactive maps, where you can click on any name to initiate a series of images, together with geologic explanations. You can even send any picture you like to your friends as an E-postcard for FREE!



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At right: natural blue sapphire and platinum wedding set by GemLand © 2004



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