

*Welcome to Earth Matters – field notes on the geology of New Mexico’s Enchanting Landscapes. Celebrating Earth Science Week, I’m Gretchen Hoffman.*

It is hard to imagine that New Mexico has ever had anything but an arid climate, but by looking at the rocks found here, we find evidence that the climate has been quite different in the geologic past. For example, the presence of coal in northwest New Mexico, one of our primary energy resources, is evidence of a radically different environment.

Most New Mexico coal deposits were formed between 95 and 65 million years ago in steamy swamps when much of the state was covered by a shallow inland sea. Lush vegetation along the coast of this seaway captured energy from the sun through photosynthesis to create plant tissue. As plants and trees died, their remains sank to the bottom of swamps where multiple layers of plant debris eventually formed a soggy, dense material called peat.

Over long periods of time, sand, clays, and other mineral matter were brought into the swamp from large rivers flowing to the sea. Eventually the peat swamps were buried as more and more sediment washed into the coastal swamps from the highlands to the southwest and the sea coast retreated to the northeast.

As the sediment buried the swamps deeper and deeper, the temperature increased and gradually the peat was transformed into coal. Depending on the amount of time, temperature, and depth of burial the energy content of the coal increases. Scientists estimate that 3 to 7 feet of peat is required to form 1 foot of bituminous coal.

New Mexico coal is a significant source of energy that is mined in the northwest part of the state. Several power plants burn this coal to produce over 73 percent of the electricity consumed in New Mexico

*Celebrating Earth Science Week, I’m Gretchen Hoffman of the Bureau of Geology at New Mexico Tech.*