

## **El Morro National Monument** (Stacy Timmons)

Welcome to Earth Matters: Field notes on the geology of New Mexico's enchanting landscapes. Celebrating Earth Science Week, I'm Andy Jochems.

El Morro National Monument, featuring an impressive and iconic sandstone cliff, is located 56 miles southeast of Gallup and 42 miles southwest of Grants. The highlight of this national monument is a 200-foot wall of sandstone with thousands of carved signatures and petroglyphs, some more than 500 years old. The sandstone cliff is composed of the Jurassic age Zuni Sandstone, which was deposited in a wind-blown dune field environment about 160 million years ago. During this time, a very large dune field covered a region of the southwest that includes the Four Corners area. Approximately 65 million years of time is missing in the rock record between the top of the Zuni Sandstone and the cap of this cliff, the Dakota Sandstone that belongs to the Late Cretaceous, at about 95 million years old. This lost record is known in geology as an unconformity. Much later in geologic history, a mere 115,000 years ago, volcanic eruptions at the Zuni-Bandera volcanic field to the east formed basaltic lava flows in some of the low-lying valleys in the area. These lava flows are found in the campground area of the national monument.

Travelers in the more geologically recent past, around the last 500 years, have sought this location for its water source, a spring fed pool of water at the base of the Zuni Sandstone cliff. Travelers now-a-days can access El Morro National Monument for a nominal entrance fee, and enjoy hiking, camping and picnicking in this geologically and historically intriguing area.

Celebrating Earth Science Week, I'm Andy Jochems with the New Mexico Bureau of Geology at New Mexico Tech.