White Sands

National Park Service
U.S. Department of the Interior

White Sands National Monument

Uncovering Dunes

Have you ever wondered how fast the dunes are moving? Will they always be here or will they blow away some day? Do you think about how the dunes change over time? Is the dunefield getting smaller, larger, or staying the same? These questions can only be answered by studying the dunes over long periods of time.

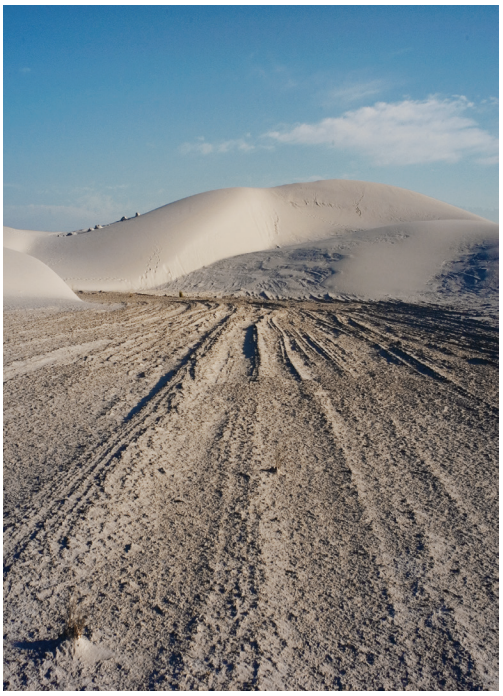
To answer these questions, scientists are working on multiple studies. They have surveyed a 15 kilometer strip of dunes with lasers; installed shallow water wells across the dunefield; looked at the chemistry and age of the water below the dunes; measured hundreds of thousands of individual sand grains from across the dunes; and used satellites to see temperature and moisture changes throughout the year.

Although many of these studies have just begun, amazing discoveries have already been made. Overall, studies are showing that dunes change greatly as you move from the eastern edge of the dunefield toward the western boundary where the dunes start. At the west side, the dunes are very large (over 50 feet tall) and get smaller and smaller until they come to an abrupt stop. No one knows why the dunes suddenly stop at the eastern boundary.

Throughout the dunes, water is only a few feet from the surface and very salty but as you move from east to west, the water becomes older and saltier. The depth to ground water also decreases from five feet below the surface on the east side to only one or two feet on the west side of the dunes. The vegetation and speed with which the dunes move also changes as you go from east to west. The dunes at the western end have very little vegetation and move very fast while the dunes on the eastern end move very slow and are very vegetated. As you move from east to west the sand grains become larger and have all different shapes (at the eastern edge they are very small and round).

From satellites images, it is easy to see that the dunefield is much cooler and wetter than the surrounding hot, dry desert soils. Dust can be seen moving from White Sands to as far as Oklahoma. Through the use of laser scanning, scientists have been able see what appear to be old lakeshores beneath the dunes. At each of these old lakeshore terraces, the dune movement and type of dunes present changes greatly.

The White Sands dunefield is an ideal place to study sand and dune movement. We hope that as you visit this white island in a sea of desert you will also enjoy seeing how the dunes change and move over time.



Dune Footprints