

DUST IN THE WIND

In the three-plus decades I have made Arizona my home, I have become used to dust storms that shake, rattle, and roll auburn-colored particles through the otherwise serene mauve, light olive and gray-blue desert landscape during July and August.

These routine but menacing dust storms, also called haboobs, roll in with the fury of a genie let out of a bottle. These tidal waves of dust are some 30 feet high and coat buildings, mountains, streets, trees, and everything else, nearly obliterating visibility as the storm rolls through. From the Arabic meaning wind, a haboob occurs when the front of a thunderstorm cell presses down to create a large swirl of dust.

In the desert, everyone is aware that this stirring of dust causes fungal spores to alight, resulting in new cases of valley fever caused by the *coccidioides* organisms. Those who are affected can experience symptoms that include fever, chest pain, and coughing. Dust — and blowing dust, in particular — is a major health concern throughout the world. In its Healthy People 2020 document, the U.S. government's environmental health objectives focus on outdoor air quality, toxic substances, and global environmental health.

The International Year of Planet Earth in 2008, initiated by the International Union of Geological Sciences and UNESCO, also focused on environmental health. As the prospectus for the study states, "Geology may appear remote from human health. However, rocks are the fundamental building blocks of the Earth's surface, full of important minerals and chemical elements ... Earth and Health, or 'medical geology' is concerned with the relationship between natural geological factors and human and animal health ... Medical geology brings together earth scientists and medical/public health researchers to address health problems caused or exacerbated by geologic materials and processes — such as volcanic eruptions, earthquakes and atmospheric dust."

Nearly three billion people can be affected by dust, so it is important to understand how to avoid hazards related to migrating dust. While there are yet no precise answers, scientists do know that fine particles of dust can penetrate deeply into human lungs, causing silicosis. What is also known is that the denser the dust, the more harmful the potential damage, often resulting in chronic respiratory disease. Scientists have learned that silicosis has been around for some time; it was observed in the Bedouin people of the Sahara Desert nearly one hundred years ago.

Surprisingly, the atmospheric dust that is carried by a haboob or other dust storm may have its origin hundreds or thousands of miles away. As the scientists say in the prospectus, "Dust is a global phenomenon. Dust storms from Africa regularly reach the Alps, and Asian dust outbreaks can reach California in less than a week, some

ultimately crossing the Atlantic."

So why should we be concerned? Blowing dust can transport bacterial and fungal strains to cities and communities, reduce the quality of air, carry toxic substances, and more. From a human perspective, disturbing soil as little as possible and allowing natural vegetation to curb movement of airborne particles help minimize the movement of dust. While there are Environmental Protection Agency recommendations to help control dust, some measures are relatively simple: Avoid disturbance to natural flora and fauna, and allow them to protect the environment. Drive your car less, too.

So the next time you see a dust storm, close your eyes and hold your breath. Imagine where the dust you see may have come from. Our Arizona haboob dust may, in fact, be from Mongolia.

For more information:

Healthy People 2020

<https://www.healthypeople.gov/>

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