

When the Sahara turned to sand

November 11 2013



In analyzing the above sediment core, deMenocal and Tierney found that north Africa's climate about 5,000 years ago dried out in as little as 100 to 200 years.

The Sahara wasn't always a desert. Trees and grasslands dominated the landscape from roughly 10,000 years ago to 5,000 years ago. Then, abruptly, the climate changed, and north Africa began to dry out.

Previous research has suggested that the end of the African Humid Period came gradually, over thousands of years, but a study published last month in *Science* says it took just a few hundred. The shift was initially triggered by more sunlight falling on Earth's [northern hemisphere](#), as Earth's cyclic orientation toward the sun changed. But how that orbital change caused North Africa to dry out so fast— in 100 to 200 years, says the study— is a matter of debate.

Two feedback mechanisms have been proposed. In the first, as the climate gets warmer and drier, trees give way to sparser vegetation, making the now barren region warmer and drier, causing more vegetation to wither. The explanation favored by the authors—climate scientists Jessica Tierney, at Woods Hole Oceanographic Institution, and Peter deMenocal, at Columbia University's Lamont-Doherty Earth Observatory—is that shifting sea-surface temperatures in the Indian Ocean reduced rainfall over east Africa.

The study puts the dawn of the Egyptian state, at about 5,000 years ago, into context and suggests that feedback mechanisms could cause similar rainfall switches in north Africa and other regions as humans continue to heat the planet. "It's evidence that climate doesn't respond gradually to gradual forcing," deMenocal [told](#) The Atlantic.

The study is also one of the few climate reconstructions to have come out of the region recently. One of the crucial sediment cores was recovered in 2001 aboard a Dutch research ship in the Gulf of Aden a couple of months before the Sept. 11 terrorist attacks, just before a major surge of terrorism, political unrest and piracy largely placed the Horn of Africa off-limits to scientists.

Even then, pirates were already a danger, deMenocal explains in the video above. Lamont's own research ship, the Maurice Ewing, had been attacked with rocket-propelled grenades a few months before. To avoid detection, the captain shut off the ship's radar, radio and navigation lights as they sailed along the coasts of Somalia and Yemen. By fax, the ship received updates of known pirate attacks, some near sites they had planned to core. But they got their core and eventually docked safely in Egypt.

Provided by Columbia University

Citation: When the Sahara turned to sand (2013, November 11) retrieved 19 April 2024 from <https://phys.org/news/2013-11-sahara-sand.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.