

Ethiopia's climate 27 million years ago had higher rainfall, warmer soil

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Thirty million years ago, before Ethiopia's mountainous highlands split and the Great Rift Valley formed, the tropical zone had warmer soil temperatures, higher rainfall and different atmospheric circulation patterns than it does today, according to new research of fossil soils found in the central African nation.

Neil J. Tabor, associate professor of Earth Sciences at Southern Methodist University in Dallas and an expert in sedimentology and isotope geochemistry, calculated past climate using oxygen and hydrogen isotopes in minerals from fossil soils discovered in the highlands of northwest Ethiopia. The highlands represent the bulk of the mountains on the African continent.

Tabor's research describes a picture of the paleo landscape of Ethiopia that wasn't previously known because the fossil record for the tropics has not been well established. The fossils were discovered in the grass-covered agricultural region known as Chilga, which was a forest in prehistoric times. Tabor's research looked at [soil](#) fossils dating from 26.7 million to 32 million years ago.

Fossil plants and vertebrates in the Chilga Beds date from 26.7 million to 28.1 million years ago, Tabor says. From his examination, Tabor determined there was a lower and older layer of coal and underclay that was a poorly drained, swampy landscape dissected by well-drained Oxisol-forming uplands. A younger upper layer of the Chilga Beds consists of mudstones and sandstones in what was an open landscape

dominated by braided, meandering fluvial stream systems.

Tabor is part of a multi-disciplinary team combining independent lines of evidence from various fossil and geochemical sources to reconstruct the prehistoric climate, landscape and ecosystems of Ethiopia, as well as Africa. The project is funded with a three-year, \$322,000 grant from the National Science Foundation. The team includes paleoanthropologists, paleobotanists and vertebrate paleontologists from the University of Texas at Austin, Miami University, Southern Methodist University, the Fort Worth Museum of Science and History, Washington University and the University of Michigan.

Tabor presented the research in a topical session at the Oct. 18-21 annual meeting of the Geological Society of America.

Source: Southern Methodist University ([news](#) : [web](#))

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