Dust storms, blackouts and 50°C in the shade: Exploring the Roots of Humankind with MATLAB

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Geoscientists from the University of Potsdam reconstruct environmental changes in East Africa over the past five million years. Micro-organisms such as diatoms and rotifers, clay minerals and pollen, thousands of years old, help to reconstruct large lakes and braided rivers, dense forests and hot deserts, high mountains and deep valleys. This is the habitat of our ancestors, members of a complicated family tree or network, of which only one single species, Homo sapiens, has survived. MATLAB is the tool of choice for analyzing these complicated and extensive data sets, extracted from up to 300 m long drill cores, from satellite images, and from the fossil remains of humans and other animals. The software is used to analyze to detect and classify important climate transitions in climate time series, to detect objects and quantify materials in microscope and satellite imagery, to predict river networks from digital terrain models, and to model lake-level fluctuations from environmental data. The advantage of MATLAB is the use of multiple methods with one single tool. Not least because of this, the software is also becoming increasingly popular in Africa, as shown by the program of an international summer school series in Africa and Germany for collecting, processing, and presenting geo-bio-information.