



Climate change research

To study Earth's past climate and make predictions about future climate changes, scientists use a variety of proxy methods and materials, including fossils, ice cores, sediments, tree rings, shells, and rocks.

For example, isotopic analysis of ice cores and biogenic carbonates can provide insights into past global temperature and sea level fluctuation. Microfossils of shelled creatures that lived in that past environment tend to have shells enriched in heavier isotopes, which are related to warmer ocean temperatures.

An additional technique for paleotemperature reconstruction is clumped isotope thermometry, which is exclusively based on the thermodynamic properties of the ^{18}O - ^{13}C bond. In addition to carbon and oxygen isotopic composition, magnesium, strontium and calcium elemental information can help reconstruct water temperatures of the past.



Thermo Scientific™ Isotope Ratio Mass Spectrometry



Thermo Scientific™ Elemental Analysis

Find out more at thermofisher.com/ClimateResearch

© 2020 Thermo Fisher Scientific Inc. All rights reserved. All trademarks are the property of Thermo Fisher Scientific and its subsidiaries unless otherwise specified. AD30690-EN 0220S

ThermoFisher
SCIENTIFIC