



The Holocene alkenone SST record from Feni Drift (NE atlantic ocean) at 18 yr resolution

M. Esparza (1), J. O. Grimalt (1), T. Richter (2), T. C. E. van Weering (2)

(1) Institute of Chemical and Environmental Research (CSIC) 08034 Barcelona, Catalonia, Spain (2) Netherlands Institute for Sea Research (NIOZ), P. O, Box 59, 1790 AB Texel, The Netherlands

A high resolution sediment core from Feni Drift (ENAM9606, 55°39'N 13°59'W, 2543 m water depth) was investigated for alkenone sea surface temperatures (SST) during the last 10,000 years. The core has an average sedimentation rate of 30 cm/1000 years and was studied at a depth resolution of 0.5 cm, providing a time resolved record of 18 years. Age calibration was done with ^{14}C AMS dates in the piston and the box core. The latter was also aged with ^{210}Pb . Core top SST is 12.4°C. This value agrees quite well with the annual average top water column SST measurements, 12.6°C, recorded by NOAA-CIRES at the same site.

SST along the Holocene exhibits a general decreasing trend between 14°C (10000 yr B.P.) to 12.4°C (present time). In terms of long-term SST changes, the core exhibits a period stability between 10000 yr and 7500 yr at 13.5°C. Then, there is a decrease of SST from 7500-7000 yrs BP to 5500 yrs BP involving a decrease of 1°C. Between 5500 yr and 1800 yr BP there is a period of stability involving an increase of 0.1°C that is followed by another SST drop to 12.1°C at 680 yr BP. Between this date and present SST exhibits a constant values varying between 12.1°C and 12.4°C. An abrupt SST drop involving 1°C (from 12.3°C to 11.3°C) is observed in this period (220 to 160 yr BP, minimum at 180 yr BP). Another abrupt drop involving a decrease of 0.6°C (from 12.3°C to 11.7°C and back to 12.4°C) is observed between 1970 and 2000 AD with minimal values at 1990.