

This approach will be employed within the creation of a tephrochronological framework for the Greenland ice cores. These records potentially preserve a large number of tephra horizons that have similar major element compositions and are composed of small glass shards. However the methodological advances achieved within this study could be applied to any distal tephrochronological studies.

0677**Sedimentation and Climatic Processes on the Tagus River System (Portuguese Margin)**

Fatima F Abrantes¹, Teresa Rodrigues², Geert-Jan Vis³, Ulrich Alt-Epping⁴, Antje Voelker⁵, Isabelle Gil⁶, Susana Lebreiro⁷, Ralph Schneider⁸

¹*Departamento de Geologia Marinha, INETInovação, Portugal*

²*Departamento de Geologia Marinha, INETInovação, Portugal, Portugal*

³*Institute of Earth Sciences, Free University of Amsterdam, The Netherlands, The Netherlands*

⁴*Universitaet Bremen (GeoB), Germany*

⁵*Departamento de Geologia Marinha, INETInovação, Portugal, Portugal*

⁶*Departamento de Geologia Marinha, INETInovação, Portugal, Portugal*

⁷*Departamento de Geologia Marinha, INETInovação, Portugal, Portugal*

⁸*Marine Palaeoklimaforschung, Institut fuer Geowissenschaften, Christian-Albrechts-Universitaet zu Kiel, Germany*

To investigate the linkage of marine and terrestrial processes and the past climatic oscillations, that have occurred in the North Atlantic, on the Tagus River system, river discharge, sedimentation processes, Sea Surface Temperature (SST) and biological productivity were reconstructed through a multi-proxy study, in decadal-to-centennial scale resolution, from sediment cores collected on the Lower-Tagus floodplain, the shelf mud complex and the Tagus Canyon levee. Land cross-sections show a transgression in the Early-to Middle-Holocene with maximum flooding until ~5700 Cal yr BP. After ~5700 Cal yr BP, the fluvial system is marked by a prevailing progradation and after 2000 Cal yr BP a strong increase in sedimentation is noticed. Synchronous with the rapid infilling of the upper estuary, the shelf sedimentation rate increases by four times, while the Tagus canyon, marked by high terrigenous input and increased turbiditic activity during the glacial becomes starved during the Holocene. On the shelf mud complex, the record covers the last 14,000 Cal yr BP and the SST profile reveals the well known major climatic events, the Allerod/Bølling interstadial at the bottom of the sequence, the Younger Dryas SST minimum, a maximum SST Holocene Optimum (HO) and a 4°C-cooling trend from the HO to the Present. On a century scale, the 2°C SST variability during the last 2000 Cal yr BP allows the identification of the Medieval Warm Period (MWP) and the Little Ice Age (LIA). The MWP mild centuries reflect the occurrence of coastal upwelling conditions, while the LIA appears associated with an increased influx of terrigenous material. Based on the excellent match found during the last century between negative phases of the North Atlantic Oscillation (NAO) index and intensified Tagus River discharge, we hypothesize a period of negative NAO-like state or the occurrence of frequent extreme NAO minima during the LIA, while positive NAO-like state or the frequent occurrence of extreme NAO maxima should have marked the MWP. Furthermore, a major peak in magnetic susceptibility, 90 cm below the surface of the mud complex, is interpreted as a record of the 1755 AD Lisbon earthquake and accompanying tsunami. Such events are estimated to have eroded 39 cm of sediment (355 years) and instantaneously deposited a 19-cm sediment bed towards the SE, while a loss of 461 years and an instantaneous deposition of a 150-cm sediment bed are found to the W of the river mouth.

0686**Proxy Calibration to Instrumental Dataset: Implications for Paleoclimatological Reconstructions**

Fatima F Abrantes¹, Teresa Rodrigues¹, Cristina Lopes¹, Isabelle Gil¹, Helga Jonsdottir¹, Ian Harris², Lynn Witt³, Joan Grimalt⁴

¹*Marine Geology Department, INETInovação, Portugal*

²*Climatic Research Unit, University of East Anglia, UK, United Kingdom*

³*Pacific Fisheries Environmental Lab, United States*

⁴*Department of Environmental Chemistry, Institute of Chemical and Environmental Research (CSIC), Spain*

Forecasts of future climatic trends depend on widespread accurate and quantitative records of past climate. More and independent reconstructions, based on improved proxy records, are needed to understand the last centuries climatic variability, and estimate whether 21st-century warming is likely to be nearer the top or the bottom of the latest IPCC range of 1.4 °C – 5.8 °C. A multiproxy analysis of two high-sedimentation shallow water sedimentary sequences recovered off Lisbon (Portugal) provide a view of continental climate, oceanic conditions and biological response over the last 100 years. Sea Surface Temperature (SST) is derived from alkenones, upwelling strength indicated by diatom abundance, river input and indirectly precipitation, are indicated by Fe concentration and Sea Surface Salinity (SSS) derived from planktonic foraminifera isotopes. The comparison of these generated proxy records to long-term instrumental time series of marine and atmospheric parameters (SST, Sea Level Pressure, Precipitation, River Flow and Upwelling Intensity) provide important information relative to the validity of those proxies. Besides, the statistical relation between the different proxy records and the River Flow and Upwelling Intensity is investigated through multiple regression, with the aim of making available a function to quantitatively reconstruct those processes back in time.

0268**The Impact of Human Activities in Africa, The North and South Pole Regions on Global Climate Change**

Babagana Abubakar

Independent Researcher, Nigeria

As a result of the rapid increase in the petroleum exploration, Industrial, deforestation and other human activities going on within or around the Arctic and Antarctica ice caps near or in the temperate region countries like Canada, Greenland, Russia, U.S.A (Alaska), Iceland, Finland, Argentina, Tasmania and New Zealand among many others plus the increase in deforestation activities in Tropical world countries like the Amazon of Brazil, The Tropical Rain forest of Nigeria, Zaire (Democratic Republic of Congo), Côte d'Ivoire, Indonesia etc. in addition to the Sahara and the Kalahari deserts encouragement as a result of human factors plus the uncontrolled disposals of broken Refrigerators, Air conditioners and propellants containing chlorofluorocarbon substances capable of destroying the Ozone layer in African refuse dumps (B.Abubkar, 2006) are collectively becoming a threat to the world climate.

This explains why the volume of the Ocean keeps on rising, global temperature keeps ascending and the global climate is becoming abnormal since the beginning of the above mentioned activities in the above mentioned locations.

It was in view of the above that this research was conducted and came up with the under listed suggestions/recommendations: