CORRELATION OF THE MIDDLE PLEISTOCENE ICE-DAM LACUSTRINE SEDIMENTS BETWEEN THE REGIONS OF THE LOWER VISTULA AND THE LOWER ELBE (CENTRAL EUROPE)

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Sediments of the Holstein sea are known in the United Kingdom, France, Belgium, The Netherlands, Denmark, Germany, Russia (Kaliningrad District) and Lithuania. They unequivocally define stratigraphical settings of overlying and underlying series. Ice-dam reservoirs developed in the Lower Vistula region at the end of the South Polish (Elsterian), the Middle Polish (Saalian) and the Vistulian glaciations. Exact age determination of the ice-dam sediments in this area is possible on the basis of their relations to the overlying marine sediments, deposited in the Holstein and the Eemian interglacials, as well as in the Holocene. Ice-dam lacustrine sediments in the Kaliningrad District are directly overlaid by sediments of the Holstein sea. Whereas, on the Polish side they are covered by fluvial series of the corresponding Mazovian Interglacial. Wide spread thick synchronous ice-dam series from the Netherlands through the Lower Elbe region to the Lower Vistula region and the Kaliningrad District, show their key significance. They prove that similar processes had occurred during the ice sheet retreat. They constituted: *(i)* water-damming by the ice sheet, *(ii)* occasional draining of ice-dam reservoirs, resulting from ice sheet withdrawal and marked by thick glaciofluvial series, *(iii)* sea ingression onto a glacioisostaticly depressed area, *(iv)* sea regression due to the gradual glacioisostatic uplift of the area.

GEOMORPHOLOGICAL AND STRATIGRAPHIC EVIDENCE OF NEOTECTONIC DEFORMATIONS IN THE LOWER TEJO TERTIARY BASIN (PORTUGAL)

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[illegible] plateaus of the Tejo Tertiary Basin correspond to a depositional surface [illegible] the terminal filling-in of the basin. Some geomorphological steps, ranging [illegible] m height, characterize the surface generating a relief of different elevation [illegible] The tectonic nature of the steps is confirmed by displaced stratigraphic [illegible] de of displacement being similar to or bigger than the topographic forms. [illegible] of the basin, the displacement affects the younger Pliocene deposits and in [illegible] der they affect the Villafranchian alluvial fans. Geomorphologic evidences [illegible] such as younger linear and abrupt scarplets in soft rocks, asymmetrical [illegible] parallel and radial drainage, entranchement and rupture along longitudinal [illegible] of streams crossing the main fault, are presented. Along the main river [illegible] terrace levels are recognised, and anomalous zones of aggradation occur, [illegible] ding compartments.

[illegible] ntact, considered as a passive border, with neogen deposits prograding [illegible] nowadays an irregular contact of exhumation. The contact geometry [illegible] l sector some compartments with different subsidence rates which [illegible] progradation over the Hesperic Massif.

TIMING AND EXTENT OF GLACIATION ON SOUTHERN BAFFIN ISLAND, NWT, CANADA DETERMINED USING *IN SITU* PRODUCED COSMOGENIC ISOTOPES 10-Be AND 26-Al

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There is a significant controversy in Quaternary science concerning the vertical and lateral extent of icesheets in the eastern Canadian Arctic during the late Wisconsinan. The use of *in situ* produced cosmogenic isotopes (10-Be, 26-Al, 36-Cl) is a new technique for determining the exposure ages of glacial deposits that are otherwise difficult to date.

We are using *in situ* produced 10-Be and 26-Al from quartz in morainal boulders and polished, striated bedrock to help constrain surface exposure ages and delimit late Wisconsinan ice extent in the Pangnirtung Fjord area, southeastern Baffin Island, Canadian Arctic. We are focusing on a set of nested moraines along Pangnirtung Fjord that represent a significant glacial advance in this area. These moraines are believed to be approximately 70 ka (Dyke, 1979); however, field evidence suggests that the area has been more recently covered by ice and recent work by Jennings (1993) shows evidence for late Wisconsinan till on the floor of nearby Cumberland Sound.

Six striated bedrock surfaces from Pangnirtung Pass and Fjord have calculated cosmogenic exposure ages ranging from 5.5 to 8.5 ka (using currently accepted isotope production rates), suggesting that the floors of Pangnirtung Pass and Fjord were deglaciated after the late Wisconsinan (Davis *et al.*, 1993a). These ages are inconsistent with radiocarbon ages (17-31 ka) from lake sediments in the Pangnirtung Pass (Davis *et al.*, 1993b). We believe the radiocarbon ages are incorrect because of the low organic content and the potential for contamination by "old" carbon. Samples collected from a bedrock surface exposed following the retreat of Little Ice Age glaciers have very low isotope abundances and suggest that even such short-lived advances are capable of removing isotopic evidence of prior cosmic ray exposure.

We are currently in the process of preparing 30 additional samples for 10-Be and 26-Al analysis. Isotopic analyses have been made by accelerator mass spectrometry under the auspices of R. Finkel and M. Caffee, Lawrence Livermore National Laboratory.

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GROUNDWATER IN QUATERNARY ALLUVIAL DEPOSITS OF THE RIVERS IN MAINE, FRANCE.

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The rivers Loir, Sarthe and Mayenne converge to give the river Maine which is the only important affluent on the right bank of the river Loire. These rivers drain a 21900 km^2 basin that overlays both the Armorican massif and the western Basin of Paris in the south of the hills of Lower Normandy and Perche. If the 7275 km2 basin of the river Loir overlaps the Basin of Paris, and tif he river Mayenne flows into the Armorican massif, the 225 km Sarthe river drains a 6000 km^2 area covering the two geological regions. The Armorican massif is a result of the Cadomian and Hercynian orogenies. Its lithology includes shale, granites, hornfels, volcanic rocks, quartziferous sandstones. The western Basin of Paris has a monoclinal structure with a SSE dip inherited from the Jurassic and Cretaceous transgressions and from the Cenozoic tectonics. The river Huisne, which is an affluent of the river Sarthe, and the river Loir cut across the chalky Senonian and Turonian rich in silex, and the sandy Cenomanian. The river Sarthe incises the Armorican bedrock twice but particularly flows into the calcareous Bajocian and Bathonian and the marly Callovian and Oxfordian.

During the Quaternary periglacial phases, the 300 - 600m wide valleys were packed 3-6m thick by sand, pebbles and blocks of silex (rivers Loir and Huisne) and by Armorican rocks (river Sarthe). The succession of cuttings and packings has given a system of stepped terraces between 4-5 m to 45-50m above the present river bed. In many cases, by differential erosion the highest terraces are now watersheds.

According to their topographical situation with respect to the river, these very permeable alluvial formations are permanent or temporary aquifers. When the river Sarthe flows on impermeable marly Callovian and Oxfordian, the low terrace is the single important superficial reserve of groundwater and it is exploited for domestic human consumption. The river Loir and Huisne flow on the aquiferous Turonian or Cenomanian. The groundwater of the low terrace has connections with the river and with the Turonian or Cenomanian aquifers. That situation is an important factor of the regulation of the rate flow of the river during the dry season. If the stepped terraces overlays an impermeable formation, a small reserve of groundwater exists during the rainy season. But that also happens with the old terraces overlaying a very permeable geological basement, because weathering and leaching have given a thin clayed water-repellent (Bt) horizon at the bottom of the alluvial formation. That temporary groundwater reserve has some disadvantages as it may flood the basement of the buildings.