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Palaeogeographical reconstructions of Lake Maliq (Korça Basin, Albania) between 14,000 BP and 2000 BP

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ABSTRACT

Since the early 1990s, excavations of a protohistoric lakeside settlement in the Korça basin carried out by a French–Albanian archaeological team have induced geomorphological and palynological studies about the sedimentary records of Lake Maliq. These studies allow us to distinguish a series of centennial-scale high and low lake level events between 4200 and 4000 cal BP (2899–2637 BC/2843–2416 BC) and 2600 cal BP (822–671 BC), probably due to large-scale climate changes (in the Mediterranean basin). In addition, the sediment sequence also gives evidence of a millennial-scale trend of lake level rise. It appears to be an interplay between lake level rises and falls against tectonic subsidence of the basin allowing accommodation space for sediment deposition.

The variations of the lake's level and the lake's surface area influenced the development and the abandonment of the nearby lakeside settlements (like the tell of Sovjan). In order to prepare an archaeological survey around the now dried up lake, we made a 3D model of the Holocene deposit from the lake including these lake level results, geomorphological mapping, excavation data, numerous core logs, AMS ^{14}C dating and SRTM DEM data. The GIS model allowed us to propose four palaeogeographical reconstructions of the extension of Lake Maliq: around 14,000 BP, during the Mesolithic (around 9000 BP – 8781–8542 BC), the Early/Middle Bronze Age transition (around 3800 BP – 2310–2042 BC) and the Iron Age (2600 BP – 822–671 BC). A map of the thickness of the sediments above potential archaeological layers is also proposed.

1. Introduction

Since the early 1990s, archaeological excavations carried out in the Korça basin in Albania, and especially in Sovjan, a tell occupied from the Early Neolithic (7990 cal BP – 7060–6899 BC) until the Iron Age (2600 cal BP – 822–671 BC), have confirmed that people settled and developed agriculture and stock-breeding as early as the Early Neolithic (Lafe, 2005; Lera, 1990; Lera et al., 1996; Touchais et al., 2005). This is the so-called "Podgorie culture" (KOBAS, 2005; Korkuti, 1995; Prendi, 1990). The Northern area of the basin was occupied by Lake Maliq until drainage works at the end of 1950s. The lake's surface area varied between a minimum of 40 km^2 during periods of low level to a maximum of 80 km^2 during high stands (Fouache et al., 2001). From the Early Neolithic to the Early Iron Age, and especially during the Early/Middle Bronze Age transition (around 3800 cal BP – 2310–2042 BC), the nearby lake shore was occupied by numerous settlements (Fig. 1) such as Maliq, the only "palaffitic" site studied in the basin (Prendi, 1966) and Sovjan, a lakeside site (Touchais et al., 2005).

In order to ascertain more detailed information on other settlements and to establish a model of human settlements around

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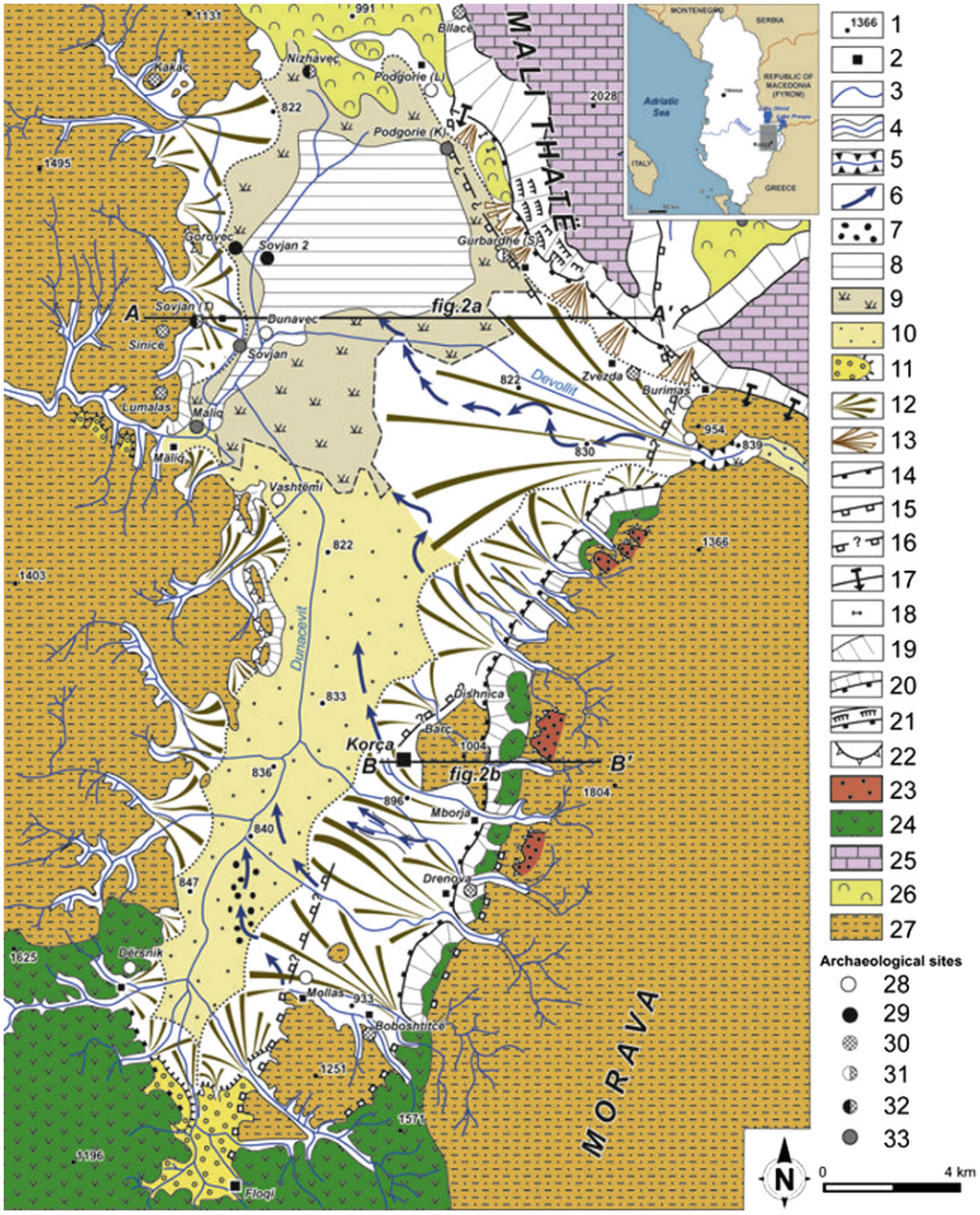

Fig. 1. Location area and geomorphological map of the Basin of Korça. 1: Height spot in metre; 2: Town or village; 3: Natural and channelized flowing talweg; 4: Deep talweg; 5: Epigenic gorge; 6: Former abandoned course; 7: Associated coarse spreading; 8: Maliq lake in 1948; 9: Marshes related to the lake in 1948; 10: Recent alluvial fillings; 11: Quaternary alluvial terrace; 12: Holocene spreading cone and glacis; 13: Undifferentiated quaternary colluvial deposits; 14: Active quaternary fault line; 15: Fault line without proven recent activity; 16: Supposed fault line; 17: Flexure; 18: Local cleavage; 19: Faceted escarpment (normalized slope); 20: Faceted fault scarp; 21: Steep fault scarp; 22: Monoclinal steep slope; 23: Pebble conglomerates; 24: Ophiolites; 25: Karstified limestone range; 26: Pliocene hills; 27: Neogene molasses; 28: Neolithic, Bronze Age and Iron Age; 29: Neolithic; 30: Bronze Age; 31: Bronze Age and Iron Age; 32: Neolithic and Iron Age; 33: Iron Age.

Lake Maliq, the French–Albanian archaeological team undertook land surveys around the lake. As part of these surveys, we undertook reconstructions of Lake Maliq for specific periods; namely for 14,000 cal BP, the Mesolithic (around 9000 cal BP – 8781–8542 BC), the Early/Middle Bronze Age transition (around 3800 cal BP – 2310–2042 BC) and the Iron Age (2600 cal BP – 822–671 BC). These reconstructions were established using GIS and DEM including geological and new palaeoenvironnemental and archaeological data. In addition, these reconstructions allow us to discuss the influence of Holocene climatic variability on fluctuations in the palaeo-levels of Lake Maliq.

2. Regional setting

2.1. Geology and geomorphology

Lake Maliq lies in the north-western part of the Korça basin, a graben valley, asymmetric in shape with a much higher scarp to the east (Fig. 2), located at 818 m a.s.l. and surrounded by highlands which reach 2028 m (Mali Thatë – Fig. 1). Limestone and ophiolite occupy the east of the basin, while molasses only outcrop to the west. While the nearby lakes of Prespa and Ohrid are permanent lakes with a karst regime (a landscape on limestone rock through