



MARIOLAKOS, I., MARIOLAKOS, D., FOUNTOULIS, I., TZIOVARA, A., CHAMPILOMATI, A., ANAGNOSTOUCHE & SAKELLARIOU, D. (2004). Shallow sampling drillings in the Acheloos delta area: preliminary results and radiocarbon dating. *10^o Συνέδριο της Ελλ. Γεωλ. Ετ., 15-17 Απριλίου 2004, Θεσ/νικη*, Περίληψη 496-497.

SHALLOW SAMPLING DRILLINGS IN THE ACHELOOS DELTA AREA: PRELIMINARY RESULTS AND RADIOCARBON DATING

I. Mariolakos, D. Mariolakos, I. Fountoulis, A. Tziouva, A. Champilomati
*University of Athens, Faculty of Geology, Dept. Dynamic Tectonic Applied Geology,
Panepistimiopolis Zografou, 157 84, Athens, Greece.*

Ch. Anagnostou, D. Sakellariou
Institute of Oceanography, Greek Center of Marine Researches

ABSTRACT

The Acheloos delta represents one of the most important deltaic regions in Greece of special geological –sedimentary and archaeological interest. According to the Greek Mythology, river Acheloos represented the most important of the river-gods, while in the Hercules labors the wrestling with the Acheloos waters is included. In ancient Greece, the fortune of the Oiniades port was related directly or indirectly with the evolution of the deltaic area and the embankments of the river. The ancient port is located 7 Km from the modern coastline.

From a geological – sedimentary point of view, Acheloos River runs through a large section of the Western Greece mountain ranges and is discharging in the sea, in the region of Patraic Bay and Ionian Sea, large quantities of transported material. The wider region of the Acheloos discharge mouth represents one of the neotectonically active regions of Greece, while, the presence of Triassic gypsum at the basement of the deltaic deposits and the possible effect of diapiric movements on the deltaic evolution should not be left out.

Finally, the consequences on the evolution of the deltaic area from the dam construction along length the course of the river have not yet been studied.

The above mentioned describe in brief the necessity of a multilateral investigation of the Acheloos delta and its evolution.

In the present paper the preliminary data is presented that resulted in the frames of a drilling program at the delta, aiming to the study of the evolution of the deltaic alluvium, and the timing and geographical alternations of the various paleo-environments.

In the frames of this program two research drillings took place that each one had a length of 20m approximately. At the drill cores a sediment description, grain analysis, geochemical analysis, mineralogical analysis and selected radiocarbon dating of ¹⁴C (AMS) were applied.

The first drilling took place at Telonio location, between the bank of Acheloos to the west and the Skoupos high to the east, approximately 5Km from the coastline. From the sedimentary description of the core a succession of marine, coastal and lacustrine deposits resulted, which appear at the lower section of the core, between 7-20 meters. The upper part of the core (0-7m) is comprised of terrestrial deposits (river, flood, swamp deposits). A sediment sample, (sand rich in organic material and plant remains), which was taken from the depth of 6.60 m gave an age of 990±40 yrs BP, while a similar sample from the depth of 18.33 m gave an age of 2430±40 yrs BP.

The second drill that took place near the coastline of the Dioni Bay, in a small distance from the mouth of the river. A sample of organic material from the depth of 19,33m gave an age of 710±40 yrs BP.

According to the above, it seems that in the Acheloos delta for the past 2500 years sedimentation is taking place in fast rates and the deposited sediment is in general fine grained regardless of the sedimentation environment (marine or terrestrial). The above results are in accordance with the so far published data from other research studies at the Acheloos Delta (Vott et al 2002 & 2003).

The same phenomenon is observed in the area between the Agrinio town and the Lysimaxeia lake where the temple of Panagia Mavrika is covered (only the roof is visible) from the coarse grained deposits (conglomerates) of Ermitsa torrent.

Concluding, the Acheloos delta represents a region, in which fast rate sedimentation is taking place compared to other large river system deltas. The large material charges are due to the active tectonics of the greater region (Haslinger et al., 1999) and mainly due to the uplift movements of the

eastern parts of the Acheloos River basin, where intense incision and material transfer processes are produced.

REFERENCES

- Haslinger F., Kissling E., Ansorge J., Hatzfeld D., papadimitriou E., Karakostas V., Makropoulos K., Kahle H.-G. and Peter Y. (1999): 3D crustal structure from local earthquake tomography around the Gulf of Arta (Ionian region, NW Greece). *Tectonophysics*, 304, 201-218.
- Vött A., Handl M. and Brückner H. (2002): Rekonstruktion holozäner Umweltbedingungen in Akarnanien (Nordwestgriechenland) mittels Diskriminanzanalyse von geochemischen Daten. *Geologica et Paleontologica*, 36, 123-147.
- Vött A., Brückner H., Schriever A., Besonen M., Van der Borg K. and Handl M. (2003): Holocene coastal changes in the Acheloos alluvial plain (northwestern Greece) and their effects on the ancient site of Oiniadaí. *CIESM Workshop Series*, 24, in press.