

THE ZAKYNTHOS ARCHAEOLOGY PROJECT

Preliminary report of the 2007 season*

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In the third year of the Zakynthos Archaeology Project, fieldwork was conducted in three different campaigns.¹ In April 2007, a week was spent on the island to prepare for the summer campaign and to conduct visits of specific fields, some of which had also been investigated during 2006. These same tracts were visited again during the summer and during a week-long campaign in October 2007. These *pre- and re-visits* of specific tracts are part of the methodology to assess the influence of seasonal factors on the survey results. The October week also served to complete the processing of finds. Most of the fieldwork was conducted during four weeks in the summer: from 18 June-13 July 2007.

During the summer campaign, two teams conducted the intensive archaeological survey. The research concentrated on area B in the center of the island, surrounding the village of Macherado in the modern community of Artemision (fig. 1). Area B is the largest of our three research areas and it stretches from the valley of Achouri near Koiliomeno in the western mountain range to the area known as Macherado Gidou in the alluvial plain in the center of the island. This area has been selected specifically because it represents the full transition from the mountains to the alluvial plain, including the slopes, the foothills and the transition zone between the foothills and the plain.² This geography enables us to study the variations in the distribution of archaeological material in these different types

* The Editorial Board of *Pharos* regrets that some information contained in the illustrations is lost, because it was impossible to print them in colour. The full article with the original colour illustrations can be viewed on the site of the Netherlands Institute in Athens: www.nia.gr/pharos15.html.

1 For a description of the project in general and preliminary reports on the previous campaigns: Van Wijngaarden et al. 2005; 2006.

2 For the geology of the island, see Sorel 1993. In 2007, M. Künzel (VU University Amsterdam) conducted a geomorphological study of area B. His research will result in a detailed geomorphological map and erosion models.

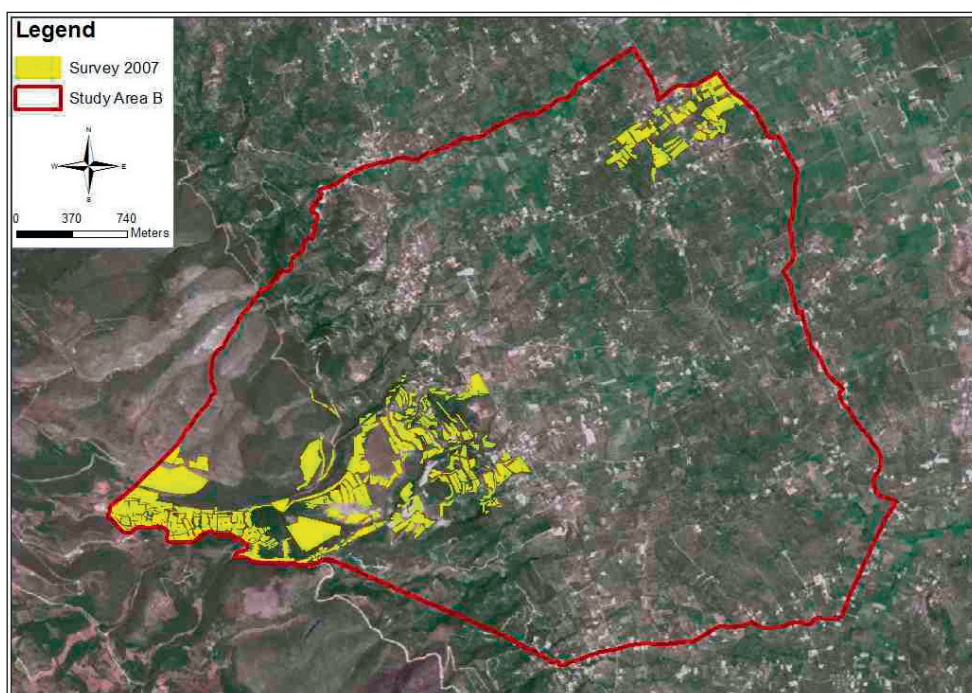


Figure 1. Research area B. The area covered by field survey in 2007 is lighter

of landscape. Several known sites are situated in our area B, such as Melinado – Ayios Dhimitrios and Vouyiatzo – Ayios Ioannis, both churches incorporating ancient remains.³ Palaiokastros is situated in the mountainous western part of the research area, while Mouzaki-Brouma lies in the southeast.⁴ The inhabitants of Macherado identify the hills above their village as *Palaiochora*, perhaps indicating a long history of habitation in this part of the island.

The survey teams conducted field walking in a total of 859 tracts. To this some 180 *pre- and revisits* from the April and October seasons may be added. All in all, ca. 25,000 finds were collected, consisting mostly of pottery and lithics. In the mornings, two survey teams worked their way eastwards, from the Achiouri valley in the west of the research area. The hilltop of Palaiokastros with its medieval fortifications, was extensively covered. In the afternoons, two additional survey teams worked their way westwards from the eastern edge of the research area in the plain. The field teams usually consisted of 7 persons each, including a team leader, a team assistant and five field walkers.⁵

3 Van Wijngaarden et al. 2005, site no. 22. The church of Ayios Ioannis was pointed out to us after the publication of the 2005 article.

4 Van Wijngaarden et al. 2005, sites 23 and 21 respectively.

5 For a general description of the methodology, see Van Wijngaarden et al. 2006, 31-33.

Methodology of the intensive survey

After evaluating the 2006 campaign, the methodology of the intensive survey has been adapted somewhat.⁶ The basic unit of analysis is the tract, which is determined by topographic and geomorphologic boundaries in the landscape. The maximum length or width of a tract is 50 meters, but usually they are smaller due to topographical variation. Not all fields are accessible for the regular method of intensive survey. In the cases of steep slopes or thick vegetation cover, tracts may be larger and surveyed by a so-called *walk-over*: field walkers cross in an irregular order just to check whether major archaeological remains have not been missed. Wherever vegetation prevented access to the specific fields altogether, historical aerial photographs were inspected to see if anything indicative of archaeological remains was visible.

According to the regular survey methodology, field walkers are placed at ca 5 m. intervals. Within a strip of ca. 2 m. width all archaeological finds are recorded, theoretically representing 40% of the total of finds in the tract. During the 2006 campaign, the counting of finds and the collecting was done simultaneously: the sherds in the bags were counted at the end of each line. It was noted, however, that field walkers use different ways to collect artifacts in the fields. These different ways, which are mostly personal and due to physical habits and constraints, create a bias in the survey results.

In archaeological survey, the density of finds is a quantitative result calculated on the basis of the amounts of sherds recorded in tracts.⁷ The collecting of finds is done primarily to provide the qualitative data, such as chronology, typology and function. The research bias created by the variety of personal ways of collecting may be expected to have its largest effect on the quantitative results. In 2007, we decided to separate the counting of artifacts from the collecting. Field walkers were asked to walk along a straight line, while scanning their 2-meter strip and counting the number of artifacts with the help of clickers. During their walking, they kept roughly the same pace, while, even though they bent over, they refrained from crouching to inspect finds. After the counts were recorded, the field walkers were asked to return along the same path to collect all finds in the way most comfortable to them. The number of finds collected has also been recorded on an individual basis.

The new methodology was the subject of much discussion among team leaders and field walkers. Our biggest fear was that the method would take so much time that it would prevent us from covering a large area. This appeared not to be the case, partly because field walkers could leave their personal items at the beginning of their path and picked them up after the collection of finds. Also, the presence of a team assistant responsible for the line-up of field walkers and for the recording increased efficiency. To our surprise, the method appeared to lead to increased attention of field walkers to what they were doing. Especially in the cases of low numbers of finds, or when highly distinctive finds were present, field walkers did their very best to retrieve “their” finds on the return.⁸ In short,

6 Cf. Tartaron 2003, 34-37.

7 Caraher *et al.* 2006, 12.

8 Most field walkers were disappointed when they had collected fewer finds than they had previously recorded on their clickers. Generally, students evaluated their own performance by individually comparing *clicks* and *finds*.

whereas we hardly lost any time by the *back-and-forth*-method, the quality of collection markedly improved.

Table 1

Total tracts with clicks and finds > 0 597			
	Clicks	Finds	
Average ¹	35.9	40.6	
Number of tracts with < 15	338 (56.6%)	307 (51.4%)	
Number of tracts with > 100	51 (8.5%)	67 (11.2%)	
	Difference	Average Difference	St. Dev/
More finds than clicks:	302 (50,6 %)	10.1	22.0
Finds and clicks equal:	160 (26,8 %)		
More clicks than finds:	135 (22,6 %)	6.9	11.5

It is of course interesting to compare the amounts counted and the numbers of finds actually collected (table 1). For a total of 597 tracts (from morning and afternoon teams) both finds and clicks have been reported (tracts without any finds are excluded from this calculation). In the majority of these tracts, the numbers are very low, consisting of just a few finds per field walker. Only a very small proportion of the total of tracts has large numbers of artifacts counted and collected. The maximum amounts have been recovered in tract 3113, where 562 finds were counted and 698 collected. This tract is situated in the area immediately west of Palaiokastros, where concentrations of flint artifacts and pottery from various periods have been attested (see below, fig. 3: B)

As is clear from the lower half of Table 1, the field walkers usually collected more finds than they had counted during the first inspection of their path. This may partly be due to the fact that they were able to walk at their own pace and collect in their individual ways on the way back. However, the fact that they had already inspected their path once before collecting also seems to lead to more finds, thus increasing the quality of the work.

We have also investigated the extent to which full collection within the field walker's paths was indeed practiced. In a number of tracts with substantial amounts of finds, a second field walker recorded archaeological artifacts in the path immediately after the collection. As was to be expected, artifacts were still present in the field, in proportions of 3-7% of the total already collected. This suggests that our sample of survey finds is approximately 35% of the total rather than 40%. This figure will be systematically tested during the 2008 campaign. A study of the influence of a range of variables, such as sunlight, direction and fatigue, on the recording of artifacts in the field is currently conducted by J. Horn Lopez (VU University Amsterdam).

Pre- and revisits

Plate I. *Vegetation cover in a tract in the east of area B, viewed from roughly the same spot in April 2007 (a), June 2007(b), October 2007(c) and April 2008(d).*

In 2007 we continued to monitor the influence of seasonal factors on the vegetation cover by pre- and revisiting a number of selected tracts in April, June/July and October. The general prediction that the visibility of surface soil varies highly according to vegetation has been confirmed also in our project (Plate I, cf. a-b-c).⁹ By extending our programme of pre- and re-visits over a prolonged period of time, the unpredictability that is a consequence of this general statement has become clear. Agricultural practices, for example, may vary from year to year, as is clear in Plate I. In April 2007, this field of young vines was ploughed, while in April 2008, the vines were trimmed without ploughing, resulting in a completely different level of visibility in the same week of another year.

⁹ Bevan & Connolly 2002, 127-128; Van Leusen 2002, 4.9.

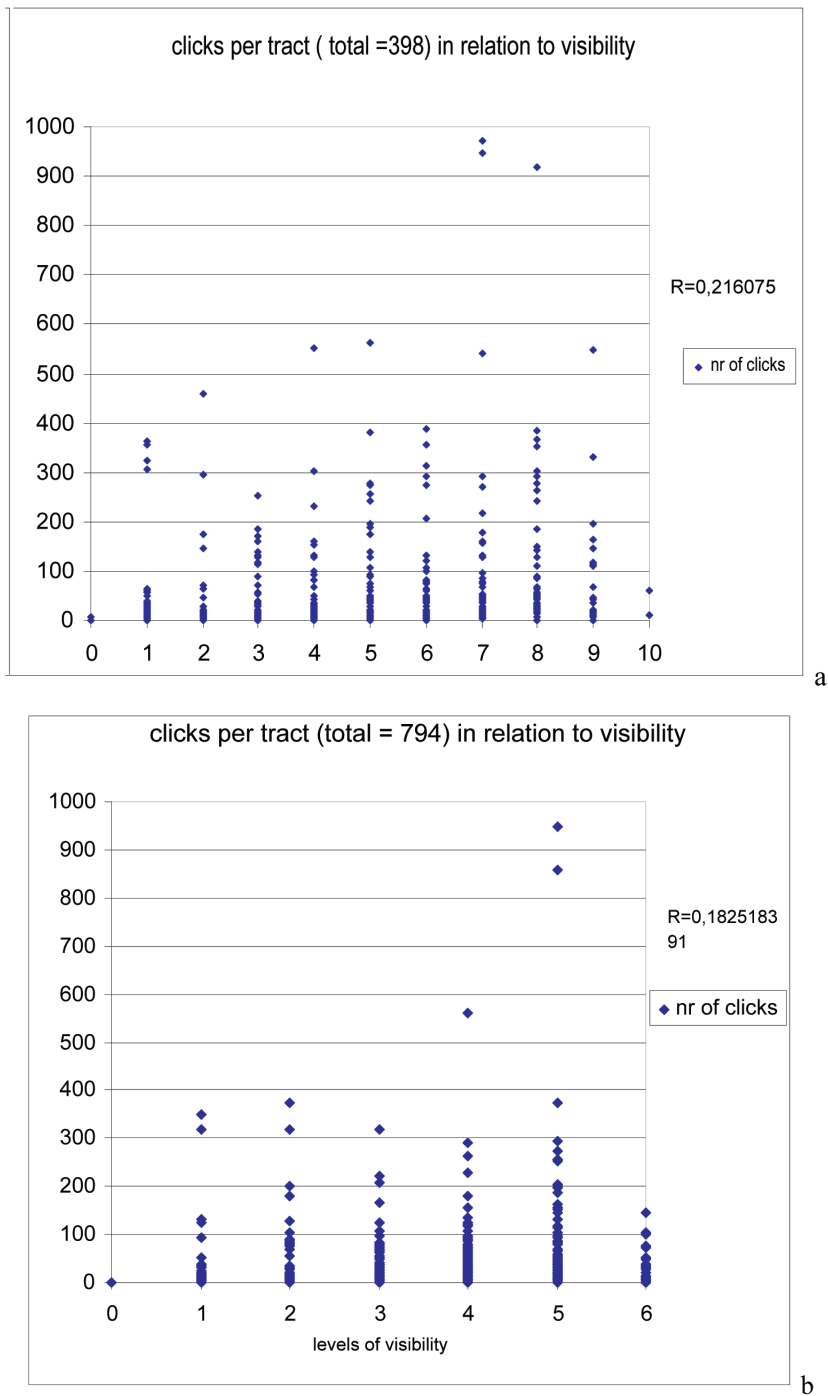


Figure 2 Artifact count in relation to surface visibility projected from field data collected in summer 2006 (a) and summer 2007 (b).

Figure 2 shows two graphs in which the artifact counts collected during the summers of 2006 and 2007 are plotted in relation to visibility. Both graphs show that surface visibility has no positive correlation with the amount of artifacts counted in each tract. When R (correlation coefficient) is nearer to 1 than to 0, one can speak of a positive correlation. In both sets of data the coefficient R is approximately 0.26 and 0.18 and expresses no significant correlation between the recorded number of clicks and the visibility.¹⁰ All this indicates that surface visibility has an unpredictable role with regard to artifact count and collection. Due to this unpredictability, we do not consider it wise to make statistical corrections of recorded amounts of artifacts. Instead, the visibility is simply indicated on a scale of 1-6 to be able to assess the significance of the survey results. We will continue our programme of pre- and revisits to acquire insight in the influence of seasonal factors over a longer period.

Palaiokastro

Much of the intensive archaeological survey took place around the hilltop of Palaiokastro. This prominent hilltop (appr. 400 meters) is situated to the southwest of the town of Macherado, between two valleys leading from the foothills into the mountains (Plate III). Palaiokastro has a majestic view of the central plain and it controls several routes from the

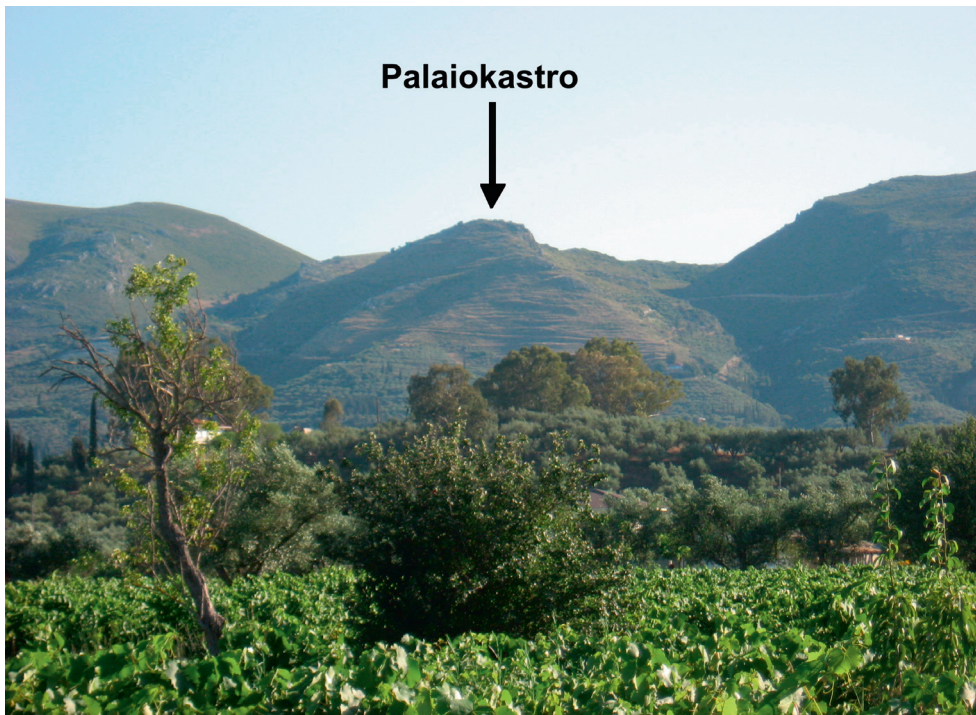


Plate II. *The hill of Palaiokastro seen from the central plain*

¹⁰ For a more detailed preliminary analyses of the visibility on the basis of or pre- and revisits programme, see Pieters 2008.

plains into the mountains. Interestingly, several local inhabitants of the area have told us that there used to be a city in the area “before the current capital was established.” Many of the stories connected to this hill involve a king and queen, who buried their riches when attacked by pirates from the sea.¹¹

That Palaiokastro, or Palaiofylakes, constituted an important archaeological site was already known. In 1990 the 6th Ephorate of Byzantine Archaeology carried out excavations and measurements on the top of the hill near existing fortifications.¹² These investigations indicated that there are fortifications that were tentatively dated to the 8th and 9th century AD. From this period several attacks by Arab raiders have been recorded.¹³ The medieval structures of Palaiokastro may perhaps be related to the church of Lagopodo-Ayios Nikolaos Spiliou.¹⁴ The church in the cave is situated on the opposite slope north of Palaiokastro and is directly visible from the summit. The frescoes in the cave have been dated to the 11th-13th centuries. In addition to the medieval remains, Sordinas has reported the presence of lithics and pottery fragments on Palaiokastro, which he considered to belong to the Early Bronze Age.¹⁵

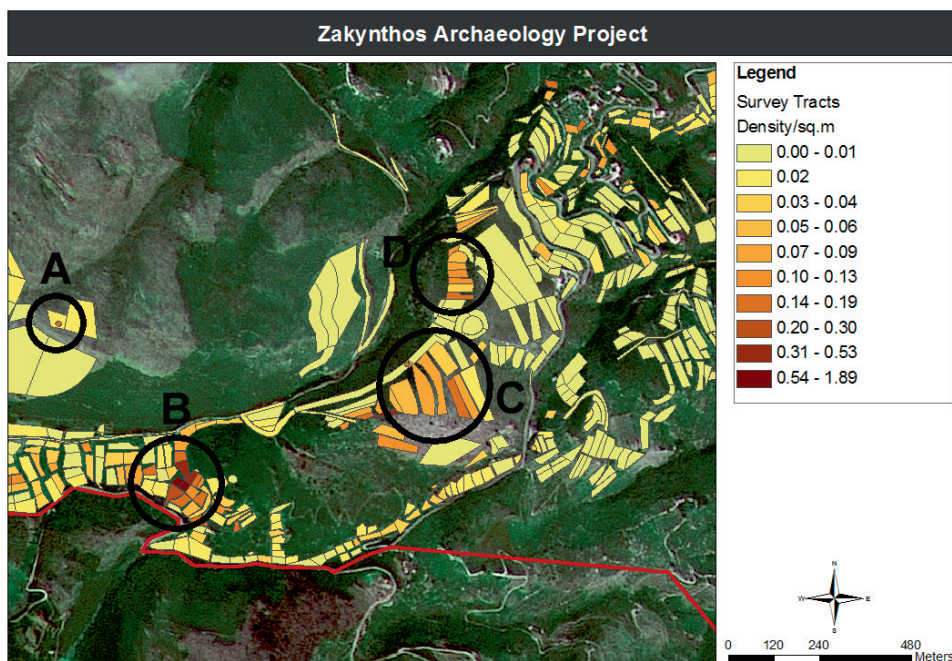


Figure 3. Find densities in the area of Palaiokastro

11 These stories were told to us by three different informants. Currently, Dave Susan (University of Amsterdam) is recording the stories told by local inhabitants about each of our three research areas.

12 Mylonas 1991.

13 Soustal 1981, 52-53.

14 Vokotopoulos 1970, 14-15. Some tourist guides mention that the cuttings in this church are of Roman date, but the origin of this information is unclear to me.

15 Sordinas 1970, 128.

The two survey teams managed to cover much of the hill itself and the valleys around it (fig. 3). However, some parts of the hill were covered with thick vegetation and were impenetrable for field walking. In all of the lower tracts surrounding Palaiokastros hill to the north, west and south there was a relatively high proportion of lithics among the collection of finds. This was especially the case in the valley to the west, which is called Achiouri. When we surveyed the slopes to the north of this valley, a relatively high number of lithics was noted as well. On the higher plains above the slopes, a concentration of lithics was attested in an area that had recently been bulldozed (fig. 3: A). A first inspection suggests that among the lithic finds are tools, debitage and natural flint. The heavy patination of these finds suggests that these objects belong to the Palaeolithic rather than to later periods.¹⁶ From a typological point of view, the lithics from Palaiokastros appear to resemble those discovered at Mouzaki-Brouma in the plains below.¹⁷

At the eastern end of the valley of Achiouri a number of tracts yielded very large quantities of finds (fig. 3: B). All these finds were very worn and there appear to be pottery fragments from different chronological periods: prehistoric, Roman and (early) modern.¹⁸ In these same tracts, we conducted a total of 9 corings by hand auger to a maximum depth of 1.88 m. The aim of these corings was to relate the surface scatters to the subsurface materials. The corings did not reveal a clear stratigraphy, but small ceramic sherds of not more than 2 cm in size were found in seven cores at a level no deeper than 130 cms, indicating that the pattern visible on the surface continues below. Pieces of charcoal and olive pips were also found. Since these tracts are surrounded by hills and slopes on all sides, we believe it is the catchment area for erosion sediments. In particular, the hill called Kakoligani directly to the east of these tracts may have been one of the original sources of the finds in these tracts. The hill is the western outcrop of the Palaiokastros saddle and appears to have been suitable for settlement. Unfortunately, Kakoligani is currently inaccessible due to the thick vegetation cover. Historical photographs show that this hill was intensively cultivated on agricultural terraces until the 1980's.

On the ridges and plateaus to the west of the top of Palaiokastros (fig. 3: C), the remains of several walls were noted, which do not seem to belong to the medieval structures on the top. Neither do they seem to serve agricultural purposes. This general area has yielded relatively large quantities of finds, most of which appear to be ancient rather than medieval. In a small cave in tract 2121 many large fragments of a pithos were recovered, which have tentatively been assigned a Classical-Hellenistic date (Plate IIIa). Roman Combed Ware was also found (Plate IIIb), as was the base of a decorated cup, possibly dating to the Geometric period (Plate IIIc). Pottery identified as Classical-Hellenistic (Plate IIId) and Roman was also attested on the slopes to the north of the summit (fig. 3: D). Our researches have made very clear that habitation at Palaiokastros took place in several periods and at different spots on the hill.

¹⁶ Runnels, Karimali & Cullen 2003, 141-142.

¹⁷ Van Wijngaarden 2005, 68. The typological study of the lithics from the Zakynthos Archaeology Project has only just begun and is coordinated by Professor Kourtesi-Phillipaki (Kapodistrian University Athens).

¹⁸ These chronological qualifications are assigned on the basis of inspection in the field only. The study of the pottery is still in its initial stages and is coordinated by Professor Vladimir Stissi (University of Amsterdam).



Plate III. Finds from Palaiokastros: a: Classical-Hellenistic pithos; b: combed ware sherd; c: decorated cup; d: black-glaze rim sherd.

The geological survey

Before the construction of the Zakynthos airport in the 1970's a lake was situated in the area between Laganas and Kalamaki that was known as *Limni Makri*. This area was chosen to investigate coastline development and tectonic evolution of southern Zakynthos. A special point of attention is the possibility that the peninsula of Vasilikos was once de-

tached from the rest of the island (cf. Plate IV). The formation of the central plain through sedimentation would then have connected the two parts. We are also particularly interested in the relationships between the seismicity of the island and the coastline development. The central plain is very prone to shaking during earthquakes.¹⁹

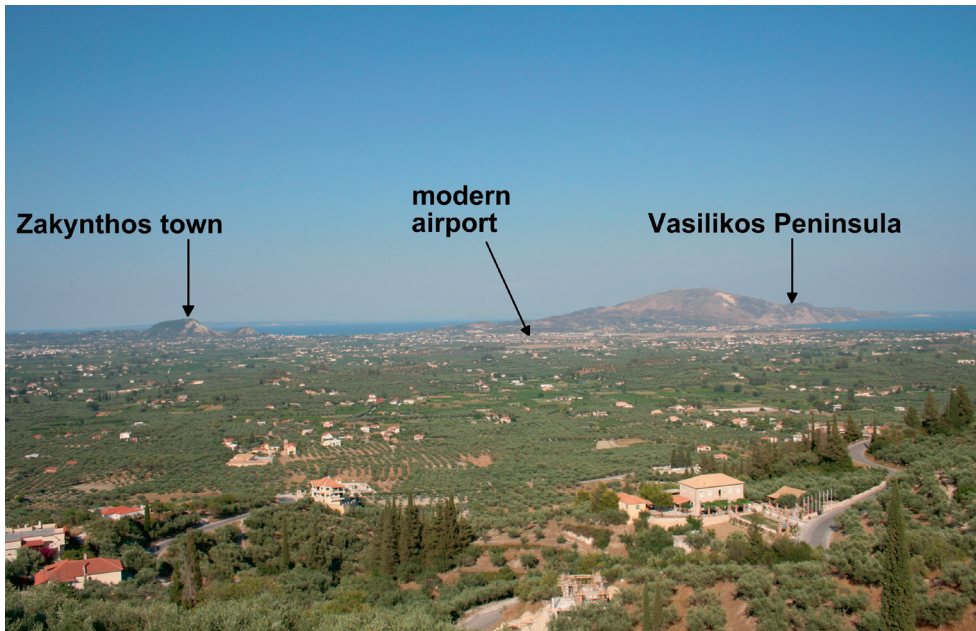


Plate IV. *The central plain seen from the east. Limni Makri was once situated in the area of the modern airport. A maritime passage may once have existed between the peninsula of Vasilikos and Zakynthos town*

The geological study contains two main parts: fieldwork and laboratory analysis. During fieldwork, coring has been used as the main data collection method. At 23 points hand augering was employed (with diameters 7 cm and 3 cm) and sediments were sampled. The maximum depth achieved by coring was 6 m. Core samples were classified as mostly silt, silt loam and silty clay loam. Beside soil samples, different types of shells were collected from the cores. The laboratory studies of the soil samples, mainly grain size determination, and on the shells are still in progress. A number of samples will be dated by C14 analysis, which should provide clues for the chronological phasing of the sedimentation process in this part of the plain.

¹⁹ Theodulidis & Papazachos 1992.



Figure 4. Limni Makri on a topographical map of 1896

During the geological fieldwork a pottery sherd and a piece of shell were encountered in one of the corings at a depth of 3.10 m. below the present surface (fig. 4). The sherd is a body fragment without any diagnostic characteristics. It is hard-baked and thin walled and, with its buff-beige color, tentatively to be dated in the Classical-Hellenistic periods. The shell associated with this pottery fragment has a tiny hole that is perhaps not natural and it may have been used as bead. These tiny pieces of archaeological material provide some information about the speed of the sedimentation process in the area.²⁰ We expect to

²⁰ During the geomorphological description of area B, M. Künzel found a flint artifact and a probable prehistoric pottery fragment at a depth of almost 2 meters below the present surface in the area of Macherado.

be able to interpret the depositional history of the region and to reconstruct the development of the ancient landscape.

Preliminary conclusions

The research in our area B will continue in 2008. A number of preliminary observations can already be made:

- Lithic artifacts are distributed very widely in area B; they occur in almost every tract in substantial quantities.
- The lithics in the area of Palaiokastros resemble those found at Mouzaki-Brouma in 2005. At the time these were tentatively dated to the Middle Palaeolithic period.
- The hill of Palaiokastros is clearly an important multi-period site. The walls visible on the summit require specific surveying with geodetic equipment.
- The geological research indicates that the speed of erosion and sedimentation on Zakynthos is very high, suggesting that the landscape must have been entirely different in the past.

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