35. ARAŞTIRMA SONUÇLARI TOPLANTISI 2. CİLT

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
Kültür Varlıkları ve Müzeler Genel Müdürlüğü

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35. ARAŞTIRMA SONUÇLARI TOPLANTISI

2. CİLT

22-26 MAYIS 2017
BURSA

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
Ana Yayın No: 3552/2

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Dr. Candaş KESKİN

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In order to complete a high-quality print in time, we kindly request you to send the paper texts in the format specified below:

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İÇİNDEKİLER

THE 2016 SAGALASSOS SURVEY ACTIVITIES

JeroenPOBLOME*
Ralf VANDAM
Manuela BROISCH
Peter TALLOEN
Dries DAEMS

From 1993 onwards, the Sagalassos Archaeological Research Project of the University of Leuven has conducted several survey programmes in its study region which corresponds more or less to the former administrative territory of Roman imperial Sagalassos. This ongoing record of interdisciplinary survey research aims to contribute to the project's main aim to document the long-term development of socio-ecological systems in the study region. In the nineties this area was mainly extensive surveyed, which led to the identification of more than 250 archaeological sites[1] and formed an important framework upon which all subsequent intensivearchaeological and interdisciplinary surveys have been based. The first intensive surveys focused on the suburbia and the close surroundings (radius of 5km) of the ancient town of Sagalassos[2]. In the meantime, the interdisciplinary activities such as geological, geomorphological, palynological, ecological and geophysical surveys were initiated in the wider area. In 2008, a series of intensive survey campaigns including geophysical research on the newly identified sites, began focusing on the peripheral valleys of the territory such as the Bereket Valley[3] and most recently the Burdur Plain[4], in order to sketch the evolution of settlements and land use in more remote areas from Sagalassos (Fig 1.).

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1 Vanhaverbeke and Waelkens 2003, Waelkens et al. 2000, Waelkens et al. 1997

2 Martens et al. 2008, Vanhaverbeke et al. 2009.

3 Kaptijn et al. 2013, Vanhaverbeke et al. 2011

4 Kaptijn et al. 2012, Vandam et al. 2013

In the summer of 2016, we introduced a newsystematic intensive survey programmein selectedareas near the villages of Dereköy and Hisar, about 7km southeast of the archaeological site of Sagalassos andresumed ourgeophysical survey research on known sites in the study area of Sagalassos. The Sagalassos survey work lasted for 7 weeks and took place from 10 July to 24 August 2016, including the preliminary find processing work.

ARCHAEOLOGICAL SURVEY[5]

Ralf Vandam &Jeroen Poblome

During the 2016 campaign, new archaeological survey research took place in the mountain region of Dereköy and Hisar, located in the eastern part of our study region (Fig. 1 and 2). In contrast to previous survey campaigns, we wanted to investigate specifically a more 'marginal' landscape unit, where human occupation from an agricultural/subsistence perspective is less straightforward due to the prevailing environmental conditions. Theecological and environmental diversity within our study area is great but systematic archaeological surveys were mostly limited to the more optimal occupation areas of our research area such as the large inter-mountainous, fertile and well-watered plain areas. With the new archaeological survey programme we wanted to address this lacuna and investigate the long-term occupational history and socio-ecological systems of more 'marginal' landscapes in our study region, from prehistory until recent times. The project aims to document past human activity in more remote and mountainous areas, and to characterize how communities used this part of the landscape in terms of subsistence, mobility and the exploitation of resources and to investigate how different/similar they were in comparison to the city of Sagalassos and the lowland communities.

The Dereköy-Hisar area was selected as research area for this survey project as it can be labelled as a 'marginal' landscape. It is mainly characterized by hills (up to 1600m asl) with dense vegetation of *Quercuscoccifera* and *Juniperus*shrubs, and long, narrow valleys (1000 m asl). Moreover, in comparison with the lowlands, the area is agriculturally less productive, with more erosion, thin soil cover, and more limited permanent fresh water sources. On the other hand, it is much richer in resources such as forests, grazing land, chert and limestone outcrops and hematite depositsfor instance, which could all have attracted pe-

5 See Vandam et al. 2017 for a more detailed report of the 2016 survey results.

ople to these highlands. Currently the highlands are chiefly exploited by shepherds.

Known archaeological sites in the Dereköy-Hisar area are limited (Fig. 2) and were located during prior extensive survey campaigns of our project[6]: the Late Paleolithic cave site of Dereköy (excavated in 1997[7]), two larger hilltop sites at Aykırıkça (Iron Age) and Hisar (Hellenistic), a Late Roman hamlet (Köy 1), and a few metal production sites in the BeyDağları. Furthermore, during a geological survey a larger lithic artefact concentration was found in this area as well[8]and reports were made of similar concentrations further east of our research area[9].

A. Survey methodology (Fig. 3)

Crucial for our project was for the survey design to meet with the terrain conditions and the intended research goals. As the aim of this survey campaign was to document a wide range of human activities in the landscape, an intensive systematic survey approach was vital. Sampling of all landscape units present in the Dereköy-Hisar area was attempted: valleys, uplands, hillspurs, hills, and isolated plateaus. Due the varying terrains and visibilities we decided to incorporate different survey methods into our survey design, to which we could switch according to the situation. The recent Cide Survey[10] in northern Anatolia, which dealt with comparable survey challenges, applied a similar survey strategy, and we modeled our methodology on their strategy.

In areas with good visibility such as most of the valleys, uplands and gradual slopes we continued our successful intensive tract-walking survey method from previous research in the Burdur Plain[11], which also helped to compare our new survey outcomes with the old ones. In these areas our field walkers surveyed tracts of 50m length and 1m wide which were placed 20m apart (Fig. 3A). Surveyors collected all artefacts they encountered in their line that were man-made and not obviously recent. This methodology ensures that no sites that are larger than 20m in diameter and visible at the surface would be missed.

6 For further information on the sites see Vanhaverbeke and Waelkens 2003
7 Vermeersch et al. 2000
8 Vandam et al. 2013
9 Vanhaverbeke et al. 2008
10 Düring and Glatz 2015
11 Vandam 2015 and for more detailed information on the applied survey methodology see Kaptijn 2009

For landscape units with little visibility and a difficult terrain, such as uncultivated fallow land and steep hillslopes, we designed a two staged survey methodology to ensure the intensive exploration of these areas. The first stage survey consisted of undulating transects where the surveyors were still spaced at an interval of about 20m, but they walked in less strictly linear transects that allowed them to move towards areas of better visibility and to circumvent obstacles in the landscape (Fig. 3B) If artefact concentrations were identified, we organized a second stage gridded survey to acquire detailed information about the concentrations (Fig 3C). All surveyed fields were measured by a GPS device and located on publicly available aerial photographs. The collected survey artefacts were processed and interpreted through material study at the Sagalassos excavation house depots during the second half of our campaign. The long history of archaeological research in the area created an excellent reference framework spanning from prehistory into recent times, which allowed us to contextualize our new findings.

B. Results

During the 2016 campaign, the archaeological survey team was able to investigate an area of 2. 73km^2 in which we discovered 27 new find scatters[12](Fig. 2), from various time periods and of different natures in different parts of the landscape. In total, 8601 sherds, 3815 counted tiles, and 534 lithics were collected, which is particularly high in comparison with our general Burdur Plain survey outcomes[13]. The chronology of the finds spans from prehistory until modern times. The best represented periods were Late Roman-Early Byzantine, Byzantine Dark Ages, and most common by far the Late Ottoman-Modern; however, concentrations dating to prehistory, the Iron Age, and Roman imperial centuries were also identified in the field. The general results of each attested time period will be discussed below. Due to size restrictions of this paper not all sites will be discussed here[14].

B. 1 *Prehistory*

One of the most notable outcomes of the 2016 survey was the high amount of lithic artefacts. About nine open air lithic artefact concentrations were identi-

12 Few of the artefact concentrations potentially merge with one another, which would bring the total to 24.

13 Vandam 2015: 282-285

14 For more information about our 2016 results one is referred to Vandam et al. 2017

fied, of which Fields 100-113-99 might possibly be lumped together (Fig. 2). In particular the high plateaus and especially the 800 m long plateau within the so-called BeyDağları massif, where the last mentioned site was located, provided the greatest number of lithics. Although the lithic artefacts study is ongoing we can already postulate that the concentrations are mixed in date; ranging from Middle Paleolithic until the Late Prehistory. On the basis of a relative dense concentration of Levallios artefacts at Field 117 (Fig. 2 and 4) we can argue for late Middle Paleolithic (120, 000–45, 000 BC) human activity at this site. All of the artefacts were found within a local gully system thatprobably has cut into underlying deposits (Fig. 4). In addition, also loose finds of this period were found in other upland areas of the survey. The discovery of the Middle Paleolithic material in our area is unique and is of great importance as it is the earliest documented archaeology in our region. Most the newly identified lithic artefacts scatters, however, consisted of material from the Upper Final/ Epipalaeolithic and possibly even the Late Prehistoric (< 10, 000 BC) period, but more research is required to firmly establish their chronology and their nature. Noteworthy is the lack of real geometric microlithics in the collected material, which occurred frequently in later Epipalaeolithic levels of Antalya caves[15]. This observation might have a chronological connotation. The identified concentrations, however, comprised mostly of unretouchedchert flakes but also tools such as microlithic blades occurred. Similar artefacts have been attested at the Dereköy Cave excavation and during our surveyson the hilltop site of Aykırıkça (Fig. 2) in our study area. This evidence indicates that the area was favourable to hunter-gather groups in general, possibly related to the availability of high quality resources, be it grazing land or chert outcropping.

For the later Prehistoric periods, only one period was represented in the study area, namely the Late Chalcolithic period (4200 – 3000 BC). No clear Neolithic or Early Chalcolithic finds have been discovered, although at a cave site, İnarası[16], in close distance of our survey area, 6th millennium BC materials have been found. Whether the lack of these periods in our survey area is meaningful is too soon to confirm, but it might well be that the earliest farming communities in the region avoided more "marginal" landscapes. During the survey, few Late Chalcolithic artefacts were foundat several Late Roman-Byzantine sites, indicating that these sites might have had a prehistoric predecessor. Furthermo-

15 Yalçınkaya et al. 2002

16 Becks 2014

re, through a restudy of the excavated Dereköy Cave material and a revisit of the Iron Age site of Aykırıkça (see below) we identified a significant amount of Late Chalcolithic sherds at these sites as well as at our newly identified find scatter in Field 99. The Late Chalcolithic materialswere handmade, burnished, mostly slipped and made from local clays, illustrating some resemblances with the ones excavated at Kuruçay höyük[17]. These new results illustrate a spike in human activity in the Late Chalcolithic period in our research area, which fits well with our current understanding of this period. For instance, a similar pattern was observed in our Burdur Plain survey.

B. 2 *Iron Age*

During the survey of the high plateau of Field 99 we discovered a small concentration of Late Iron Age or Archaic sherds. A much larger concentration was found during ourrevisit of the ancient site of Aykırıkça, located high in the hills (1400 m altitude). The site was already known through previous extensive surveys of our project but was again reinvestigated during the 2016 survey campaign to secure its chronology and to contextualize the newly found survey materials. It became clear that Aykırıkça is a multi-period site with mainly Late Chalcolithic and Iron Age components but also a sufficient amount oflithics (mostly Epipaleolithic) was observed. The bad visibility at site, which was fully overgrown by shrubs, limited our survey considerably, but materials were found over the entire plateau between the western edge of the cliff and the steep ridge of the hill in the east: about 300x400m. Based on the nature of the identified surface materials (consisting mostly of dark-grey wheel-thrown coarse ware such as large open bowl forms and storage vessels), we can conclude that Aykırıkça was a settlement, but we also encountered at least 16 semi-circular fieldstone structures[18] (Fig. 5). Although the presence of structures at the site was already known[16] we discovered that four of them were recently illegally excavated. Some of these (e. g. structure no. 1 and no. 15) are now completely destroyed, while at other circular structures, pits of 2 by 2m were dug out. In the debris of those trenches we found fragments of burned human bone (cremation?) and pieces of metal artefacts and ceramics. The attested pottery could be identified as locally made painted Archaic ceramics with geometric patterns (Fig. 6). Based on these finds and the fact that we are dealing with round prominent structures, a case can be made for interpreting these as Iron Age burials

17 Duru 1996

18 Diameters between 12 – 15m and about 1m in height

or tumuli as was previously hypothesized in literature[19]. With these new results we can confirm that Iron Age hilltop sites occurred in the eastern part of our study area as well.

B. *3 Roman – Byzantine Dark Ages*

Most remains of this survey season stem from theLate Roman – Early Byzantine period (300-700 AD), when we see a clear filling up of the landscape, remaining more or less stable until the end of the Byzantine Dark Age (700–900 AD). Some degree of nucleation in the artefact distributions was noticeable during the latter centuries, however. A few of the Late Roman – Early Byzantine sites revealed also Roman imperial (1st-2ndc. AD) material, especially at the foothills of the hilltop site of Hisar: Field 1-2-10 and Field 13-14. At other locations (Field 24 and 171) the Roman imperial pottery was mostly very weathered and possibly brought to these locations as a result of manuring activities.

Notable is the wide range of different types that these sites comprised during the Late Roman-Early Byzantine period. Most of the artefact concentrations can be interpreted as small to medium sized farming settlements but also metal production sites, building material concentrations on strategic locations, a cave site with a Greek inscription and a church (Field 72, Fig. 2 and 7) were encountered. In late antiquity, a major socio-economic reconversion resulted in a reorganization of the settlement system. The high number of Late Roman – Early Byzantine sites in the less productive areas confirm that an increase in population resulted in economic specialization (e. g. local amphora production at the different identified sites) during this time period. [20]The new survey results illustrate the resilience and adaptive character of communities through continuity and change associated with the later Roman and Byzantine sites.

B. *4 Late Ottoman period*

The Late Ottoman period (1700 AD onwards) was particularly well represented in the 2016 survey campaign. In almost every find scatter we identified Late Ottoman material. In the case of Field 121, southwest of the modern village of Hisar, we have good indications that we are dealing with a more extensive village-type settlement. In most cases, however, the occupation was probably limited to one or a few households. A notable Late Ottoman survey outcomewas that this period was mainly characterized by a high number of off-site

[19] Waelkens et al. 1997: 37

[20] Poblome 2014

densities probably related to the strong focus on pastoral activities. Linked to these activities were the different stone-built Ottoman cisterns (Fig. 8) that we documented in the landscape. In a limited landscape such as the highlands of Dereköy with very few natural water sources, digging for ground water and building a cistern is an efficient way to get secure access to water. Lastly, Late Ottoman metal/ceramic production sites have also been found, which were mostly located near rain fed (temporary) water channels.

C. Conclusions

The 2016 survey was the first season of intensive surveyingin the Dereköy-Hisar area and was very successful as it provided many novel insights on the archaeology of more "marginal" landscapes. Our results demonstrate that these areas have great archaeological potential and were fully integrated within the archaeological cultural landscape during various periods. Therefore, we can question to what extent these landscape were truly marginal. In comparison with the lowlands, we can conclude that the archaeological remains are often different in nature and in date. The presence of many production sites, for instance, illustrates this point. Furthermore, also periods that we are currently missing in the lowlands, like the Palaeolithic hunter-gatherer groups for example, are represented in the archaeological record of the highlands or the other way round: the lack of Neolithic and Early Bronze Age sites in the highlands. However, it is important to point outthat there seems to have been some sort ofconnectivity with the lowlands, as we have evidence that at some points in time, the higher areas served as expansion zones: e. g. during the Late Roman-Byzantine period. All these outcomes illustrate well why we must consider this survey as significant and necessary as it truly complements our knowledge of past communities.

In the upcoming campaign, we plan to continue with our survey research in the Dereköy-Hisar region and extend our sample area in order to test to what extent our patterns of the regional site patterns hold up in exploring new areas.

GEOPHYSICAL SURVEY

Manuela Broisch, Ralf Vandam, Peter Talloen,
Dries Daems and Jeroen Poblome

In past campaigns, geophysical surveying techniques were applied with reliable success within the urban area of the ancient town of Sagalassos and were also introduced into the study region (or territory) of ancient Sagalassos, in

support of the intensive archaeological surveying campaigns. In the 2016 campaign, a new collaboration with the Archaeological Institute of the University of Cologne, Germany, was launched to continue geophysical surveying in our study area. The geophysical survey was carried out from29 July to 19 August 2016and investigated five sites from different areas of the territory: Susaklı, Bereket, Aykırıkça, GavurYıkığı, and Duğerçayı 2/Field 258 (Fig. 9). All of these sites were previously located and documented, applying intensive or extensive archaeological surveying. As a result, the chronological allocation as well as functional attribution of the selected sites were already established. The selection of working areas was carefully selected in order to test the variety of available equipment in different topographical, geomorphological, and geological conditions, on a wide variety of different period sites, ranging from late prehistory to late antiquity.

Methodology

Three different methods: geomagnetic survey, electric resistivity survey and ground penetrating radar were applied during the geophysical survey. Since the local conditions at each site (topography, soil dryness, geology *etc*.) have a great impact on the success of each method, it was determined on a daily basis which methods were to be applied at the different sites. However, it was chosen to cover each site with at least two different methods, as these greatly complement one another. The geomagnetic survey was carried out by using two Magnetometer Geometrics G858, connected to two cesium probes. Under normal conditions this technique can identify features up to a maximum depth of 1. 5m. The geomagnetic data was collected with a sampling interval of 0. 5m along transects spaced 2. 0m apart. For the resistivity survey a RM85 Geoscan Research device was used to log the data. 5 electrodes connected via multicore cables with the measurement device in 0. 5m separation provides us with a profile of 2m. The maximum recorded depth with this method was limited to 1m. Lastly, the ground penetrating radar was conducted with a 400 Mhz antenna and a SIR System-3000 control unit (GSSI) with an interval of 0. 3m for each profile. A 400 Mhz antenna records up to a depth of approximately 3m.

The standard grid used for covering the geophysical surveyed area was 30 x 30m. The grids were measured in a zig-zag system with transects spaced depending on the individual method. The surveyed fields wererecorded by GPS. The GPS system used was a Trimble R8s Base and Rover configuration with a

horizontal precision of under 2 cm. The post-acquisition processing techniques used were based on standard procedures outlined in the literature[21].

Survey Results

B. *1. Susaklı*

Susaklı was first visited in 2004 as part of the Suburban Survey programme, aimed at studying diachronical human occupation within the Ağlasun valley. Over a total of 25 grids, approximately 3500 sherds were collected and processed. During the first processing about 70% of the total amount of sherds was tentatively identified as pre-Roman. Recent material studies from the site point out that large majority of the material belonged to the Byzantine Dark Age rather than the Classical/Hellenistic period. Only a small component of the Classical/Hellenistic period was present in several sectors, but rather as residual material among an overwhelming majority of later material. To complete the picture of habitation in the rural parts of the Ağlasun valley, Susaklı was selected to be subjected to geophysical studies during the 2016 field campaign.

At the time of visit, part of the site of Susaklı was covered by crops which limited the geophysical survey to a great extent. In total, an area of 1ha was surveyed with the magnetometer and less than 0. 25ha was covered with geoelectric. The results of the magnetometer measurements show a lot of structures in the north of the area which could be interpreted as building structures (Fig. 10). Some of these seemed to be very clear (continuous line) and others were much weaker (dotted line). The lighter marked anomalies could be of present-day origin, like a watering system. The low magnetic anomaly in the south might be related to modern structures. The structures which are visible in the south, below the trees seemed to be geological. The area is disturbed by surrounding metal (high magnetic). A small area was covered with geoelectric and revealed a clear picture of rectangular walls. In one case it showed the same orientation as the detected structure in the magnetic result. Unfortunately, the ground penetrating radar did not yield the expected results. The scans, which were made in a 14 x 15m grid, were to blurry and inconclusive.

B. *2. Bereket*

The modern-day village of Bereket and parts of the surrounding lands were first surveyed in 1996, resulting in the identification of several architectural

21 Kvamme 2006, Scollar et al. 1990

fragments dating to the late Hellenistic and Roman imperial periods. The area was revisited during the Territorial Archaeological Survey programme in 2008 for a more intensive investigation. As a result of these surveys, diachronic settlement patterns could be reconstructed for the area. The oldest signs of permanent habitation were found at the Archaic and Classical hill-top settlement of Kökez Kale dated to the 7th – 4th centuries BC based on pottery. Down in the Bereket basin, a number of smaller sites were discovered dating from Hellenistic times onwards, with peak habitation during Roman imperial and Late Roman/Early Byzantine periods. These sites were tentatively identified as either large estates, hamlets or small villages. Besides archaeological survey results, an extensive palynological research programme was undertaken to match the available evidence with climatological records.

The aim of the 2016 geophysical research at Bereket was to provide indications for subsurface architectural remains in the area in order to shed light on the nature of occupation in this area. Since the archaeological concentration at Bereket has a large extent we chose to devote most of the survey campaign at this site, in particular in the sectors which had previously yielded Hellenistic materials. Over five days, 2, 2ha was surveyed with the magnetometer and 0, 5ha with geoelectric which both yielded very promising results. The geomagnetic result shows several rectangular anomalies which could be interpreted as building structures (Fig. 11 white lines). It is remarkable that most of these possible buildings have the same, or nearly the same orientation. The area in the south between the constructions illustrated several small anomalies. The agricultural fields were divided by stonewalls, which were also visible in the magnetogram (Fig. 11 black lines).

B. *3. Aykırıkça*

The site of Aykırıkça was discovered in 2002 and revisited in 2004. During the 2016 survey campaign the site was resurveyed to contextualize our newly identified artefact concentrations (see above). As mentioned during our survey we discovered several illegal excavations at the site. Therefore, we decided to document the site in great detail by a geophysical survey before it should be further destroyed. The rough terrain and bad visibility of the site, however, impeded the geophysical survey to a great deal. As a result, our research waslimited to three small open spots (1. 640m² in total). Furthermore, due to the dryness of the soil, thegeoelectricresearch did not provide good results. The geomagnetic survey, on the other hand, was much more successful and picked

up several anomalies which were diverse in magnitude, size and shape (Fig. 12). The five round anomaliesmight possibly be interpreted as remains of limestone burials like the ones that can be observed at the surface, but their small size seems to contradict this hypothesis. Considering their higher magnitudes and round shapes it is possible that these anomalies relate to burnt clay concentrations from for instancekilns, hearthsor the fireplaceswhere the cremations took place. Further research needs to be conducted to fully comprehend these survey results. Furthermore, at least five rectangular features were mapped within the survey area and might be linked to the settlement at Aykırıkça. It was also at these locations where we found higher concentrations of (Iron Age and Late Chalcolithic) pottery.

B. 4. *Düğer Çayı 2/Field 258*

The Düğer Çayı 2 site is located 1. 3km northwestwards of the modern village of Düğer in the Burdur Plain. It is situated on an old river bank of the DüğerÇayı, which runs immediately to the west of it. It was discovered during the intensive survey of 2011 in the Burdur Plain and revisited in 2012. The site yielded one of the largest amounts of Early Bronze Age (henceforward EBA) sherds of the survey in plain area. Despite the relatively high amount of collected sherds, the dating of the pottery was not that straightforward as it differed to a certain extent in form, fabric and finish from the known local EBII pottery in the plain area. On the other hand, the pottery exhibits well-developed EBA pottery traits such as twisted handles, uprising loop handles and disc bases. Therefore, it was argued that the site should be dated between the late EBA I and early EBA II. The ongoing excavations at the Early Bronze Age site of Hacılar Büyük Höyük might clarify its dating in the future. The site was selected for a geophysical survey as it is one of the largest known prehistoric flat sites within the Burdur Plain and to help to establish its nature.

Düğer Çayı 2 was investigated by a geomagnetic survey for two days (Fig. 13). Unfortunately, the processed results of the site were rather unclear. Two anomalies are recognized in the south of the area which could be interpreted as buildings. Furthermore, two larger circular anomalies have been identified of which the interpretation remain currently unclear. Possibly, this might be some sort of ditch or perimeter structure which is attested at EBA sites across Anatolia. The results of the geoelectric survey, however, detectedin the northwest corner- in between these circular anomalies - a rectangular structure. Since the archaeological survey indicated that we are dealing with a settlement it might

well be that this anomaly represents a house. Further research needs to be conducted to fully understand the geomagnetic results but they illustrated well the potential of this site.

B. 5. *GavurYıkığı*

A joined geophysical and archaeological survey was carried out in the northern part of the SakarcaMahallesi of the village of Ağlasun, at a site locally known as GavurYıkığı. A number of limestone building blocks originating from the site and reused in the staircase and east wall of a house in the same quarter of the village were identified by members of the Sagalassos Archaeological Research Project, as steps of an altar platform (bema) and a post of a chancel barrier (templon) of a Byzantine church. These could be dated stylistically to the 6th - 7th c. AD. No standing remains are visible today, but ongoing ploughing at the site has littered it with fragments of building ceramics, mortar and pottery, while concentrations of rubble stones, brick and tile fragments, and ashlar blocks are present along the borders of the field. The aim of the combined survey was to verify the exact location, plan and date of this presumed church – the first to be established within the confines of the village of Ağlasun, as well as to ascertain the presence of other structures in its vicinity. The investigation of such a site would improve knowledge of the general settlement history of this rural area of the study region, and especially that of the Byzantine period.

The archaeological survey investigated thirteen agricultural fields in the area of GavurYıkığı and found the highest concentration of artefacts in Field 171, where the church is thought to have stood. However, the wide distribution of surface materials suggested that the church was not a stand-alone feature in the landscape. The finds from the archaeological survey dated the occupation of the site between the 7th and 10th c. AD, a period corresponding to the so-called Byzantine Dark Ages, and overlapping with the date of the architectural remains. The results of the archaeological and the geophysical surveys corresponded very well with one another. In areas where geophysical techniques indicated anomalies and structures, larger concentrations of artefacts had been discovered. Both the geomagnetic and the geoelectric survey (Fig. 14 and 15) revealed the presence of a large rectangular structure along the northern border of Field 171, approximately 20m long and 9m wide and oriented east-west, which could most probably be identified as a three-aisled basilica. The size of the alleged church, comparable to the basilicas of nearby Sagalassos, and the nature of the architectural elements (a chancel screen) and its decoration (fragments of opus

sectile has been collected) indicated a tripartite basilica of considerable status. Further towards the south and west, where the archaeological survey had found concentrations of pottery and building material, the geophysical prospection revealed at least four rectangular structures, each composed of several rooms, which demonstrated that the church was part of a settlement (Fig. 14 and 15). On the basis of the surface finds these structures could be tentatively identified as dwellings, facilities for the storage of agricultural production and/or workshops.[22]

C. Conclusions- The effectiveness of geophysical survey in the Sagalassos study area

The geophysical survey campaign proofed to be very successful and effective. At all investigated sites anomalies of subterranean structures were identified matching well with the archaeological survey results of these sites. For each site, the geophysical surveys provided new insights or confirmed our hypotheses.

The quality of the geophysical survey results, however, was highly dependent on the different applied techniques which responded differently on external factors regarding the environment of the surveyed area. In comparison to other areas in the Mediterranean, thegeomagnetic results were not as clear as we had hopedfor. This outcome might be related to the fact that the surrounding soil and its inclusions do not give a strong contrast to the archaeological(building) materials and features. Most likely the local limestone was used at many sites as building material which do not contrast with the limestonebedrock. The electrical resistivity survey, on the other hand, worked well in most of case studies. Its results demonstrated clear structures well-suited for further interpretations and research. It proofed to be a good addition to the geomagnetic survey which in contrast to the geoelectric survey can cover more ground in a day. Lastly, the ground penetrating radar did not yield any good results in our study area. Most of the results were too blurry and not well-identifiable. There are several reasons that may have led to this outcome such as the burial circumstances of thearchaeological features (covered byrocky material or by wet clay which would provide poor feasibility for GPR), the rough terrain of the sites or the high concentration of stones in the soil.

[22] For further information on the church site of GavurYıkığı, see Talloen *et al*. 2017

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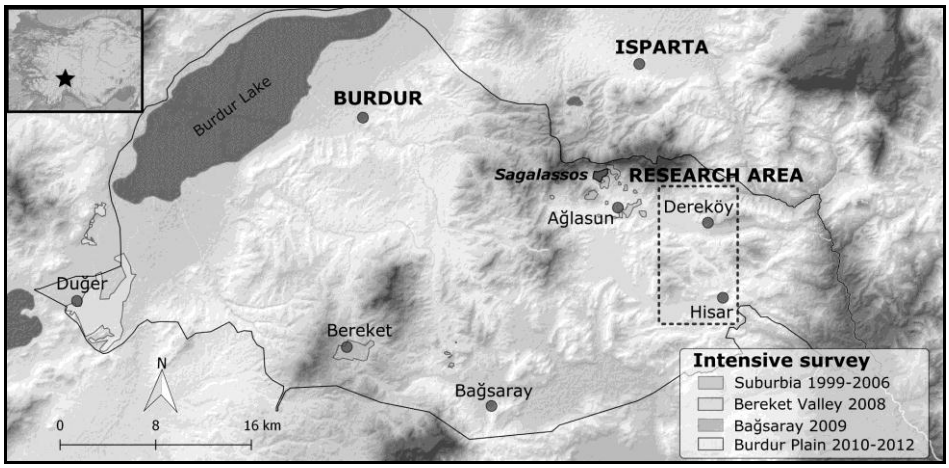

Fig. 1: The territory of Sagalassos in the Roman imperial period with the survey area located in the eastern part near the villages of Dereköy and Hisar. Previous intensive survey areas are also depicted.

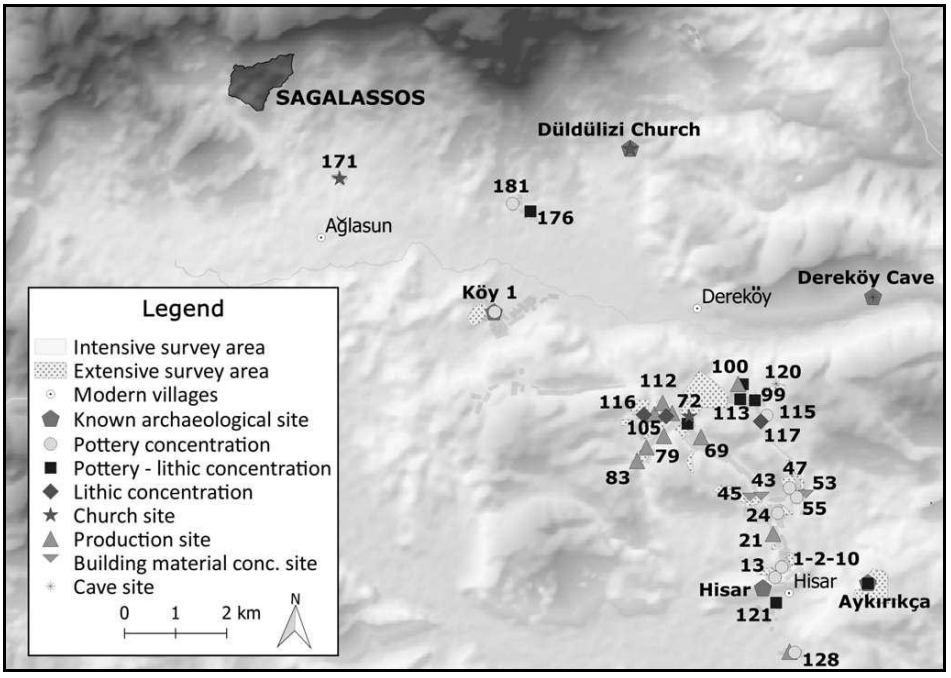

Fig. 2: Overview of the surveyed area in the Dereköy-Hisar region with all the new and old sites identified.

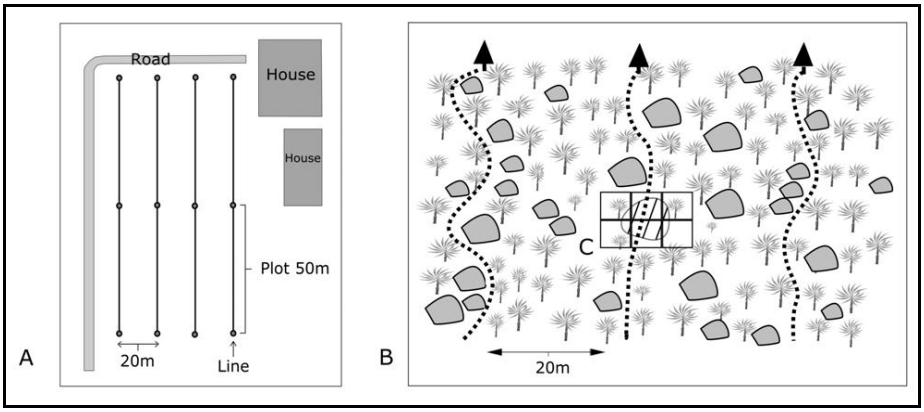

Fig. 3: Applied survey methodology in the 2016 survey campaign. In addition to our tract walking surveying method we implemented an undulating transect walking and gridded survey in areas with less visibility.

Fig. 4: Field 117 with Palaeolithic artefacts, among which is a Levallois core.

Fig. 5: Circular structure/burial no. 8 at Aykırıkça.

Fig. 6: Painted Iron Age pottery found in the debris of illegal excavations at burial no. 2. at Aykırıkça.

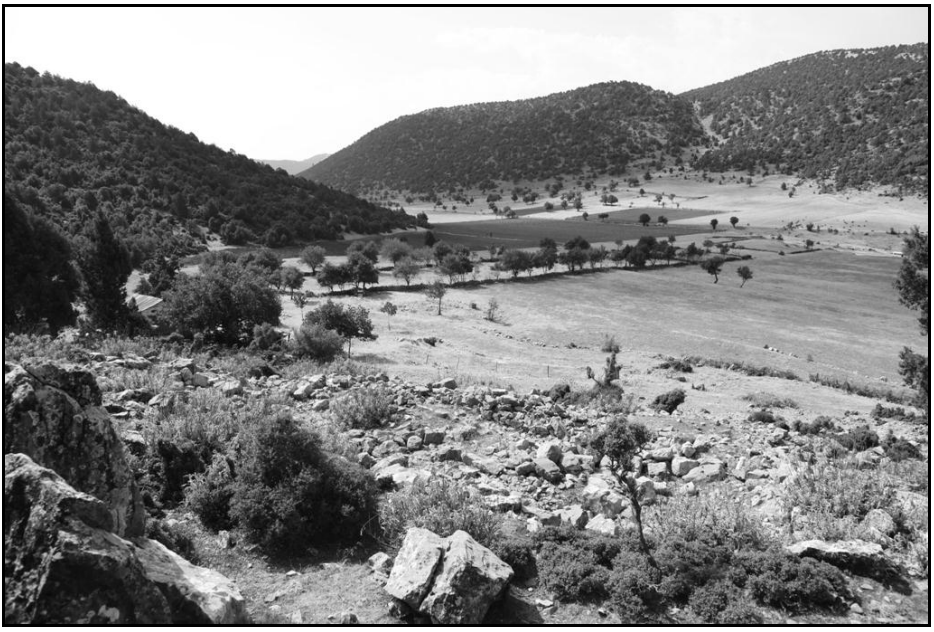

Fig. 7: At Field 72 remains of a chruch were found on a hillslope, which provided an excellent overview on the high plateau.

Fig. 8: A Late Ottoman cistern, which is still in use, found southward of Field 128 in the Hisar Plain.

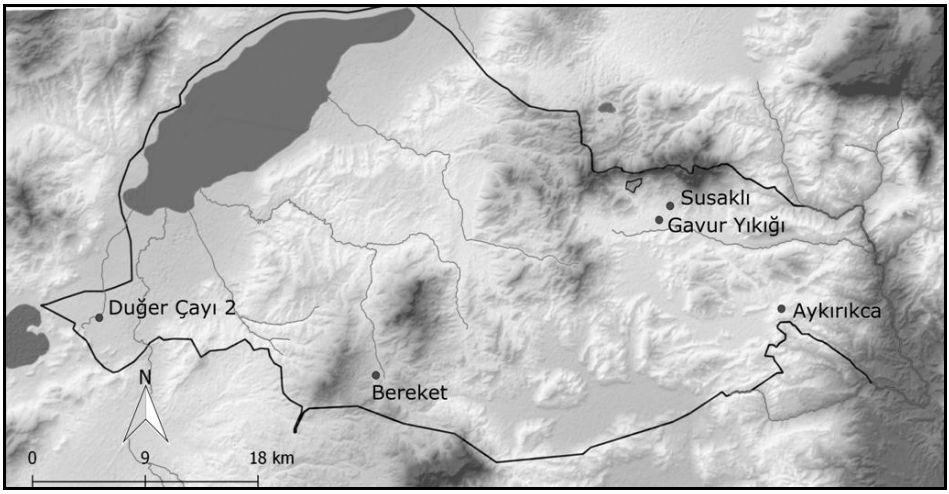

Fig. 9: Overview of the sites that were selected for geophysical survey in 2016.

Fig. 10: Geomagnetic survey results from the Susaklı site.

Fig. 11: The visual interpretation of geomagnetic results at Bereket.

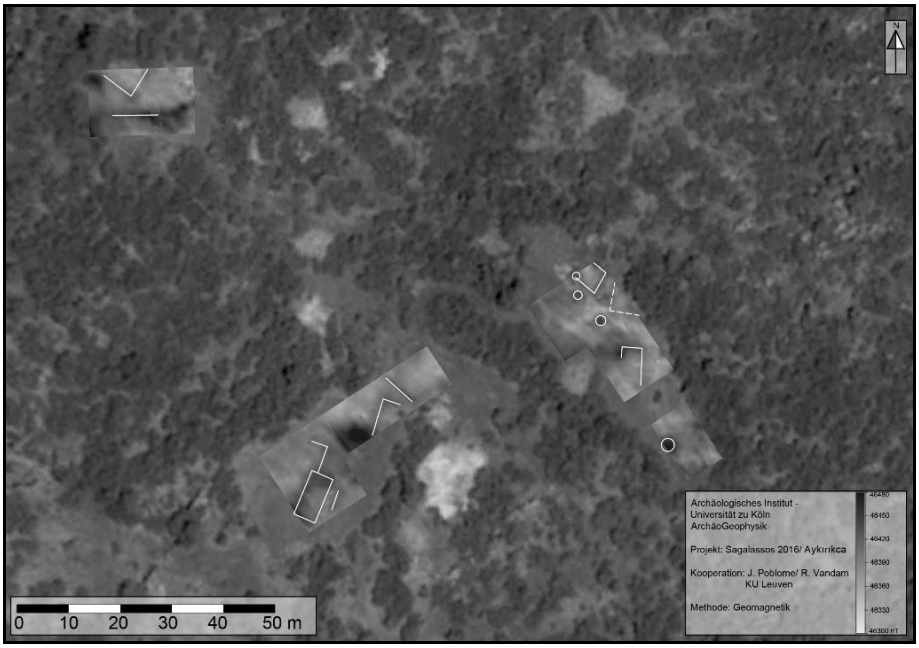

Fig. 12: Geomagnetic survey results at the site of Aykırıkça.

Fig. 13: Results of the geomagnetic survey at Field 258 with indications of the magnetic anomalies.

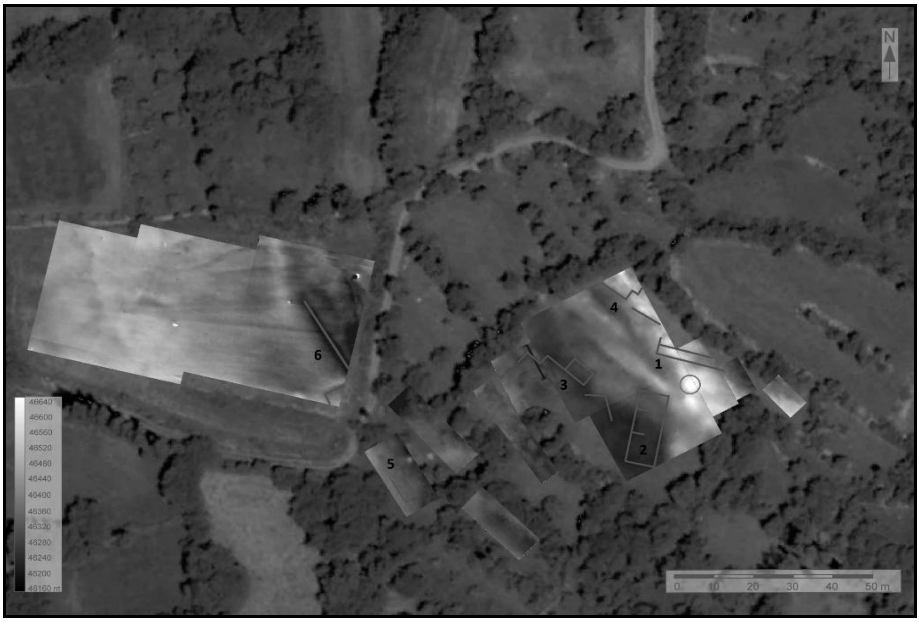

Fig. 14: Results and interpretation of the magnetic anomalies at GavurYıkığı.

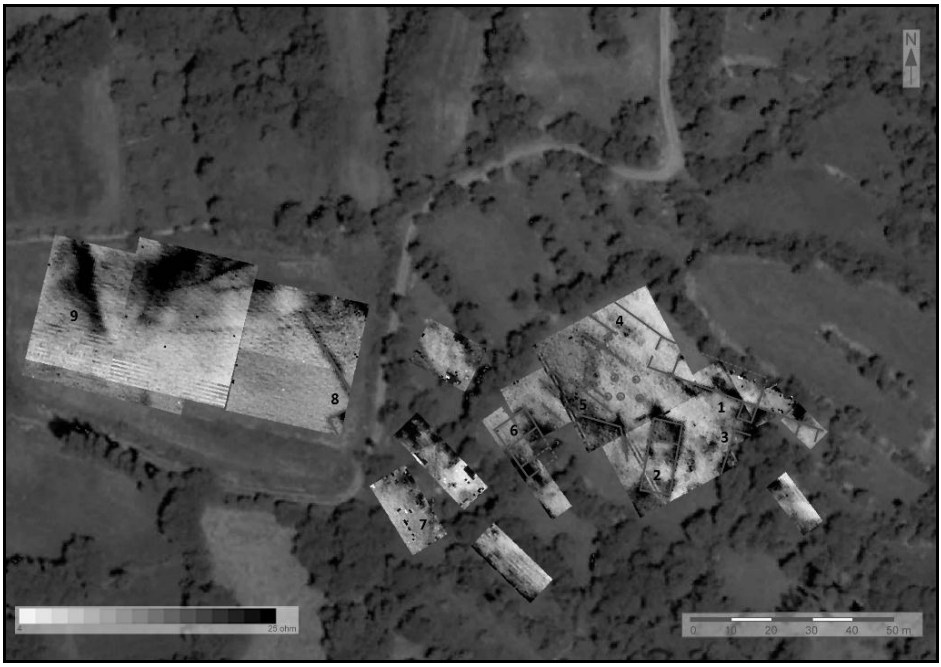

Fig. 15: Results and interpretation of the electrical resistivity anomalies at GavurYıkığı.