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Field Data from the West Area of Samos Archaeological Project (WASAP), 2021–2024

DATA PAPER

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ABSTRACT

The West Area of Samos Archaeological Project was an interdisciplinary fieldwork project, combining reconnaissance survey, intensive pedestrian fieldwalking, ethnographic research and drone photography in west Samos. It was co-directed by Anastasia Christophilopoulou (Cambridge/Boston MFA), Michael Loy (Cambridge/Durham), Naoíse Mac Sweeney (Vienna) and Jana Mokrišová (Cambridge, 2021 and 2022 only), under the aegis of the British School at Athens and the Hellenic Ministry of Culture. These data were collected using field methodologies well-practiced within the Aegean, using a common vocabulary and data structure to field projects of similar scope on neighbouring islands and mainlands.

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archaeology; GIS; landscape; ethnographic; drone; survey

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(1) OVERVIEW

CONTEXT

Samos is the ninth largest Aegean island (c. 477.6 km^2) in the Mediterranean Sea. It was renowned throughout history for its networking and regional connections. As early as the end of the eighth century BC, Samos is considered to have been a naval superpower (Thucydides 1.13.2–3). The ubiquitous production of transport amphoras in regionally-based Milesian-Samian workshops connected the island by the seventh century BC into a distribution network that spread right across the Mediterranean basin. In post-antique times, too, Samos was equally well-connected and became a key node in stop-over and exchange between the Mediterranean and Near East worlds. It established strong international networks for the distribution of pitch, wine, honey, and other products into Northern Europe. Through 100 years of excavation by the German Archaeological Institute and rescue and research operations by the Ephorate of Antiquities of Samos and Ikaria, much is known about Samos' famed Sanctuary of Hera and surrounding area; but less is known about the western portion of the island. This project aimed to develop our knowledge of the landscape of western Samos, including the resources and settlements that underpinned its international networking.

The data described here comprise the principal dataset of the West Area of Samos Archaeological Project (WASAP), co-directed by Anastasia Christophilopoulou (Cambridge/Boston MFA), Michael Loy (Cambridge/Durham), Naoíse Mac Sweeney (Vienna) and Jana Mokrišová (Cambridge, 2021 and 2022 only), and for which the other authors of this article acted as senior team members and specialists. Fieldwork was conducted between 2021 and 2024, focussed on the diachronic use of Samos' western hinterlands from the early first millennium BC through to the present day. The main field activity of the project was a programme of intensive pedestrian field survey, covering 3.69 km^2 in regular and irregular shaped transect units ('tracts') in both northwest and southwest Samos. In addition, the project aimed to develop important information about the wider landscape through extensive survey exploration, on-site survey, ethnographic research, and targeted drone photography. By the kind permission of the Ephorate of Antiquities of Samos and Ikaria, a sample of diagnostic surface finds were taken to the Archaeological Museum of Pythagoreio for detailed study by specialists. In its recording methods, WASAP adopted many long-established techniques used elsewhere within the field of Mediterranean surface survey.

WASAP adopted a born-digital paperless recording strategy (see Loy, Katevaini and Vasileiou 2024 [9]). All team members were equipped in the field with 8GB Alcatel Android tablets, devices on which they accessed offline data-entry forms designed in the open and highly customisable platform KoBo Toolbox. One or two data specialists were on-hand throughout each field season to oversee the data management process, and to manually draw tract and walker spatial data into GIS.

This data publication represents the full release of all field data acquired in the lifetime of WASAP. The final substantive publication of results from southwest Samos is forthcoming (Christophilopoulou et al. 2025 [4]). A similar publication is planned for northwest Samos, following a further study season. After that point a further data deposit of ceramics research data will be made. Interpretative articles that make use of WASAP data have already been prepared, focussing on the navigability of Samos' shorelines (Loy 2024 [6]), networking, as represented in southwest Samos' ceramics dataset (Loy and Huy 2025 [8]), and landscape connectivity between northwest and southwest Samos (Loy 2025 [7]).

Spatial coverage

Samos (island and primary spatial coverage); Karlovasi and Marathokampos (largest towns); west Samos (municipality); Greece (country); Mediterranean (macro-region)

Intensive survey extents:
Northern boundary: 37.81°N
Southern boundary: 37.71°N
Eastern boundary: 26.75°E
Western boundary: 26.61°E
(All WGS84)

Extensive data point extents:
Northern boundary: 37.81°N
Southern boundary: 37.63°N
Eastern boundary: 26.82°E
Western boundary: 26.58°E
(All WGS84)

Temporal coverage

c. 800 BC – 1900 AD.

(2) METHODS

STEPS

In intensive pedestrian survey, the landscape was investigated in a series of regular (50 m × 50 m) and irregular (<50 m × 50 m) tracts. Team leaders navigated to pre-defined grid squares using an annotated aerial map loaded onto an 8GB Alcatel Android tablet, and handheld Garmin eTrex10 GPS. Leaders recorded landscape information for each tract into a predesigned 'leader form' using the app KoBo Collect. Fieldwalkers spaced at 10 m intervals walked up to 50 m in a walkerline through each tract, recording field information on another pre-designed form of KoBo Collect. The same KoBo Collect data entry protocols were employed for minigrids (10 m × 10 m sub-units of tracts) and Points of Interest (POIs, units non-systematically discovered

during extensive exploration). All KoBo forms were synced to the project's KoBo Toolbox cloud work area at the end of the working day, when tablets came in range of a stable WiFi connection. POIs were originally assigned a temporary ID during data input, which was cleaned to a permanent ID off-season, with an integer sequence starting at P001.

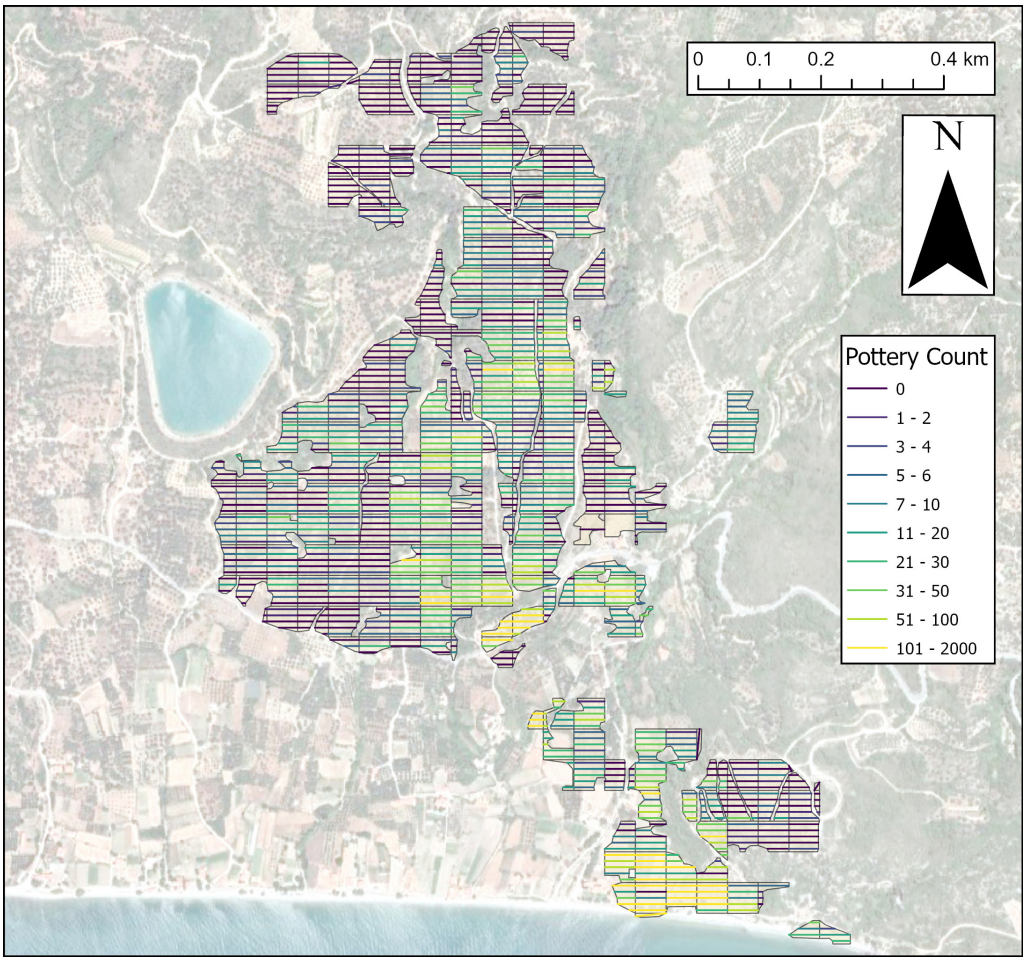
The collection strategy for walkerlines, minigrids and POIs was to record and bring for close study any diagnostic ceramic pieces, or non-ceramic objects. Numbers of finds were registered in KoBo Collect within the form of the parent walkerline, minigrid or POI. Additionally, all finds were described and a record photograph taken in an 'initial processing form', creating a register of all objects found in the field and sent for study. This data deposit does not contain the study data generated by specialists through object analysis.

Information given to the team by residents of Samos — either in a semi-structured interview or through informal conversations— was recorded systematically in a KoBo Collect 'ethnographic form'. All interlocutors were offered an information sheet about the project and a consent form was signed (based on Cambridge University's ethnographic fieldwork template), enabling the anonymised release of interview information. Ethnographic datapoints were originally assigned a temporary ID during data input, which was cleaned to a permanent ID off-season, with an integer sequence starting at E001.

Aerial photography was acquired using a DJI Phantom 4 drone. The drone was flown over zones of interest using manual controls at a height 30 m from the ground. Flights were conducted in regular linear passes and captured to video with a frame rate of 29.97fs (3840 × 2160px/59874kbps). From each flight video, every 15th frame was extracted to an image. The total batch of images was aligned, built in 3D and exported as an orthophoto in Agisoft Metashape (photos aligned under medium accuracy with generic preselection, 20,000 key point limit and 0 tie point limit; depth map generated on medium quality with mild filtering; and the creation of a texture with generic mapping, mosaic blending, and texture size of 2,048; orthophotos were exported at 96 dpi, with bit depth 32 and LZW compression add metadata details). Orthophotos were georectified on visual comparison with GIS basemaps.

SAMPLING STRATEGY

Walkerlines were spaced at 10 m intervals, with a cone of visibility for walkers *c*.1 m on either side. The maximum length of a walkerline unit was 50 m, but in many cases was shorter (due to terrain, topography, vegetation etc.). Pottery count and ground visibility data were collected



Tracts and walkerlines in southwest Samos in the area of Velanidia. GIS shapefiles are linked to the field table data to produce the graduated symbology.

at the level of the walkerline. Minigrids covered the same area already walked by walkerlines, but transformed the resolution at which field data were recorded from 2 × 50 m to 10 × 10 m.

Different sampling strategies were used in northwest and southwest Samos. In southwest Samos, three areas of a known high density in surface ceramic were selected, and, as far as topography would allow, an east-west transect was explored between these known hot-spots. To increase the area of coverage, rows of tracts were alternated in a north-south direction with non-explored 50 × 50 m units. In northwest Samos, five areas were chosen for complete coverage, based on ethnographic reports. Additionally, seven 'test transects' were walked in a north-south orientation, one tract wide and up to 6 km long. Areas of high ceramic density picked up on these transects were chosen for more intensive exploration. The area for minigridding in southwest Samos was chosen not for being the area of the highest density of surface ceramics, but for producing material different to other areas of southwest Samos (fineware vs transport amphora concentration).

POIs were located in three main ways. First, exploratory visits were undertaken to locations that had been identified as being of potential archaeological interest. Such identifications were made on the basis of study of previous literature, study of aerial imagery, and thanks to information from local informants. Second, visits were made to locations that were identified as potentially of interest on the basis of their geographical or topographic features; such as springs, river courses, and hilltops. Third, while undertaking the core tract-walking, if any further features of interest were encountered (e.g. wall, cut feature, dense scatter of pottery, architectural feature), they were recorded as POIs.

One week of off-season time was used in February 2023 to collect as much ethnographic information about the island as possible, targeting the towns and villages of Karlovasi, Marathokampos, Koumeiika and Leka, being areas where the project had established contacts. The vast majority of the remaining information in the ethnographic database was gathered from landowners or local residents encountered as the field team progressed in investigating tracts.

The acquisition of drone photography was non-systematic, owing to the availability of personnel, flight restrictions imposed by the authorities in proximity to military zones, and weather conditions. Areas of high surface-find density were documented in southwest Samos only, while a more systematic scanning of the landscape between the town of Karlovasi and the Fourniotiko river was made in northwest Samos.

QUALITY CONTROL

All datasets have been checked for completeness, with all records checked to ensure sensible and standardised language has been employed wherever possible. The cross-linking of records (e.g. between walkerlines, walker-finds, initial processing objects, and walkerline GIS files) has been checked, and links cleaned as far as is reconstructible out of the field. Duplicate data points have been removed. All vector polygons have been checked for completeness and overlap. All spatial data is recorded in the UTM 35N WGS84 coordinate system.

All sensitive personal information has been redacted from the ethnographic dataset. For all other table data, KoBo Collect originally included in its form design a field to record the name of the team member completing the data entry. Names have been removed and swapped for anonymised walker numbers.

CONSTRAINTS

GPS accuracy in the field was 3–5 m. Topography, slope and vegetation rendered large areas of the landscape difficult to progress through: ground visibility is recorded as a datapoint on both walker and minigrid tables. The ethnographic data entry system was not established until 2023, so some information considered ethnographic and originally captured as POIs is replicated between the two datasets (P091 = E002, P103 = E003, P162 = E004, P185 = E019, P226 = E026). Certain fields of the leader and POI forms were not set as mandatory (land coverage, viewsheds, terrain type) and a number of entries have missing data for these attributes. Leader forms for tracts 4521, 4578 and 4579 were missing from KoBo Toolbox and were not recoverable. Where missing walker forms were noted during on-season data cleaning, dummy records were created to fill the dataset (now designated by anonymous walker number w015).

(3) DATASET DESCRIPTION

OBJECT NAME

Folder: table data

ethnographic – .csv data and metadata generated from KoBo Collect webform in transcribing notes from ethnographic interviews.

initial_processing – .csv data and metadata generated from KoBo Collect webform in registering and photographing diagnostic finds in the field.

leader – .csv data and metadata generated from KoBo Collect webform in registering landscape information about transect units explored.

minigrids – .csv data and metadata generated from KoBo Collect webform in recording the condition of minigrid units investigated.

minigrids-finds – .csv data and metadata generated from KoBo Collect webform in registering diagnostic finds recorded through the *minigrids* form.

POIs – .csv data and metadata generated from KoBo Collect webform in registering landscape information about extensive units explored.

POIs-finds – .csv data and metadata generated from KoBo Collect webform in registering diagnostic finds recorded through the *POIs* form.
walker – .csv data and metadata generated from KoBo Collect webform in recording the condition of walkerline units explored.
walker-finds – .csv data and metadata generated from KoBo Collect webform in registering diagnostic finds recorded through the *walker* form.

Folder: field photos
initial processing – folder of .jpg images taken by tablets during the registration of finds on KoBo Collect webform.
leader – folder of .jpg landscape images taken by tablets during the registration of transect units on KoBo Collect webform.
minigrids – folder of .jpg scans of paper sketches, taken by tablets during the registration of minigrid units on KoBo Collect webform.
POIs – folder of .jpg landscape images taken by tablets during the registration of extensive units on KoBo Collect webform.

Folder: GIS data
walkerlines – vector polygon dataset (.shp and associated files) with the units explored within each tract by individual fieldwalkers.
tracts – vector polygon dataset (.shp and associated files) with the transect units explored by one or more fieldwalkers.
minigrids – vector polygon dataset (.shp and associated files) with the minigrid units explored by individual fieldwalkers.

Folder: drone data
georeferenced .tif files, composite orthophotos produced from processed drone video capture

DATA TYPE
primary data, processed data.

FORMAT NAMES AND VERSIONS
.csv, .jpg, .shp, .tif

CREATION DATES
All data were created during the main WASAP field seasons, in the summer months between 2021 and 2024. A first level of data validation and cleaning was undertaken the month after each field season, and the final assembly of this dataset was done in January and February 2025.

DATASET CREATORS
Primary survey datasets (*initial processing, POIs, walker*) were created by a large team. See acknowledgements for a complete list of project participants.
ethnographic – primarily Anastasia Vasileiou and Michael Loy, with contribution from team leaders
leader – primarily Katerina Argyraki, Matthew Evans and Enrico Regazzoni
minigrids (table data) – Naoíse Mac Sweeney and students of Vienna University
walkerlines, tracts, minigrids (GIS data) – Anastasia Vasileiou, Alexandra Katevaini and Michael Loy
drone data – Michael Loy
validation, cleaning and harmonisation of all datasets – Michael Loy, Anastasia Vasileiou, Alexandra Katevaini

LANGUAGE
English

LICENSE
CC BY-SA

REPOSITORY LOCATION
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26/02/2025

(4) REUSE POTENTIAL

This dataset has been created using very similar field methods to other recently completed published (Bevan and Conolly 2013 [3], Slawisch 2019 [10], Huy and Weissova 2020 [5], Athanasoulis et al. 2021 [1], Vitale et al. 2021 [11]) and unpublished (Bennet 2022 [2]) Aegean field surveys. This lends the data either to robust comparative analysis, or to the possibility of developing a tutorial or seminar on spatial analysis in Aegean field survey. The WASAP dataset also affords the opportunity to evaluate a born-digital data collection methodology against other paper-based projects. The data model used for this survey dataset follows that of the Project Panormos dataset (Wilkinson, Strupler and Slawisch 2020 [12]), itself collected in a region only 60 km southeast, on the Milesian peninsula. The possibility for aggregating and comparing these datasets is high, particularly given the overlap of personnel working within this region. Further scientific analysis on the finds tabulated here will allow for comparisons between the present survey material and excavation material also from Samos, but from the campaigns of the German Archaeological Institute at the Heraion Sanctuary.

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COMPETING INTERESTS

The authors have no competing interests to declare.

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