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Higher Education interdisciplinary Reform in Tourism management and Applied Geoinformation curricula

***THESSALONIKI TRAINING COURSE
JUNE 19-30, 2017***



ARISTOTLE UNIVERSITY OF THESSALONIKI

Thessaloniki Training Course, June 19-30, 2017

	Date	Day	Time	Activities	
	18/6/2017	Sunday	Arrival in Thessaloniki		
Vergina	19/6/2017	Monday	10:00	Departure to Vergina	
			11:00	Settle at the hotels	
			13:00	Visit to the archaeological museum	
			18:00	Visit to the archaeological site	
	20/6/2017	Tuesday	9:00-13:00	1 st Essay	
			18:00-20:00	Preprocessing of the data and cooperation with archaeologists (lectures)	
	21/6/2017	Wednesday	9:00-13:00	2 nd Essay	
			18:00-20:00	Preprocessing of the data and Cooperation with archaeologists (lectures)	
	22/6/2017	Thursday	9:00-13:00	3 rd Essay	
			18:00-20:00	Preprocessing of the data and Cooperation with archaeologists (lectures)	
	23/6/2017	Friday	9:00-12:00	4 th Essay	
			13:00	Departure to Thessaloniki	
	24/6/2017	Saturday	Free day		
	25/6/2017	Sunday	Free day		
Thessaloniki	26/6/2017	Monday	9:00-13:00	Drone and aerial photogrammetry (lectures)	
			15:00-17:00	Processing of the data	
	27/6/2017	Tuesday	9:00-13:00	Laser scanner (lectures)	
			15:00-17:00	Processing of the data	
	28/6/2017	Wednesday	9:00-13:00	Ground photogrammetry and Remote Sensing (lectures)	
			15:00-17:00	Processing of the data	
	29/6/2017	Thursday	9:00-13:00	Geographic Information System (GIS) (lectures)	
			15:00-17:00	Processing of the data	
	30/6/2017	Friday	9:00-13:00	Presentations of individual groups' projects	
			20:00	Dinner	
		1/7/2017	Saturday	Return Home	

Vergina

PROJECT NO.1: Drone – Measurement documentation of archaeological structures

Equipment: Drone, GPS, 3D Printer

Description: In the archaeological site of Vergina archaeological structures will be documented through accurate measurement (Fig. 1), covering a total area of about 2.5 acres. For the aerial photography a Drone will be used. Initially Ground Control Points (GCPs, implemented with targets on the ground and structures) will be measured with Global Positioning System (GPS), in the Greek Geodetic Coordinate System of 1987 (GGRS87). Then aerial photographs of different scale and spatial analysis will be taken. On the same day (afternoon) in the excavation lab a first data processing will be conducted. Upon completion of the processing and production of final products (DSM and ortho image) at Thessaloniki's laboratory, it will be possible to print the model (DSM) in 3D Printer.

Note that GPS measurements (in GGRS87) will be carried out, not only in the area of the sanctuary, but also in the wider archaeological area. At Thessaloniki's laboratory, besides the final processing of the drone data aerial photographs of smaller scale will be studied, as well as satellite images (DSM production and ortho image).

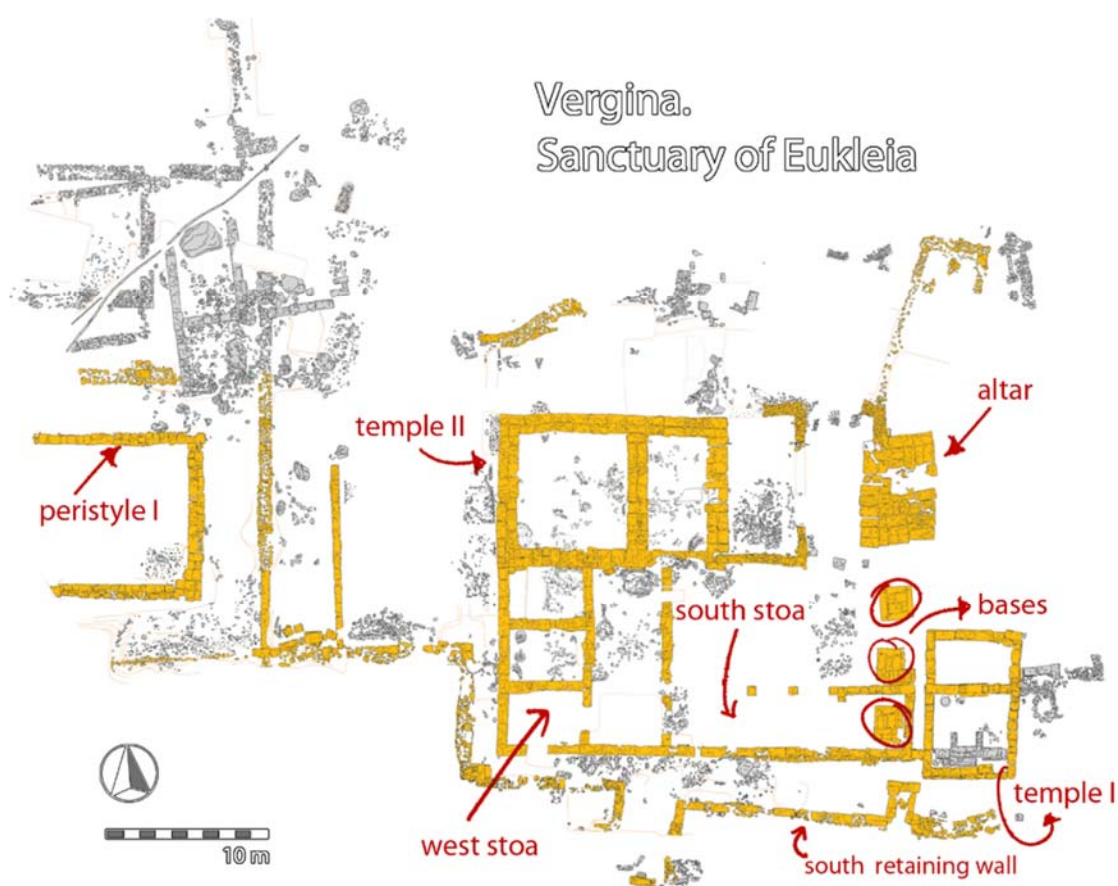


Figure 1. Sanctuary of Eukleia (Vergina, Region of Central Macedonia, Greece).

PROJECT No.2: Laser Scanner - Measurement documentation of archaeological structures or the ancient theater

Equipment: Laser Scanner, GPS, 3D Printer

Description: In the same area of the 1st essay or at the ancient theater (fig. 2), measurements will be made with the Laser Scanner (FARO). For the geo-reference of the data GCPs will be used, which will be measured in the field with GPS (in GGRS87). On the same day (afternoon) in the excavation lab a first data processing will be conducted. The completion the data processing in Thessaloniki's laboratory will allow the printing of the 3D model in 3D Printer.



Figure 2. Ancient theater of Vergina (Region of Central Macedonia, Greece).

PROJECT No.3: Ground Photogrammetry

Equipment: Total station, digital camera DSLR, 3D Printer

Description: An archaeological structure of interest in three dimensions (e.g., a retaining wall) will be photographed with overlapping of at least 80%. Then with the total station control points will be measured, which will be used for the photogrammetric processing of images and for the production of products (DSM and ortho images).

PROJECT NO.4: Micro Laser Scanner - Measurement documentation of small archaeological structures

Equipment: Micro Laser Scanner, 3D Printer

Description: In the excavation laboratory a number of archaeological objects of small dimensions, of particular significance and importance are retained for preservation and research (fig. 3). For their measurement documentation a Micro Laser Scanner will be used. Upon completion of the procedure and after the return to Thessaloniki's laboratory the printing of the objects in 3D Printer will be possible.



Figure 3.

Thessaloniki

Drone and aerial photogrammetry

Drone data processing (Project 1 data: images, GPS / products: DSM and ortho image). Processing of aerial photographs of smaller scale (data: aerial and GPS / products: DSM, DTM and ortho image). Print in a 3D Printer.

Laser Scanner

Processing Laser Scanner data and Micro Laser Scanner data (Project 2 and 3 data: measurements from Laser Scanner / products: 3D models). Print in a 3D Printer.

Ground photogrammetry and Remote Sensing

Processing of the geospatial data (Project 4 data: ground photographs, control points / products: DSM and ortho images). Processing of satellite image (data: satellite image, GCPs, DSM, DTM / products: ortho image).

Geographic Information System (GIS)

The ortho images from Drone, aerial photographs of smaller scale and satellite image will be introduced in GIS. Afterwards, geophysical images and the objects from Micro Laser Scanner in the locations that they were identified will be introduced. Finally, the different DSM and DTM will be introduced, along with the 3D models of the Laser Scanner and ground photogrammetry.