Curriculum vitae

Anastasios Stamnas

Architect engineer DUTh
Surveying engineer AUTh
MSc, "Protection, Conservation and Restoration of Cultural Monuments" AUTh
PhD, School of Rural and Surveying Engineering AUTh

Thessaloniki, Greece, November 2016

Contents

1. Personal data

Full name:	Anastasios Stamnas		
Sex:	Male		
Date of birth:	21 / 04 / 1976		
Place of birth:	Thessaloniki, Greece		
Nationality:	Greek		
Marital status:	Single		
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2. Education and training

2.1 Higher education

(2008-2013)	*PhD*, Department of Cadastre, Photogrammetry and Cartography, School of Rural and Surveying Engineering, Faculty of Engineering, Aristotle University of Thessaloniki (AUTh), Greece.
(2006-2011)	*Diploma*, Department of Architectural Engineering, Faculty of Engineering, Democritus University of Thrace (DUTh), Greece.
(2004-2006)	*MSc*, "Protection, Conservation and Restoration of Cultural Monuments" Interdepartmental Post Graduate Programme, Department of Architecture, Faculty of Engineering, Aristotle University of Thessaloniki (AUTh), Greece.
(2000-2003)	*Diploma*, School of Rural and Surveying Engineering, Faculty of Engineering, Aristotle University of Thessaloniki (AUTh), Greece.
(1995-1999)	*Bsc*, Faculty of Technological Applications, Department of Land Surveying Technology, Technological Educational Institute of Athens (TEIA), Greece.

2.2 Languages

English: First Certificate in English (University of Cambridge).

French: Certificat pratique de langue française (Sorbonne I), Diplôme Supérieur d' Études françaises (Sorbonne II).

Italian: CELI 5 (Certificato di Conoscenza della Lingua Italiana), Università di Perugia.

Spanish: A2 (elementary).

2.3 IT Skills

- **ECDL (European Computer Driving Licence) Core Certificate**
- **AutoCAD, MicroStation SE, Autodesk VIZ**.
- **Rollei Metric CDW, Photo Modeler, 3D Builder**.
- **I/RAS C, ERDAS**.
- **ArcView GIS 3.2, Autodesk Map 3d**.
- **Adobe PhotoShop**.
- **Adobe Premiere**.
- **Macromedia Dreamweaver MX**.

2.4 Congresses - Seminars

1. Attendance of the 2nd National Congress ''**Soft Interventions for the Protection of Historical Structures**'', Thessaloniki, Greece, 14-16 Oct. 2004.
2. Attendance of the Seminar ''**Industrial Heritage**'', "Protection, Conservation and Restoration of Cultural Monuments" Interdepartmental Post Graduate Programme, Department of Architecture, Aristotle University of Thessaloniki, Thessaloniki, Greece, 27-29 May 2005.
3. Attendance of the Seminar ''**Behaviour Analysis and Intervention's Planning of Structure of Historical Buildings**", "Protection, Conservation and Restoration of Cultural Monuments" Interdepartmental Post Graduate Programme, Department of Architecture, Aristotle University of Thessaloniki, Thessaloniki, Greece, 24-25 Feb. 2006.
4. Presentation in the Seminar ''**Past projected to the Future**'', ''Buildings Registration in the old city of Xanthi in G.I.S. environment'' Xanthi, Greece, 5 & 6 Oct. 2006.
5. Attendance and presentation in the Seminar ''**Past projected to the Future – Intervention's and Development's Policy in Historical Centers**'', ''Cultural Routes in Thessaloniki. Getting to Known the Industrial Heritage and Technical Monuments of the city'', Xanthi, Greece, 14 & 15 Dec. 2006.
6. Attendance of the 1st National Interdisciplinary Congress ''**History of Structures Engineering**'', ''Manufacture of little train of Pelion. Application of prototype structures expertise in 19 century Greece'', Xanthi, Greece, 11 – 13 Oct. 2007.
7. Attendance of the Seminar ''**Use of Metallic Elements and Systems for the Protection, Conservation and Restoration of Cultural Monuments**", Thessaloniki, Greece, 23-24 Mai 2008.

8. Attendance of the 22nd CIPA symposium "**Digital Documentation, Interpretation & Presentation of Cultural Heritag**e", Kyoto, Japan, 11-15 October 2009.
9. Presentation in the Seminar "**Documentation Methods of Monuments**", "Protection, Conservation and Restoration of Cultural Monuments" Interdepartmental Post Graduate Programme, Department of Architecture, Aristotle University of Thessaloniki (AUTH), Thessaloniki, Greece, 21-22 November 2009.
10. Presentation in the "**2nd Workshop of Restoration of Monuments at Mastorohoria Kozani**", Laboratory of Morphology–Rhythmology, Department of Architectural Engineering, Democritus University of Thrace (DUTH), Pentalophos kozanis, Greece, 25 July-3 August 2011.
11. Attendance of the Symposium «**Earth Observation Activities in the Balkans: Building on Experiences**», Aristotle University of Thessaloniki (AUTH), Thessaloniki, Greece, 15-16 Οκτωβρίου 2012.
12. Presentation in the "**4th Workshop of Restoration of Monuments at Mastorohoria Kozani**", Laboratory of Morphology–Rhythmology, Department of Architectural Engineering, Democritus University of Thrace (DUTH), Pentalophos kozanis, Greece, 22-30 July 2013.
13. Presentation in the "**1st Workshop of Digital Documentation of Monuments Using 3d Lasser Scanner**", Laboratory of Morphology–Rhythmology, Department of Architectural Engineering, Democritus University of Thrace (DUTH), Limenaria Thassos, Greece, 10-16 May 2014.
14. Attendance of the 5th GEOBIA Symposium, "**GEOgraphic-Object-Based Image Analysis**", Thessaloniki, Greece, 21-24 May 2014.
15. Presentation in the «**1st training seminar on 3d terrestrial laser scanning documentation for archaelogical sites**», organized by the ASU Sound & Vibration Lab, Faculty of Engineering, Ain Shams University, at the CMA Faculty of Arts, Alexandria University, July 2014.
16. Presentation in the «**5th Workshop of Restoration of Monuments at Mastorohoria Kozani**", Laboratory of Morphology–Rhythmology, Department of Architectural Engineering, Democritus University of Thrace (DUTH), Pentalophos kozanis, Greece, 21–29 July 2014.
17. Attendance of the LocalSats Workshop: «**Improving Local Governance processes through geospatial technologies gap analysis, capacity building, bet practices**», Thessaloniki, Greece, 22 April 2015.
18. Attendance of the LocalSats Info Day: «**Capacity building in Local Governance processes through geospatial technologies**», Thessaloniki, Greece, 23 April 2015.
19. Presentation in the BRAU3 "**Biennale del Restauro Architettonico & Urbano**», Kozani, Greece, 28 November 2015.
20. Presentation in the BRAU3 "**Biennale del Restauro Architettonico & Urbano**», Xanthi, Greece, 4 December 2015.

3. Employment record

- Freelance **land surveying engineer** (03/2004-present) & **architectural engineer** (03/2012-present).

1. From 1/8/2006 to 30/8/2006: «**Web page for the School of Urban-Regional Planning and Development Engineering, AUTH**», technical work, Aristotle University of Thessaloniki, Greece.
2. From 1/1/2007 to 10/9/2007: «**Recording of monuments of East Macedonia and Thrace**», research programme, Democritus University of Thrace, Department of Architectural Engineering, Greece.
3. From 7/5/2008 to 6/8/2008: «**Surveying and landscape study of Stymnis cave**», research programme, Democritus University of Thrace, Department of Architectural Engineering, Greece.
4. From 1/9/2008 to 30/11/2008: «**Restoration study of three storehouses in Xanthi**», Prehistoric & Classical Antiquities Service of Komotini, Greece.
5. From 1/4/2009 to 31/7/2009: «**Land use change detection of Via Egnatia**», technical work, Chorotechniki Consulting Engineers S.A., Greece.
6. From 1/6/2009 to 31/8/2009: «**Surveying study of the historic centre of Velvento**», research programme, Democritus University of Thrace, Department of Architectural Engineering, Greece.
7. From 1/10/2009 to 31/12/2009: «**Restoration study of the historic centre of Velvento**», research programme, Democritus University of Thrace, Department of Architectural Engineering, Greece.
8. From 11/12/2009 to 16/12/2009: «**Workshop/seminar: Protection, Conservation and Restoration of Cultural Monuments**», technical work, School of Rural & Surveying Engineering, Aristotle University of Thessaloniki, Greece.
9. From 5/3/2010 to 4/5/2010: «**3-D photogrammetric surveying study of East slope of Tempe valley**», research programme, School of Rural & Surveying Engineering, Aristotle University of Thessaloniki, Greece.
10. From 9/1/2012 to 15/3/2012: «**Documentation and restoration of monuments and archaeological sites using 3D laser scanner**s»: research programme, Democritus University of Thrace, Department of Architectural Engineering, Greece.
11. From 4/11/2013 to 21/4/2014: «**Satellite detection of illegal logging activities in Central Macedonia forest ecosystems**»: research programme, Innovation Academy, Thessaloniki, Greece.

- **Adjunct lecturer** (12/2010-02/2012 and 1/4/2015-30/6/2015), Democritus University of Thrace, Department of Architectural Engineering, Greece.

Responsible for teaching:

1. **Descriptive Geometry and Linear Depictions of Three-dimensional Space** (from 1-12-2010 to 28-2-2011 and from 1-12-2011 to 28-2-2012).

2. **Graphic depictions and Representations of Three-dimensional Space** (from 1-12-2010 to 28-2-2011 and from 1-12-2011 to 28-2-2012).

Participation in teaching:

1. **Morphology - Rythmology II: Documentation Analysis and Protection of Historical Built-up Environments** (from 1-3-2011 to 30-6-2011).

2. **Morphology - Rythmology IV: Morphological Investigation, Integration and Appointment of Monuments in Urban and other Environments** (from 1-3-2011 to 30-6-2011).

3. **Morphology - Rythmology I: Documentation, Analysis and Protection of Buildings and Monuments** (from 1-12-2011 to 28-2-2012).

4. **Morphology - Rythmology II: Documentation Analysis and Protection of Historical Built-up Environments** (from 1-4-2015 to 30-6-2015).

5. **Morphology - Rythmology II: Documentation Analysis and Protection of Historical Built-up Environments** (from 1-4-2016 to 10-6-2016).

6. **Morphology - Rythmology IV: Morphological Investigation, Integration and Appointment of Monuments in Urban and other Environments** (from 1-4-2016 to 10-6-2016).

4. Theses & Publications

4.1 Theses

1. PhD thesis: "**Temporal study of geometric and cartographic features of Thessaloniki's refugee settlements using photogrammetric and cartographic methods and aiming their spatial documentation and classification**", School of Rural & Surveying Engineering, Aristotle University of Thessaloniki, Greece, 2013.

The analysis of urbanisation process, urban operations, forms and factors, development of network of new settlements that were created in the beginning of 20th century in Thessaloniki with the arrival of refugees, was the starting point for this PhD thesis. The application, on the one hand, of tools and methods, provided by Photogrammetry and Cartography, and also such techniques as Geographic Information Systems, and the existence and the accessibility, on the other hand, in historical data as maps, aerial photos, topographic diagrams, statistical data, contributed decisively in the diachronic study and examination of geographic space determined by Thessaloniki's refugee settlements.

The analysis, the comparison, the superimposition and the composition of these data represented the basis of the documentation study that focused mainly on the following main axes:

1. Detection of settlements and regions of origin.
2. Multi-temporal follow-up of territorial changes using historical charts, diagrams and photomaps that describe the area of interest.
3. Processing and integration of all cartographic and photogrammetric products in a completed recording and management system.
4. Use of the recording system for the study of all parameters that influenced the organisation and the structure of refugee settlements (choice criteria and arrangement of settlements, general character of urban tissue, urban development, human activities) and also for the geographic

and land-planning typology and classification of settlements (listing of differences and resemblances, explanatory comparisons of data and analysis of settlements).

While defining the context of the study of Thessaloniki's refugee settlements, apart from the thematic information extraction regarding the urban tissue and all the systems that is consisted of through visual interpretation of images and maps, raster data analysis methods have been applied in black and white aerial photomaps. Methods such as classification with wide application in multispectral satellite data were used in order to extract information automatically using black and white aerial photomaps. Statistical indices were also used in pairs of digital black and white aerial images of these settlements in order to point out the amount of changes and their possible systematic nature.

The analysis of demographic, economic, environmental, technical and other features followed finally, as ex. for the households, the buildings etc, which allowed the understanding the way they were shaped and developed, as well as all the factors that contributed decisively to their evolution. The analysis of the socio-economic structures of settlements and their classification and categorisation in groups with common or homogeneous features has been made through multivariate statistical methods.

2. Master's thesis: "**Documentation of the rail journey of the historic train of Pelion**'', Inter-departmental Postgraduate Program, Protection, Conservation and Restoration of Cultural Monuments, Faculty of Engineering, Aristotle University of Thessaloniki, Greece, 2006.

The object of this postgraduate thesis was the documentation of the rail journey of the historic train of Pelion. ''Smokey'' and its rail journey represent a worthy example of Greek industrial heritage.

First of all, there has been an attempt of finding all published stuff concerning the little train of Pelion, its history and its prospects for the future. A research of the State Railways's (OSE) records, Volos department, followed. This first approach of the issue pointed out the immediate need of digital geometric documentation of the rail journey of the historic train.

For this purpose, a complete cartographic background of the rail journey of the little train of Pelion and the wider region was created. Besides the digital processing of maps with scales 1:50000 and 1:5000, the photogrammetric processing of historic photomaps (1953), for the production of digital orthophotos of the region, followed. Using these orthophotos, the identification of the most important examples of engineering work, masonry and iron viaducts, retaining walls, tunnels, stations of the railway, was possible.

In addition to the photographic documentation of all viaducts, high masonry overpasses and stations of the railway and finding related information of historical and technical interest, there have been the survey of Taxiarchis viaduct and high masonry overpass of Kouklaki, near Ano Gatzea.

Digitalisation and file management of the State Railways's (OSE) records, Volos department, followed. These records (maps, plans, photographic stuff etc) were an important source of research, concerning the restoration of all stations and viaducts of the railway Volos-Milies.

While trying also to use and administrate a great amount of data (texts, digitised maps and plans, digitised pictures, files of three dimensional representations, Digital Terrain Model, digital orthophotos etc), related to the documentation of the rail journey of the little train of Pelion, there has been an attempt of creating a multimedia project.

The application of fast developing digital technologies to the survey and documentation of cultural monuments was actually the main field of study of this project.

4.2 Pubications

1) '**Didital Geometric Documentation of the Rail Journey of the Historic Train of Pelion**', Stamnas A., Georgoula O., XXI CIPA Symposium in Athens, Greece, 1-6 Oct. 2007.

   The object of this research project is the documentation of the rail journey of the historic train of Pelion. From the beginning, the approach of the issue pointed out the immediate need of its digital geometric documentation. In this context, a complete cartographic background of the rail journey of the little train of Pelion and the wider region was created. The Digital Terrain Model (DTM) of the entire region was first created and then followed the ortho resampling of aerial photos that covered the area of interest. In addition to the photographic documentation of all viaducts, high masonry overpasses and stations of the railway and finding related information of historical and technical interest, there has been the survey, the photogrammetrical documentation and 3D visual representation of two worthy examples of engineering work. The development of a multimedia project took place in order to manage and publicise a great amount of data related to the documentation of the rail journey of the little train of Pelion.

   http://www.isprs.org/proceedings/XXXVI/5-C53/papers/FP136.pdf

2) '**Photogrammetric Documentation and digital representation of the Macedonian Palace in Vergina**', Patias P., Saatsoglou-Paliadeli Ch., Georgoula O., Pateraki M., Stamnas A., Kyriakou N., XXI CIPA Symposium in Athens, Greece, 1-6 Oct. 2007.

   In this paper, the photogrammetric procedure and the development of a G.I.S. application for the digital documentation of the Macedonian Palace in the archaeological site of Vergina-Aegeae in northern Greece are described. Within this framework, the focus is targeted towards the use of UAV (unmanned aerial vehicle) for the production of high resolution orthoimages, essential for the interpretation, detection and measurement of archeological features. The advantages of model helicopters are seen in their ability to operate close to the object, to be flexible in navigation and in viewing directions. For the acquisition of the aerial images in the area of the 4th B.C. Palace in Vergina-Aegeae, a flight planning prior to fieldwork and a careful acquisition of the images was required to ensure successful postprocessing. The images were downloaded and processed already in the field in order to ensure good image quality, sufficient overlap between them and avoid large scale differences as well. The photogrammetric image processing of the data, comprising of the tie point measurement, bundle adjustment, DSM and orthophoto generation was done with the commercial software package LPS (Leica Photogrammetry Suite, Leica Geosystems), which offers functionalities for a complete photogrammetric working process. The resulting accuracy was acceptable for the 1:100 mapping. In addition to the above, within the general framework of the project, the development of a G.I.S. application with the commercial software package ArcGIS is described.

   http://cipa.icomos.org/fileadmin/template/doc/ATHENS/FP112.pdf

3) '**3D Mapping Using Model Helicopter and Laser Scanning: Case Study Activities Of the Laboratory of Photogrammetry and Remote Sensing, AUTH**', Patias P., Georgoula O., Kaimaris D., Georgiadis Ch., Stylianidis S., Stamnas A., Digital Heritage 14th International Conference on Virtual Systems and Multimedia, Limassol, Cyprus, 2008.

This study presents a number of showcases of documentation of archaeological sites using a model helicopter, laser scanning and photogrammetric software. These showcases present the activities of the Laboratory of Photogrammetry and Remote Sensing at the Department of Rural and Surveying Engineering, the Aristotle University of Thessaloniki.

Proceedings on http://vsmm2008.euromed2010.eu/vsmm2008/e_Proceedings/

4) '**Recording and Analysis System of Territorial Changes of Thessaloniki's Refugee Settlements with the Use of Cartographic and Photogrammetric Products**', Stamnas A., Georgoula O., Patias, P., XXII CIPA Symposium in Kyoto, Japan, 2009.

The analysis of urbanisation process, urban operations, forms and factors, development of network of cities and new settlements that were created in the beginning of 20th century in Thessaloniki, was the starting point for this documentation study. The application, on the one hand, of tools and methods, provided by Photogrammetry and Cartography, and also such techniques as Geographic Information Systems, and the existence and the accessibility, on the other hand, in historical data as maps, aerial photos, topographic diagrams, statistical data, contributed decisively in the diachronic study and examination of geographic space determined by Thessaloniki's refugee settlements. The analysis, the comparison, the superimposition and the composition of these data represented the basis of this documentation study that focused mainly on the following main axes:
Diachronic follow-up of territorial changes using historical charts, diagrams and photomaps that describe the area of interest.
Processing and integration of all cartographic and photogrammetric products in a completed recording and management system. Integration in this Geographic Information System (G.I.S.) of a Data Base providing information regarding the settlements such as the locomotion of refugees, countries and cities of origin etc.
Use of the recording system for the study of all parameters that influenced the organisation and the structure of refugee settlements (choice criteria and arrangement of settlements, general character of urban tissue, urban development, human activities) and also for the geographic and land-planning typology and classification of settlements (listing of differences and resemblances, explanatory comparisons of data and analysis of settlements).

http://cipa.icomos.org/fileadmin/template/doc/KYOTO/175.pdf

5) '**Photogrammetric Documentation and Digital Representation of Excavations at Keros Island in the Cyclades**', Patias P., Georgoula O., Georgiades Ch., Stamnas A., Tassopoulou M., XXII CIPA Symposium in Kyoto, Japan, 2009.

Within the framework of excavations at Keros Island in the Cyclades, the focus of this study is targeted mainly towards the use of UAV (unmanned aerial vehicle) for the production of high resolution orthoimages, essential for the interpretation, detection and measurement of archaeological features and the use of laser scanner for the 3D documentation of archaeological trenches, dtm collection of the whole archeological site, Kavos and Dhaskalio, and 3D modelling of Cycladic figurines.

For the acquisition of the aerial images in the site of Kavos and Dhaskalio, a flight planning prior to fieldwork and a careful acquisition of the images was required to ensure successful post processing. The photogrammetric image processing of the data, comprising of the tie point measurement, bundle adjustment, dsm and orthophoto generation was completed and the resulting accuracy was acceptable for the 1:500 mapping. A flythrough video was created also using the produced orthophotos and a Quick Bird Image in order to place the archeological site among a wider context.

For the DTM collection and the modelling of the archaeological trenches an Optech ILRIS-3D laser scanner was used. The trenches were scanned with a 1cm resolution, while the DTM was scanned with a 20 cm resolution. Multiple scans of the objects were realized and they finally merged to produce were photorealistic three-dimensional triangle models. For the figurines modelling a next engine portable scanner was used. The figurines were scanned from multiple angles in order to cover every detail of their surface and were merged to produce high resolution photorealistic 3D models.

http://cipa.icomos.org/fileadmin/template/doc/KYOTO/178.pdf

6) '**Record, Analysis and Documentation Using G.I.S. Applications for the Institutional Protection of Enoria Settlement in Greece**', Pappa K., Georgoula O., Stamou A., Stamnas A., Kafkoula K., XXII CIPA Symposium in Kyoto, Japan, 2009.

Enoria settlement belongs to the municipality of Kimi, a small city in Evia, which is an island located at the Aegean Sea in Greece. Enoria's particular building typology and geographic and urban morphology are of great interest and potential. Most buildings belong to the period between 1850 and 1890 and a dense "streets tissue" goes through all the settlement. Enoria is known for its remarkable context, a green all around olive grove that reaches the sea, an area with old deposits and the remaining of an old railway line and its infrastructure, a unique monument of industrial heritage. Facing the need for effective and efficient integration of spatial and descriptive information, this project aims at the production of a dynamic geodatabase with the intention to collect, record and organize all the cartographic, architectural and geographic elements as well as morphological and typological features of Enoria into a GIS. This geodatabase represents a useful tool for the documentation of the settlement.

The first part of the project includes a thorough research on the evolution of the settlement and its context through years, and the creation of the necessary cartographic background for the documentation of the whole area of interest. Additionally, the recording of all the buildings inside the settlement with its characteristics (architectural style, typological features, information about the owners, its current condition etc) took place. For this reason, recording bulletins and reports were designed, updated and placed among the database. The second part of the project focuses on the creation of a geodatabase, so as to

converge and join all the above recordings and information of the settlement with the available spatial information of the area of interest. With the produced GIS, all the geographic information can be stored, edited, integrated, analyzed and finally displayed in thematic maps. With the appropriate analysis and procedures a significant number of thematic maps were produced, each one of them portraying and highlighting the unique urban elements of Enoria.

http://cipa.icomos.org/fileadmin/template/doc/KYOTO/176.pdf

7) '**Study and analysis of urban patterns and urban growth of three different areas in the city of Thessaloniki, Greece using aerial photos, satellite images and cartographic data**', Stamou A., Stamnas A., Georgoula O, Patias P., Conference '31st EARSeL Symposium and 35th General Assembly 2011', Prague, 2011.

The purpose of this study is to clarify the nature of the urban transition in three selected urban areas in the city of Thessaloniki, Greece. In detail, this research attempts to examine the ap-plication of a variety of Photogrammetric and Remote Sensing methods in aerial photos and satel-lite imagery data, in order to understand and analyze land use changes that have occurred over 60 years, from 1950 to 2010. The three areas of interest depict three different types of urban environ-ments; a suburban area of continuous evolution, an ex-suburban area completely integrated to the urban tissue and a small section belonging to the historic centre of the city. The existence and the accessibility in historical data (such as maps, aerial photos, topographic diagrams) and on the other hand the accessibility in up-to-date satellite products, contributed decisively in the diachronic study and analysis of the geographic space of these different urban environments. The application of tools and methods, like pixel-based and object based classification, proved to be essential for the determination of land use changes. Finally, combining all the available cartographic and satel-lite data a GIS was constructed depicting the settlement patterns and the urban growth of the study areas.

http://www.earsel.org/symposia//2011-symposium-Prague/Proceedings/PDF/Urban%20Remote%20Sensing/74%20ok25-a2385-stamou_stamnas%20v3.pdf

8) '**Mapping of Buildings facades' at the historical centre of Nicosia and creating a Preservation Information System**' (P. Patias, A. Stamnas, Ch. Georgiadis, E. Stylianidis, D. Kaimaris), XXIIIrd International CIPA Symposium, Prague, Czech Republic, 2011.

The purpose of this study is to clarify the nature of the urban transition in three selected urban areas in the city of Thessaloniki, Greece. In detail, this research attempts to examine the ap-plication of a variety of Photogrammetric and Remote Sensing methods in aerial photos and satel-lite imagery data, in order to understand and analyze land use changes that have occurred over 60 years, from 1950 to 2010. The three areas of interest depict three different types of urban environ-ments; a suburban area of continuous evolution, an ex-suburban area completely integrated to the urban tissue and a small section belonging to the historic centre of the city. The existence and the accessibility in historical data (such as

maps, aerial photos, topographic diagrams) and on the other hand the accessibility in up-to-date satellite products, contributed decisively in the diachronic study and analysis of the geographic space of these different urban environments. The application of tools and methods, like pixel-based and object based classification, proved to be essential for the determination of land use changes. Finally, combining all the available cartographic and satel-lite data a GIS was constructed depicting the settlement patterns and the urban growth of the study areas.

http://cipa.icomos.org/fileadmin/template/doc/PRAGUE/110.pdf

9) '**Historical coastal urban landscapes digital documentation and temporal study with 2D/3D modeling functionality: The case of Thessaloniki, Greece**' (Olga Georgoula, Anastasios Stamnas, Petros Patias, Charalampos Georgiadis, Vassiliki Fragkoulidou), Journal of Cultural Heritage, November 2012.

The study refers to the visual representation of the coastal front of the historical center of Thessaloniki in northern Greece and its changes that have occurred through the years. Most of the old town was destroyed by fire on August 18, 1917. A few years later, the French architect and archeologist Ernest Hébrard proposed the reconstruction of the city centre, but his plans were never fully implemented. Since then, a series of interventions changed the form of the old town and consequently the coastal cityscape. The research was initially based on the photogrammetric processing of archive aerial images (1938) of Thessaloniki's city centre. Besides the vertical images, high oblique aerial images dated back to 1932, proved to be a significant source of information. A rich archive of old photographic material, sketches, drawings and gravures of the coastal forehead of the city was also used. Ortho-images of the coastal front, derived from laser scanning (2010), and a 3D model of the historical city center, derived from the stereo photogrammetric process of aerial images (1990), contributed decisively at the multi temporal study of the city front. The main outcomes of the present documentation study are the 3D representation (at scale of 1:200, accuracy 5 cm) of temporal changes of a part of the coastal front of the historical center of Thessaloniki and the 2D representation (at scale 1:100, accuracy 1–2 cm) of these changes with respect to variations on skyline, lacunas, interventions in old buildings, etc.

http://www.sciencedirect.com/science/article/pii/S1296207412001690

10) '**3D mapping of cultural heritage: special problems and best practices in extreme case-studies**' (P. Patias, D. Kaimaris, C. Georgiadis, A. Stamnas, D. Antoniadis, D. Papadimitrakis), XXIV International CIPA Symposium, Strasbourg, September 2013.

Photogrammetrey has a long successful history in the area of 3D modelling and documentation of cultural heritage monuments. In some cases an extensive study, preparation and the application of novel solutions is required for the successful documentation and 3D modelling of monuments. In most of the cases the problem that we have to face is difficulties regarding accessing, photographing, and measuring the monument from the optimal distance, in combination with the need for a high spatial

resolution mapping. This paper is highlighting the special problems and the novel solutions, performed during mapping of two significant cultural heritage monuments in Greece. The Roussanou monastery (1527-1529 A.C., Meteora, Center Greece) and its underlying rock, had to be photographed and measured from a far distance and measured with various spatial resolutions. In the lakeside Neolithic settlement of Dispilio (6.000 B.C., western Greece) the enclosure which is covered with vegetation above a height of 3m, had to be measured with high spatial resolution. The combined use of a laser scanner, a digital camera equipped with a telephoto lens and UAV allowed the successful mapping and the production of orthophotomaps in each case.

http://www.isprs-ann-photogramm-remote-sens-spatial-inf-sci.net/II-5-W1/223/2013/isprsannals-II-5-W1-223-2013.pdf

11) '**A recording and documentation system of building stock: the case of Pentalofos settlement in Kozani (Greece)'** (Nikolaos Lianos, Anastasios Stamnas), Proceedings of the 8th International Congress on Archaeology,Computer Graphics, Cultural Heritage and Innovation 'ARQUEOLÓGICA 2.0', Valencia, Spain, Sept. 5 – 7, 2016.

Facing the need for effective and efficient integration of spatial and descriptive information related to the documentation of the cultural heritage, the primary aim of this project is the production of a dynamic geodatabase in order to collect, record and organize cartographic and architectural data as well as morphological and typological features of Pentalofos settlement into a GIS application. For this purpose, the project is meant, among other things, to complete a thorough research on the evolution of the settlement and its context, create the necessary geographic background for the documentation of the area of interest and to record building's technical features among others (year of construction, property status, structure, morphology, typology, description of current condition, pathology etc) by implementing traditional and up-to-date as well architectural documentation methods.

http://ocs.editorial.upv.es/index.php/arqueologica20/arqueologica8/paper/viewFile/3262/2219.

12) '**Digital documentation of industrial heritage at risk: the case of Palataki and the old mining complex at Limenaria of Thassos (Greece)'** (Nikolaos Lianos, Anastasios Stamnas), Proceedings of the 8th International Congress on Archaeology,Computer Graphics, Cultural Heritage and Innovation 'ARQUEOLÓGICA 2.0', Valencia, Spain, Sept. 5 – 7, 2016.

Following completion of the 1st Workshop of Digital Documentation of Monuments Using 3d Laser Scanner organized by the Laboratory of Architectural Theory of Forms and Preservation Studies, Faculty of Architecture, DUTh, the present study was undertaken mainly to focus on the application of advanced techniques, such as the 3d laser scanner, for the geometric documentation of the mining complex at the town of Limenaria of the island of Thassos, an abandoned and discredited monument for almost half a century. The key

purpose of the laboratory work was the instruction of new technologies in surveying and documentation and their contribution to preservation, protection and restoration of monuments. The Field of practice was the former Speidel headquarters, known as "Palataki", and the abandoned mining complex at Limenaria, a unique example of industrial heritage at risk. The main objective of the laboratory was the documentation and the recording of this monument in order to protect it and highlight its historical value and cultural significance to the public.

http://ocs.editorial.upv.es/index.php/arqueologica20/arqueologica8/paper/viewFile/3261/2218.