



# ARCHIVO DEL LABORATORIO DE DOCUMENTACIÓN GEOMÉTRICA DEL PATRIMONIO

## ARCHIVE OF THE LABORATORY FOR THE GEOMETRIC DOCUMENTATION OF HERITAGE


Sección de informes de investigación / **Research reports section**

# 2

<b>Información general / General information</b>		
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TITULO:	<b>Intensive Program ERASMUS: TOPCART. Geometric Documentation of the Heritage (administrative and academic documentation)</b>	:TITLE
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NUMERO:	LDGP_inv_002	:NUMBER
IDIOMA:	español e inglés / <b>Spanish and English</b>	:LANGUAGE

<b>Resumen</b>	
TÍTULO:	Programa intensivo ERASMUS: TOPCART. Documentación Geométrica del Patrimonio (documentación administrativa y académica)
TÍTULO PROYECTO:	<b>Intensive Program ERASMUS: TOPCART 2010 / 2011 Geometric Documentation of Heritage</b> <b>2009-1-ES1-ERAIP-0013 / 2010-1-ES1-ERA10-0024</b>
ENTIDAD FINANCIADORA:	Organismo Autónomo de Programas Educativos Europeos (OAPEE), Gobierno de La Rioja, Ayuntamiento de Clavijo, Ayuntamiento de Logroño, Ilustre Colegio de Ingenieros Técnicos en Topografía (delegación de La Rioja)
INVESTIGADOR PRINCIPAL:	José Manuel VALLE MELÓN
INVESTIGADORES:	10 profesores y 56 alumnos
PARTICIPANTES:	<ul style="list-style-type: none"> <li>- Universidad del País Vasco (UPV-EHU) – Spain</li> <li>- National Technical University of Athens (NTUA) – Greece</li> <li>- HafenCity Universität Hamburg (HCU) – Germany</li> <li>- Universidad Politécnica de Madrid (UPM) – Spain</li> <li>- Università degli Studi di Siena – Italy</li> <li>- Vilniaus Gedimino Technikos Universitetas (VGTU) - Lithuania</li> </ul>
RESUMEN DEL PROYECTO:	<p>El objetivo principal que se persigue en este proyecto es el intercambio de metodológico práctico, en materias afines a la medida y la representación del patrimonio, entre profesores y fundamentalmente alumnos, de diferentes países. Para la consecución de este fin se ha contado con la participación de un grupo de 56 alumnos y 10 profesores de (Alemania, Italia, Grecia, Lituania y España).</p> <p>Las actividades se han centrado en el desarrollo de proyectos concretos de documentación dentro del Monasterio de San Prudencio (La Rioja, España). En él se han aplicado técnicas digitales de registro de información geométrica, constituidas por receptores GPS, estaciones totales topográficas, escáneres láser y sistemas fotogramétricos.</p> <p>Los datos obtenidos se han documentado y procesado con el fin de obtener las representaciones cartográficas y modelos virtuales de representación que pueden ser difundidas por medio de Internet.</p> <p>Como resultados se pretenden: un conjunto de registros métricos del momento de la intervención, modelos gráficos de difusión e informes técnicos sobre el monumento.</p>
RESUMEN DE LA CONTRIBUCIÓN:	La Universidad del País Vasco ha ejercido de solicitante y coordinadora.
DESCRIPTORES NATURALES:	patrimonio, monasterio, topografía, fotogrametría, láser escáner, arqueología de la arquitectura, educación
DESCRIPTORES CONTROLADOS:	(Procedentes del Tesoro UNESCO [ <a href="http://databases.unesco.org/thessp/">http://databases.unesco.org/thessp/</a> ]) Patrimonio Cultural, Reconocimiento Topográfico, Fotogrametría, Edificio Religioso, Arqueología, Movilidad Estudiantil, Docencia

<b>Abstract</b>	
TITLE:	Intensive Program ERASMUS: TOPCART. Geometric Documentation of the Heritage (administrative and academic documentation)
TITLE:	Intensive Program ERASMUS: TOPCART 2010 / 2011 Geometric Documentation of Heritage 2009-1-ES1-ERAIP-0013 / 2010-1-ES1-ERA10-0024
FUNDING AGENCY:	Organismo Autónomo de Programas Educativos Europeos (OAPEE), Government of La Rioja, Town council of Clavijo, City council of Logroño, Spanish Association of Surveyors
MAIN RESEARCHER:	José Manuel VALLE MELÓN
RESEARCHERS:	10 lecturers and 56 students
PARTNERS:	<ul style="list-style-type: none"> <li>- Universidad del País Vasco (UPV-EHU) – Spain</li> <li>- National Technical University of Athens (NTUA) – Greece</li> <li>- HafenCity Universität Hamburg (HCU) – Germany</li> <li>- Universidad Politécnica de Madrid (UPM) – Spain</li> <li>- Università degli Studi di Siena – Italy</li> <li>- Vilniaus Gedimino Technikos Universitetas (VGTU) - Lithuania</li> </ul>
ABSTRACT OF THE PROJECT:	<p>The main objective this project is looking for is the exchange of practical methodologies, in topics related with the measure and representation of heritage, between teachers and specially students from different countries. For the achievement of this aim we counted with the participation of a group of 56 students and 10 lecturers from Germany, Italy, Greece, Lithuania and Spain.</p> <p>Activities focused on the development of concrete projects in documentation of heritage, at the San Prudencio's Monastery. In this site, digital techniques for the acquisition of geometric information from GPS equipment, surveying total stations, laser scanner and photogrammetric systems were put into practice.</p> <p>Obtained data were processed as follows: first of all, they were documented by adding necessary metadata in order to ensure their use in the future, then, processed to obtain cartographic representations and virtual models which can be distributed on the Internet.</p> <p>As results we present: documentation and metric data, graphic models, plans and technical reports on the monument.</p>
ABSTRACT OF THE CONTRIBUTION:	The University of the Basque Country submitted the proposal and coordinated the activity.
NATURAL KEYWORDS:	heritage, monastery, surveying, photogrammetry, laser scanner, building archaeology, learning
CONTROLLED KEYWORDS:	(From the UNESCO's thesaurus [ <a href="http://databases.unesco.org/thesaurus/">http://databases.unesco.org/thesaurus/</a> ])  Cultural Heritage, Surveying, Photogrammetry, Religious Buildings, Archaeology, Student Mobility, Teaching Profession

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OTROS:	<p>Los datos corresponden a una actividad académica colaborativa financiada por la Unión Europea a través del programa ERASMUS (2009-1-ES1-ERAIP-0013 / 2010-1-ES1-ERA10-0024), las universidades participantes, el Gobierno de la Rioja, los ayuntamientos de Clavijo y Logroño, la Universidad de La Rioja y el Ilustre Colegio de Ingenieros Técnicos en Topografía (delegación de La Rioja).  Los registros brutos y los resultados quedan a libre disposición de cualquier miembro de los citados organismos así como de cualquier otro con fines docentes, de investigación o de recuperación del Monasterio (entendido este tercero en su sentido más amplio) siempre y cuando se cite la procedencia de los mismos. / <b>Data come from a collaborative activity funded by the European Union through the ERASMUS program (2009-1-ES1-ERAIP-0013 / 2010-1-ES1-ERA10-0024), the above mentioned universities, the Government of La Rioja, the city council of Logroño, the town council of Clavijo, the University of La Rioja and the Spanish Association of Surveyors. Raw datasets and results are freely available for all partners as well as for anyone else as long as the source is said and they use them for scholar purposes, research or the study / restoration of the Monastery.</b></p>	:OTHERS

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DESCARGO:	<p>El uso de la información contenida en este documento se hará bajo la completa responsabilidad del usuario.  La publicación se ha realizado conforme a los fines docentes y de investigación del Laboratorio de Documentación Geométrica del Patrimonio del Patrimonio de la UPV/EHU y en función de los derechos que corresponden al Laboratorio como autor del contenido. El Laboratorio se compromete a retirar del acceso público tanto este documento como cualquier otro material relacionado en el caso de que los promotores consideren que menoscaban sus derechos de explotación. /  <b>The use of the information contained in this document will be under the exclusive responsibility of the user.</b>  <b>The aim of this publication is to fulfill the academic goals and research expected from the Laboratory for the Geometric Documentation of Heritage (UPV/EHU) concerning its scientific outcomes. Nevertheless, the Laboratory is bound to the respect of promoters’ commercial rights and will take away the contents which are considered against these rights.</b></p>	:DISCLAIMER

## Reutilización / Re-use

REUTILIZACION:	<p>Los siguientes términos corresponden al Real Decreto 1495/2011, de 24 de octubre por el que se desarrolla la Ley 37/2007, de 16 de noviembre, sobre reutilización de la información del sector público, para el ámbito del sector público estatal.</p> <p>"Son de aplicación las siguientes condiciones generales para la reutilización de los documentos sometidos a ellas:</p> <ol style="list-style-type: none"><li>1. Está prohibido desnaturalizar el sentido de la información.</li><li>2. Debe citarse la fuente de los documentos objeto de la reutilización. Esta cita podrá realizarse de la siguiente manera: "Origen de los datos: [órgano administrativo, organismo o entidad del sector público estatal de que se trate]".</li><li>3. Debe mencionarse la fecha de la última actualización de los documentos objeto de la reutilización, siempre cuando estuviera incluida en el documento original.</li><li>4. No se podrá indicar, insinuar o sugerir que la [órgano administrativo, organismo o entidad del sector público estatal de que se trate] titular de la información reutilizada participa, patrocina o apoya la reutilización que se lleve a cabo con ella.</li><li>5. Deben conservarse, no alterarse ni suprimirse los metadatos sobre la fecha de actualización y las condiciones de reutilización aplicables incluidos, en su caso, en el documento puesto a disposición para su reutilización."</li></ol> <p style="text-align: center;">/</p> <p>The following terms come from the Royal Decree 1495/2011, of 24th October 2011, whereby the Law 37/2007, of November 16, on the re-use of public sector information, is developed for the public state sector.</p> <p>"The following general terms shall apply to all re-usable document availability methods:</p> <ol style="list-style-type: none"><li>1. The information must not be distorted.</li><li>2. The original source of re-usable documents must be cited.</li><li>3. The date of the latest update of re-usable documents must be indicated when it appears in the original document.</li><li>4. It must not be mentioned or suggested that the public sector agencies, bodies or entities are involved in, sponsor or support the re-use of information being made.</li><li>5. Metadata indicating the latest update and the applicable terms of re-use included in re-usable documents made available by public agencies or bodies must not be deleted or altered."</li></ol>	:RE-USE
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Estructura / Framework		
ID PERMANENTE:	<a href="http://hdl.handle.net/10810/9906">http://hdl.handle.net/10810/9906</a>	:PERMANENT ID
ESTRUCTURA:	<ul style="list-style-type: none"> <li>• <b>Idgp_inf002_A1solicitud2009-10.pdf</b>: solicitud del proyecto para el curso 2009-10, en español con notas en inglés / <b>application presented for the academic year 2009-10, in Spanish with notes in English.</b></li> <li>• <b>Idgp_inf002_A2informefinal2009-10.pdf</b>: informe final de la actividad realizada durante el curso 2009-10, en español / <b>final report about the activity done during the year 2009-10, in Spanish.</b></li> <li>• <b>Idgp_inf002_A3cierre2009-10.pdf</b>: contestación de la OAPEE dando por válida la actividad académica 2009-10 e indicando los resultados de la evaluación externa, en español / <b>answer of the OAPEE (Agency for European Educative Programs) where the final report 2009-10 is accepted, it includes the remarks done by the external referees, in Spanish.</b></li> <li>• <b>Idgp_inf002_A4solicitud2010-11.pdf</b>: solicitud del proyecto para el curso 2010-11, en español / <b>application presented for the academic year 2010-11, in Spanish.</b></li> <li>• <b>Idgp_inf002_A5informefinal2010-11.pdf</b>: informe final de la actividad realizada durante el curso 2010-11, en español / <b>final report about the activity done during the year 2010-11, in Spanish.</b></li> <li>• <b>Idgp_inf002_A6cierre2010-11.pdf</b>: contestación de la OAPEE dando por válida la actividad académica 2010-11 e indicando los resultados de la evaluación externa, en español / <b>answer of the OAPEE (Agency for European Educative Programs) where the final report 2010-11 is accepted, it includes the remarks done by the external referees, in Spanish.</b></li> <li>• <b>Idgp_inf002_B1CoordinationMeeting.pdf</b>: este libretto contiene tres documentos relacionados con la visita preliminar realizada con el fin de preparar la actividad: un cuaderno de trabajo para ir repasando los diferentes aspectos a tratar, una encuesta y un resumen de las decisiones tomadas. Estos documentos están en inglés / <b>this booklet is composed by three documents related with the coordination meeting done in order to prepare the activity: a workbook containing the different topic to be decided beforehand, a questionnaire and a summary with the principal decisions taken. These documents are in English.</b></li> <li>• <b>Idgp_inf002_B2folletos.pdf</b>: diversos carteles y folletos sobre la actividad, tanto en español como en inglés / <b>some posters and leaflets about the activity, in Spanish and English.</b></li> <li>• <b>Idgp_inf002_B3entrevistaalumnos.pdf</b>: ejemplo de criterios de valoración de los alumnos candidatos para participar en la actividad, en español / <b>example of the scale used in the selection of the students who would take part in the activity, in Spanish.</b></li> <li>• <b>Idgp_inf002_B4calendarios.pdf</b>: calendarios de la fase conjunta de ambos cursos, en inglés / <b>detailed programs of the two-week activity for both years, in English.</b></li> <li>• <b>Idgp_inf002_B5certificates.pdf</b>: (este documento) plantillas de los certificados de participación entregados a</li> </ul>	:FRAMEWORK

	<p>alumnos y profesores, en inglés / (this document) certificates of participation for students and lecturers, in English.</p> <ul style="list-style-type: none"> <li>• <b>ldgp_inf002_C1notebook.pdf</b>: ejemplo de cuaderno de campo entregado a cada grupo de alumnos para la realización del trabajo de campo, en inglés / example of the notebook handed out to each students' group for the fieldwork, in English.</li> <li>• <b>ldgp_inf002_C2dataset.pdf</b>: información sobre cómo prepara los datos una vez finalizado el trabajo de campo para que puedan ser archivados, en inglés / information about how to prepare the datasets in order to be archived after the work, in English.</li> </ul>	
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Cita completa recomendada / Recommended full citation		
CITA:	Various Authors. <i>Intensive Program ERASMUS: TOPCART. Geometric Documentation of the Heritage (administrative and academic documentation)</i> . Laboratorio de Documentación Geométrica del Patrimonio (UPV/EHU). 2013	:CITATION

INTENSIVE PROGRAMME ERASMUS – VITORIA 2009/2010  
2009-1-ES1-ERAIP-0013

**“Geometric Documentation of Heritage: European Integration of Technologies”  
TOPCART**

*Certificate of attendance*

**Xxx**

Has attended to the sessions recognized by 4 ECTS (120 h). TOPCART project was organized by the Basque Country University, faculty: University College of Engineering of Vitoria-Gasteiz, and developed at San Prudencio´s Monastery on Mount Laturce (Clavijo, Spain) from 10 to 23 July 2010.

Lecturer and coordinator  
D.José Manuel Valle Melón

Academic Secretary  
D. Enrique Esteban de Domingo



The student took part in the ERASMUS IP activity called: **TOPCART – Geometric Documentation of Heritage: European integration of technologies** in July 2010

*This project looks for the exchange of practical methodologies in topics related with the measure and representation of Heritage, between teachers and, specially for students from different countries. Moreover, this project promotes professors' and students' mobility all around Europe. Activities will be focused on the development of concrete projects in documentation of Heritage. The selected location is the remains of the San Prudencio's Monastery (La Rioja, Spain). In this site, digital techniques for the acquisition of geometric information from GPS equipment, surveying total stations, laser scanning devices and photogrammetric systems will be put into practice. Obtained data will be processed as follows: first of all, they will be documented by adding all the necessary metadata in order to ensure their use in the future, then they will be treated to obtain suitable representations and virtual models which can be distributed on Internet.*

**This activity is acknowledged with 4 ECTS credits (120 hours)**

This document certifies that the abovementioned student passed satisfactorily and showed the command on the following competences:

<b><u>Technical</u></b>	<b><u>Generic</u></b>
<ul style="list-style-type: none"><li>▪ Understand the utility of surveying and geomatics techniques in the field of Heritage.</li><li>▪ Handle specific instruments and equipment such as three-dimensional laser scanners, calibrated cameras and total stations.</li><li>▪ Running a complete project of Geometric Documentation of Heritage from the planning, through the fieldwork (collecting data) and data processing, up to the final results and presentation.</li><li>▪ Ability to run small projects.</li></ul>	<ul style="list-style-type: none"><li>▪ Ability to work in an international context.</li><li>▪ Ability to put knowledge into practice.</li><li>▪ Ability to work in teams.</li><li>▪ Problem solving.</li><li>▪ Foreign language speaking.</li><li>▪ Ability to work remotely in a distributed group on international partners.</li><li>▪ Ability to present publicly its work and defend it.</li><li>▪ Knowledge of the European culture.</li></ul>



INTENSIVE PROGRAMME ERASMUS – VITORIA 2009/2010  
2009-1-ES1-ERAIP-0013

**“Geometric Documentation of Heritage: European Integration of Technologies”  
TOPCART**

*Certificate of attendance*

**Xxx**

Has coordinated, given lectures and participated in TOPCART project. It was organized by the Basque Country University, faculty: University College of Engineering of Vitoria-Gasteiz, and developed at San Prudencio´s Monastery on Mount Laturce (Clavijo, Spain) from 10 to 23 July 2010.

Lecturer and coordinator  
D. José Manuel Valle Melón

Academic Secretary  
D. Enrique Esteban de Domingo

The lecturer took part in the ERASMUS IP activity called: **TOPCART – Geometric Documentation of Heritage: European integration of technologies in July 2010**

*This project looks for the exchange of practical methodologies in topics related with the measure and representation of Heritage, between teachers and, specially for students from different countries. Moreover, this project promotes professors' and students' mobility all around Europe. Activities will be focused on the development of concrete projects in documentation of Heritage. The selected location is the remains of the San Prudencio's Monastery (La Rioja, Spain). In this site, digital techniques for the acquisition of geometric information from GPS equipment, surveying total stations, laser scanning devices and photogrammetric systems will be put into practice. Obtained data will be processed as follows: first of all, they will be documented by adding all the necessary metadata in order to ensure their use in the future, then they will be treated to obtain suitable representations and virtual models which can be distributed on Internet.*

**This activity is acknowledged with 4 ECTS credits (120 hours)**

The following competences were developed in this intensive program:

<u><b>Technical</b></u>	<u><b>Generic</b></u>
<ul style="list-style-type: none"><li>▪ Understand the utility of surveying and geomatics techniques in the field of Heritage.</li><li>▪ Handle specific instruments and equipment such as three-dimensional laser scanners, calibrated cameras and total stations.</li><li>▪ Running a complete project of Geometric Documentation of Heritage from the planning, through the fieldwork (collecting data) and data processing, up to the final results and presentation.</li><li>▪ Ability to run small projects.</li></ul>	<ul style="list-style-type: none"><li>▪ Ability to work in an international context.</li><li>▪ Ability to put knowledge into practice.</li><li>▪ Ability to work in teams.</li><li>▪ Problem solving.</li><li>▪ Foreign language speaking.</li><li>▪ Ability to work remotely in a distributed group on international partners.</li><li>▪ Ability to present publicly its work and defend it.</li><li>▪ Knowledge of the European culture.</li></ul>





**LABORATORIO DE DOCUMENTACIÓN GEOMÉTRICA DEL PATRIMONIO**  
Grupo de Investigación en Patrimonio Construido -GPAC- (UPV-EHU)



UPV EHU

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