



# CIPA Newsletter

The official newsletter of CIPA Heritage Documentation

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## Editor's Note

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CIPA Heritage Documentation is a dynamic international organisation that has twin responsibilities: keeping up with technology and ensuring its usefulness for cultural heritage conservation, education and dissemination.



This dual role is exhibited in our parent organizations - ICOMOS - International Council of Monuments and Sites and ISPRS - International Society of Photogrammetry and Remote Sensing. Science and Culture.

For the first time, CIPA is establishing an official floor for experts in all disciplines of Cultural Heritage to freely express their views and publish news, projects or disseminate any information related to recording, documentation of conservation of CH.

The CIPA newsletter will be published 3 times per year; every four months. Starting from September 2013, we aspire to have a continuous presence in the Cultural Heritage community.

As an editor of the CIPA newsletter, I invite you to submit anytime your work related to Cultural Heritage. Do send your work anytime at [stratos@geoimaging.com.cy](mailto:stratos@geoimaging.com.cy) and it will be considered for the next issue.

In this first newsletter, we are mainly covering the activities of the CIPA Symposium 2013 taken place in Strasbourg during 2-6 September. At the same time we are covering the activities of summer schools related to Cultural Heritage as well forthcoming events.

Enjoy reading our first CIPA newsletter.

## CIPA Symposium 2013

**CIPA 2013 Symposium: 2 - 6 September 2013, Strasbourg, France**

*P. Grussenmeyer - [pierre.grussenmeyer@insa-strasbourg.fr](mailto:pierre.grussenmeyer@insa-strasbourg.fr)*



The 24<sup>th</sup> Symposium of the International Committee for Heritage Documentation (CIPA) was held in Strasbourg, France, from Monday 2<sup>nd</sup> to Friday 6<sup>th</sup> September 2013. Almost 300 participants from 40 countries joined this main CIPA event organized by the French Society for Photogrammetry and Remote Sensing (FSPRS) and the Photogrammetry and Geomatics Group of INSA Strasbourg (Graduate School for Science and Technology).

On September 2<sup>nd</sup>, the Symposium Director Pierre Grussenmeyer welcomed the participants in the Aubette building located in the center of the Great Island of Strasbourg which is listed as World Heritage by Unesco since 1988. Laurent Polidori welcomed the audience on behalf of FSPRS, Samir Abdulac on behalf of ICOMOS France and Mario Santana on behalf of CIPA. Fabio Remondino (ISPRS Comm. 5 President) presented a keynote about the last developments of 3D Imaging and ranging for Cultural Heritage recording. The closing was concluded by Stefano De Caro (President of ICCROM) who offered a perspective about documentation technologies and training.



During two other plenary sessions, David Myers (Getty Foundation) and Yiannis Avramides (World Monument Fund) presented the ARCHES Open Source Inventory and Management System. Ramtin Attar from Autodesk Research discussed the topic of Positioning Heritage in a World Designed around Technological Possibilities. Finally the ISPRS President Jun CHEN presented a panorama of the activities of the ISPRS Commissions.

The scientific program included 27 oral sessions with about 140 presentations and two poster sessions with about 40 presentations. The various scientific presentations were divided into four groups that tackled issues such as laser scanning, integration of various sensors, AUVs, GIS, 3D modeling, visualization and opensource software, education, information technology, training and communication sessions and special sessions devoted to World Heritage projects, inventories and digital libraries, stone conservation and energy efficiency in buildings.

The CIPA 2013 event has been sponsored by the City of Strasbourg, Leica Geosystems, Breuckmann Scanner, Art Graphique et Patrimoine, FARO, PhotoModeler, TPLM-3D, Trimble, Rieg, AFT Archéologie, Esri France, Celtic, Boehli, SFPT, IGN France and INSA.

The 25<sup>th</sup> CIPA Symposium will be held in Taipei, Taiwan from 31 August to 5 September 2015.

More information about the CIPA Symposium 2013 can be obtained at [www.cipa2013.org](http://www.cipa2013.org).



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## Summer Courses 2013

### Experiences gained from the Erasmus Intensive Programme HERICT 2013

A. Georgopoulos - [secretarygeneral@cipa.icomos.org](mailto:secretarygeneral@cipa.icomos.org)



The Erasmus Intensive Programme (HERICT2013) has mobilized students and teaching staff from nine different European Universities, from seven different countries and of three different specializations. The opportunity was offered to students from different countries to meet each other, exchange scientific and cultural experiences and thus plant the seed for getting to know European Culture.

The fact that nine different Higher Education Institutions participated has ensured multidisciplinary, combination of different scientific approaches and a very high standard for the provided educational material. This is enhanced by the fact that the scientific areas and disciplines represented are quite different and cover Archaeology, Architecture, Building Archaeology and Geomatics in general. Hence each participant had a different volume of knowledge to contribute to the IP. It is common knowledge that across Europe, there is a lack of communication and understanding among these disciplines, hence activities like the proposed one, which bring them to cooperation are a pressing necessity.

This also ensured that the necessary scientific ingredients were there for developing innovative solutions for confronting the documentation of archaeological excavations based on ICT implementation (Geomatics) and dictated by the supporting knowledge. This definitely resulted to a unique course of very high standard. The practical application and implementation was carried out in "real life" situation, i.e. in a live excavation. This gave the participating students the opportunity to (a) exchange knowledge and integrate methodologies from different backgrounds and experiences gained in different countries (b) mould with students and teachers from different disciplines and (c) achieve knowledge transfer and assimilation under real practical circumstances.

### ENSG Summer School: Photogrammetry for Archeologists and Architects

R. Heno - [raphaele.heno@ensg.eu](mailto:raphaele.heno@ensg.eu)

The French National School of Geographic Sciences (ENSG) organized a summer school called "Photogrammetry for Archeologists and Architects" at IGN-France's fieldwork training center at Forcalquier in Provence (Southern France) from August 26<sup>th</sup> to 30<sup>th</sup>, 2013, under the auspices of CIPA.

The training aimed to show professional archeologists and architects how to use state-of-the-art close-range photogrammetric tools in their daily work.

The program started on Monday with theoretical courses of photo



Through the implementation of the proposed IP schedule, ICT techniques and knowledge were exchanged, adapted and augmented for the benefit of the participating students, bearing in mind that a real excavation should be supported, while at the same time cultivating and increasing the sense of professionalism to the students.



C. Acevedo Pardo, M. Farjas, A. Georgopoulos, M. Mielczarek, R. Parenti, E. Paršeliūnas, T. Schramm, D. Skarlatos, E. Stefanakis, S. Tapinaki, G. Tucci, A. Zazo and a team of 40 students.

None of the Universities participating in this Intensive Programme offers in its curriculum exactly a similar course. Geomatics and Surveying Engineering Departments definitely offer their students the knowledge of the various ICT and technical tools, but they do not stress the practical needs that an archaeologist confronts in everyday practice.

On the other hand, students of Architecture or Building Archaeology, are more alert and sensitive towards archaeological work, but do not fully master the technological tools for providing the necessary and much needed support. Finally the Departments of Archaeology may offer an odd course on these techniques, but again it is somewhat isolated and neglected by the students themselves. HERICT, in this aspect, is striving to combine the merits of each discipline and make each one understand the needs of the others and work to provide knowledge and support. In this way it is believed that students will have to interact under the supervision of the professors and in this way they will forge a unique knowledge profile at the end of the course. Finally, Cultural Heritage is an integral part of the European's shared identity and is much desired to establish links of understanding among people of different nationalities within Europe.

and photogrammetry. The group of 26 participants was then split into 3 groups on Tuesday, Wednesday and Thursday for practical exercises on a site called "le prieuré de Salagon" about:

1. stereoscopic photo survey and image georeferencing;
2. manual stereoplotting;
3. rectified image and true orthoimage production ;
4. 3D point clouds (laser scanning and image based methods).

Finally, on Friday, the photogrammetric process was sum up, and a round-table meeting between users (the trainees) and photogrammetry experts was conducted.

Courses and practical works were supervised by five teachers from the ENSG. Up-to-date equipment (several Reflex cameras, one laser scanner, one technical computer per trainee) was provided to the



trainees. Data processing in the office was performed on free software, so that any participant could go back home with what was taught during the training.

Of course, to be really autonomous afterwards, the trainees will probably need more specific training sessions. However, the main objective was reached, since they do now have a good idea of what photogrammetry can do for them, and what it can not do.

CIPA organization was advertised, and it is most likely that some of them will start tracking CIPA's activities.



## Report on the Summer School in PAESTUM

F. Remondino - [remondino@fbk.eu](mailto:remondino@fbk.eu)



The Summer school on "3D Surveying and Modelling in Cultural Heritage" took place on June 16-22, 2013 in Paestum (Italy). The Summer school was organized by FBK Trento and by the University of Salerno and had 26 participants selected out of more than 50 requests.



Group picture of the participants of the 2013 edition of the Summer school

The Summer school featured two days of lectures, followed by some days of data acquisition and processing. The participants learned the basics of surveying and modelling, including terrestrial and UAV photogrammetry, topography and laser scanning. Different instruments and sensors were employed to acquire the data in

the archaeological area and at the national museum, ranging from terrestrial digital cameras to UAV platforms, from TOF laser scanner to triangulation-based active sensors.

The Summer School is organized within the activities of the collaborative and interdisciplinary "Paestum project" (<http://paestum.fbk.eu>) aiming at the production of accurate and realistic 3D models, maps, sections and orthoimages of the archaeological site with its monuments for documentation, conservation, preservation, restoration, visualization and valorisation purposes.



Panoramic image from an UAV of the archaeological site.



Moments of the data acquisitions on site and data processing in the lab

## Working Groups

### CIPA Task Group 2: 'Open Source' in use for the Cultural Heritage communication process".

P. Chias - [pilar.chias@ciccp.es](mailto:pilar.chias@ciccp.es)



Researchers on Cultural Heritage have wide connotations related to the characteristics of the cultural objects that are considered, as well as to the particular targets and methodologies that can be applied in each case.

As a first stage, a deep knowledge of the cultural objects is needed, and adequate documentation processes become essential.

Depending on the kind of cultural object that is being studied, it is necessary to collect and store high amount of datasets in various formats, to draw accurate maps and sketches, to take pictures, and to write detailed descriptions (or transcriptions). Thus, useful software for writing, drawing, image manipulation and mapping, is needed.

An easy and efficient data recording and archiving, and a quick access to all these digital materials become essential in the process of documentation and storage of the cultural heritage, as well as to get high quality information from them.

The later analysis processes must lay the foundations to propose the right conclusions, and to make the appropriate decisions. In this stage, GIS becomes a useful tool.

Finally, an efficient prospective plan must include management and preservation actions, as well as wide realistic communication and dissemination programs, including online platforms.

All these tasks and their related activities can be successfully approached and developed by using Open Source software. It provides the necessary office and prepress tools, multimedia and graphic editors (both vector and raster formats), friendly computer aided design (CAD) and 3D modeling software, as well as geographic information systems (GIS) and other publishing products.

The Task Group 2 initiative was firstly successfully chaired by Markus Jobst, of Research Group Cartography at Vienna University of Technology.

Currently we are starting a new era chaired by Prof. Pilar Chias, at the University of Alcalá (Spain) and hosted by the University of

Alcalá (Madrid, Spain) at: [http://www2.uah.es/cipa\\_opensource\\_taskgroup/index.html](http://www2.uah.es/cipa_opensource_taskgroup/index.html)

We also invite all communities and professionals, that are currently involved in research or management of the cultural heritage, to share their experiences with Open Source software products.



## An Underwater Task Group in CIPA

*P. Drap - Pierre.Drap@univ-amu.*



What should be a CIPA Task Group dedicated to underwater survey for CH?

There are a lot of (but not so much) teams around the world dealing with underwater photogrammetry for archaeological survey but underwater survey is also relevant for marine biology and also for Offshore and other industrial application.

New advanced photogrammetry and computer vision techniques, originally dedicated to terrestrial applications, can be used underwater with some slight modifications (as for underwater camera calibration). On the other hand, teams from underwater robotic after working with 2D mosaic generation and using SLAM technics to guide ROV are now using fully photogrammetric approach for both surveying and ROV guiding ...

Underwater photogrammetry is becoming more and more important and a special focus on this specific use of photogrammetry should be relevant in the context of CIPA.

Beyond the use of photogrammetry to survey underwater sites, the

connection with the domain knowledge is becoming crucial. The development of knowledge formalization with ontology is already tested in marine archaeology to try to represent a knowledge underlying a 3D model. The use of specific ontology developed for CH as CRM CIDOC should be followed also in underwater survey context.

This task group should be a place for sharing experience, tools, question and methodology. A website dedicated to this task group will gather the following topics:

- A strong bibliography (with a restricted area for some paper) dedicated to this topic,
- A potential showcase for the archaeological teams to promote their work,
- An updated list of relevant link,
- A platform for exchanging with other domains that share same needs (Marine biology, Underwater Geology, Offshore or where specific knowledge and methods developed for underwater photogrammetry can be exported.

*If you would like to send your contribution: paper, experience, bibliography, photography or video please please contact Mr Pierre Drap: Pierre.Drap@univ-amu.fr or visit <http://www.cipa-uwp.eu>*

## Introduction of CIPA TASK GROUP 3 on “3D Photographs in Cultural Heritage”

*W. Schuhr - schuhr3D@hotmail.com*



This CIPA task group is noting the increasing demand of 3D photographs as an important contribution to provide objective information for cultural heritage purposes on an international level.

This CIPA task group recognizes, though 3D photographs are a well established basic photographic and photogrammetric tool, showing “near real” documentary value, they are still a matter of research and improvement and the practical applications of 3D photographs in cultural heritage should increase. This holds, e.g., for 3D photographs supporting the recording, the visualization, the preservation and the restoration of architectural and archaeological objects, including excavation documentation, virtual museum requirements, spatial structure enhancement in rock arts, 3D photographs aiding interpretation, 3D coordinate calculation and/or serving as educational tool, etc.. This leads to the following task group action plan:

1) Public relations for 3D photographs in Cultural Heritage:

By means of publications and public presentations, preferable related to CIPA, this task group will intense the scientific as well as the public interest in 3D photographs of cultural heritage. As shown in figure 1 where superiority of 3D photography over 2D photography is evident due to the winning of a complete additional dimension (sample: documentation of a scratch in a historic wall in 2D (left) compared to the 3D appearance (right); Bursfelde, GER); This typically will be backed up by using 3D cameras like, e.g., the Fuji Finepix Real 3D camera, which

also permits 3D movie sequences.

2) "Digging the treasure" of existing 3D photographs related to Cultural Heritage:

Beside a transfer of 3D masterpieces, owned by some task group members, to CIPA a proposed cooperation with the International Stereoscopic Union (ISU) will intensify a revised survey of international archives of existing digital and analog 3D Heritage photographs. Additional negotiations are planned, to release existing international archives of 3D photographs. New aspects in exposing 3D photographs in Cultural Heritage not only include, e.g., the ground based staff camera Lite to take aerial stereo views from approx. 13m height but also UAV platforms etc.



Additional experiments with respect to multistage concepts of 3D photographs in Cultural heritage are planned, like combining before and after images or/and combining images of importance for protection and reconstruction purposes of Cultural Heritage, like, e.g., the Keystone Mast collection of the UCR/CMP, holding 350000 (analogue) stereo views from 1892-1963.

3) Promoting new 3D photographs in Cultural Heritage:

- In close cooperation with Archaeologists exemplarily will be shown, how 3D photographs at least partly might replace subjective interpreted manual drawings of heritage monuments. In addition it will be demonstrated, the still underestimated 3D effect, superior to any other documentation tool, even allows, e.g., the spatial perception of extremely small scratches as well as of nuances in color differences. Showing differences in focus, daytime etc., as well as combining 3D images from different sensors and/or comparing 3D imagery with drawings etc.
- Improving the standards for exposing and processing 3D Heritage photographs.
- Revising the complete list for virtual 3D perception, paying special attention to C.H.
- Renewing the existing internet presence of the task group on web page [3dsite.icomos.org](http://3dsite.icomos.org).

4) Deliverables:

1. Preferable at CIPA events this CIPA task group will intensify publications and presentations in particular in view of successful applications of 3D photographs related to Cultural Heritage.
2. This CIPA task group increasingly will collect, photograph, process, provide, exchange and apply International samples of 3D C.H. photographs of both media, analogue and digital, including multistage data.
3. Publishing updated standards & recipes for exposing high resolution 3D photographs of C.H. objects.
4. Publishing an updated complete list for virtual 3D perception, concentrating on C.H.

## Saving Pompeii from Another Death

Minna Lönnqvist - [minna.lonnqvist@helsinki.fi](mailto:minna.lonnqvist@helsinki.fi)



Professor Stefano De Caro, Director-General of ICCROM (International Centre for the Study of the Preservation and Restoration of Cultural Property) centred in Rome, delivered one of the keynote speeches at the recent CIPA Symposium in Strasbourg, France. Professor De Caro, who is archaeologist, owns a considerable experience in the preservation

work of Pompeii, one of the most prestigious UNESCO World Heritage Sites.

Professor De Caro is currently co-operating with Professors Albrecht Matthaei and Erwin Emmerling from Technische Universität in Munich and the Fraunhofer Institute, Germany, other international scientific institutions and Italian responsible authorities, in the new Pompeii Sustainable Restoration Project. The project has started the phase of fundraising, aiming to collect 10 million euros for over a ten year site restoration accompanied by a training activity in cultural heritage conservation.

The city of Pompeii in Southern Italy was destroyed by the volcanic eruption of Vesuvius in AD 79. The uncovered ruins need constant vigilance in protection and preservation. The structures, and the mosaics and frescos decorating the houses deteriorated over the years. In 2010 the seat of an association, the so called Schola Armaturatum, collapsed.

Archaeological competence is of central importance. For securing the ruins of each house one would need at least 270 million euros, according to Pietro Giovanni Guzzo, who was superintendent of Pompeii until 2009. Fortunately the site received 105 million euros from the Italian government and EU for the preservation work that started at the beginning of this year to save the site from the another death. 2, 3 million tourists from all over the world visit the site every year. Expectations are for another 300, 000 more.

Digital documentation has produced several 3D models of the city houses. During the CIPA symposium in Strasbourg new ways in the documentation of the "petrified" bodies from Pompeii with 3D modelling were presented by Sebastian Varia. In London a large British Museum exhibition of Life and death in Pompeii and Herculaneum, that has been open over this summer and closes at the end of September, finely revives the neighbouring dead cities.

## Forthcoming Events



### CIPA 2015 in Taiwan

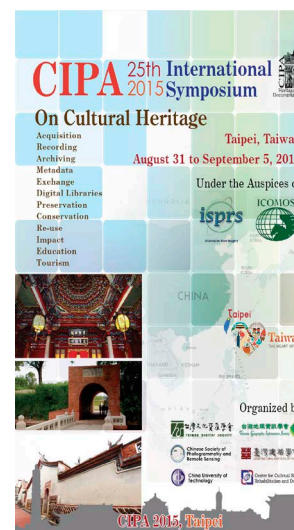
Dr. Alex Ya-Ning Yen - [alexyen@cute.edu.tw](mailto:alexyen@cute.edu.tw)

CIPA will launch its 25<sup>th</sup> symposium Aug 31 - Sep 5 2015 in Taipei Taiwan. At CIPA 24<sup>th</sup> symposium closing ceremony on Sep 6 2013 in Strasbourg, Chair Mario Santana announced the news.

On behalf of the host organization, China University of Technology (CUTE), Dr. Alex Ya-Ning Yen made a presentation of the proposal. Four organizations will support and work with CUTE to prepare this important event; they are, namely, Taiwan Heritage Society, Taiwan Geographic Information Society, Chinese Society of Photogrammetry and Remote Sensing and Architectural Institute of Taiwan.

Taiwan has world famous companies such as ASUS, ACER, hTC who are leading digital devices manufacturers and high tech enterprises. Taiwan is also extremely experienced in digitizing our cultural heritage. CIPA is an international committee. It will be the 2<sup>nd</sup> time CIPA holds the symposium in Asia and it is expected to expand the influence of CIPA in the broader area.

Dr. Alex cordially welcomes members to participate in this important event. He would like to offer a well-prepared program together with a discount registration fees. Information of CIPA 2015 Taiwan will be available through the CIPA website soon soon.



## ISPRS Technical Commission V Symposium 23-25 June 2014, Riva del Garda, Italy

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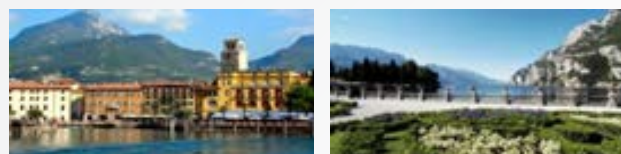
Photogrammetry and Remote Sensing are the arts, sciences and technologies of obtaining reliable information from non-contact imaging and other sensor systems about the Earth, its environment and other physical objects and processes through recording, measuring, analyzing and representation. The International Society for Photogrammetry and Remote Sensing (ISPRS) is a non-governmental organization devoted to the development of international cooperation for the advancement of photogrammetry and remote sensing and their applications. ISPRS is divided in 8 Technical Commissions and Commission V is the one dealing with close-range imaging and ranging sensors as well as applications in the field of industrial metrology, cultural heritage, architecture, biomedical and geosciences.



The ISPRS Technical Commission V Symposium will take place in Riva del Garda (Italy) on 23-25 June, 2014. The Symposium will feature 3 days with plenary and parallel sessions, invited speakers from research and commercial domains and an exhibition of the most important business players in the close-range domain.

The main topics of the Symposium are:

- Vision metrology and industrial applications
- Cultural Heritage data acquisition and processing
- Terrestrial 3D imaging and sensors
- Algorithms and methods for terrestrial 3D modeling
- Mobile mapping and unmanned vehicle systems for 3D surveying and mapping



### Important dates:

- Abstract or full paper submission: March 7<sup>th</sup>, 2014
- Notifications to the authors: April 25<sup>th</sup>, 2014
- Final paper submission: May 12<sup>th</sup>, 2014

[www.commission5.isprs.org](http://www.commission5.isprs.org)

The ISPRS Technical commission V Symposium is organized in collaboration with:

