ARCHEO.FOSS

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Open software, hardware, processes, data and formats
in archaeological research

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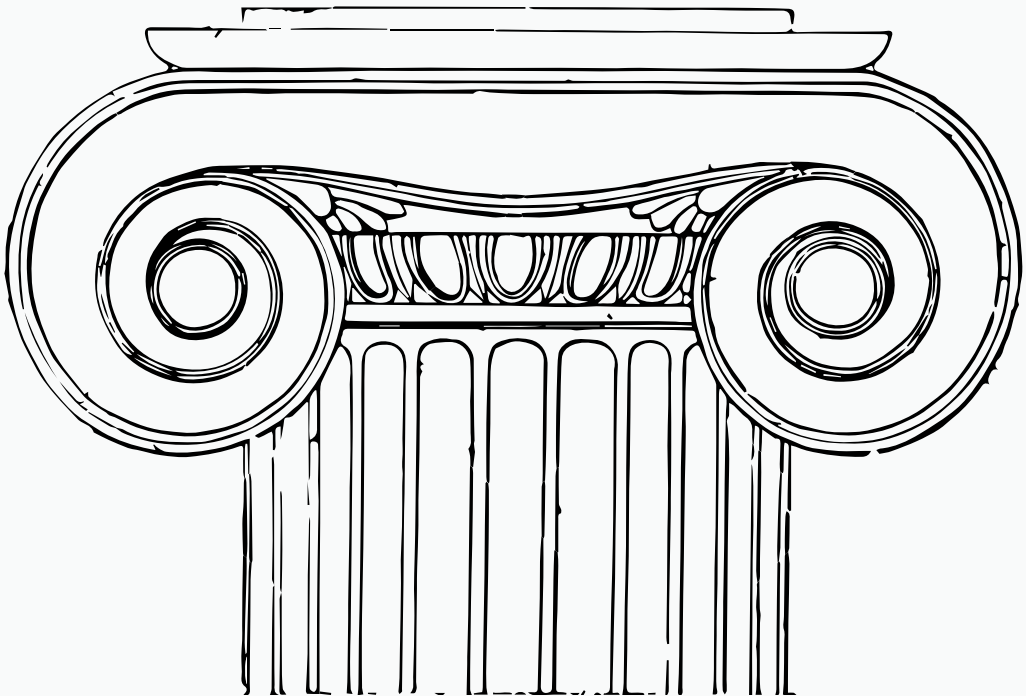
BOOK OF ABSTRACTS



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PROGRAMME OF THE CONFERENCE

Day 1. October 15th
09:30
Conference welcome and opening

Panel 1.
Use and Application of Free/Libre and Open Source (FLOS) Tools in Archaeology

10:00

Filippo Brandolini, Francesco Carrer

Human response to Late Holocene climate change in Northern Italy: integration of geomorphological and archaeological data through a FLOS-based workflow

10:25

Michele Pellegrino, Donato Coppola

Strumenti digitali open source per la documentazione della cultura visuale paleo-mesolitica: dati preliminari da un flusso di lavoro sulle decorazioni incise su supporto calcareo dalla Grotta di Santa Maria di Agnano (Ostuni, BR)

10:50

Fabiana Battistin, Stefano de Angeli, Federico Valerio Moresi, Giancarlo Pastura, Matteo Serpetti

Valutazione integrata delle dinamiche di rischio di erosione del suolo in presenza di depositi archeologici. Il metodo proposto dal progetto RESEARCH (REmote SEnsing techniques for ARCHaeology)

11:15

Coffee break

11:40

Lorenzo Fornaciari, Emanuele Brienza, Giovanni Caratelli, Cecilia Giorgi

Rome - Northeastern Palatine slopes: open-source methodologies and tools for the analysis of ancient architectures

12:05

Gabriele Ciccone

Un workflow open source per l'elaborazione delle immagini termiche acquisite da drone

12:30
Domizia D'Erasmo, Renata Ago
Analysis of urban mobility in 18th century Rome: a research approach through GIS platform

13:00
Lunch break

14:15
Filippo Diara, Fulvio Rinaudo
Towards FreeCAD experimentations and validation as a FOSS HBIM platform for building archaeology purposes

14:40
Ben Price
Virtual Archaeology for the little guy? A case-study based assessment of the feasibility and sustainability of minimal resource VR modelling and its applicability to small-scale archaeological research

15:05
Saverio Giulio Malatesta
Cultura libera per la valorizzazione territoriale: metodologie e strumenti aperti

15:30
Paolo Rosati
FLOS per i Musei: soluzioni open per formare le comunità e gestire i luoghi culturali

16:00-19:00
Workshop

Day 2. October 16th

Panel 2
Creation, use and Promotion of Open Data and Open Formats in Archaeology

09:30

Gabriele Gattiglia, Francesca Anichini
The ArchAIDE Archive

9:55
Benjamin Ducke
Developing long-term infrastructure for open archaeology research data: iDAI.world

10:20
Mirella Serlorenzi, Riccardo Montalbano, Ascanio D'Andrea, Carlo Cifarelli
SITAR: a new OPEN DATA infrastructure for a public archaeology of Rome

10:45
Coffee break

11:10
Sophie C. Schmidt, Florian Thiery
SPARQLing ⇢⇸⇸: Publication of Irish Ogham Stones as LOD

11:35
Katja Roesler, Frederic Auth, Wenke Domscheit, Kerstin P. Hofmann
Digital Editions of Objects and Classes: The Conspectus as an online system of relations and references

12:00
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12:30
Lunch break

14:00
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Open Data, Open Knowledge, Open Science: un nuovo Laboratorio dell'Istituto di Scienze del Patrimonio Culturale

15:25
Piergiovanna Grossi, Marco Ciurcina
FOSS, open data e open contents in archeologia: breve storia, stato dell'arte e scenari futuri

16:00-19:00
Workshop

Day 3. October 17th

Panel 3.
Development and Customization of FLOS Software and Hardware Solutions for Cultural Heritage

10:00
Joseph Lewis
Leastcostpath: Modelling Pathways and Movement Potential Within a Landscape

10:25
Augusto Palombini
The virtual countryman. A GRASS-GIS tool for ancient cultivation identification

10:50
Simone Berto, Emanuel Demetrescu
3D Survey Collection, un software per la produzione di repliche digitali. Il caso studio del foro romano di Nora (Sardegna, CA)

11:15
Coffee break

11:40
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12:05
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Timo Homburg, Florian Thiery
Little Minions and SPARQL Unicorns as tools for archaeology

13:00
Lunch break

14:10-15:30
Round table
ArcheoFOSS. An insight into the future

16:00-19:00
Workshop

ROME - NORTHEASTERN PALATINE SLOPES: OPEN-SOURCE METHODOLOGIES AND TOOLS FOR THE ANALYSIS OF ANCIENT ARCHITECTURES

Lorenzo Fornaciari

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Lorenzo Fornaciari graduated in Methods of Archaeological Research at the Sapienza University of Rome and now PhD student in Methods and Methodologies of archaeological and historical-artistic research at the University of Salerno with a research project about analysis and reconstruction of ancient landscape and buildings of the NE Palatine slopes in Rome. From 2016 he is responsible for graphic documentation, survey and GIS at the NE Palatine Slopes excavation and he has also worked as survey expert within the Major project Pompeii.

Emanuele Brienza

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Emanuele Brienza graduated in Methods of Archaeological Research and made his PhD in Classical Archaeology at the Sapienza University of Rome. From 1990 to 2014 he was responsible for survey and GIS at the Meta Sudans and NE Palatine Slopes excavations in Rome. From 2000 to 2010 he was Survey and GIS Senior Expert for Pisa University in Egypt. He has also worked as GIS and survey expert in Turkey and has been Senior Consultant in archaeology for the Ministry of Culture of the North Macedonia Republic. Since 2012, he has been a researcher and Assistant Professor of Methods of Archaeological Research at the Kore University of Enna.

Giovanni Caratelli

Giovanni Caratelli archaeologist and researcher at the National Research Council of Italy - Institute of Heritage Science (CNR-ISPC), mainly deals with archaeological survey and technical, stratigraphic and typological analysis of ancient monuments; he was scientific director of the Museo della Città e del Territorio di Cori.

Cecilia Giorgi

Cecilia Giorgi, archaeologist and researcher at the National Research Council of Italy - Institute of Heritage Science (CNR-ISPC), specialized in archaeological survey, direct and instrumental, 3D modelling, analysis of ancient monuments.

The area of the north-east Palatine hill slopes in front of the Colosseum valley has been the place of a more than 30 years long archaeological research, that brought to light to many archaeological evidences and material remains of ancient buildings and monumental interventions of great impact inside an environmental, topographic and stratigraphic continuum.

The huge amount of documentation produced has required the development of a data storage and management system dedicated to give a logic and integrated framework to information but also able to propose new elements for research development. Since 2001 the whole archaeological record has been managed by an intra-site GIS for data-retrieving, spatial analysis and archaeological reconstruction.

During the research this system has been implemented in contents but also in technology, following the advent of new IT products. In particular we dedicated our attention to the spread and availability of open-source software and ArcheoFoss: this in the last years, together with the support of a community of professionals and developers, undoubtedly has represented a fundamental pivot of technological development in archaeological practice with increasing interest and participation.

Our research follows this approach paying great attention to open-data issues and experimenting with entire datasets migration reconstructing the entire system in Qgis open-source platform. This process has addressed not only technical problems? , related to the nature of some proprietary formats, but also, and above all, has generated new reflections on the possibility of renewing methods and techniques for collecting, managing and analyzing data.

Focusing on the study of the ancient building, the use of image-based-modeling photogrammetry techniques revealed a certain inadequacy of the exclusively chrono-typological study of the ancient walls. In fact, these approaches, being anchored to two-dimensional projections of the artefact, inevitably neglect factors related to the three-dimensional environment of structures.

From these reflections, while we were making a new 3D documentation of the ancient walls, in this last 2 years we have performed also a new and integrated recording of the structures, having planned a new form format by criteria aimed at the collection of information related to construction methods, structural expedients, yards dynamics, specific materials selection, quantification of the work in terms of time and number of the workers.

This new file-card format for ancient masonry contexts, for data display, en-

try and editing, was created directly by Qgis. For the contents homogeneity and to facilitate data entry procedures, we have encoded standardized terminologies; in addition, the detailed metrics information and statistics, derived from the analysis of the samples of wall facades, are managed by accessory modules.

All these data are linked to 3D documentation of masonry stratigraphy: in detailed level for the evaluation of single walls and samples; in a general framework level for diachronic and typological evaluation of the architectural complexes of the area.

An external connection with the open-source software CloudCompare is a first attempt to show the graphic quality of the photogrammetric acquisition and to partially overcome the 2.5 dimensional perspective of GIS. Finally, particular attention was paid to the question of the "philological transparency" of data considered like the "basement" of archaeological interpretation. In order to deal with this problem, we have reproduced a new system for collected data analysis and retrieving: photos, 3D models acquired from scratch, sections and elevations, hand-made drawings and all raw data produced during the excavation; through several queries it is now possible to analyze all the recording and elaborations steps made for stratigraphic interpretation.

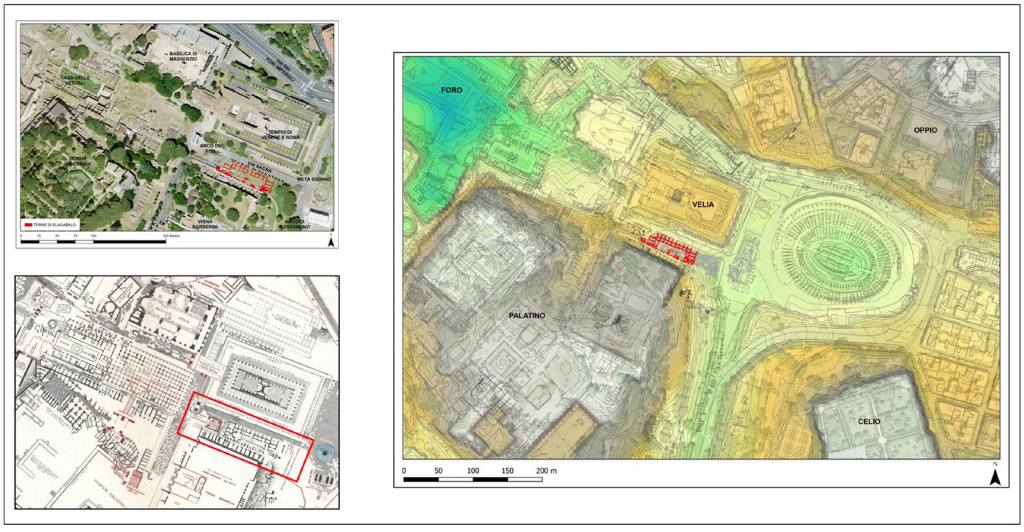

Fig. 1. The territorial context of the NE Palatine slopes.

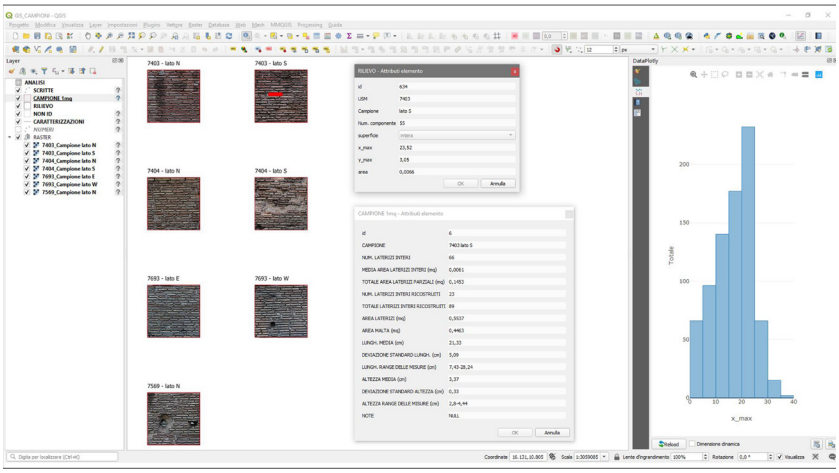

Fig. 2. The new file-card format for ancient masonry contexts.

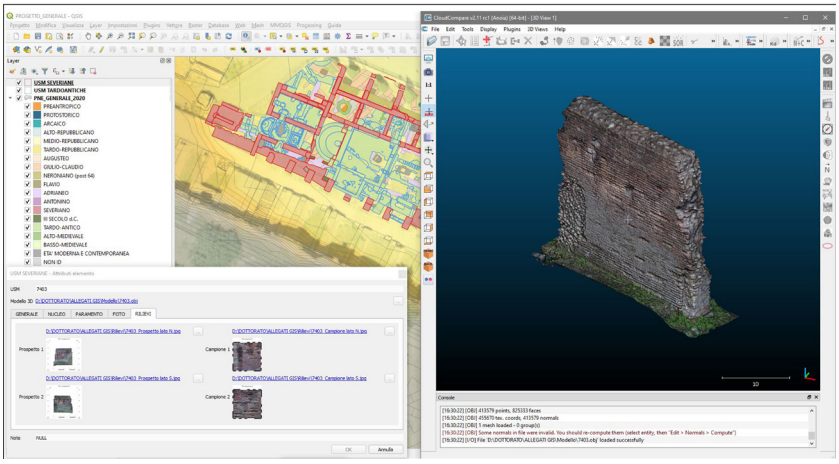

Fig. 3. The link with the collected data.

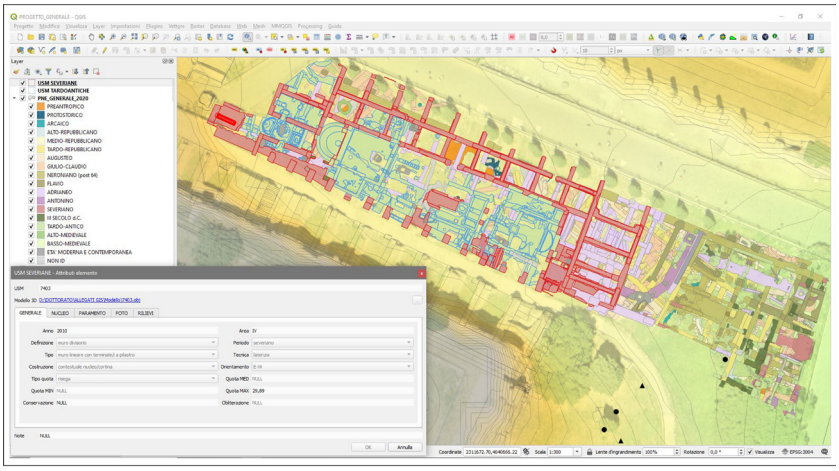

Fig. 4. The treatment of masonry samples.