

INTERNATIONAL CONFERENCE

FROM THE SEA TO NETWORKS

*Lilybaeum and the Challenges of the Ancient Mediterranean
in the Digital Age*

CONFERENCE GUIDE

Programme, speaker abstracts and space for notes

Tuesday, 15 September 2026

Museo Archeologico Regionale Lilibeo-Marsala
Conference hall Maria Luisa Famà

Prepared from the definitive programme and the abstracts supplied by the authors

CONFERENCE PROGRAMME

Morning · Tuesday, 15 September 2026

PANEL 1 · LILYBAEUM IN THE DIGITAL AGE

09:00-09:30	Welcome Coffee and Registration
09:30-09:40	Welcome Address Anna Occhipinti
09:40-10:05	Introduction — What Is the Future of Archaeology in the Digital Age? Fabrizio Ducati
10:05-10:30	Lilybaeum and the Sea: Resources and Sources for "Navigating" the Past Maria Grazia Griffo
10:30-10:55	From Museum Storage to Database: Documentation, Cataloguing and Study of Byzantine and Islamic Pottery from Legacy Excavations at the Archaeological Park of Lilibeo (Marsala, Sicily) Filippo Pisciotta, Angelo Castrorao Barba, Martina Revello Lami, Orestis Alektoridis
10:55-11:25	Coffee Break
11:25-11:50	Challenges and opportunities of the project “Archaeological Map of Lilybaeum” Mauro Lo Brutto, Martina Seifert, Aurelio Burgio, Antonella Mandruzzato, Aylin Güngör, Nils Thiele-O’Sullivan
11:50-12:15	The 3D models database of Lilybaeum epigraphs: Open Access perspectives for the reuse of digital archaeological resources Leonarda Fazio, Maria Grazia Griffo, Milena Cudia
12:15-12:40	FAIR Data and Open Science: Concepts and Principles. The activities of the SBA and the Unipa Libraries Portal. Research Data in the Humanities: Tools and Practices Valeria Tardo
12:40-14:10	Lunch Break

CONFERENCE PROGRAMME

Afternoon · Tuesday, 15 September 2026

PANEL 2 · THE ANCIENT MEDITERRANEAN IN THE DIGITAL AGE

14:10-14:35	The impact of digital technologies on field surveys: Is our approach to the management and collection of archaeological data effective? Giuseppe Guarino
14:35-15:00	NaviGIS - Digital Data Management in Nautical Archaeology Vincent Dumas, Juliette Bolloch, Mathieu Coulon, Giulia Boetto
15:00-15:25	Modeling Mediterranean Maritime Networks: Integrating Ancient Texts and Modern Logbooks through the SeaLiT Ontology — ONLINE Athina Kritsotaki, Chryssoula Bekiari, Nikos Kontonasios, Pavlos Fafalios, and Yannis Tzitzikas
15:25-15:50	Coffee Break
15:50-16:15	"Ontologies and Neural Networks: A Neuro-Symbolic approach for Epigraphy contextualization" Emma Martinez, Bruno Baudoin, Stéphanie Satre, Julien Seinturier
16:15-16:40	3DArcheo: Iterative Knowledge Engineering for RTI-Based Rock Art Documentation — ONLINE Hüseyin Erdoğan, Valentina Presutti, Cristiano Putzolu, Celian Ringwald
16:40-17:00	General Discussion and Closing Remarks Tomoo Mukai (chair)
18:00-19:00	Opening of the Exhibition “The Zambratija Shipwreck”

OPENING

09:30-09:40 Welcome Address

Anna Occhipinti

Parco archeologico di Lilibeo-Marsala

QUESTIONS / NOTES

09:40-10:05 Introduction

What Is the Future of Archaeology in the Digital Age?

Fabrizio Ducati

Aix Marseille Université, CNRS, Centre Camille Jullian, Aix-en-Provence, France

QUESTIONS / NOTES

Lilybaeum and the Sea: Resources and Sources for "Navigating" the Past

Parco archeologico di Lilibeo-Marsala

This contribution presents the Museo Lilibeo and its catalogue, *Lilibeo e il Mare. Il Museo Archeologico Regionale di Marsala* (edited by E. Caruso and M. G. Griffo, Palermo, 2024), as both resources and sources for archaeological research. They represent not only the outcome of a process of critical selection and study of archaeological materials, but also a body of data that can be structured and sustainably managed according to new models developed within the field of Digital Humanities, creating new opportunities for research, innovation, and collaboration. The archaeological research methodology underpinning the museum's curatorial approach—based on the selection of materials according to their archaeological context, the reorganisation and integration of assemblages from the extensive necropoleis of Lilybaeum, and the identification of previously unpublished or little-known phases of occupation and abandonment of the ancient settlement—has significantly enriched our understanding of the ancient city and its uninterrupted relationship with the sea. Today, this body of knowledge constitutes the starting point for innovative and interdisciplinary research projects, offering new perspectives for the study, management, and digital enhancement of the archaeological heritage of ancient Lilybaeum.

From Museum Storage to Database: Documentation, Cataloguing and Study of Byzantine and Islamic Pottery from Legacy Excavations at the Archaeological Park of Lilibeo (Marsala, Sicily)

² Leiden University, Faculty of Archaeology

Within the framework of the SURTABISA project, which investigates settlement and landscape transformations between the late Byzantine and Islamic periods in the central Mediterranean, a systematic reassessment has been undertaken of archaeological materials recovered during legacy excavations on the Capo Boeo promontory in Marsala, with particular attention to evidence dating from the Byzantine and Islamic periods. The fragmentary nature of the excavation records, together with the difficulties involved in reconstructing the provenance, archaeological context and present location of the finds, made it necessary to develop a database designed for the collection, standardisation and integrated management of the available data. The digitisation of this information has enabled archival documentation to be linked with the archaeological materials, opening up new avenues of analysis, including for finds lacking a secure archaeological context. The organisation and integration of these data have made it possible to outline a more detailed preliminary picture of pottery production and circulation at Capo Boeo between the Byzantine period and the Islamic Middle Ages, highlighting the considerable research potential of the materials preserved in the museum's storage facilities. This contribution reflects on the role of digital systems not only as tools for archaeological documentation and research, but also as resources for the protection, interpretation and public presentation of archaeological heritage. This potential is further shown by the exhibition "From Lilybaeum to Marsā 'Alī: Material Culture and Daily Life on the Capo Boeo Promontory (6th–11th Centuries)", recently inaugurated in the Archaeological Park of Lilibeo. In line with the aims of the SURTABISA project, the physical exhibition has been turned also into a virtual exhibition, where the ceramic material and relevant information are showcased in their digital format through the open source platform Metasteps.

Challenges and opportunities of the project “Archaeological Map of Lilybaeum”

³ Università degli Studi di Palermo, Dipartimento Culture e Società

The 'Archaeological Map of Lilybaeum' project is the result of the long-standing scientific cooperation between Hamburg and Palermo Universities and the Archaeological Park of Marsala. The main objective of the project is to create an archaeological map of the ancient city of Lilybaeum, using the most innovative and cutting-edge technologies for the acquisition, management and analysis of archaeological data. The workflow within the current project consists of four main parts: data acquisition through fieldwork, systematic compilation of pre-existing data (Legacy data), data evaluation and interpretation, and public outreach. Over the years, various field research methods have been investigated to gather all the data required for the archaeological map. In particular, topographical, laser scanning and photogrammetric (aerial and terrestrial) surveys have been carried out during several steps of the work. This approach allowed us to explore the impact of the results obtained from these different methods on already existing research hypotheses and the ways in which the resulting map enhances our knowledge of the ancient city of Lilybaeum. All the archaeological data within the Archaeological Park, as well as those buried under the modern city, have been fed into a new archaeological Web-GIS, as a starting point for archaeological analysis and clarifying issues relating to urban development.

11:50-12:15

The 3D models database of Lilybaeum epigraphs: Open Access perspectives for the reuse of digital archaeological resources

Leonarda Fazio¹, Maria Grazia Griffo², Milena Cudia³

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ABSTRACT

The epigraphs of Lilybaeum, mainly dating between the middle and late Imperial age (2nd-4th century AD), represent a valuable source of information for reconstructing and telling the history of the Punic-Roman city, its institutions, cults, public works and people who distinguished themselves for their role in the city community. In 2023, as part of the new multimedia exposition of the Marsala Civic Museum, with the aim of virtually unifying materials currently preserved both in the Regional Archaeological Museum of Lilibeo-Marsala and in the Civic one, a project to enhance epigraphs was carried out. Digital copies of the objects are now accessible using a totem touchscreen close to some originals into the Civic Museum, where users can access to epigraphs high-resolution 3D models and related information, as the original text, translation and a comment on the historical content. In order to maximize access to epigraphic documents by reusing already acquired digital resources (3D models, texts, orthophotos), the paper focuses on the potentiality of an Open Access approach to the online exposition of archaeological datasets for dissemination purposes. Specifically, the FAIR principles and standards that guide digital resources description are examined, focusing on the semantic use of Linked Open Data in digital archiving to improve data findability, accessibility and interoperability.

QUESTIONS / NOTES

FAIR Data and Open Science: Concepts and Principles. The activities of the SBA and the Unipa Libraries Portal. Research Data in the Humanities: Tools and Practices

Università degli Studi di Palermo, Polo Bibliotecario di Scienze Umane

This paper provides a brief overview of the concepts of FAIR data and the principles of Open Science, tracing their development from the emergence of these concepts to the evolution of European and Italian policies and regulations. It then introduces the University of Palermo's Library System portal and the support services it provides for the archiving and dissemination of scholarly outputs. Particular attention will be devoted to the Research and Open Science sections, highlighting their practical resources and opportunities for further exploration. Finally, the paper will present selected tools and practices for implementing Open Science, with particular emphasis on the field of archaeology.

The impact of digital technologies on field surveys: Is our approach to the management and collection of archaeological data effective?

Independent researcher

The adoption of digital technologies in archaeological field surveys represents a significant methodological evolution, transforming practices and offering unprecedented improvements in data recording, analysis and interpretation. However, critical challenges remain in ensuring the accuracy and reliability of the data collected, particularly with regard to spatial recording and subsequent analysis. This presentation critically appraises the efficacy of contemporary digital approaches by integrating traditional grid-based methodologies, centred on 10-metre square units, with mobile free and open-source software (FLOSS) geographic information system applications (QGIS and QField). The study has assessed improvements and persisting challenges associated with digital data collection. Key methodological elements were systematically examined, including inter-surveyor variability and environmental factors such as soil visibility and weather conditions. Statistical analysis provided evidence of the critical influence of these factors on artefact quantity and spatial distribution.

NaviGIS - Digital Data Management in Nautical Archaeology

² Aix Marseille Université, CNRS, TELEMMe, Aix-en-Provence, France

“NaviGIS – Digital Data Management in Nautical Archaeology” is a pilot project developed at the Centre Camille Jullian UMR 7299 (CNRS, Aix Marseille University) as part of the Franco-Croatian mission “ADRIBOATS – Ships and Navigation in the Eastern Adriatic in Antiquity.” Its aim is to manage, in a consistent and standardized manner, the digital data resulting from the study of several ancient shipwrecks, in accordance with the FAIR principles (Findable, Accessible, Interoperable, Reusable) of Open Science. Based on a web-mapping architecture, the project enables the organization of a rich and varied body of documentation, primarily digital, including photographs, 2D and 3D graphic materials, and textual resources (reports, spreadsheets, publications). NaviGIS provides structured, visual, and interactive access, supporting the scientific use of the data through open access, their dissemination to a wide audience, as well as their long-term preservation and archiving.

Modeling Mediterranean Maritime Networks: Integrating Ancient Texts and Modern Logbooks through the SeaLiT Ontology

Institute of Computer Science, Foundation for Research and Technology - Hellas, Heraklion

The study of Mediterranean maritime networks has traditionally been divided between qualitatively interpreted ancient sources and quantitatively rich modern archival records. This paper proposes a unified, diachronic framework for analyzing these networks by leveraging the ontology developed within the SeaLiT Project. As an extension of CIDOC CRM, the SeaLiT ontology enables the semantic modeling of heterogeneous maritime data by formalizing entities such as ships, ports, actors, cargoes, and voyages, as well as the relationships that connect them. The paper demonstrates how this ontological framework can be applied to two fundamentally different corpora: (a) ancient literary sources which provide fragmentary and interpretative evidence of maritime connectivity; and (b) nineteenth- and twentieth-century ship logbooks preserved across multiple archives in Greece and Spain, which offer structured, high-resolution records of routes, environmental conditions, and commercial activity. By translating both source types into a shared event-based semantic structure, the ontology facilitates their integration into interoperable datasets and knowledge graphs. The paper argues that ontological modeling not only enhances data interoperability but also reshapes historical inquiry by enabling the comparison of disparate epistemologies within a common analytical framework.

"Ontologies and Neural Networks: A Neuro-Symbolic approach for Epigraphy contextualization"

² Aix Marseille Université, CNRS, Centre Camille Jullian, Aix-en-Provence, France

Artificial Intelligence (AI) is now widely used in the humanities, particularly in History and Archaeology, where connectionist approaches such as Convolutional Neural Networks (CNNs) and Large Language Models (LLMs) are well-suited for processing image and text corpora. Several platforms have been developed to characterize archaeological objects based on images or to contextualize texts based on their content. Digital Epigraphy also benefits from these advances by combining the power of CNNs, to extract transcriptions from images of inscriptions, with that of LLMs, to contextualize the extracted transcriptions. However, recent studies have pointed out that these purely connectionist approaches do not yield the expected results on inscription corpora. Indeed, it appears that using text alone does not allow reliable contextualization. The addition of certain knowledge and data, such as paleography or stratigraphy, significantly improves the reliability of the process. The EPI2DAP (Epigraphic Data Analysis & Data Processing) project proposes to expand the processing of inscriptions by using connectionist approaches (CNN, LLM) coupled with knowledge representation (KR) in the form of Ontologies that can represent paleographic and stratigraphic information. This integration enables the creation of a semantic database (Triple Store) that allows inscriptions to be contextualized through reasoning. This approach preserves the performance of CNNs and LLMs in extracting transcriptions and paleographic glyphs to populate the semantic database, while leveraging expert knowledge to provide explainable contextualization. The proposed methodology was implemented using the EpiCherchell corpus, a collaborative online open-access database for the study of ancient inscriptions. The first line of research concerned the automatic recognition of ancient letters and symbols and the creation of a protocol for automatic character recognition on Latin inscriptions, integrating chronological proposals. The second line of research concerned the proposal of an ontological formalism allowing to represent the complex information composing the EpiCherchell database by extending it with notions of temporality and spatiality and thus allow both inference and interrogation. This new formalism is integrated within the Epigraphic Ontology (EPONT) consortium. The main focus now is the population of a semantic database with automatically extracted information.

3DArcheo: Iterative Knowledge Engineering for RTI-Based Rock Art Documentation

² University of Bologna, Department of Computer Science and Engineering

Advanced imaging techniques such as Reflectance Transformation Imaging (RTI) and 3D digitisation are now well established in archaeological documentation of the prehistoric rock art. Yet the data they produce — acquisitions, processing steps, derived models, and the observations made upon them — often remain locked in heterogeneous, project-specific formats, disconnected from the archaeological knowledge they are meant to support. We present 3DArcheo, an ongoing effort to make imaging-based documentation semantically explicit, interoperable, and FAIR by design, developed within the INFINITY project and validated on the rock art of Rupe Magna (Grosio, Italy), the largest engraved rock in the Alps. The workflow rests on four components. First, an application profile grounded in the Cultural Heritage Survey Ontology Design Pattern (CHS-ODP) for cultural heritage surveys, extended through the reuse of the CIDOC CRM family (notably CRMsci and CRMdig), ArCo, and related ontologies and taxonomies, modelling the full lifecycle of imaging campaigns: acquisition events, instruments and configurations, processing and derivation chains, and the archaeological features they record and the interpretations they allow. Second, SemRTI, a transformer lifting RTI acquisition data and metadata (JSON) into RDF. Third, a declarative pipeline turning these RDF descriptions into a knowledge graph aligned with the application profile and validated against its SHACL shapes. Fourth, XDigCheck, a reusable tool checking the mutual alignment between ontology and data — detecting where the data fall short of the model, but equally where the model fails to capture field practice. XDigCheck is applied iteratively within a SAMOD-based development cycle, where competency questions — operationalised as SPARQL queries and SHACL shapes — drive each extension of ontology and pipeline alike. We discuss the design rationale of the workflow, the role of shape-based validation in keeping semantic models honest with respect to real archaeological data, and lessons from the Rupe Magna case. We argue that treating ontology-data alignment as a first-class, verifiable concern is a precondition for archaeological knowledge engineering, where both models and data must accommodate new surveys, new measurement techniques — including further High-Definition Survey and Measurement (HDSM) methods — and new analyses, keeping imaging archives findable, interpretable, and reusable across projects and generations of technology.

QUESTIONS / NOTES

CLOSING SESSION

16:40-17:00

General Discussion and Closing Remarks

Tomoo Mukai (chair)

Aix Marseille Université, CNRS, Centre Camille Jullian, Aix-en-Provence, France

DISCUSSION / CLOSING NOTES

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