

StratiGraph project launches in Rome: Pioneering digital innovation for Cultural Heritage documentation

Rome, November 19, 2025 – Last week, at the Consiglio Nazionale delle Ricerche (CNR) headquarters in Rome, experts from 22 institutions across Europe and beyond gathered to launch **StratiGraph**, a Horizon Europe project that aims to improve archaeological and paleontological documentation through advanced digital technologies.

StratiGraph (*Knowledge Graphs for Stratigraphy*) addresses a critical challenge in Cultural Heritage research: the fragmentation of documentation workflows and the lack of interoperability between datasets. The project will develop an open-source suite of tools that integrates:

- **Knowledge Graphs** for semantic representation of stratigraphic and contextual data
- **AI-assisted modules** for real-time validation and automated enrichment of bibliographic resources
- **3D documentation frameworks** for stratigraphic recording and spatial analysis
- **Hybrid architecture** enabling seamless offline and online operation

The tools will be developed with a “validate-as-you-collect” approach, ensuring that information gathered in the field is structured, verified, and ready for integration into the **Cultural Heritage Cloud (ECCCH)** by providing tools and workflows that support **semantic interoperability, data provenance, and open science principles**.

Integration with the ECCCH

The ECCCH is the European Commission’s flagship initiative to create a shared digital space for cultural heritage professionals, enabling access to data, tools, and services. All project outputs will be integrated into the ECCCH, enabling researchers to share, reuse, and enrich datasets across disciplines and borders. This alignment ensures that StratiGraph not only addresses local documentation needs but also strengthens Europe’s capacity for collaborative heritage research.

Living labs across Europe

The project will validate its solutions through **seven case studies** representing diverse archaeological and paleontological contexts:

- **Basilica Iulia in Rome** – a complex urban excavation with rich historical layers
- **Sarmizegetusa Regia in Romania** – remote conditions ideal for testing offline-first tools
- **St. John Lampadistis Monastery in Cyprus** – integrating architectural and artistic heritage
- **Colonia Iulia Ilici Augusta in Spain** – collaborative interpretation and site reconstruction
- **Santa Olalla in Spain** – merging geophysical surveys with 3D stratigraphy
- **Kraków Spadzista Palaeolithic site in Poland** – semantic annotation for prehistoric contexts
- **Cesarea dataset in Israel** – large-scale data management and interoperability

These sites will serve as **living laboratories** to test and validate the tools under varied scientific and operational conditions, ensuring that StratiGraph's solutions are robust, adaptable, and scalable.

Eight core tools

StratiGraph will deliver eight interoperable tools designed to support documentation, analysis, and dissemination workflows:

- **ChatBot Assistant** – an AI-driven field assistant with voice interface for offline documentation and query processing.
- **Tropy** – a system for archaeological image management with semantic tagging capabilities.
- **PyArchInit** – a GIS-based tool for stratigraphic unit documentation, integrated with semantic models.
- **Extended Matrix Framework** – an Open Science Methodology coupled with a desktop tool for 3D stratigraphic documentation and spatial analysis in Blender.
- **Aioli** – a reality-based 3D annotation platform for collaborative documentation of heritage artefacts.
- **CVRE (Collaborative Virtual Research Environment)** – a web-based environment for real-time interaction and visualization, supporting telepresence and collaborative annotation.

- **CATALOG** – a publication and data-sharing platform with PID management and access control for ready-to-publish workflows.
- **StratiGraph Academy** – a centralized learning platform offering multi-level training paths and community resources for tool adoption.

Together, these tools will enable integrated workflows from field data collection to publication, ensuring semantic consistency and interoperability with ECCCH.

Highlights from the kick-off meeting

The Rome meeting set the tone for this ambitious journey. Participants explored the project’s technical roadmap, shared expectations for the first nine months, and engaged in collaborative workshops on workflows and development priorities. A special session with the European Commission reinforced the project’s alignment with Open Science principles and ECCCH integration, while an evening visit to Palazzo Valentini’s archaeological site reminded everyone of the profound cultural mission behind the technology.

“Europe needs archaeologists and palaeontologists: StratiGraph transforms the profession by combining traditional expertise with advanced digital skills, creating a compelling career path for new generations.” - said Emanuel Demetrescu, Senior Researcher at CNR and Project Coordinator.

About the consortium

StratiGraph brings together **22 partners and associated organisations** from 12 countries, combining expertise in archaeology, heritage science, artificial intelligence, and digital infrastructure. This diverse network ensures that StratiGraph’s solutions are scientifically rigorous, technologically advanced, and responsive to real-world heritage management needs.



Associated partners



The consortium includes Consiglio Nazionale delle Ricerche (Italy, coordinator), Centre National de la Recherche Scientifique (France), Austrian Institute of Technology (Austria), The Cyprus Institute (Cyprus), Athena Research and Innovation Center (Greece), 3D Research SRL (Italy), Fondazione Bruno Kessler (Italy), Institutul Național al Patrimoniului (Romania), University of Exeter (United Kingdom), KEA European Affairs (Belgium), Muzeul Național de Istorie a Transilvaniei (Romania), Israel Antiquities Authority (Israel), Instytut Chemii Bioorganicznej Polskiej Akademii Nauk (Poland), Universidad de Alicante (Spain), Université du Luxembourg (Luxembourg), CY Cergy Paris Université (France), Instytut Systematyki i Ewolucji Zwierząt Polskiej Akademii Nauk (Poland), Agencia Estatal Consejo Superior de Investigaciones Científicas (Spain), and associated partners Parco Archeologico del Colosseo (Italy), Università degli Studi di Roma La Sapienza (Italy), Deutsches Archäologisches Institut (Germany), and Italferr SPA (Italy).

About StratiGraph

StratiGraph is funded under the Horizon Europe programme (Grant Agreement No. 101232855) and runs for 42 months. The project is fully committed to **open-source tools**, **FAIR data principles**, and **Europe's strategic autonomy in cultural heritage research**, while contributing directly to the development and adoption of the **European Collaborative Cloud for Cultural Heritage**. By integrating semantic technologies, AI, and 3D

documentation within ECCCH, the project aims to establish new standards for digital heritage workflows.

For more information:

Follow StratiGraph channels and subscribe for updates here: <https://linktr.ee/StratiGraph>

Visit <https://www.ispc.cnr.it> or contact emanuel.demetrescu@cnr.it



**Funded by
the European Union**

StratiGraph is funded by the European Commission under the Horizon Europe programme (Grant Agreement No. 101232855). The views and opinions expressed in this website are the sole responsibility of the author and do not necessarily reflect the views of the European Commission.