Ontologies and standards for improving interoperability of archaeological data: from models towards practical experiences in various contexts

The documentation and data of archaeology - planned or preventive - and of cultural heritage, lead to the need for technical and semantic interoperability. Developing and using ontologies, standards and languages devoted to archaeology, intend to make easier the integration, exchange and sustainability of cultural information. Some researchers have explored these approaches during the previous CAA (Perth 2013 sessions 4, 5 and 6).

Archaeology, and its documentation and data, are multidisciplinary and heterogeneous. In order to make the best use of conceptual reference models and their implementation in standards, a balance must be found between general approaches, which allow promote interdisciplinary exchanges, and specialized ones that preserve unique aspects of archaeological research [contextualization, uncertainty, incompleteness, evolution analysis, review of dating, different spatial scales, subjectivity methods, observation and/or interpretation, allocation, etc]. The use of ontologies and standards for treatment of cultural heritage information (CIDOC-CRM / ISO 21127; Europeana Data Model...), spatial information (INSPIRE, ISO 19115, GML, GeoSPARQL...) or languages and thesauri (OWL, SKOS...), already has a proven basis but it may be insufficient.

During their implementation in recording, studying and managing applications using archaeological data, various standards and conceptual models should ensure archaeologists to choose the good level for representing information, from operational to continental scales. To encourage the use by cultural heritage specialists of languages and construction principles of ontologies, works specific to their domains have to be shown. This will involve presenting standards, and models, but also tools developed on recognized standards already adopted by the scientific community and cultural institutions. The use and reuse of archaeological data encoded in a standardized way, and metadata widely available also raise several points of discussion: the integrity of archaeological data, the risk of misinterpretation, the quality of recorded data, the need for labeling data, the level of specialization in data description and levels of generality imposed by interoperability, etc.

The purpose of using ontologies and standards is to enable interoperability and a large but controlled diffusion of archaeological and cultural heritage data in the general context of wide diffusion of big and open data. The session's goal is to provide practical use cases of ontologies and standards to address these issues. Theoretical aspects too difficult to be transposed will be avoided. Papers may focus on the more practical issues about constructing ontologies, models and applications, from experience feedback analyzed and available tools built on such approaches. Finally, communications will enable the various actors of archaeological research and cultural heritage to identify and evaluate what can be used if they wish to engage themselves in the use of standards for interoperability and wide dissemination of their data.

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April 24, 2014

Panthéon salle S06: Université Paris I Panthéon-Sorbonne. 12, place du Panthéon. 75005 Paris

Session S07

8:00 – 8:30 : registration
- 10:10 – 10:35 : Valentijn GILISSEN. Dykes of standards supporting polders of data: the practices used in the Netherlands for making archaeological data available and accessible.

10:35 – 10:50 : break
- 10:50 – 11:15 : Cesar GONZALEZ-PEREZ, Patricia MARTIN-RODILLA. Integration of Archaeological Datasets Through the Gradual Refinement of Models.
- 11:40 – 12:05 : Keith MAY. To Boldly or Bravely Go? Experiences of using Semantic Technologies for Archaeological Resources.
- 12:05 – 12:30 : Dominic OLDMAN, Sebastian RAHTZ. Aligning the Academy with the Cultural Heritage Sector through the CIDOC CRM and Semantic Web technology.
- 12:30 – 12:55 : Discussion

13:00 – 14:00 : Lunch

14:00 – 14:25 : Daniel PETT. Making the links to Portable Antiquities Scheme data.
14:25 – 14:50 : Emeline LE GOFF, Olivier MARLET, Xavier RODIER, Philippe HUSI. The interoperability of the ArSol database (Soil Archives): reflections and feedbacks experiences on the use of the CIDOC-CRM ontology and the integration of thesauri.
15:40 – 16:05 : Karsten TOLLE, David WIGG-WOLF. Uncertainty handling for ancient coinage.

16:05 – 16:20 : break
16:20 – 16:45 : Oreste SIGNORE, Giuseppe FRESTA, Massimo MARTINELLI. Some issues on LOD in Cultural Heritage: the Case of Historical Place Names.
17:10 – 17:35 : Yiakoupi KYRIAKI, Sorin HERMON. A metadata schema for cultural heritage documentation data retrieval through publication-Using STARC metadata schema to handle 3D Cultural Heritage Documentation (The case of recording sites in Israel).
17:35 – 18:00 : Valeria VITALE. An Ontology for 3D Visualization in Cultural Heritage.
18:00 – 18:25 : Poster session – Discussion – Conclusion

Chairs: R. FOERTSCH, S. RAHTZ, A.-V. SZABADOS

Posters:
- Karl GROSSNER, Ian HODDER, Elijah MEEKS, Claudia ENGEL. A Living Archive for Çatalhöyük.
- Florian THIERY. Linking potter, pots and places: a LOD approach to samian ware.
- Carla SCHROER, Mark MUDGE. New Reflectance Transformation Imaging (RTI) tools for context metadata generation.