Open Context:
Editorial Co-production and Use of Linked Data in Archaeology

Eric C Kansa
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OpenContext.org

Data as a Crystal Ball?

OFFICIAL OFFICE OF SCIENCE AND TECHNOLOGY POLICY RESPONSE TO

Require free access over the Internet to scientific journal articles arising from taxpayer-funded research.

This response was published on February 22, 2013.

Increasing Public Access to the Results of Scientific Research

By Dr. John Holdren

Thank you for your participation in the We the People platform. The Obama Administration agrees that citizens deserve easy access to the results of research their tax dollars have paid for. As you may know, the Office of Science and Technology Policy has been looking into this issue for some time and has reached out to the public on two occasions for input on the question of how best to achieve this goal of democratizing the results of federally-funded research. Your petition has been important to our discussions of this issue.

Helpful Hints

Creating a duplicate or similar petition will make it harder for you to get an official response. Instead, sign and help promote the one that has already been created.

Recent Petitions

Recent Responses

CREATE A PETITION

NSF

NATIONAL ENDOWMENT FOR THE Humanities


The data are fine.

WIRED

Diehard Coders Just Rescued NASA's Earth Science Data

BUSINESS | CULTURE | DESIGN | GEAR | SCIENCE

SHARE

SHARE 389456

TWEET

COMMENT

MEGAN MOLTENI SCIENCE 02.13.17 5:35 PM

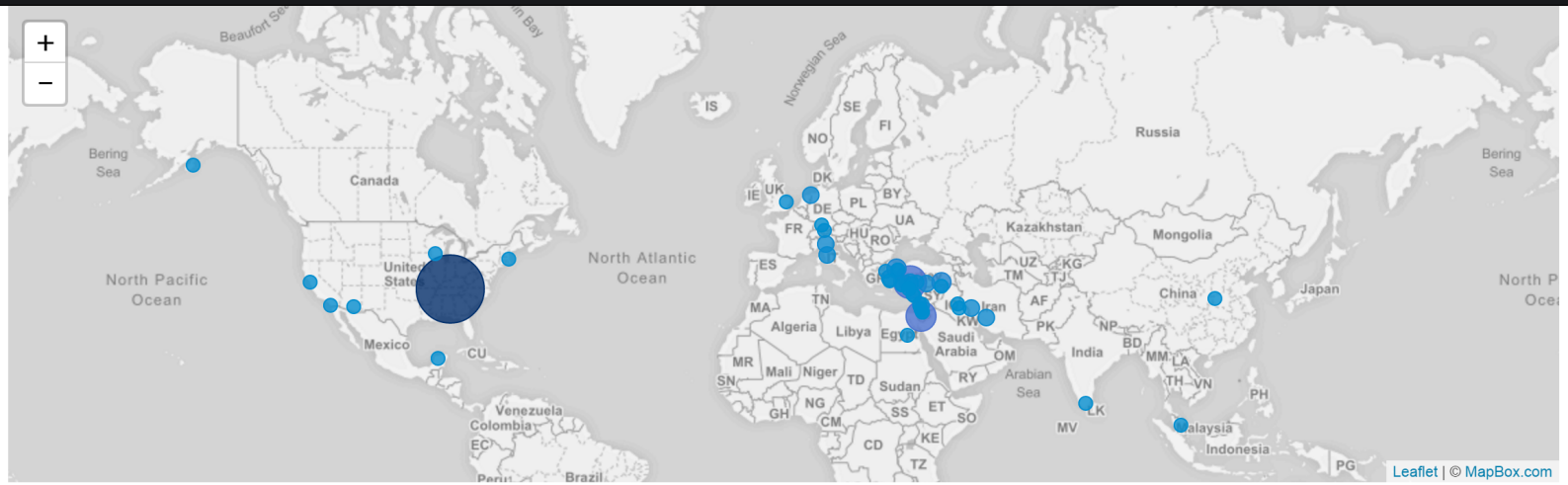
DIEHARD CODERS JUST RESCUED NASA'S EARTH SCIENCE DATA

Data and Civil Society

1. Helped archive > 1 TB from a US National Park Service database, and ~20,000 web pages (esp. under-represented communities)
2. Highlights how "Data Management" exists in a social and political context

Perverse Incentives

- Professional incentives reward wasted effort (paper or PDF only)
- Data often imposed on researchers as a compliance issue (Taylorism)



WELCOME TO OPEN CONTEXT

Publishing research data on the Web

Because data are for discovery and inspiration, not just management

Open Context: 10 years of iterative development

Linked: Links with other systems & data (tDAR, EOL, ORCID, etc)
Open: Code, data (mainly CC-By) on GitHub, machine-readable formats, APIs
Long-term: NSF, NEH data management. California Digital Library archiving.
Global: Mirroring, collaboration with the German Archaeological Institute (DAI)
Recognition: Awards from Digital Curation (2014),
Archaeological Institute of America (2016), and the White House (2013)

Publication Types

Stand Alone	Poggio Civitate (Murlo)
Informatics Research	Digital Index of North American Archaeology; EOL Zooarchaeology
Grant Data Management	Seyitömer Höyük; Oracle Bones in East Asia; Others in preparation
Archival	ARCE Sphinx Project 1979-1983 Archive; Badè Museum of Biblical Archaeology; Ft. Snelling
Article Reproducibility	Sardis (NAA); Cyprus in the Late Bronze Age (NAA); Chogha Mish; Mesoamerican fauna (edited volume); Hesse Festschrift (and more...)
Supplement Monograph	Petra Great Temple; Kenan Tepe; Gabii; Early Bronze Age Numayra

ANTIQUITY
a review of world archaeology

Antiquity
Antiquity / Volume 88 / Issue 342 / December 2014, pp 1180-1200

DOI: http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1017/S0003598X0011539X (About DOI), Published online: 19 January 2015

Table of Contents - December 2014 - Volume 88, Issue 342

PDF (1.248 MB) References(55KB)

Previous Abstract | Next Abstract

Research

Ceramics, trade, provenience and geology: Cyprus in the Late Bronze Age

Peter Grave[a1], Lisa Kealhofer[a2], Ben Marsh[a3], Ulf-Dietrich Schoop[a4], Jürgen Seeher[a5], John W. Bennett[a6] and Attila Stopic[a6]

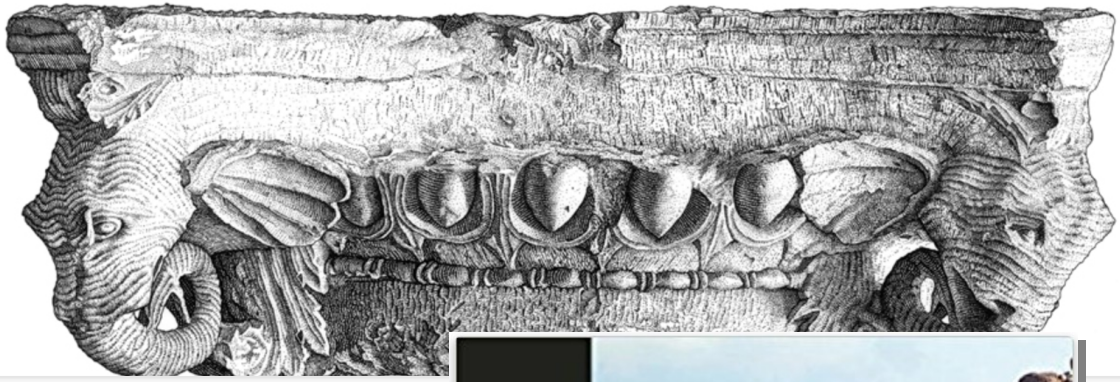
[a1] Archaeomaterials Science Hub/Archaeology & Palaeoanthropology, University of New England, Armidale, NSW 2351, Australia

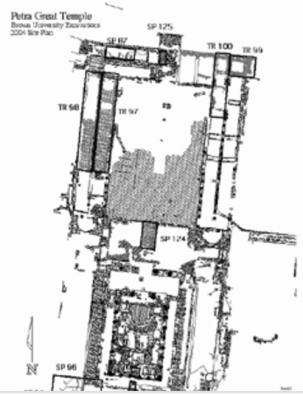
[a2] Department of Anthropology & Department of Environmental
Clara, CA 95053, USA

[a3] Department of Geography & Department of Environmental S

Enhance the reproducibility of published claims

OPEN CONTEXT About Explore Contact Donate Search

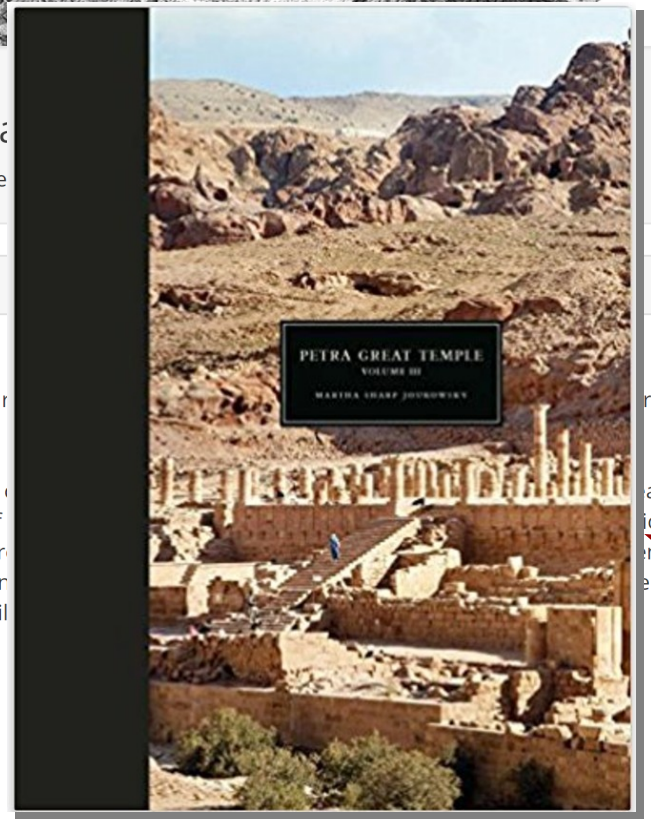




Project

Petra Great Temple Excava

Brown University Excavations at the Great Te



Project Abstract

Great Temple Excavation Database:

This project represents the comprehensive r rom 1993 - 2006.

About the Great Temple: The Great Temple (an period and demonstrates that the values of ic decoration of structures with frescos and ar e, money and energy. This blending of differen e use of elephant heads, frescos, elegantly carved pil

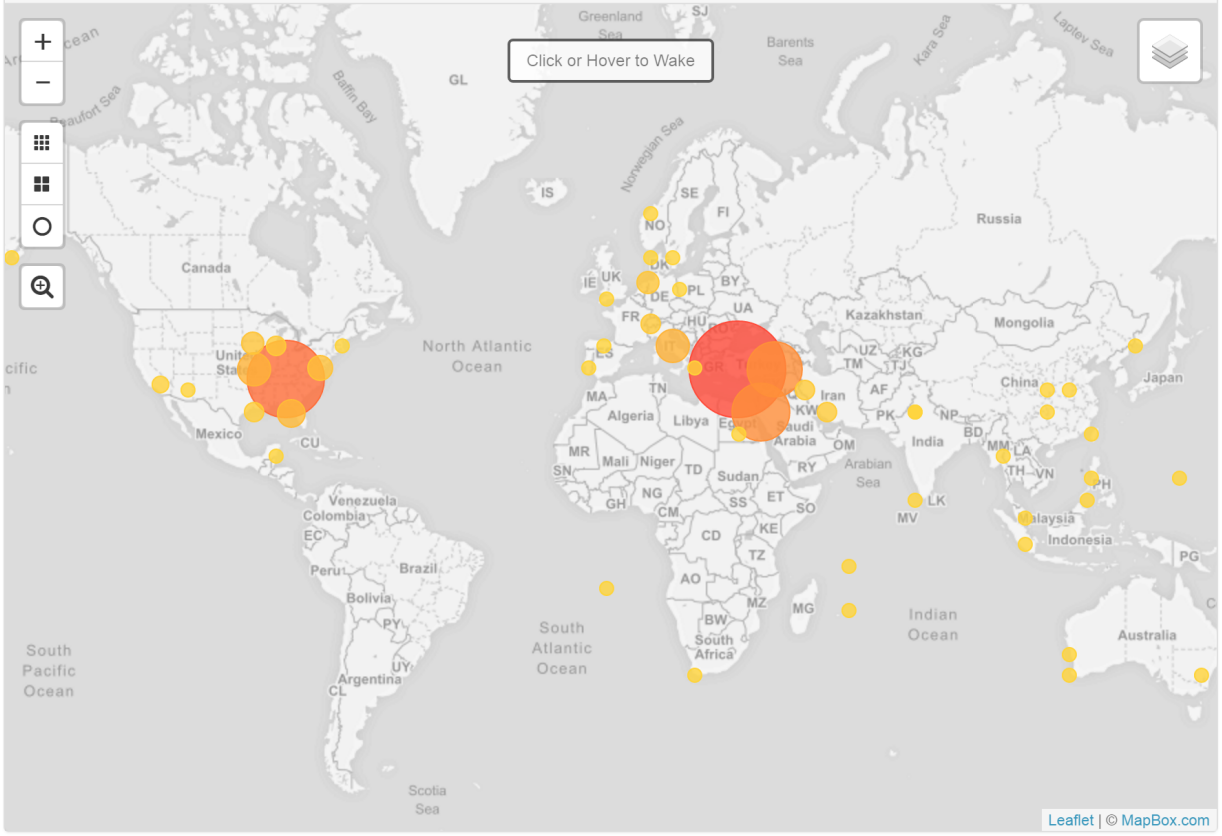
Suggested Citation

Martha Sharp Joukowsky. "Petra Great Temple Excavations". (2007) Martha Sharp Joukowsky (Ed.) . Released: 2007 1-11. Open Context. <http://open ext.org/projects/A5DDBEA2-B3C8-43F9-8151-33343CBDC857> ARK (Archive): http://n2t.net ark:/28722/k20r9w91w

Browse Project

10 year time lag between online publication and print

Map of Counts by Region 1,146,063 Records



General Keyword Search

Search within these items...

Search Filters

Collection is not filtered. Select query options below.

Filtering Options

Context

United States	396,010
Turkey	353,942
Jordan	128,792
Italy	81,581
Iran	32,487
Germany	21,512
Cyprus	14,510
Israel	10,247
United Kingdom	3,143

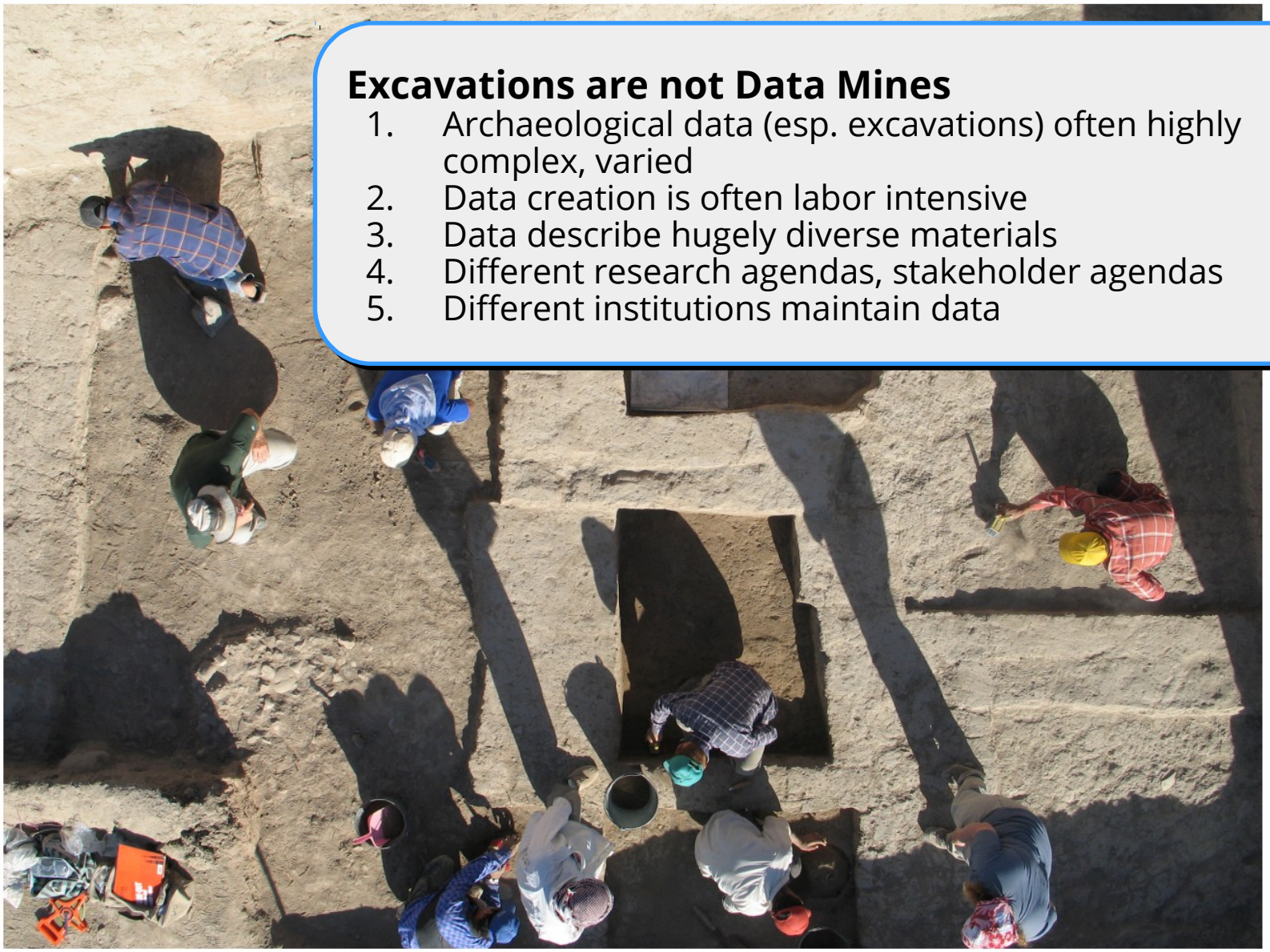
Why a Publishing Metaphor?

1. Editorial (curatorial) co-production
2. Promote vision of data as more than a "residue" of research

Raw Data Can Be Unappetizing

Researchers need help turning a raw manuscript into a publication. Similarly with data.

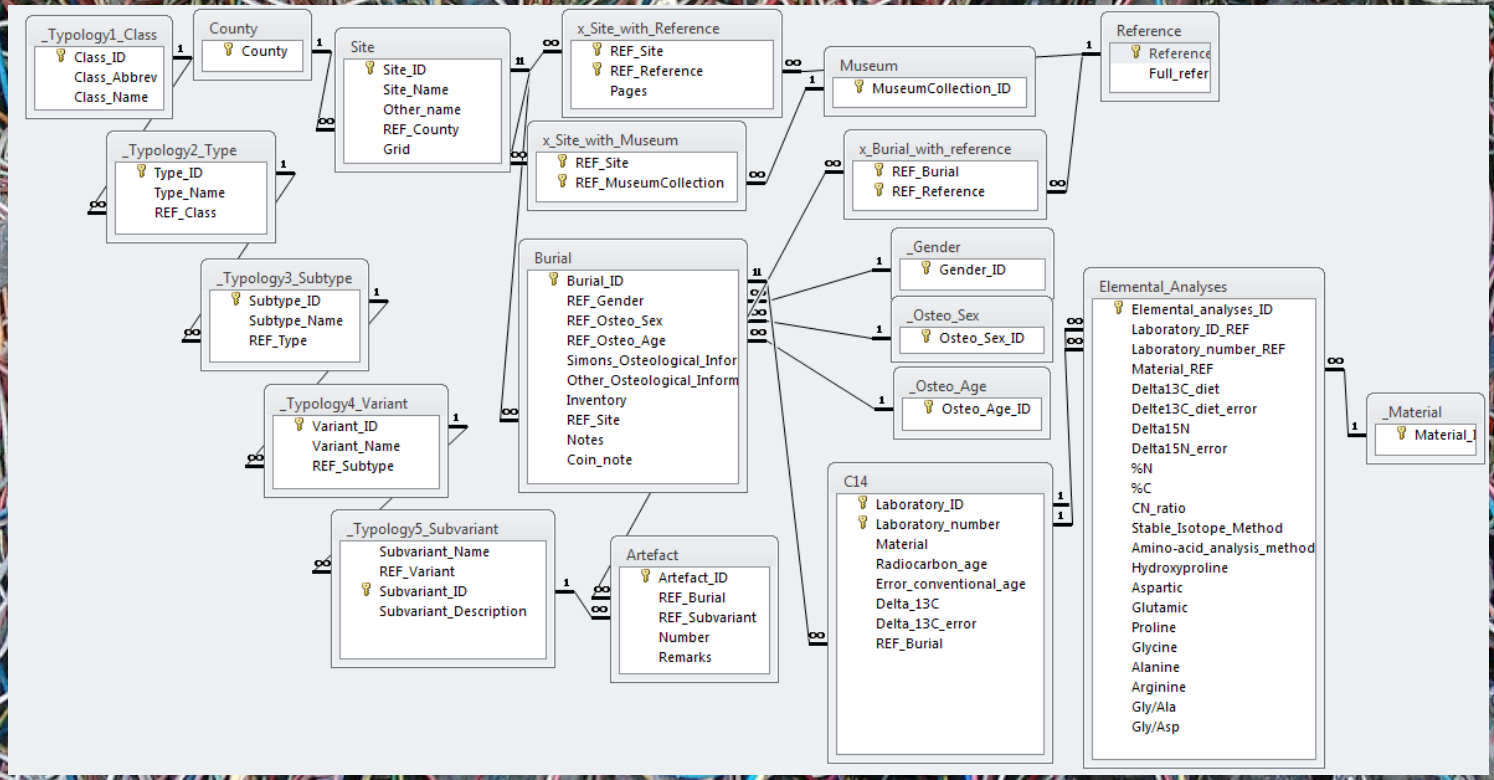
Fullsize Image Download File



Excavations are not Data Mines

1. Archaeological data (esp. excavations) often highly complex, varied
2. Data creation is often labor intensive
3. Data describe hugely diverse materials
4. Different research agendas, stakeholder agendas
5. Different institutions maintain data

Metadata Debt
Complexity Debt

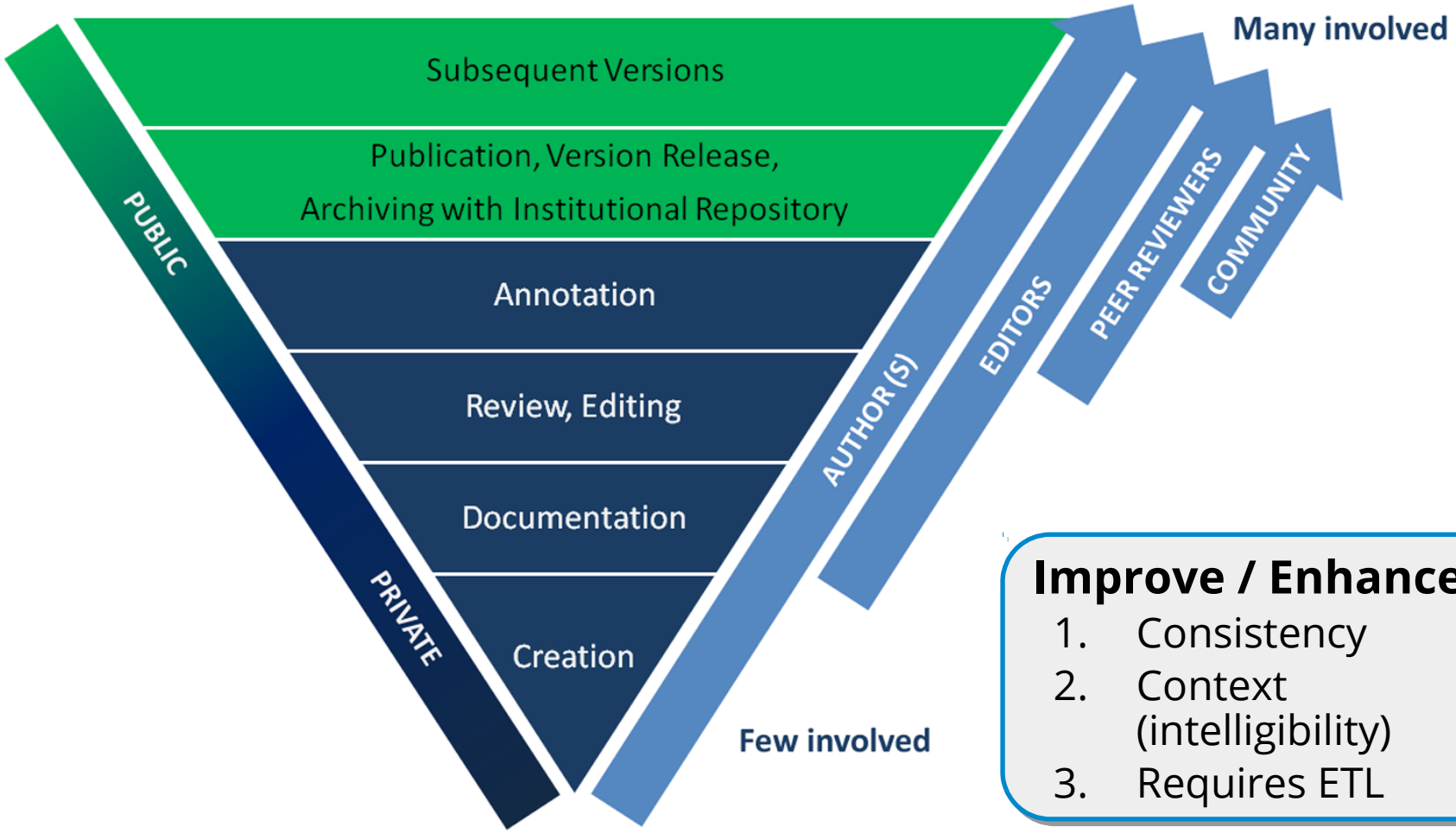


Entity Relation Diagram:

Anglo-Saxon Graves and Grave Goods of the 6th and 7th Centuries AD: A Chronological Framework

John Hines (2013 http://dx.doi.org/10.5284/1018290

Publishing Workflow



Improve / Enhance

1. Consistency
2. Context (intelligibility)
3. Requires ETL

Annotation Vocabularies

Biological Taxonomy Vocabulary
British Museum Thesaurus
CIDOC-CRM
Concordia
Digital Index of North American Archaeology Vocabulary
Dublin Core Terms
Eastern Woodlands Household Archaeology Data Project
Encyclopedia of Life
GeoNames
Getty Art and Architecture Thesaurus
Information Artifact Ontology
Kerameikos.org
Levantine Ceramics Project
Library of Congress Subject Headings
Open Context (General)
Open Context Zooarchaeology Annotations
ORCid
Paleoindian Database of the Americas (PIDBA)
PeriodO
Pleiades
RDF-Schema
Simple Knowledge Organization System (SKOS)
tDAR Site Name Keywords
UBERON (Uber Anatomy Ontology)
Units of Measurement Ontology
Wikidata
WikiMapia
Wikipedia
WorldCat

Annotation Vocabularies

Biological Taxonomy Vocabulary
British Museum Thesaurus
CIDOC-CRM
Concordia
Digital Index of North American Archaeology Vocabulary
Dublin Core Terms
Eastern Woodlands Household Archaeology Data Project
Encyclopedia of Life
GeoNames
Getty Art and Architecture Thesaurus
Information Artifact Ontology
Kerameikos.org
Levantine Ceramics Project
Library of Congress Subject Headings
Open Context (General)
Open Context Zooarchaeology Annotations
ORCid
Paleoindian Database of the Americas (PIDBA)
PeriodO
Pleiades
RDF-Schema
Simple Knowledge Organization System
SNAP:DRGN
tDAR Site Name Keywords
UBERON (Uberon Multi-species Anatomy Ontology)
Units of Measurement Ontology
Wikidata
WikiMapia
Wikipedia
WorldCat

Linked (Open) Data:

Web Identifiers (URIs) to reference shared concepts

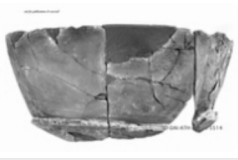
Category or Type: Bucchero

Description of this Category / Type | Arachne Comparanda | More

Descriptions (1)

Descriptive Variable	Value(s)
Arachne comparative material	Arachne has: **245** related item(s) with images Browse these comparanda: [Link to Arachne search results] Open Context editors identified materials in Arachne likley to be relevant for comparison to this type. Arachne is the central object database of the German Archaeological Institute (DAI) and the Archaeological Institute of the University of Cologne.

Linked Media (50)

Suggested Citation

Anthony Tuck. "Bucchero". (2012) In *Murlo*. Anthony Tuck (Ed.) . Released: 2012-07-06. Open Context. <http://opencontext.org/types/252A30E2-3F6C-4BB8-1148-FD2D27436185>

Editorial Status

●●●○○
Managing editor reviewed

Part of Project

Murlo

Copyright License

Attribution 4.0

To the extent to which copyright applies, this content carries the above license. Follow the link to understand specific permissions and requirements.
Required Attribution: Citation and reference of URIs (hyperlinks)

Connects data to wider world of contributions!

	OPEN CONTEXT	
Citation	Cite Archaeological Entities (sites, coins, bones, etc)	Cite Digital Files (can contain thousands of items)
Granularity	High (“1 URI per potsherd”)	Low (information aggregated in big files)
Discovery, Querying	Common schema, common index for content, not just metadata	Index metadata only, content is more opaque
Cost	Expensive “boutique publishing”	Cheaper, easier to scale. Self-service models.

Routledge
Taylor & Francis Group

Behavioral & Social Sciences Librarian

ISSN: 0163-9269 (Print) 1544-4546 (Online) Journal homepage: http://www.tandfonline.com/loi/wbss20

Comparing Digital Archaeological Repositories: tDAR Versus Open Context

Beth Sheehan

To cite this article: Beth Sheehan (2015) Comparing Digital Archaeological Repositories: tDAR Versus Open Context, Behavioral & Social Sciences Librarian, 34:4, 173-213, DOI: 10.1080/01639269.2015.1096155

To link to this article: http://dx.doi.org/10.1080/01639269.2015.1096155

Published online: 03 Dec 2015.

OPEN CONTEXT @dainst.org About Explore Data Record Search

Context: Turkey / Domuztepe / VII / Lot 3930 / DT# 5019 (Coin)

Main Observation | Standards Annotations

Descriptions (16)

Descriptive Variable	Value(s)
Year	335-37
Internal Find Number	221
Material	Billon
Find Date	2005-08-18
Registration Date	2005-09-04
Artifact Name	Coin
Initials	EM
Depth	103.5
Diameter	17.0
Comparanda	RIC VII Antioch 109
Weight	1.65
Conservation	no
Group	13.0
Description	Constantine II OBV: CONSTANTINVS IVN NOB C laureate, cuirassed bust right REV: GLOR-IA EXERC-ITVS, two soldiers holding spears and shields on either side of standard.

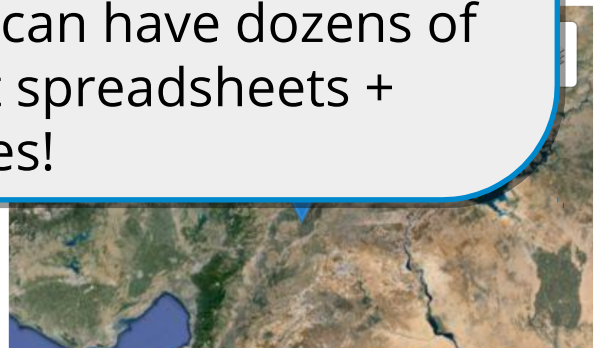
Linked Media (24)



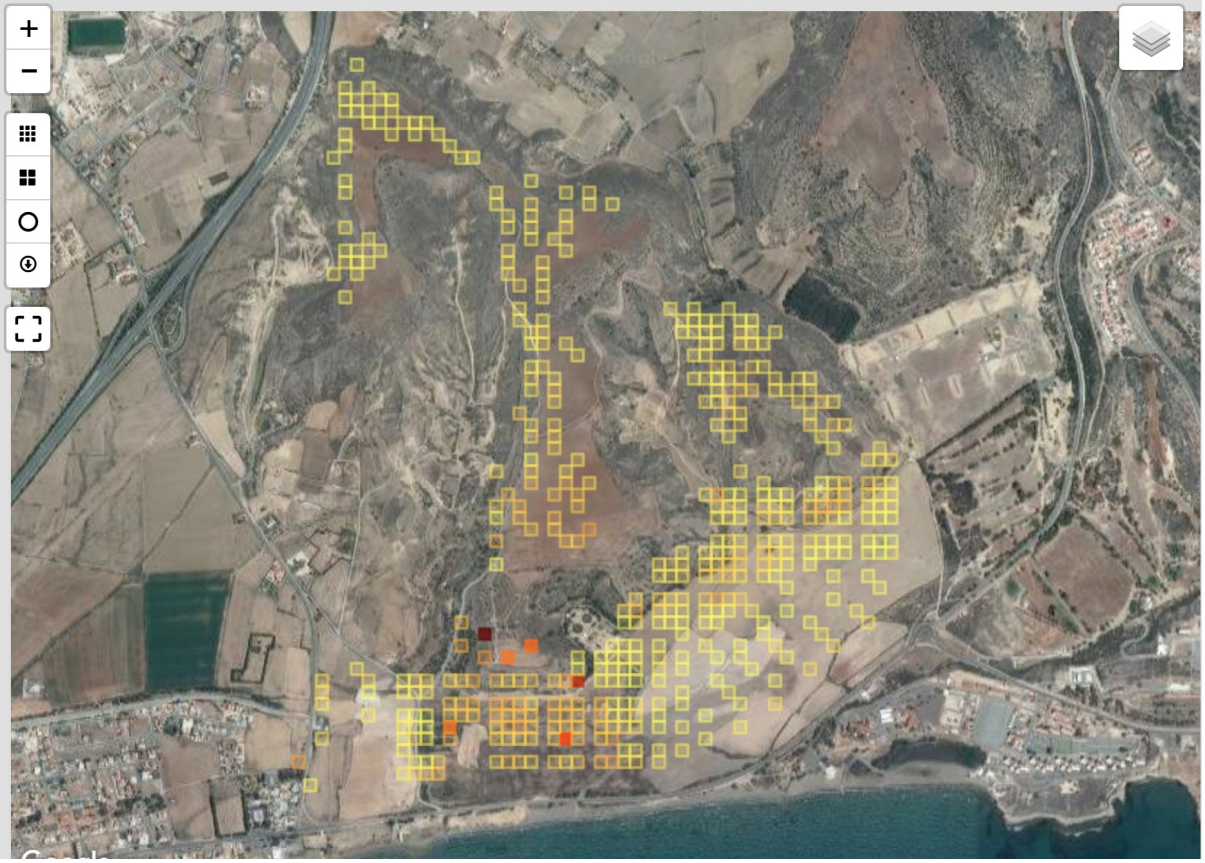
Managing Complexity:

Data about this coin came from several different files (relational data bases, spreadsheets)

Some archaeological projects can have dozens of different spreadsheets + databases!



Map of Counts by Region 8,955 Data Records



General Keyword Search (Data Records)

Search within these items...

Applied Filters

Context
Cyprus/PKAP Survey Area

Filtering Options

PKAP Survey Area (Context)

Paleokastro	2,097
Vigla	1,238
Koutsopetria - Paleokastro	1,186
Kokkinokremos Plain	1,118
Kokkinokremos	871
Water Plant	720
Vigla North	519
Vigla-Ridge	385

OPEN CONTEXT About Explore Contact Donate Search

Map of Counts by Region 8,955 Data Records

General Keyword Search (Data Records)

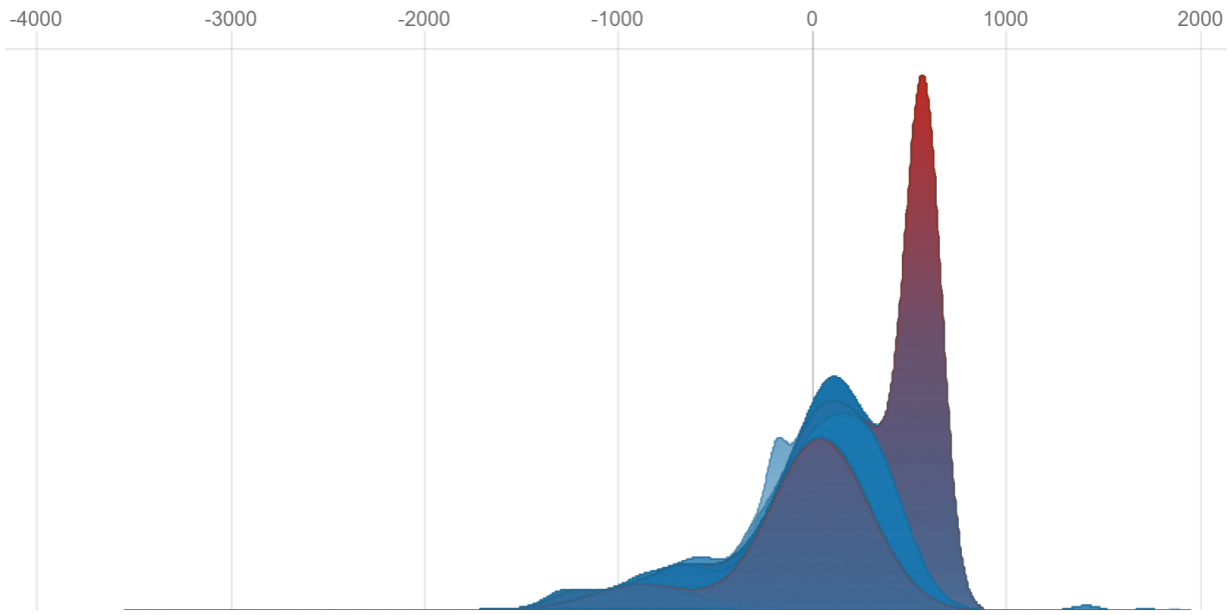
Search within these items...

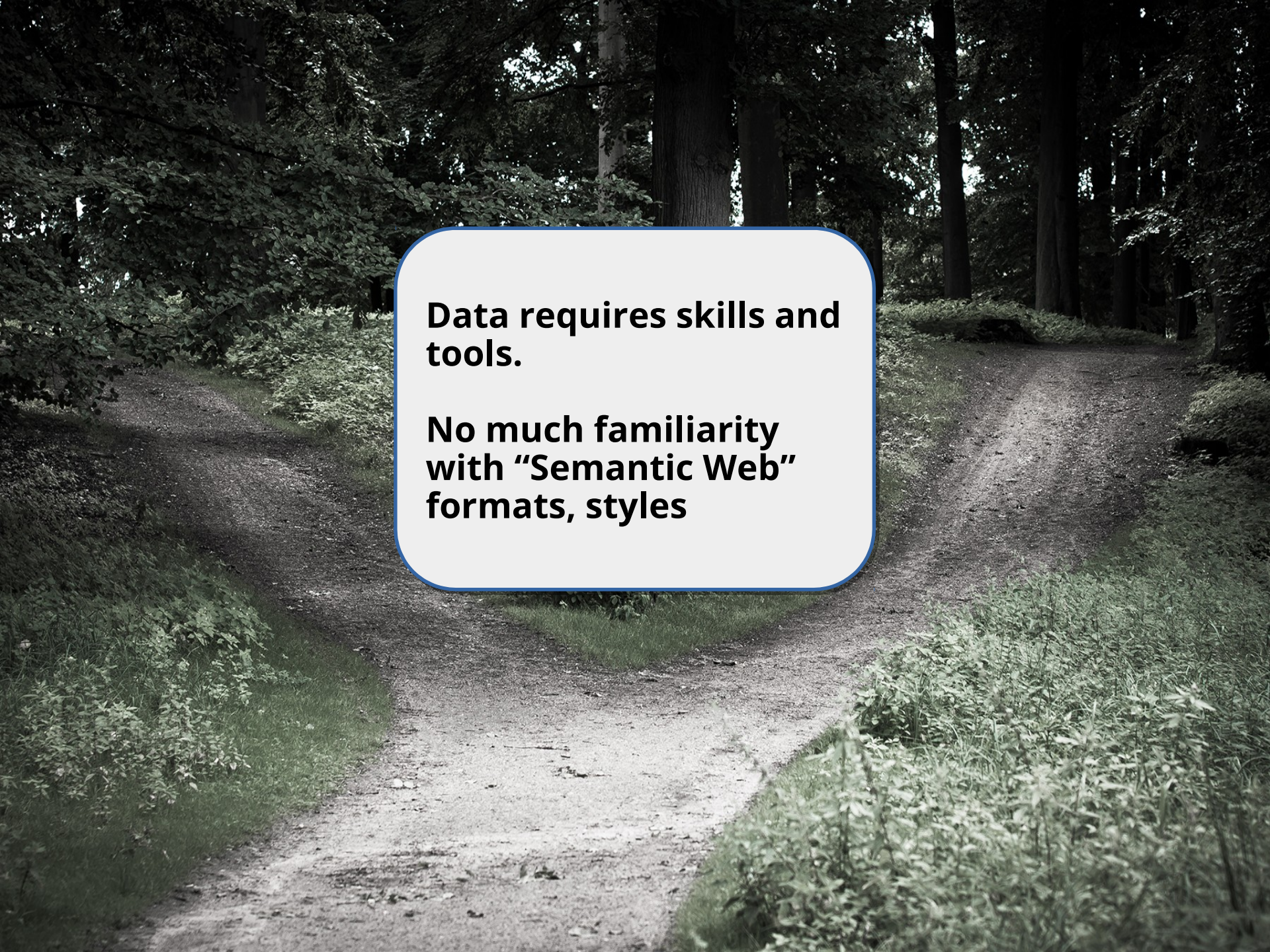
Applied Filters

Context

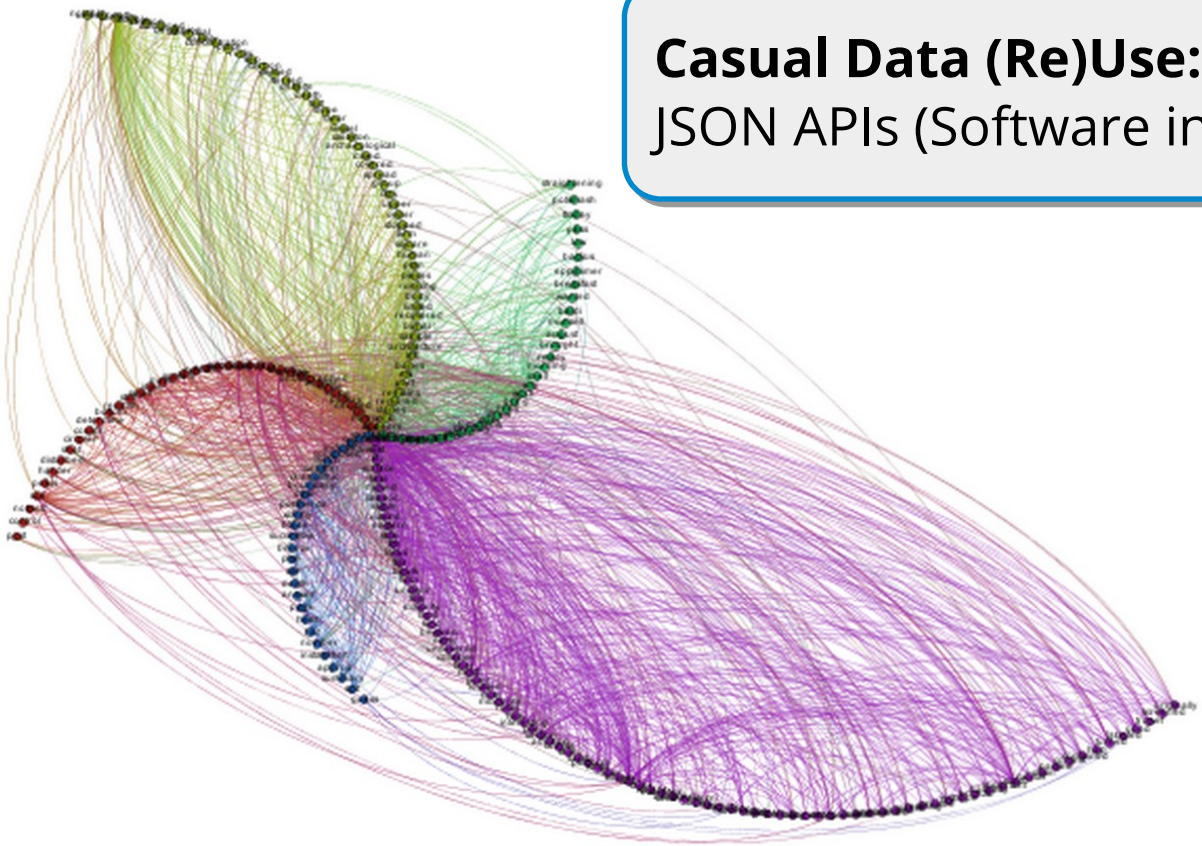
2,097
1,238
1,186
1,118
871
720
519
385

Chronological Distribution (Years BCE/CE)




Data requires skills and tools.
No much familiarity with “Semantic Web” formats, styles

Casual Data (Re)Use:
JSON APIs (Software interfaces)



Shawn Graham @electricarchaeo · 6h
pretty archaeological kernal density/curtis dissimilarity site diaries @opencontext 5 modules btw

4

“Linkable” Data:
URIs to reference Web documents. Casual, non-technical reuse.

OPEN CONTEXT @dainst.org About Explore Media Item Search

Context: Turkey / Kenan Tepe / Area A / Trench 8 / Locus 29 ⟷ A-8-2002-07-25-Locus-Z5 (Image)

Media Preview

Suggested Citation:

Bradley Parker, Peter Cobb. "A-8-2002-07-25-Locus-Z5 from Turkey / Kenan Tepe / Area A / Trench 8 / Locus 29". (2012) In *Kenan Tepe*. Bradley Parker, Peter Cobb (Eds.) . Released: 2012-03-28. Open Context. <http://opencontext.org/media/5DE0EA55-8D1E-4FD4-135A-675029FAEFFD> Digital Archive: http://n2t.net/ark:/28722/k2280b36c

Editorial Status

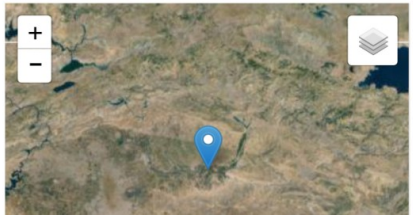
●●●●○

Editorial board reviewed

Part of Project

Kenan Tepe

Mapping Data



OPEN CONTEXT @dainst.org About Explore Media Item Search

Context: Turkey / Kenan Tepe / Area A / Trench 2 / Locus 2139 ⟷ A-2-2002-08-01-Locus-Z8 (Image)

Media Preview

Suggested Citation:

Bradley Parker, Peter Cobb. "A-2-2002-08-01-Locus-Z8 from Turkey / Kenan Tepe / Area A / Trench 2 / Locus 2139". (2012) In *Kenan Tepe*. Bradley Parker, Peter Cobb (Eds.) . Released: 2012-03-28. Open Context. <http://opencontext.org/media/BF565965-98A8-4E84-2318-AFFA983277E1> Digital Archive: http://n2t.net/ark:/28722/k2g73d802

Editorial Status

●●●●○

Editorial board reviewed

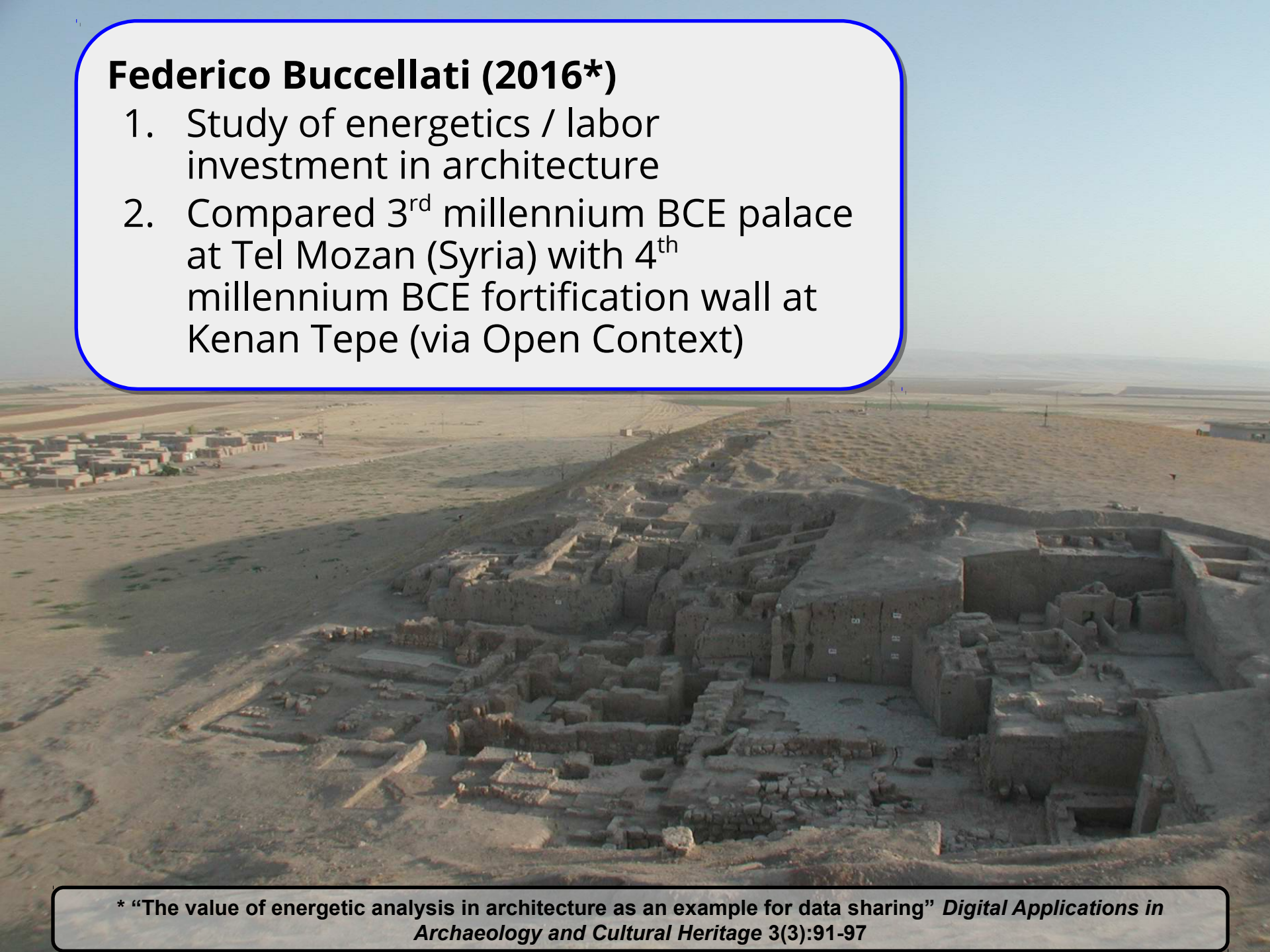
Part of Project

Kenan Tepe

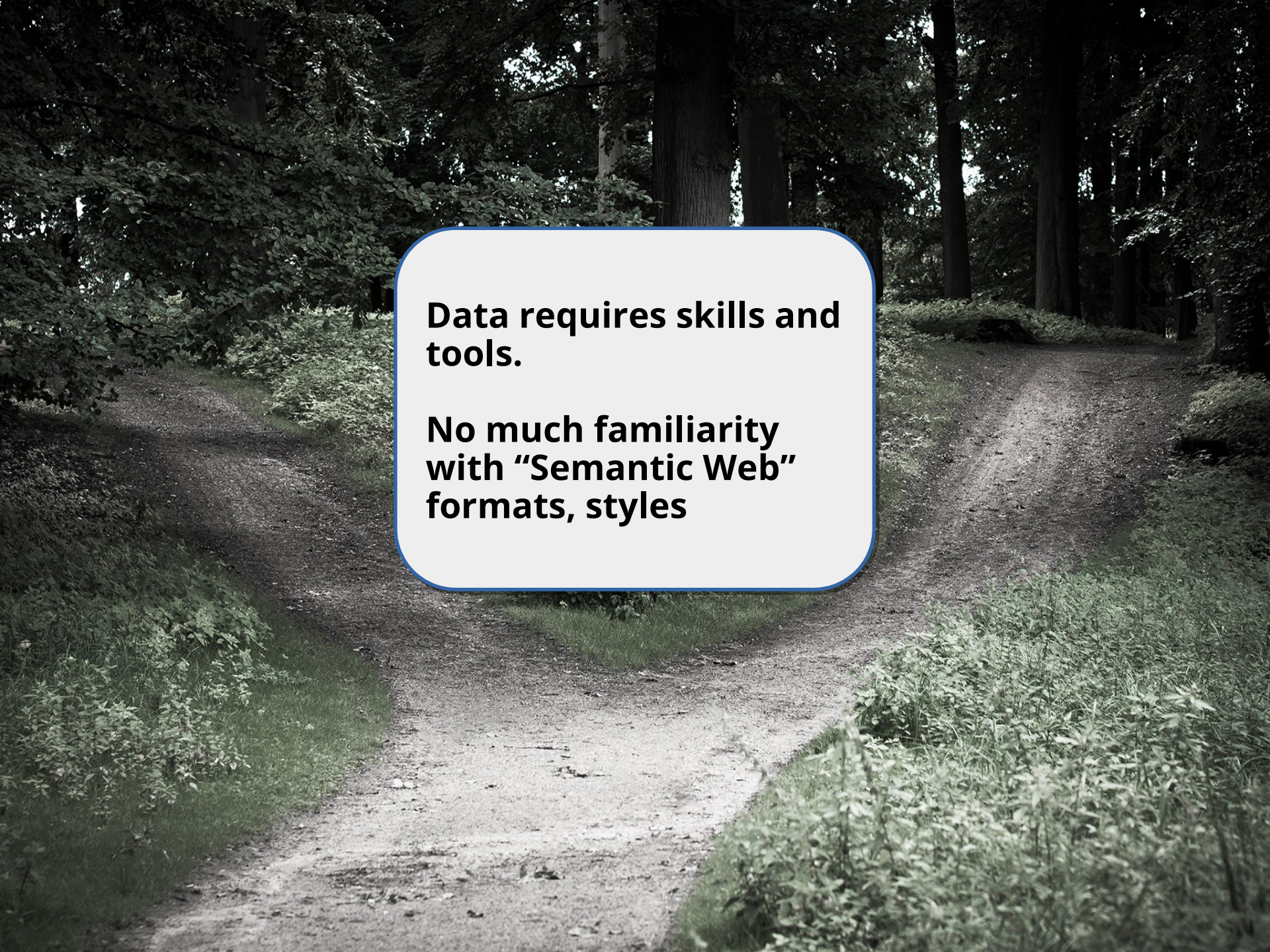
Mapping Data

Federico Buccellati (2016*)

1. Study of energetics / labor investment in architecture
2. Compared 3rd millennium BCE palace at Tel Mozan (Syria) with 4th millennium BCE fortification wall at Kenan Tepe (via Open Context)



* "The value of energetic analysis in architecture as an example for data sharing" *Digital Applications in Archaeology and Cultural Heritage* 3(3):91-97

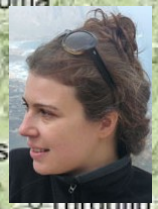

Data requires skills and tools.
No much familiarity with “Semantic Web” formats, styles

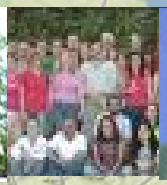
Large scale data sharing & integration for exploring the origins of farming.

Funded by EOL / NEH

Roughly **4 person years** to create data










Istanbul
Gebze
Izmit
Sakarya
Düzce
Bursa
Bandirma
Karacabey
Mustafakemalpaşa
Eskisehir
Balikesir
Edremit
Dursunbey
Seyitgazi
Çifteler
Emirdağ
Kaman
Kırşehir
Ortaköy
Nevşehir
Soma
Bergama
Manisa
Menemen
Izmir
Usak
Afyonkarahisar
Bolvadin
Şuhut
Çay
Akşehir
Çivril
Sandıklı
Dinar
Yalvaç
Konya
Karapınar
Emirgazi
Ereğli
Seydişehir
Karaman
Denizli
Burdur
Söke
Didyma
Mugla
Akyaka
Bodrum
Marmaris
Kos
Datça
Bozburun
Fethiye
Aksu
Serik
Belek
Manavgat
Alanya
Kemer
Kumluca
Finike
Rhodes
Afantou
Kargıcak
Gülnar
Silifke
Gazipaşa
Bozyazı
Anamur
Mut
Tarsus
Mersin
Adana

OPEN CONTEXT About Explore Category or Type

Category or Type: Mandible

Description of this Category / Type | Item Annotations | Item Metad

Annotations (1)

Property or Relation	Value(s)
Close Match [Standard: Simple Knowledge Organization System (SKOS)]	mandible [Standard: UBERON (Uber Anatomy Ontology)]
Editorial Note	Open Context editors work with data contri datasets to shared vocabularies, ontologies standards using 'Linked Open Data' (LOD) methods. The annotations presented above approximate some of the meaning in this contributed data record to concepts defined in shared standards. These annotations are provided to help make datasets easier to understand and use with other datasets.

Examples of the 722 Item(s) Described by this Type




Uberon multi-species anatomy ontology

Keywords: Search terms

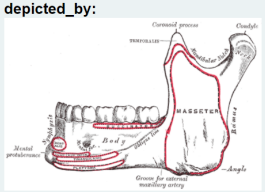
Class: mandible

Term IRI: http://purl.obolibrary.org/obo/UBERON_0001684

Definition: A dentary bone that is the only bone in one of the lateral halves of the lower jaw skeleton. [database_cross_reference: http://en.wikipedia.org/wiki/Human_mandible][database_cross_reference: http://en.wikipedia.org/wiki/Mandible]

Annotations

- **editor note:** consider merging with dentary - for now we make it a mammal-specific subclass.
- **database_cross_reference:** GAID:68; CALOHA:TS-2225; EMAPA:18290; 181812008; UMLS:C0024687; BTO:0001748; EHDAA2:0001059; galen:Mandible; MESH:D008334; EHDAA:8007; NCIT:C12290; MA:0001487; Human_mandible; C0024687; EFO:0001965; FMA:52748
- **external_ontology_notes:** Note in ZFA 'mandible' is a syn for the ventral mandibular arch, which is a portion of the 1st pharyngeal arch; however the term 'mandibular symphysis' refers to the dentary
- **has_broad_synonym:** lower jaw; lower jaw bone
- **has_exact_synonym:** mandibulla; inferior maxillary bone; mammaliam mandible
- **has_narrow_synonym:** lower mandibula
- **has_obo_namespace:** uberon
- **has_related_synonym:** mandibula; mandibular series
- **has_relational_adjective:** mandibular
- **id:** UBERON:0001684
- **in_subset:** pheno_slim; uberon_slim; efo_slim
- **terminology_notes:** 'mandible' also refers to either the upper OR lower part of the beak in birds
- **depicted_by:**



Managing editor reviewed

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OPEN ACCESS PEER-REVIEWED
RESEARCH ARTICLE

Data Sharing Reveals Complexity in the Westward Spread of Domestic Animals across Neolithic Turkey

Benjamin S. Arbuckle[1]*, Sarah Whitcher Kansa[2], Eric Kansa[2,3], David Orton[4], Canan Çakırlar[5], Lionel Gourichon[6], Levent Atici[7], Alfred Galik[8], Arkadiusz Marciniak[9], Jacqui Mulville[10], Hijlke Buitenhuis[5], Denise Carruthers[11], Bea De Cupere[12], Arzu Demirergi[13], Sheelagh Frame[14], Daniel Helmer[15], Louise Martin[4], Joris Peters[16], Nadja Pöllath[16,20], Kamilla Pawłowska[17], Nerissa Russell[18], Katheryn Twiss[13], Doris Würtenberger[19]

1 Department of Anthropology, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, U
Context, San Francisco, California, United States of America, **3** D-Lab, University of California, Berkeley,
Archaeology, University College London, London, United Kingdom, **5** University of Groningen, Instit
Environnements Préhistoire, Antiquité, Moyen Âge, Université Nice Sophia-Antipolis, Nice, France, **7** Depa
Vegas, Nevada, United States of America, **8** Institute for Anatomy, Histology and Embryology, University of
Adam Mickiewicz University, Poznań, Poland, **10** School of History, Archaeology and Religion, Cardiff Uni
Egyptology, University of Liverpool, Liverpool, United Kingdom, **12** Royal Belgian Institute of Natural Scienc
Brook University, Stony Brook, New York, United States of America, **14** Kingston, Ontario, Canada, **15** Arch
Jalès, Berrias-et-Casteljau, France, **16** Department of Veterinary Sciences, Institute of Palaeoanatomy, Do
Maximilian University Munich, Munich, Germany, **17** Institute of Geology, Adam Mickiewicz University
University, Ithaca, New York, United States of America, **19** Institute of Prehistoric and Historical Archa
Collection of Anthropology and Palaeoanatomy, Munich, Germany

Abstract

This study presents the results of a major data integration project bringing toge
200,000 faunal specimens excavated from seventeen sites in Turkey spann
periods, c. 18,000-4,000 cal BC, in order to document the initial westward spr
central and western Turkey. From these shared datasets we demonstrate tha
subsistence technologies combined multiple routes and pulses but did not involve a set package comprising all four
livestock species including sheep, goat, cattle and pig. Instead, Neolithic animal economies in the study regions are shown

Data Reuse:

- At least 3 other papers reuse, cite these data
- ALL use CSV dumps of the data, not fancy JSON-LD
- No reasoning on graphs, inferences on data modeling
- The CSV expresses data aligned to shared LOD controlled vocabularies, ontologies

OPEN ACCESS

RESEARCH ART

Data S
across

Benjamin
Lionel Go
Hijlke Bui
Daniel He
Nerissa Ru

1 Department o
Context, San Fr
Archaeology, U
Environnements
Vegas, Nevada,
Adam Mickiewic
Egyptology, Uni
Brook University
Jalès, Berrias-et-
Maximilian Univ
University, Ithac
Collection of Anth

mals

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PLOS Articles

Data Sharing
Complexity in the
rd Spread of
estic Animals across
Neolithic Turkey

Open Context Retweeted

Ben Marwick @benmarwick · 3m

Exemplary open data practices by @suzie_birch et al., using @OpenContext & DOIs in their latest in @PLOSONE journals.plos.org/plosone/articl... 👍💪

(i.e., [61]). We compare data from multiple Neolithic sites from western Anatolia using primary datasets or raw measurements, directly taken from the open access, peer reviewed data publishing system Open Context (http://opencontext.org), and/or the Logarithmic Size Index (LSI) values following Richard Meadow [62]. All the datasets used in this paper have citable DOIs/persistent identifiers that are listed in the appropriate supporting data tables and cited accordingly in the bibliography [63–69]. At

Abstract

This study presents the results of a major data integration project bringing together primary archaeozoological data for over 200,000 faunal specimens excavated from seventeen sites in Turkey spanning the Epipaleolithic through Chalcolithic periods, c. 18,000-4,000 cal BC, in order to document the initial westward spread of domestic livestock across Neolithic central and western Turkey. From these shared datasets we demonstrate that the westward expansion of Neolithic subsistence technologies combined multiple routes and pulses but did not involve a set 'package' comprising all four livestock species including sheep, goat, cattle and pig. Instead, Neolithic animal economies in the study regions are shown

This repository Search Pull requests Issues Gist

ekansa / open-context-jupyter

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Code Issues 0 Pull requests 0 Projects 0 Wiki Pulse Graphs Settings

Branch: master open-context-jupyter / notebooks / Open Context Measurements.ipynb Find file Copy path

ekansa Added better documentation 1ceaee5 2 days ago

1 contributor

402 lines (401 sloc) 148 KB Raw Blame History

Open Context Zooarchaeology Measurements

This code gets meaurement data from Open Context to hopefully do some interesting things.

In the example given here, we're retrieving zooarchaeological measurements of fused metatarsal 3/4 bones classified as "Artiodactyla" (including more specific taxonomic catagories). The specific query used to select these bone data is:

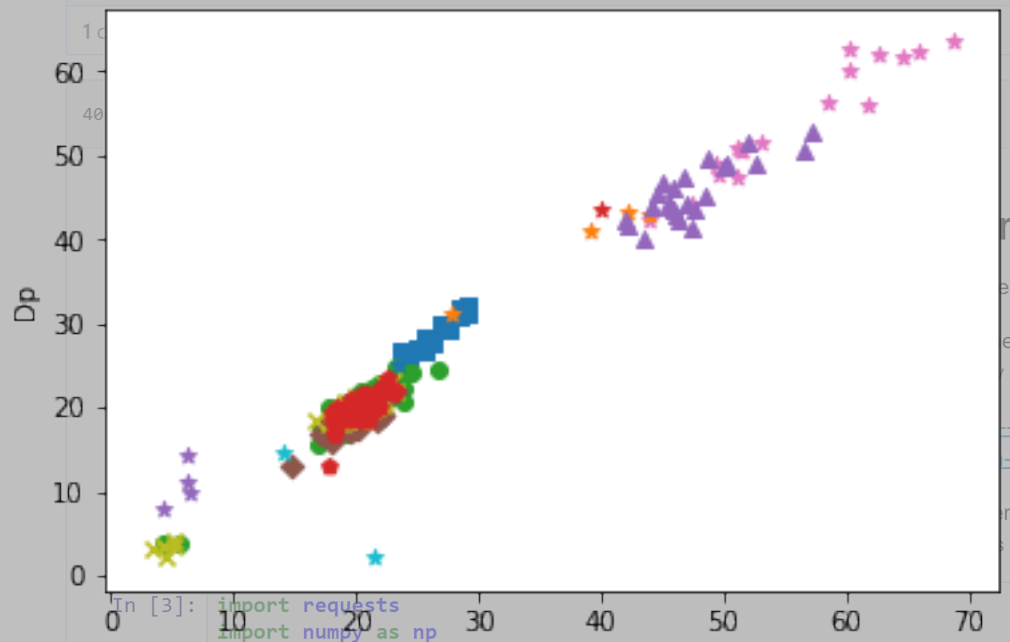
https://opencontext.org/subjects-search/?prop=biol-term-hastaxonomy---eol-p-1---eol-p-1642---eol-p-7678&prop=oc-zoo-has-anat-id---obo-uberon-0013588&prop=oc-zoo-anatomical-meas---oc-zoo-von-den-driesch-bone-meas

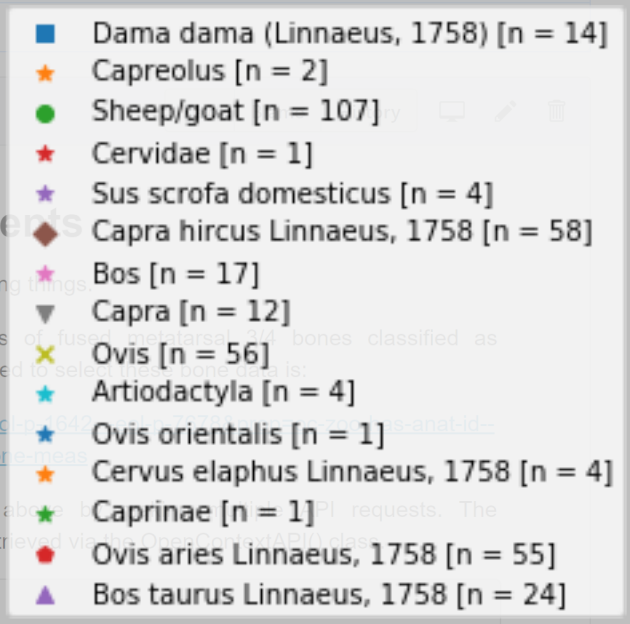
The OpenContextAPI() class has methods to get records from the query above by making multiple API requests. The OpenContextPlot() class has methods to generate scatter plots from the

In [3]:
```
import requests
import numpy as np
import matplotlib.pyplot as plt
from time import sleep

class OpenContextAPI():
    """ Interacts with the Open Context API
        to get lists of records for analysis

        See API documentation here: https://opencontext.
    """
    RECS_PER_REQUEST = 200  # number of records to retr
```

Reproducible Research

- "Executable" Paper
- Data and data processing explicit and open for critique, reuse
- Python, R and "data science"

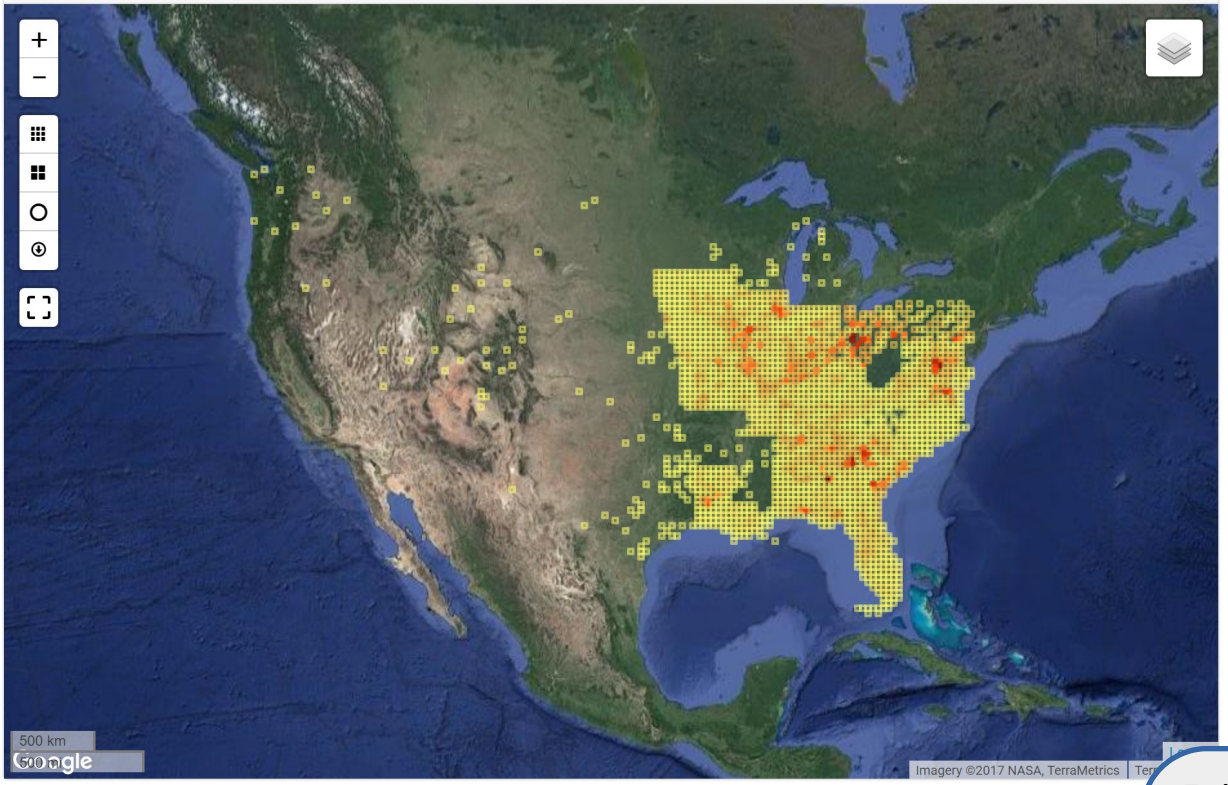




Only feasible with Linked Data annotations to shared concepts

OPEN CONTEXT About Explore Contact Donate Search

Map of Counts by Region 496,823 Data Records



Chronological Distribution (Years BCE/CE)

16000 14000 12000 10000 8000 6000 4000 2000 0 2000

General Keyword Search (Data Records)

Search within these items...

Applied Filters

Context
United States

Project
Digital Index of North American Archaeology (DINAA)

Location or Context
Site

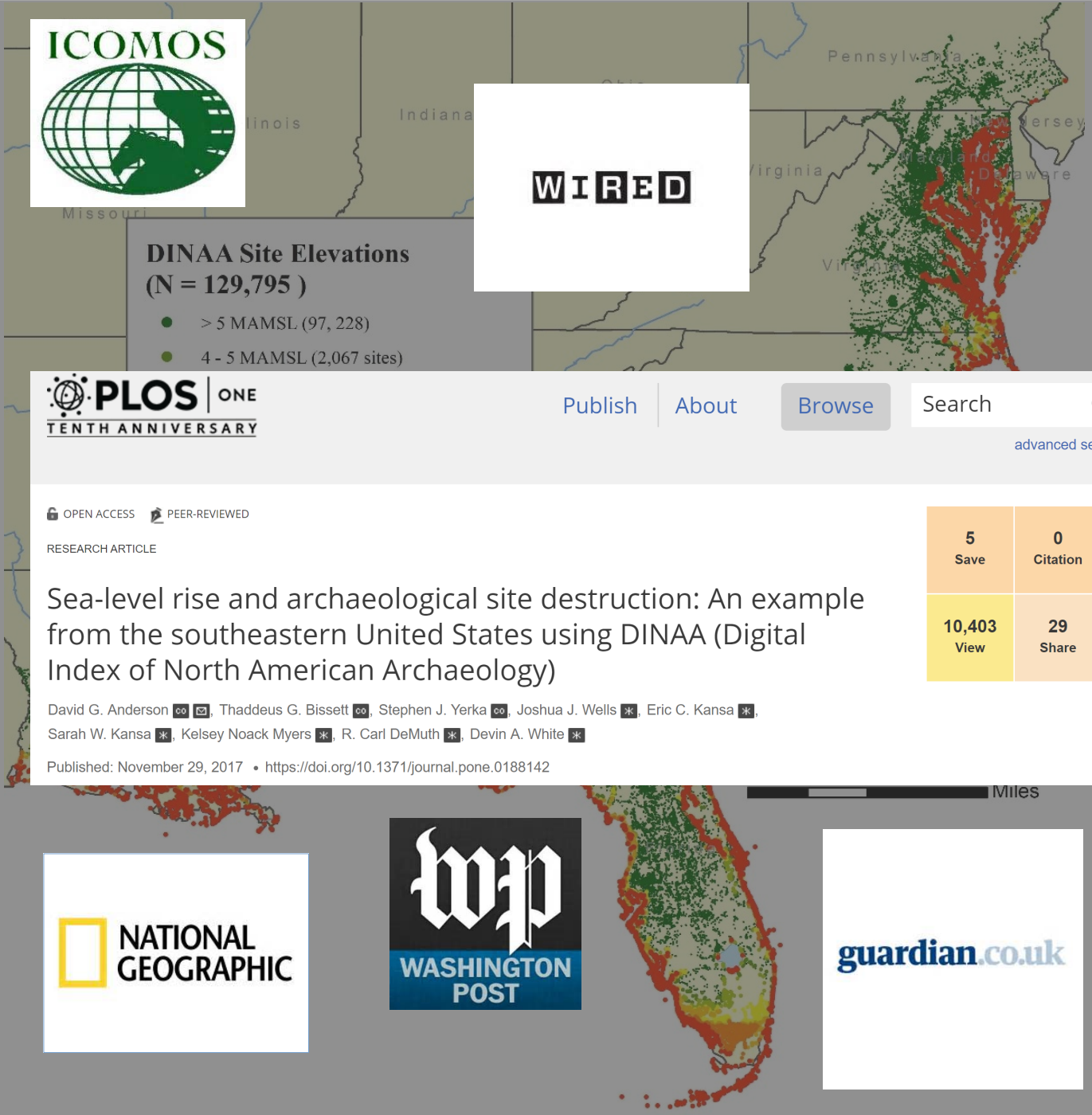
Filtering Options

United States (Context)

Illinois	59,606
Georgia	53,190
Ohio	48,290
Virginia	42,480
Indiana	41,465

Digital Index of North American Archaeology (DINAA)

PIs: David G. Anderson and Joshua Wells



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United Nations Educational, Scientific and Cultural Organization

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RESEARCH ARTICLE

Sea-level rise and archaeological site destruction: An example from the southeastern United States using DINAA (Digital Index of North American Archaeology)

David G. Anderson, Thaddeus G. Bissett, Stephen J. Yerka, Joshua J. Wells, Eric C. Kansa, Sarah W. Kansa, Kelsey Noack Myers, R. Carl DeMuth, Devin A. White

Published: November 29, 2017 • https://doi.org/10.1371/journal.pone.0188142

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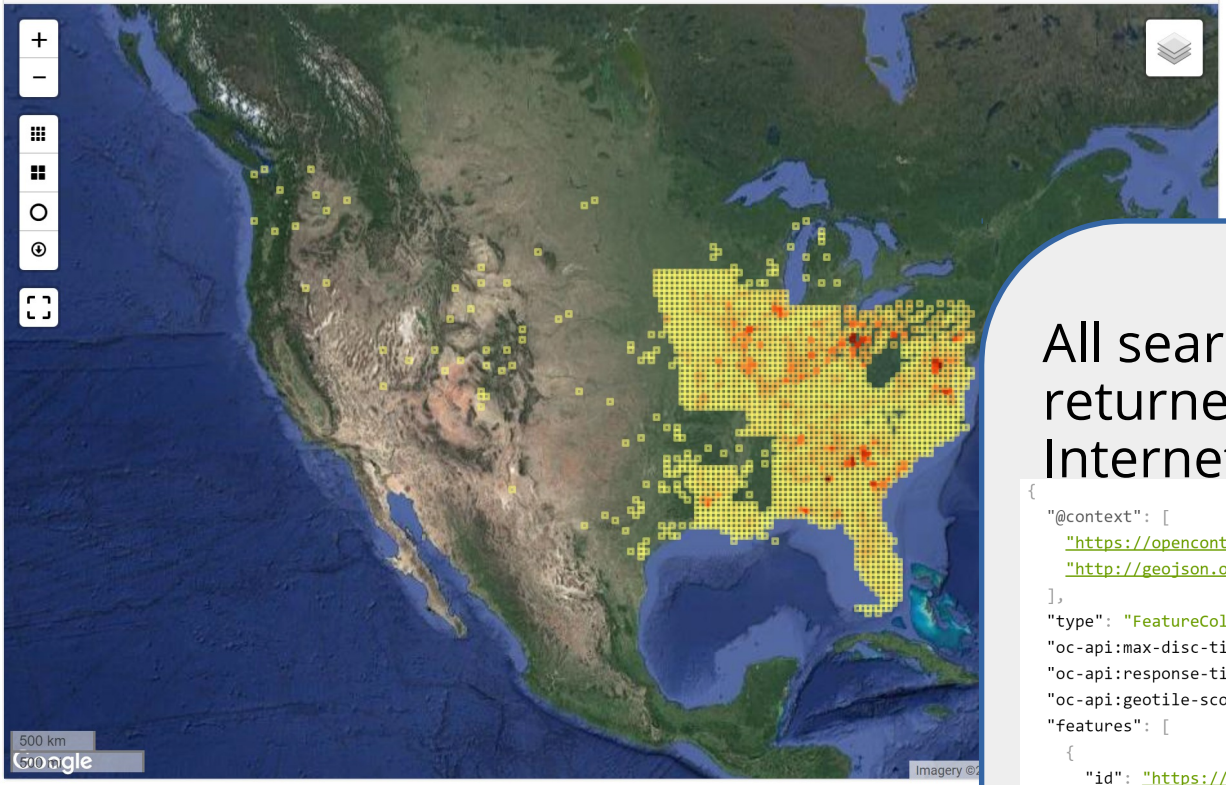
Map of Counts by Region 496,823 Data Records



Chronological Distribution (Years BCE/CE)

16000 14000 12000 10000 8000 6000 4000 2000

General Keyword Search (Data Records)

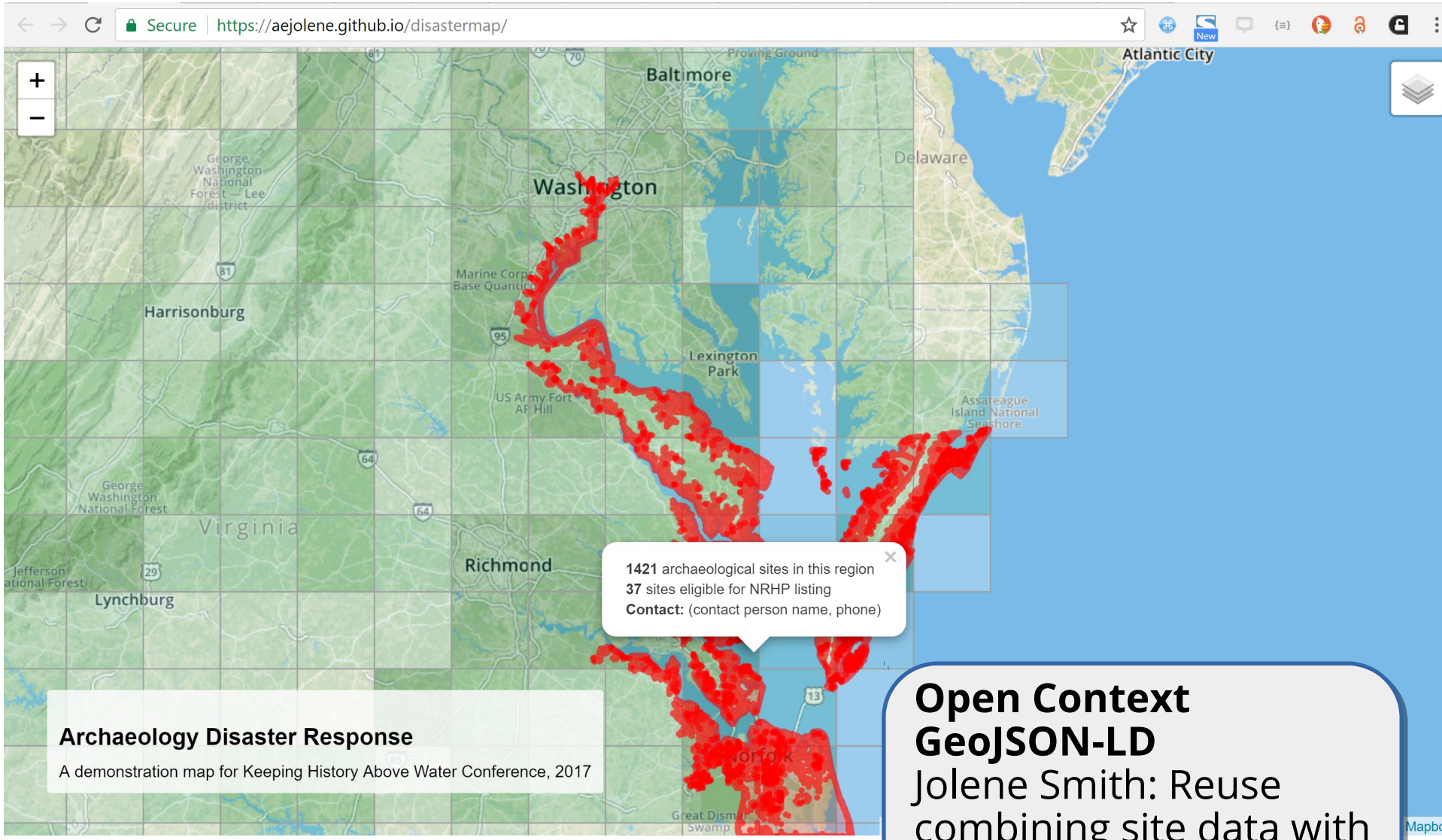
Search within these items...

Applied Filters

Context
United States

All search and query results returned as GeoJSON (open Internet standard)


```
{
  "@context": [
    "https://opencontext.org/contexts/search.json",
    "http://geojson.org/geojson-ld/geojson-context.jsonld"
  ],
  "type": "FeatureCollection",
  "oc-api:max-disc-tile-zoom": 11,
  "oc-api:response-tile-zoom": 7,
  "oc-api:geotile-scope": "0",
  "features": [
    {
      "id": "https://opencontext.org/search/United+States?disc-geotile=0320122&response=geo-facet&prop=oc-gen-cat-loc-or-context---oc-gen-cat-site&proj=52-digital-index-of-north-american-archaeology-dinaa",
      "json": "https://opencontext.org/search/United+States.json?disc-geotile=0320122&response=geo-facet&prop=oc-gen-cat-loc-or-context---oc-gen-cat-site&proj=52-digital-index-of-north-american-archaeology-dinaa",
      "count": 278,
      "type": "Feature",
      "category": "oc-api:geo-facet",
      "when": {
        "id": "#event-0320122",
        "type": "oc-gen:formation-use-life",
        "start": "-14999",
        "stop": "1950"
      },
      "geometry": {
```

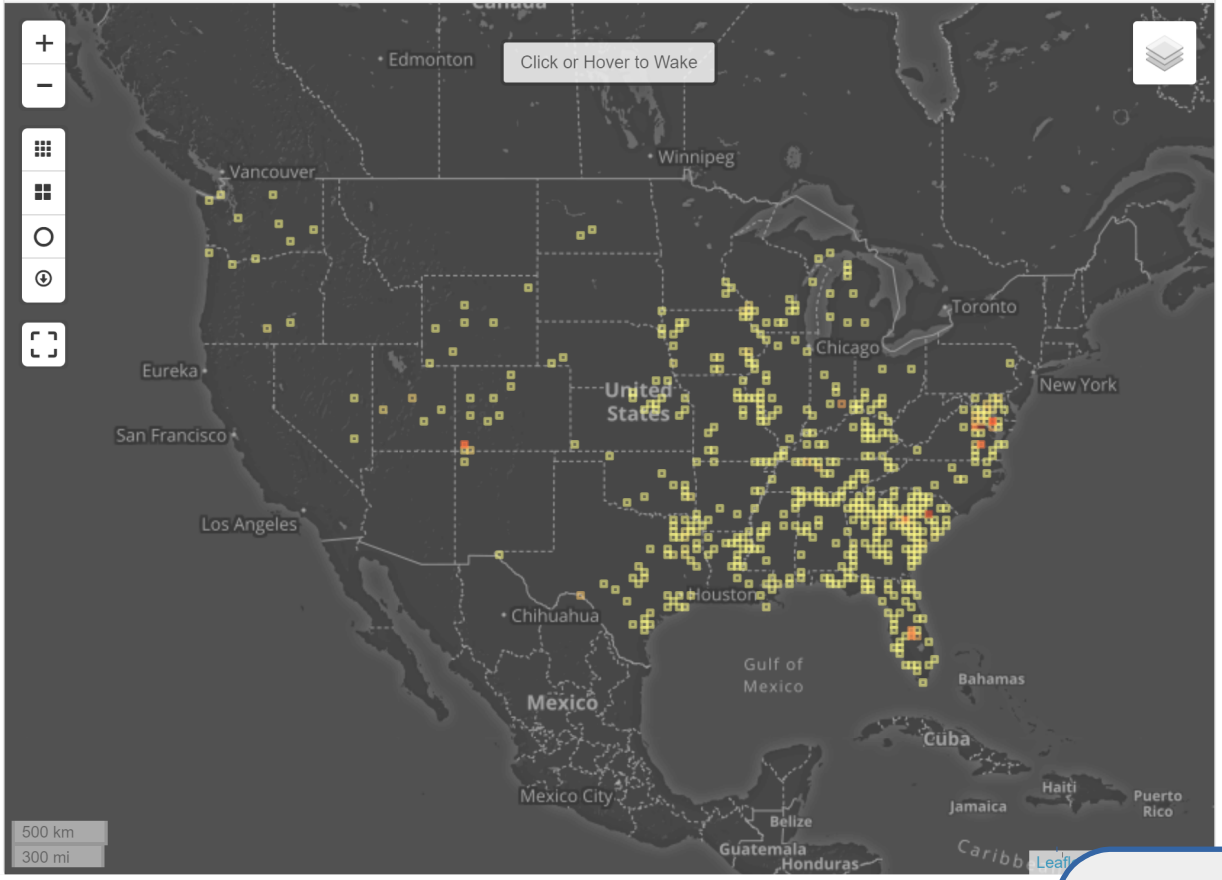


Open Context GeoJSON-LD

Jolene Smith: Reuse combining site data with storm surge risk map data


Bootstrapping Problem
• At first, it's like having a telephone with nobody to call
• Linked data skills not common, even among "data scientists"
• Standards for linking data often absent

Map of Counts by Region 2,792 Data Records



General Keyword Search (Data Records)

Search within these items...

Applied Filters

Project
Digital Index of North American Archaeology (DINAA)

Context
United States

Has cross references
Links to, or with, DINAA curated site files

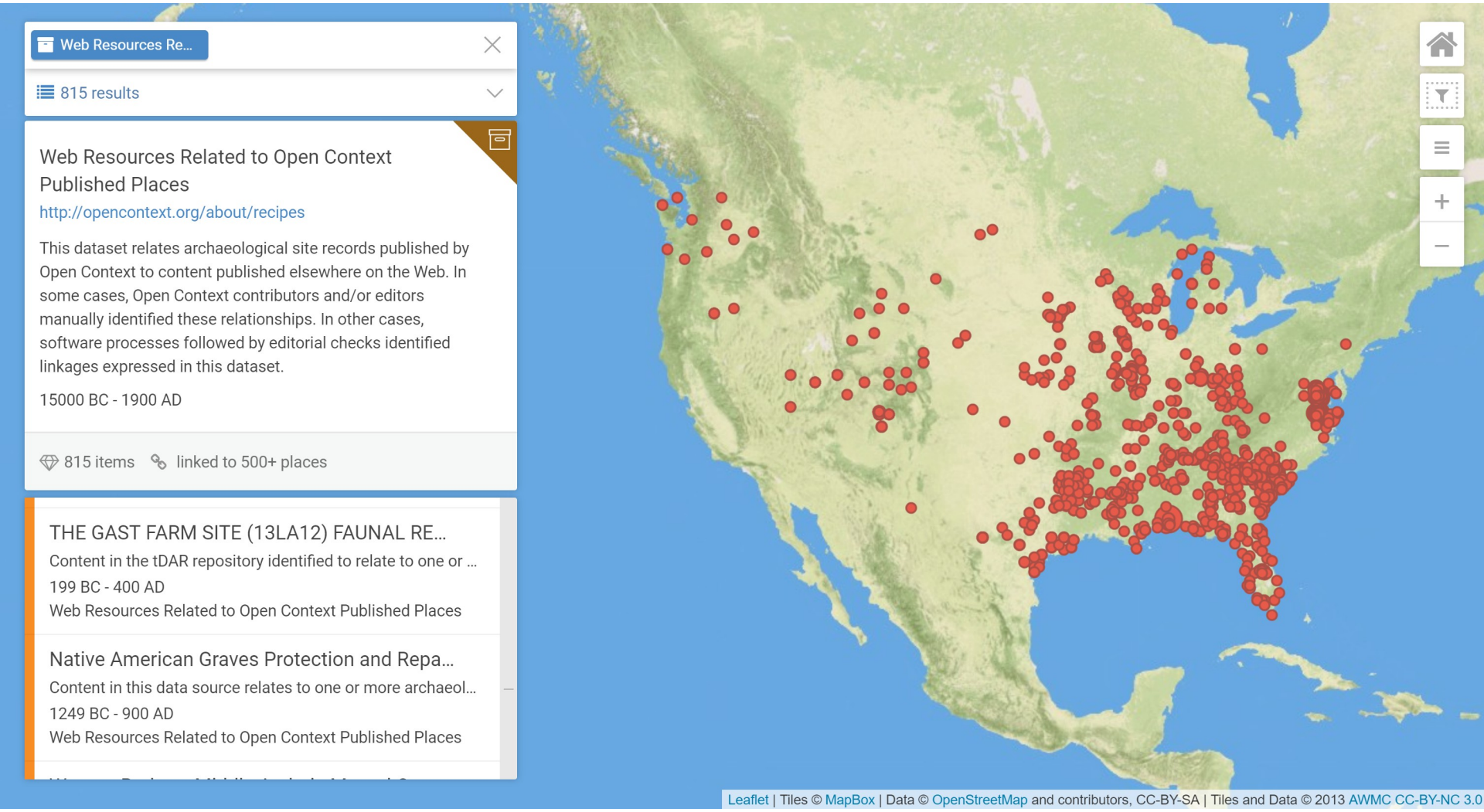
Filtering Options

United States (Context)

Virginia	499
South Carolina	429
Maryland	306
Florida	274
Texas	194
Georgia	183

Sites linked to content in different online collections

Linking government data with broader civil society



Pelagios: Annotations to content with Open Context sites serving as a gazetteer

Annotation Vocabularies

Biological Taxonomy Vocabulary
British Museum Thesaurus
CIDOC-CRM
Concordia
Digital Index of North American Archaeology Vocabulary
Dublin Core Terms
Eastern Woodlands Household Archaeology Data Project
Encyclopedia of Life
GeoNames
Getty Art and Architecture Thesaurus
Information Artifact Ontology
Kerameikos.org
Levantine Ceramics Project
Library of Congress Subject Headings
Open Context (General)
Open Context Zooarchaeology Annotations
ORCid
Paleoindian Database of the Americas (PIDBA)
PeriodO
Pleiades
RDF Schema
Simple Knowledge Organization System (SKOS)
tDAR Site Name Keywords
UBERON (Uber Anatomy Ontology)
Units of Measurement Ontology
Wikidata
WikiMapia
Wikipedia
WorldCat

Many, many, many “niche” topics in archaeology.

Scale & relevance hard to achieve.

Project
Oracle Bones in East Asia

Tracing the Spread and Development of Oracle Bone Divination in Ancient East Asia

Project Abstract

Oracle bones — animal bones used for pyro-osteomantic divination rituals in East Asia — are one of the most important types of bone artifacts in Chinese Neolithic and Bronze Age sites and the source of inscriptions containing the earliest writing in ancient China. Although these inscriptions are the focus of most research, oracle bone use far pre-dates the inscribed examples and continues after they were a primary medium for writing. Uninscribed oracle bones are rarely published and there is a lack of metric data available for studying spatial and temporal trends in oracle bone manufacture and use. In the Oracle Bone Project, we are reviewing collections of oracle bones housed in institutions across China in order to collect comprehensive data on the types of animal bones used in divination, the methods of oracle bone manufacture, and the archaeological contexts in which the bones are found. Our goal is to trace the origins of oracle bone divination rituals, their spread across Asia during the Neolithic, and the ultimate development of oracle bone divination as a central part of Shang Dynasty royal religious practices. The project brings new zooarchaeological and technological perspectives to research on oracle bones and address Anthropological questions about the role of ritual technologies in household and state-level institutions.

Data collected as part of the Oracle Bone Project is published on Open Context in a multi-language open access format. The raw data can be used by researchers around the globe to examine temporal and spatial trends in oracle bone manufacturing and use. Our focus is on uninscribed cases that have not received as much scholarly attention, but we encourage other scholars and institutions to upload additional data from inscribed or uninscribed oracle bones in their own collections. All contributions are associated with a publication record that is fully citable, searchable, downloadable in multiple formats, and linked to data standards that facilitate interoperability. Data input forms in English, Chinese, Korean, and Japanese are coming soon!

The Oracle Bone Project is an international collaboration between the Institute of Archaeology, Chinese Academy of Social Sciences (IA CASS) and Harvard University. The project co-PIs are Katherine Brunson (Postdoctoral Fellow, Harvard Fairbank Center for Chinese Studies), Rowan Flad (Harvard University Department of Anthropology), and Zhipeng Li (Institute of Archaeology, Chinese Academy of Social Sciences).

Annotations (3)

Property or Relation	Value(s)
Subject [Standard: Dublin Core Terms]	• Archaeology [Standard: Library of Congress Subject Headings]

Suggested Citation

Katherine Brunson, Zhipeng Li, Rowan Flad. "Oracle Bones in East Asia". (2016) Katherine Brunson, Zhipeng Li, Rowan Flad (Eds.) . Released: 2016-04-04. Open Context. <http://opencontext.org/projects/27e90af3-6bf7-4da1-a1c3-7b2f744e8cf7> DOI: http://dx.doi.org/10.6078/M74B2Z7J

Browse Project

Data Records Sub-Projects Media

Editorial Status

Page created by Open Context editors. Not reviewed.

Part of Project

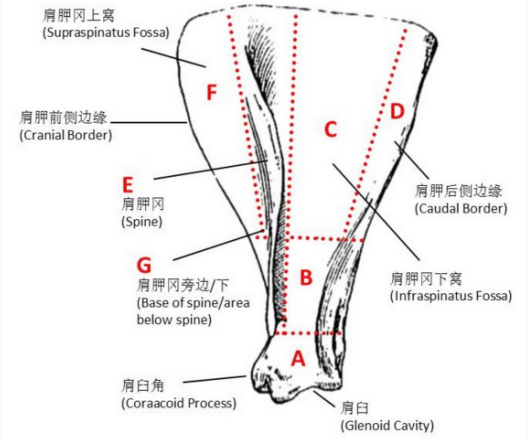
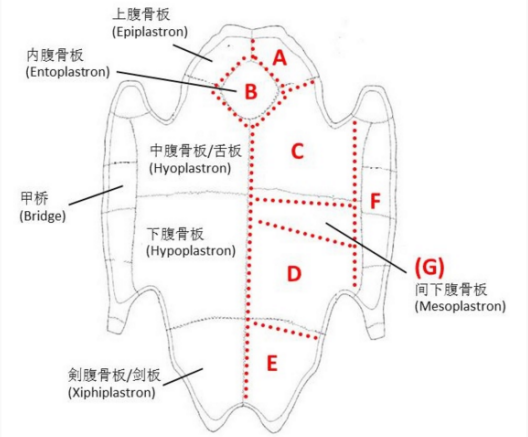
Open Context [General]

Copyright License

Descriptive Property or Relation: 位置 (Bone Zones Present)

Description of this Property / Relation | Item Metadata

Descriptions (2)

Descriptive Variable	Value(s)
Definition or note	List all parts of the element that are present, according to the classification system defined below: • *For the scapula*: Zone A includes the glenoid cavity and most distal part of the neck/collum scapulae; Zone B includes the neck and the distal portion of the blade closest to the neck where the bone is still fairly thick; Zone C includes the infraspinatus fossa (the broad flat part of the blade); Zone D is the caudal border; Zone E is the spine; Zone F includes the supraspinatus fossa and cranial border; and Zone G includes the base of the spine or the area under the spine in cases where the spine was removed. Figure 1: Lateral view of a left *Bos* scapula showing bone Zones A through G.  • *For the plastron*: Zone A is the epiplastron; Zone B is the entoplastron; Zone C is the hyoplastron; Zone D is the hypoplastron; Zone E is the Xiphiplastron; Zone F is the bridge; and Zone G is the mesoplastron (where present). Figure 2: Lateral view of a plastron showing bone Zones A through G. 

Suggested Citation

Katherine Brunson, Zhipeng Li, Rowan Flad. "位置 (Bone Zones Present)". (2016) In *Oracle Bones in East Asia*. Katherine Brunson, Zhipeng Li, Rowan Flad (Eds.) . Released: 2016-04-04. Open Context. <http://opencontext.org/predicates/b76336c6-3a90-40d5-8d7e-998f80c7b893>

Editorial Status

○○○○○

In preparation, draft-stage

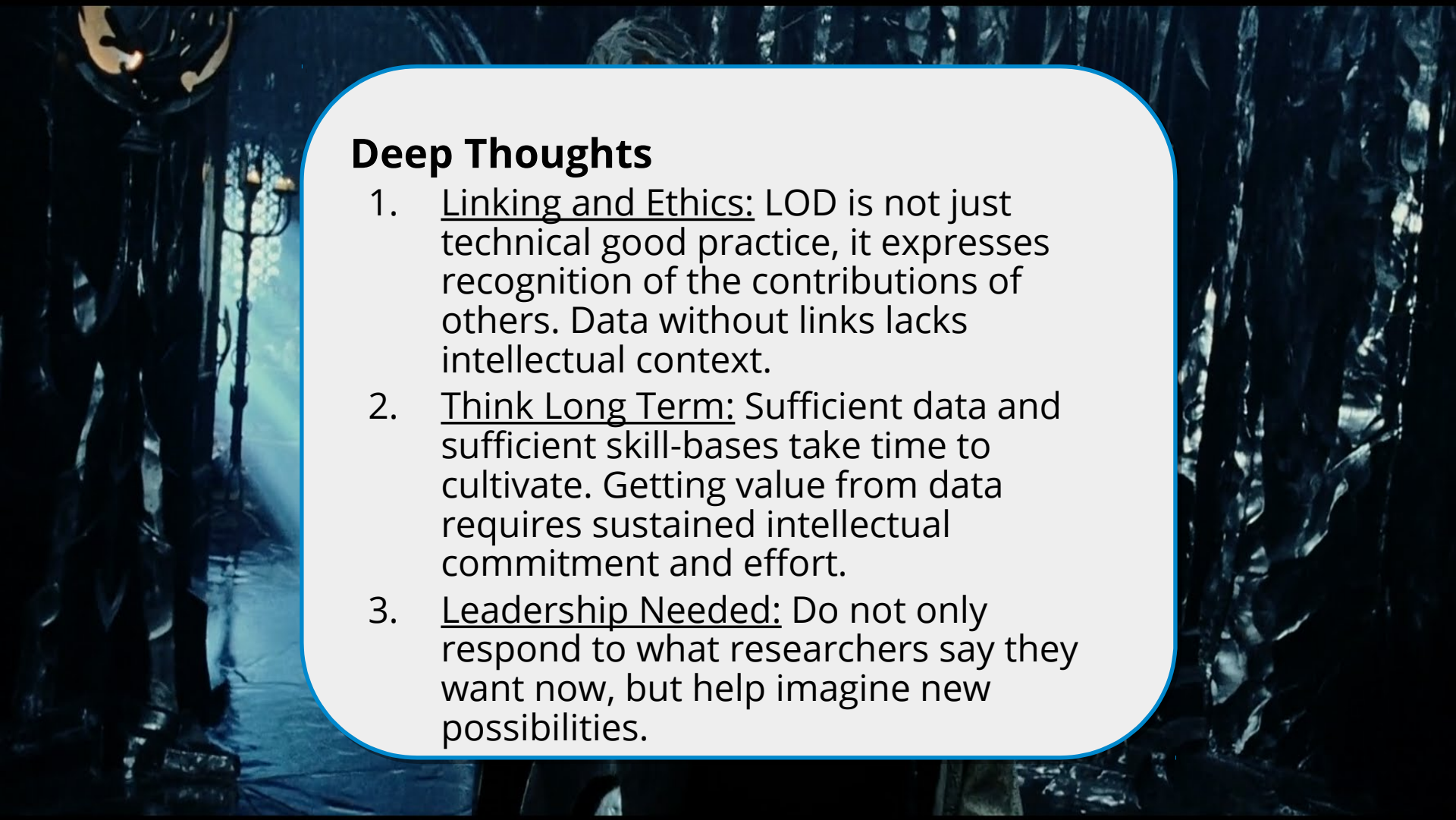
Part of Project

Oracle Bones in East Asia

Publishing Vocabularies

1. Formally publish reusable recording systems + vocabularies ("standards")
2. Researchers put lots of effort in classifying materials, make this work computationally useful!

Data need intellectual investment, distributed collaboration (social)



Deep Thoughts

1. Linking and Ethics: LOD is not just technical good practice, it expresses recognition of the contributions of others. Data without links lacks intellectual context.
2. Think Long Term: Sufficient data and sufficient skill-bases take time to cultivate. Getting value from data requires sustained intellectual commitment and effort.
3. Leadership Needed: Do not only respond to what researchers say they want now, but help imagine new possibilities.

THANK YOU!

University of California CDL California Digital Library

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Special Thanks!
Prof. Barbara Mills
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