



# Twenty years of the ADS: Lessons and challenges for the future of data curation

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16-11-2016

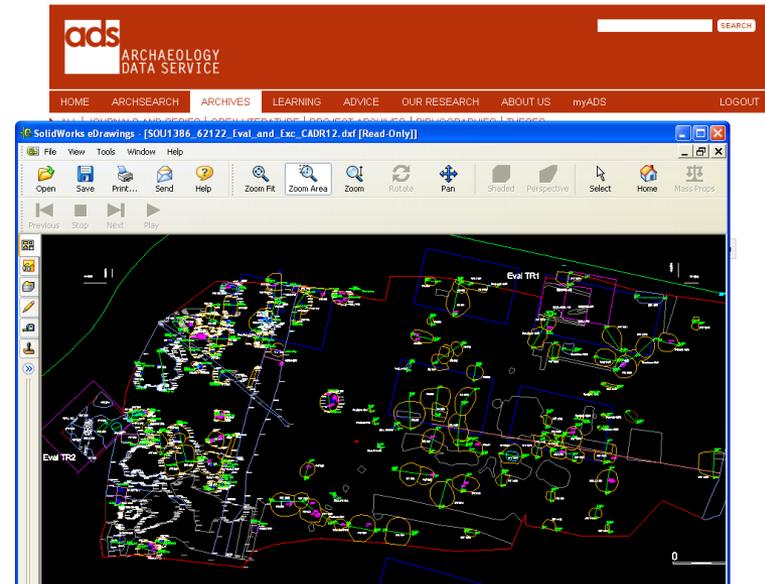
# Introduction

- Archaeology Data Service (ADS)
- Founded in 1996
- Based within the Department of Archaeology, University of York
- Digital archive for UK-based fieldwork and research in archaeology
  - Academic research archives produced by Higher Education
  - The results of development-led fieldwork

# Progress to-date

- Collections

- 1,100,000 metadata records
- 1000+ rich archives
  - Raster + vector images
  - Databases
  - Geospatial data



## Not just an off-site backup:

- Increasingly complicated systems stack
  - Operating 28 Virtual machines supporting a variety of applications, databases etc.
  - File storage – including our own remote copies + off-site storage
  - Validation checks (corruption of files)

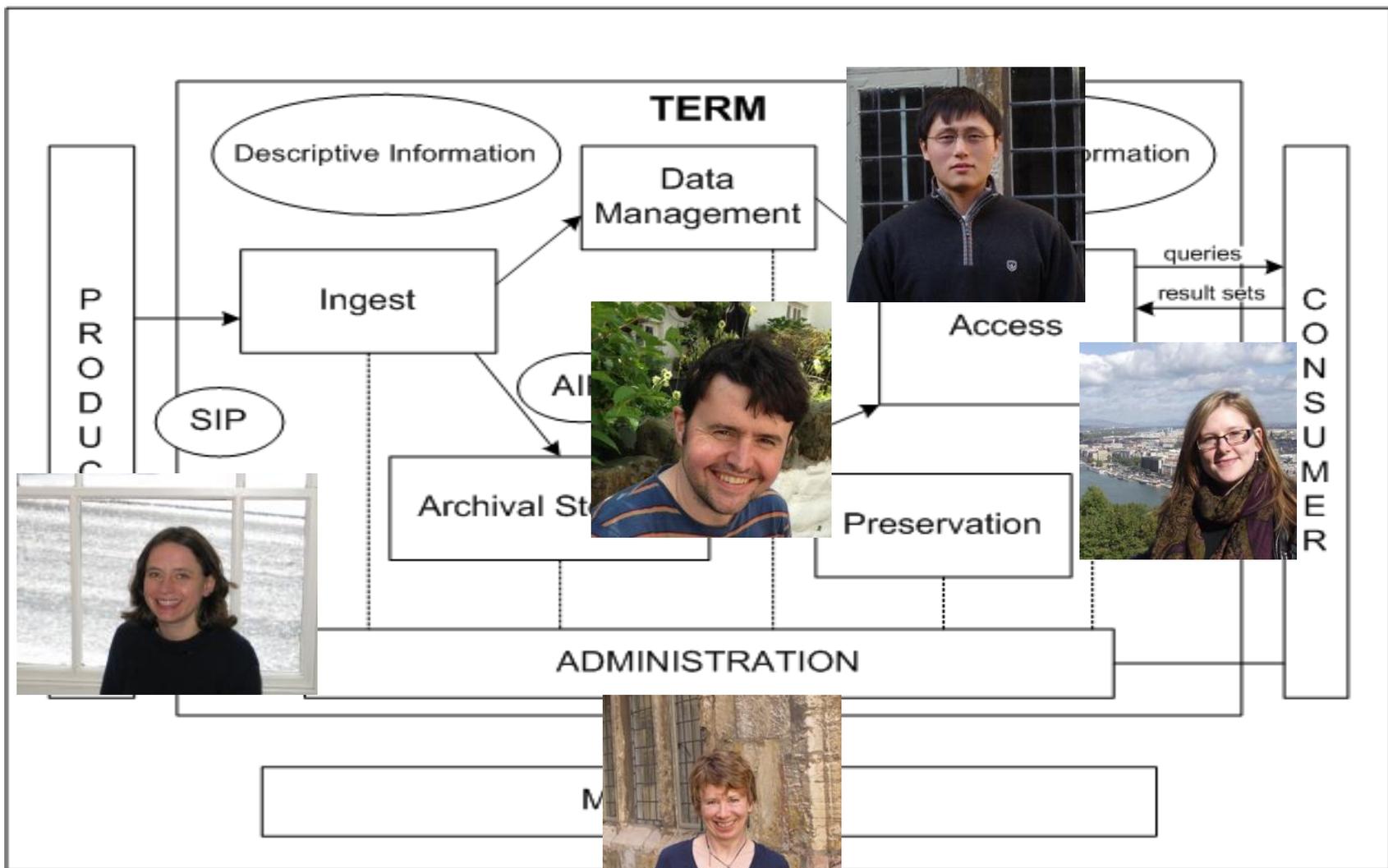


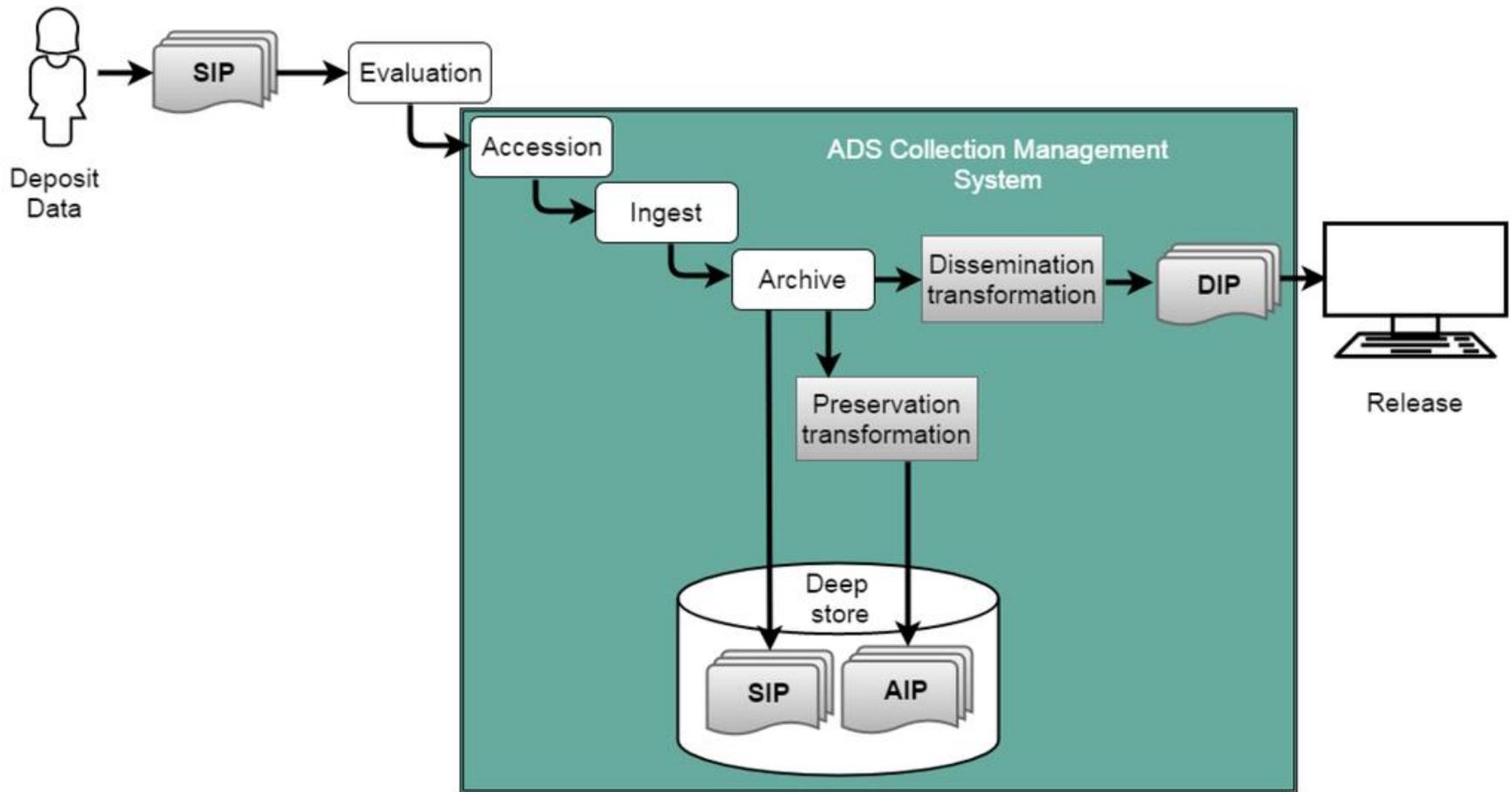
Fig. 1. Major functions of the OAIS Reference Model. Consultative Committee for Space Data Systems (CCSDS), CCSDS 650.0-W-1, Producer-Provider Interface Methodology Abstract Standard. (OAIS). White Book. Issue 1. Draft Recommendation for Space Data System Standards.

# Preservation by migration



# Preservation via migration

- Every file accessioned preserved as a standardised format e.g. all raster images as uncompressed TIFF, databases as delimited text.
- Formats used based on a mixture of technical consideration (e.g. compression = data loss), but also judgements on longevity of format and ease of establishing future migrations.



# "Cannot Open a database created with a previous version of your application" error in Access 2013 and Access 2016

 [Email](#)

 [Print](#)

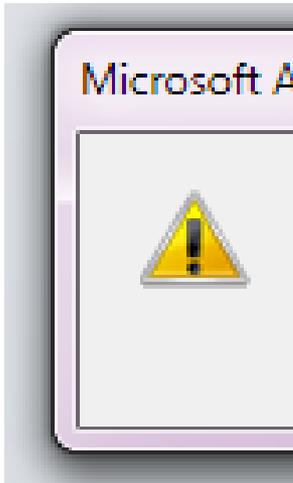
This issue occurs when you try to use Access 2013 or later version of Microsoft Access to open an Access 97 database. To work around this issue, use a pre-Access 2013 version of Access to save the Access 97 database as an .accdb file:

1. Open the Access 97 database in Access 2003.
2. On the **Tools** menu, click **Database Utilities**, click **Convert Database**, and then click to **Access 2002-2003 file format**.
3. Enter a name for the database, and then click **Save**.
4. Exit Access 2003.
5. Open the database in Access 2013 or later version of Access.
6. On the **File** tab, click **Save As**, select **Access Database (\*.accdb)**, and then click **Save As**.
7. In the **Save As** dialog box, click **Save**.

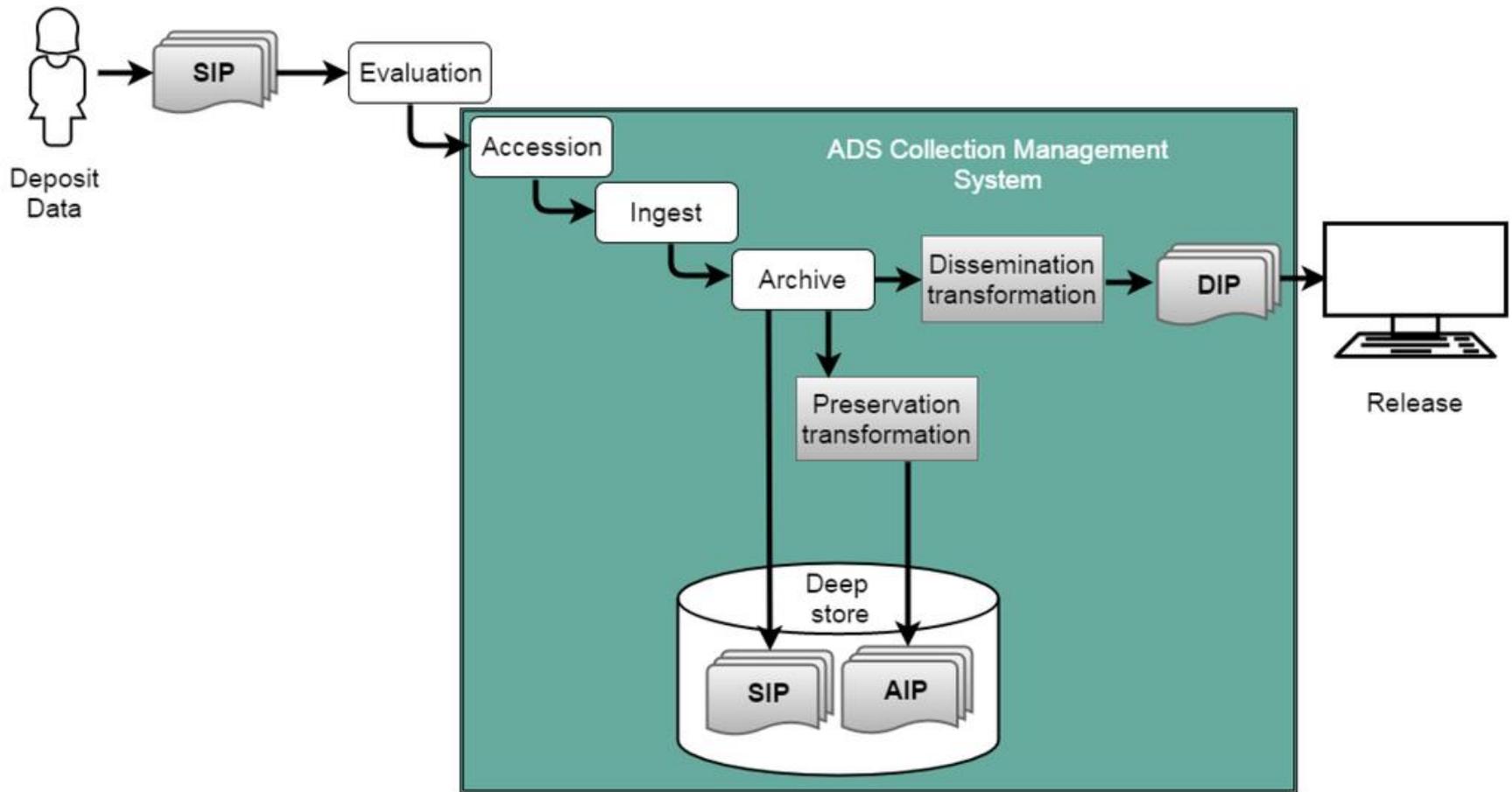
## Cause

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This issue occurs because recent versions of Access cannot convert Access 97 files.



- 2,143,497 files in our system, including:
  - Original (SIP) = 868,110
  - Preservation (AIP) = 722,663
  - Dissemination (DIP) = 522,690
- Currently just under 16 Tb on disc
- 12,327 recorded migration processes



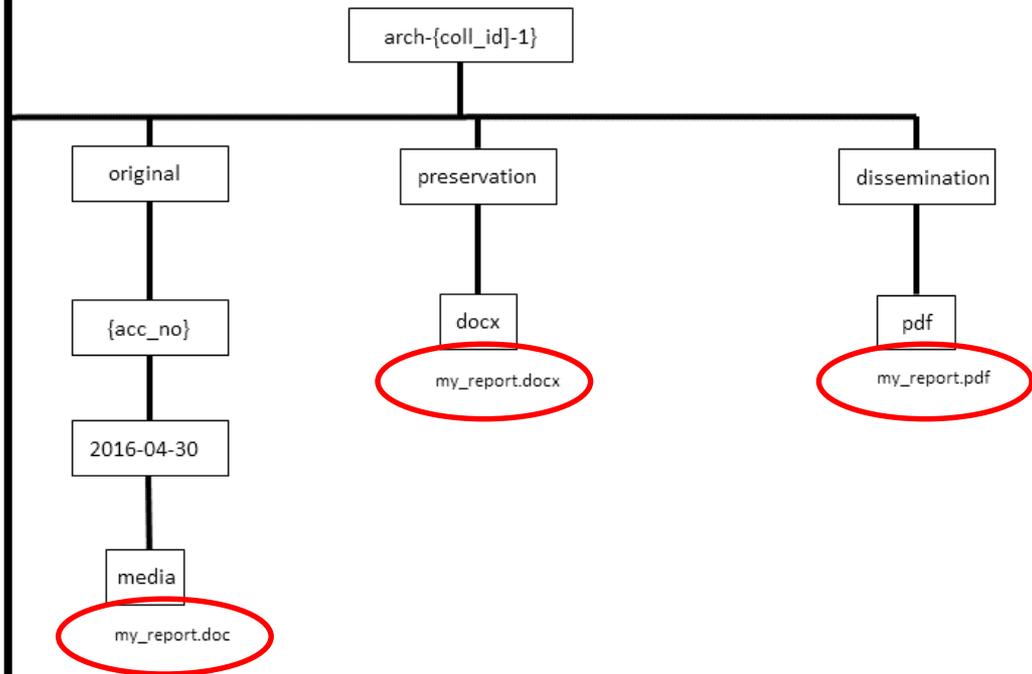
# OAIS in action

## Compass House, Cambridge

An Archaeological Evaluation



Leanne Zeki



# OAIS in action - metadata

## THEMATIC

### Details of Document

#### Bibliographic Reference and files

Zeki, L (2015) Compass House, East Road, Cambridge: An Archaeological Evaluation. Cambridge: Cambridge Archaeological Unit doi:10.5284/1038293

Click on a button to open a file, or right click and use file --> save as from your browser menu to save the file to your computer. Alternatively, if the report is available online, click on the link to open the resource in a new window:

cambridg3-223507\_1.pdf PDF 1 Mb

<< display document details >>

#### Site details

##### Location

**Site name** Compass House, East Road, Cambridge  
**Parish** CAMBRIDGE  
**District** CAMBRIDGE  
**County** CAMBRIDGESHIRE  
**Country** England  
**Grid reference** TL 46116 58806 (point)

#### Monuments and Finds

**EXTRACTIVE PIT** Post Medieval  
**PIT** Uncertain  
**ANIMAL BONE** Post Medieval  
**NAIL** Post Medieval  
**SHERD** Post Medieval

#### Other details

**Description** A4 wire bound with plastic laminate front, 11 pages, 2 colour plates

**Associated identifier** cambridg3-223507

## TECHNICAL

<b>File Name</b>	neanderthals-among-mammoths.pdf
<b>Rep Id</b>	3448475
<b>Purpose</b>	Preservation
<b>File Path</b>	/ADS_preservation/arch-1645-1/preservation/pdf/neanderthals-among-mammoths.pdf
<b>File Type</b>	Acrobat PDF/A - Portable Document Format
<b>File Type Ver</b>	1b
<b>Pronom Id</b>	fmt/354
<b>Extension</b>	pdf
<b>File Size</b>	35964088
<b>Last Modified Date</b>	08-Aug-2016
<b>Mime Type</b>	application/pdf
<b>Checksum</b>	8a1e32ea7c1a54ae33c039ce99cfbadc
<b>Updated</b>	08-Aug-2016
<b>Updated By</b>	te1

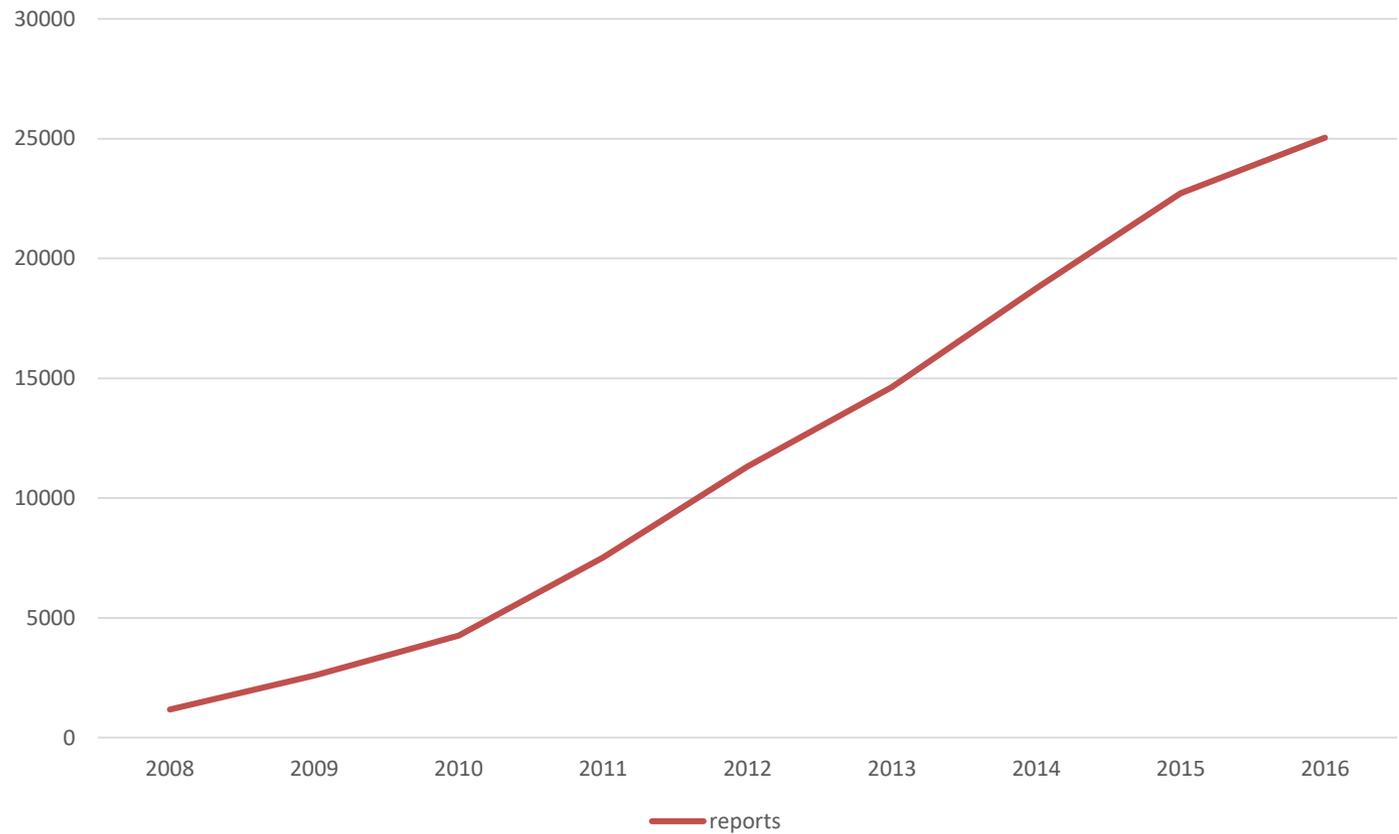
# Not a simple case...

- Using DOCX
  - When ADS started using OOXML formats were using Office 2010, which only supported the ISO 29500 Transitional standard
  - Although it is anticipated that the transitional format will continue to be supported (including OpenOffice), is it better to move away now?

# Not a simple case...

- Using PDF/A
  - Ostensibly a long-term format for preservation of electronic documents
- Problems
  - Essentially locked into a restricted technology
  - Questions over sustainability between the 3 current standards (A1 – A2 – A3)
  - Mis-identification and problematic files created by various tools and software
  - Simplicity, support of vector content, and the use of *archive* in the name suggests a “one stop shop” for archiving ... a threat to a more considered approach

# Public access



Reports released into ADS library

# Feeding into academic practice

## The Rural Settlement of Roman Britain: an online resource

Martyn Allen, Nathan Blick, Tom Brindle, Tim Evans, Michael Fulford, Neil Holbrook, Julian D Richards, Alex Smith, 2015

Home Map



doi:10.5284/1030449

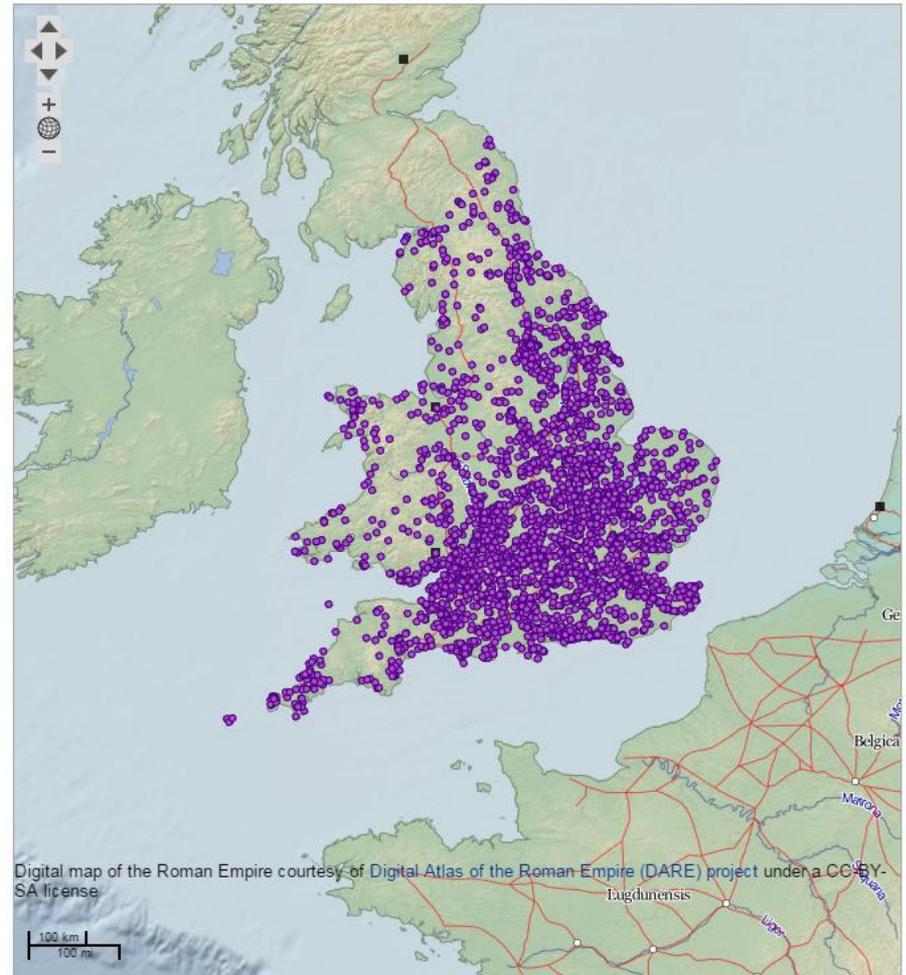


### About this map:

This map displays layers from the project database, which can be viewed against a range of baseline datasets. The layers also include Roman roads and settlements derived from Historic England NRHE dataset held by the ADS. In addition, the data from Stage 1 of the Assessing The Research Potential of Grey Literature in the study of Roman England project 10.5284/1000418 is also included.

### Tips:

- Click on the globe icon to return to the original extent
- Click on a point to view name and to link to the full record
- To zoom in on a specific area: hold down the left-mouse button and the SHIFT key, and draw a rectangle using your mouse



# Positive economic impact

- Quantitative analysis suggests that the economic benefits of ADS substantially exceed the operational costs.
- A very significant increase in research efficiency was reported by users as a result of using the ADS.
- Calculated to be worth at least £13 million per annum – 5 times the costs of operation, data deposit and use.

Beagrie, N. & Beagrie C. 2013. *The value and impact of the Archaeology Data Service. A study and methods for enhancing sustainability*

<http://archaeologydataservice.ac.uk/research/impact>

# Problems and challenges



Memory Stick



5.25" Optical Disk



DC4\_120



Click!



Sparq Disk Cartridge



3.5" Floppy



Floptical Disk



CD-ROM



4mm Tape



DVD-ROM



9-Track Reel



G2000 Tape



IBM 3480



Smart Media



QIC DC600



Rectangular Hole Punch Card



Punch Tape



8" Floppy



5.25" Floppy



Travan



xD Picture Card



DG90M Tape



8mmD-eight



Cassette tape



DLT Tape



Ditto Max



MultiMedia Card



12" Optical Disk



Jaz Disk



Zip Disk



SD Memory Card

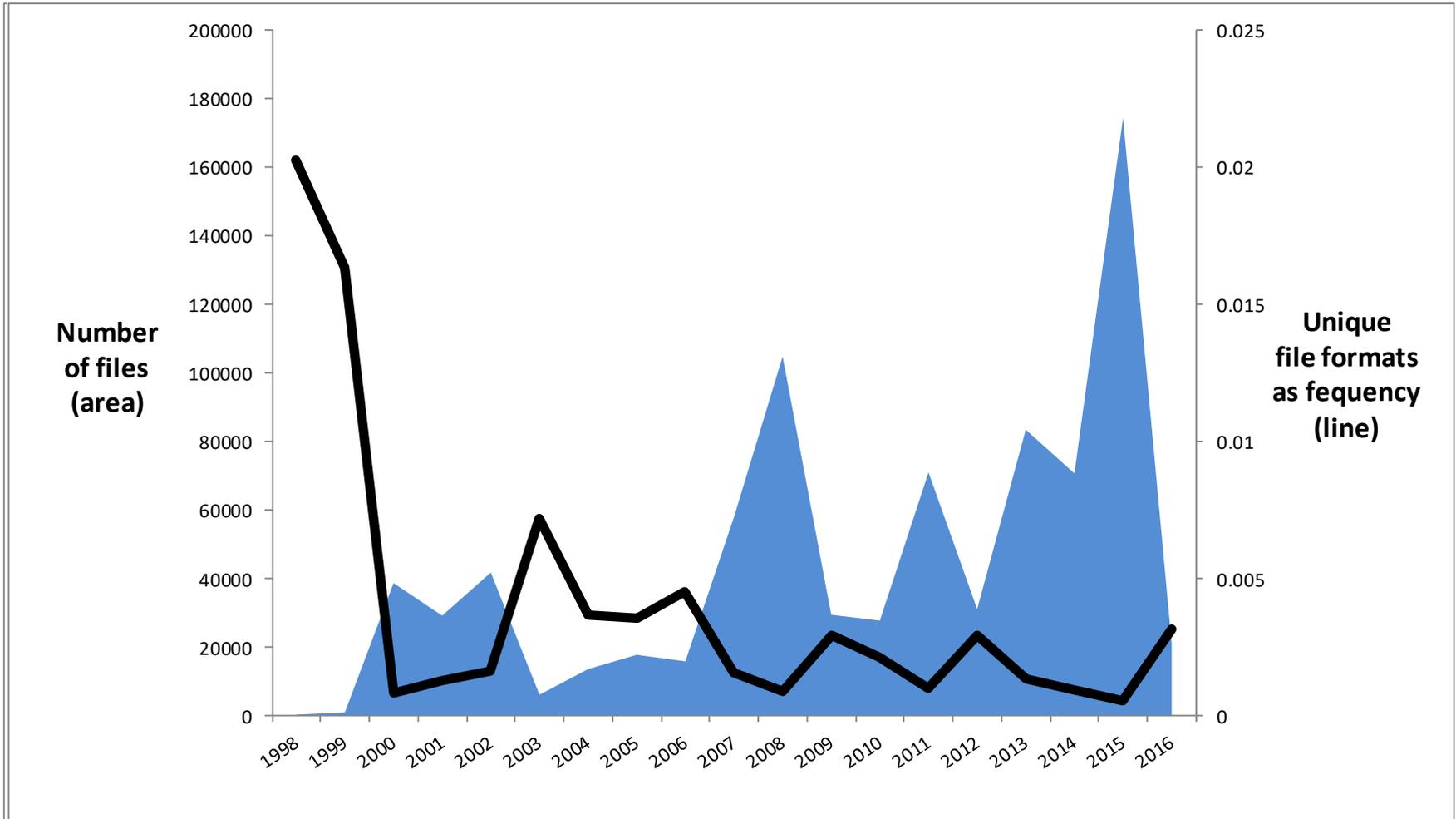


CompactFlash

# Most popular?

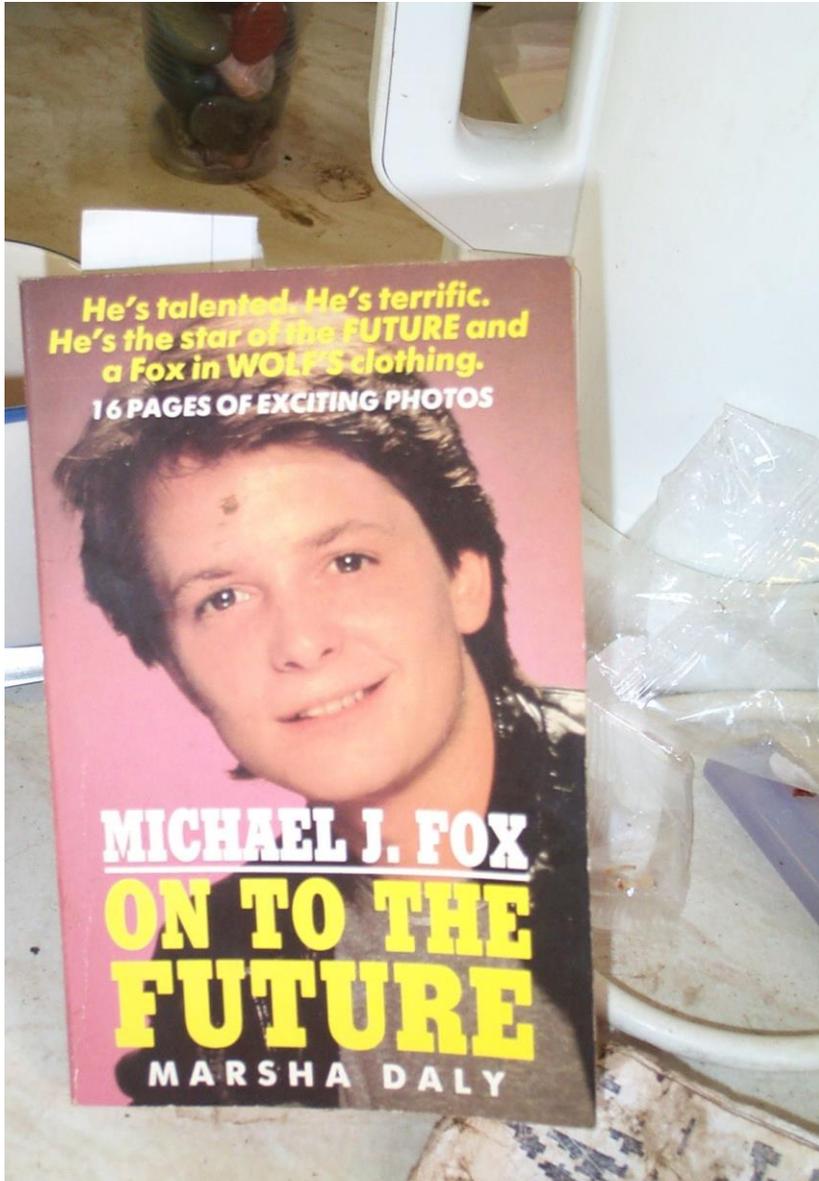
- 320,000+ .tif
- 180,000+ .jpg (1.01)
- 105,000+ .jpg (1.02)
- 20,000+ .jpg (raw)
- 17,000+ .pdf (1.4)
- 16,000+ .pdf (1.6)
- 13,000+ .doc (97-2003)

# More data – less variation





# Quality



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## Details of Document

### Bibliographic Reference and files

Margetts, A (2006) Mr. Ditchling W Sussex: Archaeology South East, 2576. doi:10.5284/1039047

Click on a button to open a file, or right click and use file --> save as from your browser menu to save the file to your computer. Alternatively, if the report is available online, click on the link to open the resource in a new window:

archaeol6-18336\_1.pdf

PDF

2 Mb

[<< display document details >>](#)

### Site details

#### Location

**Site name** Wey and Arun Canal  
Crossing Project

**Parish** LOXWOOD

**District** CHICHESTER

**County** WEST SUSSEX

**Country** England

**Grid reference** TQ 023 310 (point)

#### Monuments and Finds

**WEY AND ARUN CANAL** Post Medieval

**FLINTWORK** Uncertain

**POTTERY** Uncertain

### Other details

**Description** Watching Brief Report

**Associated identifier** archaeol6-18336

Man with length of string



Man with lengths of string

# A lack of thought

Thanks!

[tim.evans@york.ac.uk](mailto:tim.evans@york.ac.uk)

<http://archaeologydataservice.ac.uk/blog/>

<https://twitter.com/ADS> Chatter

<https://twitter.com/ADS> Update