



Interlinking Articles & Data in the Article of the Future

Bethan Keall, Publishing Director Earth & Energy, Elsevier



An innovative, new article format that aims to provide an optimal platform for the dissemination of scientific research in the digital age

- Presentation: Offering an optimal online browsing and reading experience
- Content: Support authors to share a wider range of research output – data, digital maps, computer code, multimedia files, etc.
- Context: Connecting the online article to trusted scientific resources, e.g. data repositories



The Article of the Future: 3-pane format



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For an overview of live innovations on ScienceDirect:
<http://www.elsevier.com/about/content-innovation>

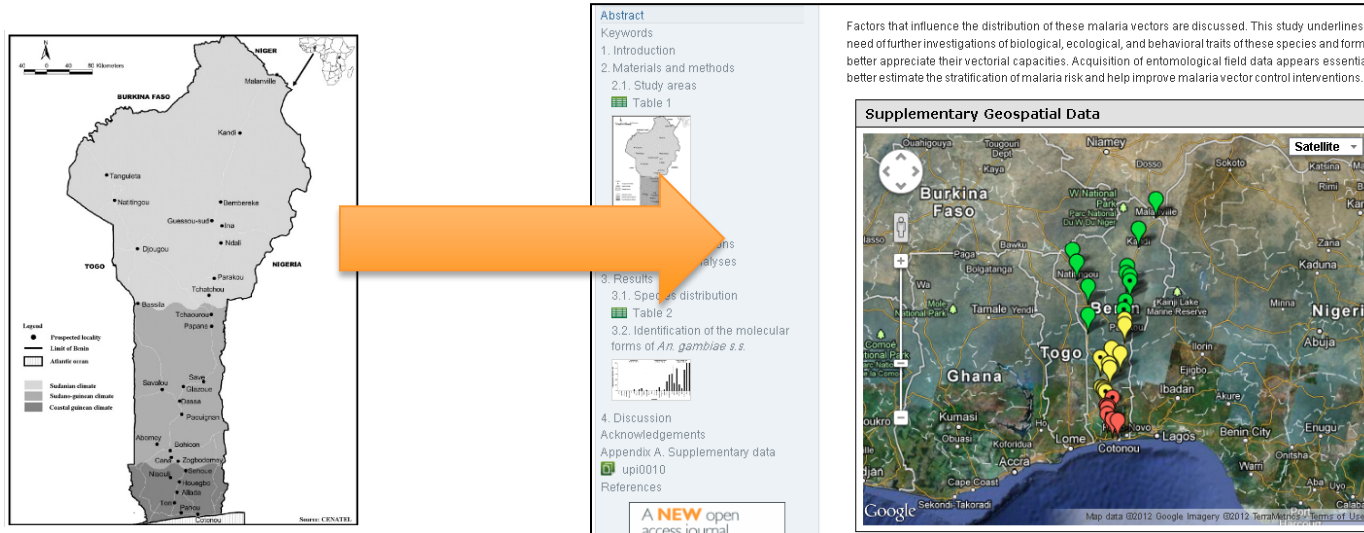
Left pane:
efficient navigation
& browsing

Center pane: "Traditional" full-
text view, designed for optimal
online reading experience

Right pane: Additional content
& tools. Shown here: reference
browser

Interactive (Google) Maps

Turning a static image into a rich, interactive source of information



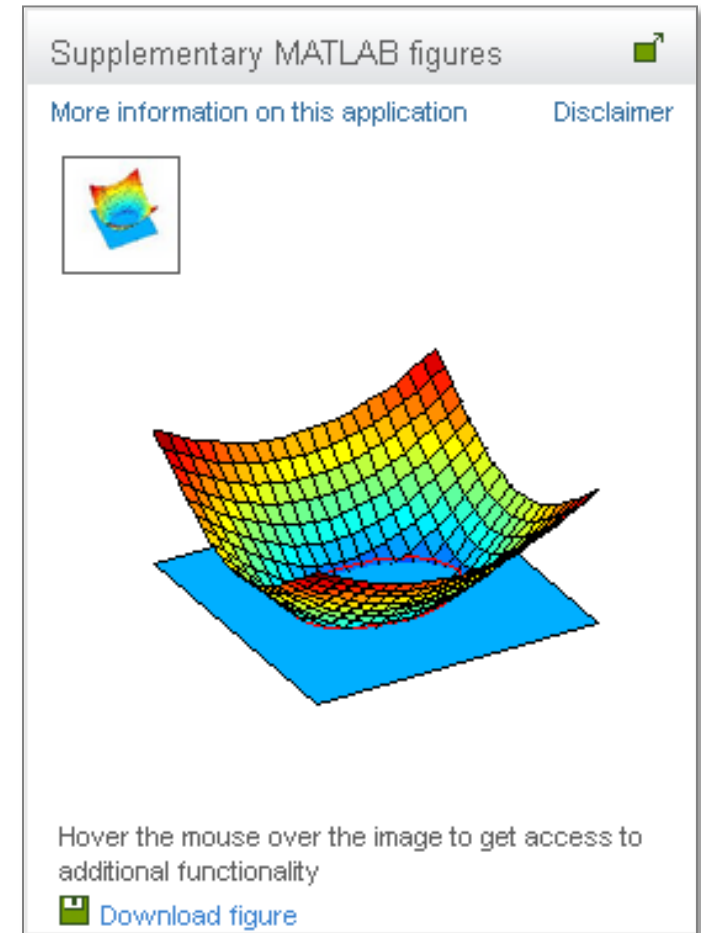
- Present research findings in an more valuable, interactive way
- Help readers find and understand data in the context of the article
- Download data for validation & re-use of data
- Available for 100+ journals

Interactive MATLAB figure viewer



Making plots more valuable for research

- Explore figures interactively – zoom, rotate, etc.
- Download underlying data to enable validation & re-use
- Works with author-provided .FIG files exported from MATLAB
- Currently available for 5 journals



See <http://www.elsevier.com/matlab>

Interactive Viewer for 3D Molecular Models



- Author-provided models (PDB, PSE, MOL/MOL2 format)
- Fully 3D – enlarge in canvas
- Real-time user interaction
- Supports all major browsers and mobile devices (without additional plug-ins)
- Huge files: 100s of MBs
- Completely new inflow process
- External developer: Kitware
- Display modes: “ribbon” and “balls & sticks”
- Anaglyph stereo vision
- 8 participating journals




<http://dx.doi.org/10.1016/j.jmb.2012.11.040>

<http://dx.doi.org/10.1016/j.str.2012.10.007>


Authors explain their paper in their own words







- 5-minute, webcast-style presentations by the author
- Slides + voice-over recordings
- Helps readers to get unique insights into research in an attractive format
- Shown next to the article on ScienceDirect
- Online authoring tool developed by Elsevier

View author presentation 

Effect of bypassing the proximal gut on gut hormones involved with glycemic control and weight loss

DJ Pournaras et al.
Surgery for Obesity and Related Diseases
5 slides, 04:24 min

This presentation has not been peer-reviewed.
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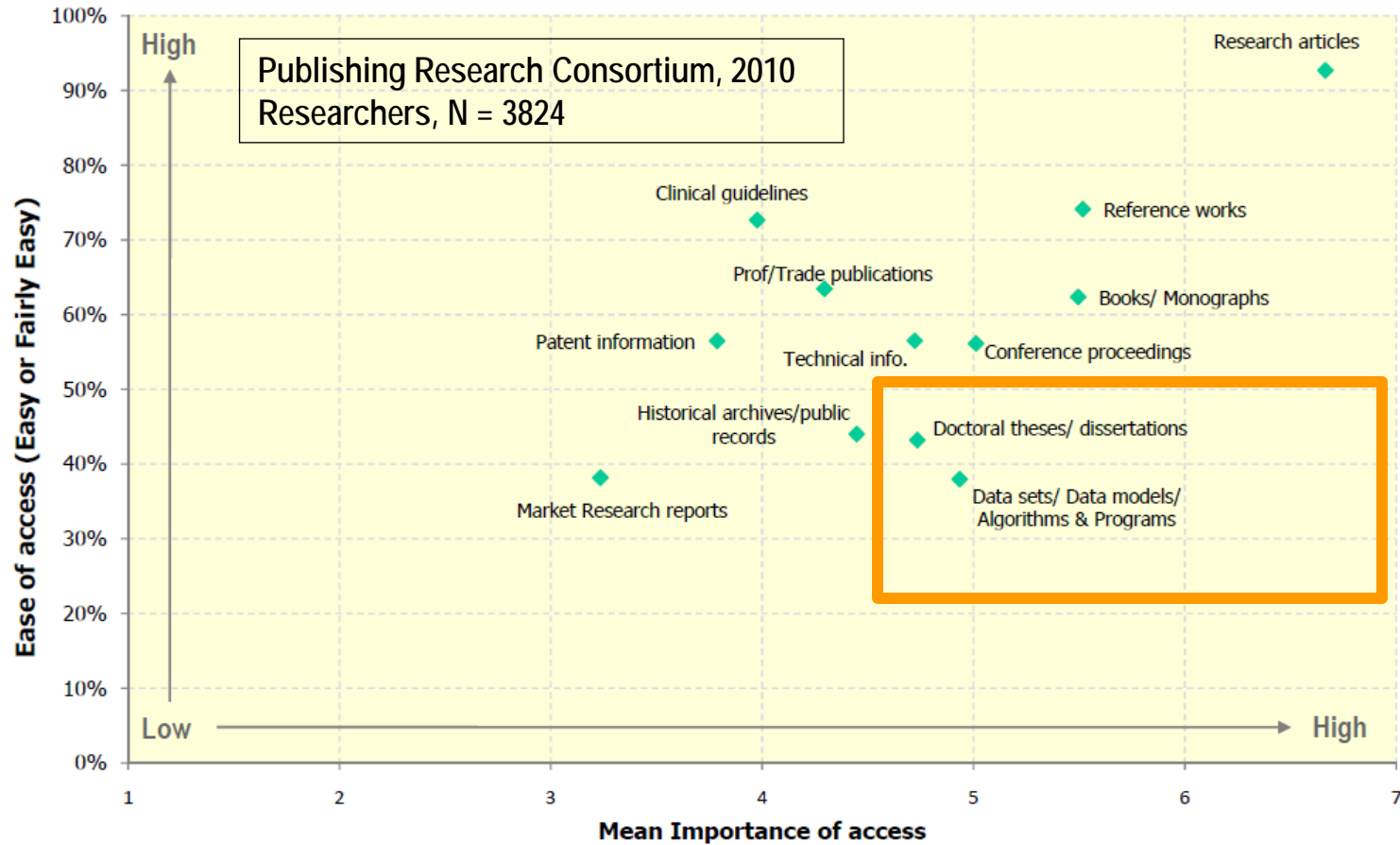
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Interlinking Data and Articles



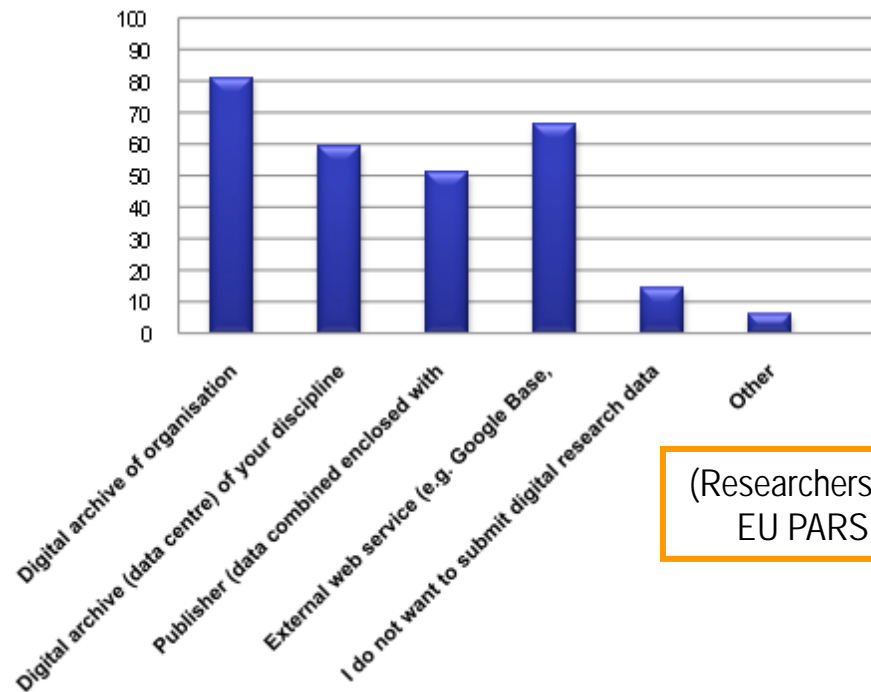
Data is important, but hard to access



Interlinking Data and Articles



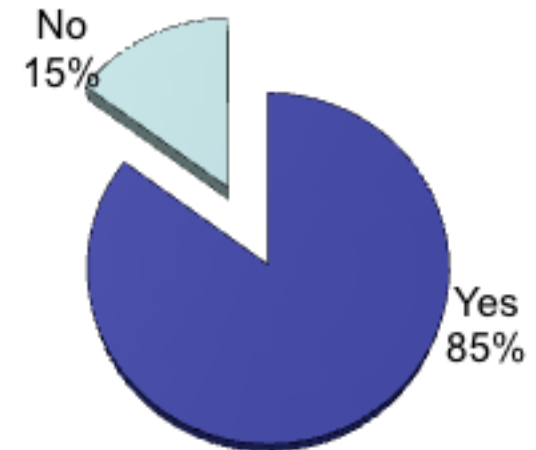
Question: Where would you be willing to submit your research data?



(Researchers, N=1202; study by EU PARSE.Insight, 2009)

Researchers prefer digital archives

Question: Do you think it is useful to link underlying research data with formal literature?



Researchers believe it is useful to link articles and data

- There is value in connecting Data and Articles:
 - Increase visibility, discoverability, and usage
 - Provide context, avoid misinterpretation and incorrect usage
- Collaboration between Publishers and Data Repositories:
 - Ensure long-term availability of useful content and context
 - Coordinate submission process / deposit mechanism
 -

Linking through accession numbers



British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

GeoScenic

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P100659



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P number:	P100659
Old photograph number:	P100659
Caption:	Brachiopods from the Falkland Islands. Schellwienella Sulivani (large shells) australocoelia Palmata (small shells).
Photographer:	Unknown
Copyright statement:	NERC
Orientation:	Landscape

- Hyperlinked GeoScenic Accession Numbers in the article main text (e.g. "GeoScenic: P100659") – tagged by authors
- Available for all Elsevier geology journals

Linking through database banners



Journal of Volcanology and Geothermal Research

Volume 177, Issue 2, 25 October 2008, Pages 457–484



Growth of complex sheeted zones during recycling of older magmatic units into younger: Sawmill Canyon area, Tuolumne batholith, Sierra Nevada, California

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<http://dx.doi.org/10.1016/j.jvolgeores.2008.06.024>, How to Cite or Link Using DOI

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Abstract

In Sawmill Canyon, located near the eastern margin of the Tuolumne batholith, central Sierra Nevada, California, a series of petrologically and structurally complex, magmatic sheeted zones intrude older

The screenshot shows the right-hand side of a web browser displaying an Elsevier article page. A sidebar menu on the right contains several options: 'Bibliographic information', 'Citing and related articles', and 'Applications and tools'. The 'Applications and tools' section is expanded, showing a box titled 'Data for this Article'. This box contains a link for 'More information on this application' and text stating 'Data for this article is available at the following data repositories:'. Below this text is a banner for 'IEDA EarthChem' with a logo and the text '13 extracted samples'. An orange box highlights this banner, and an orange arrow points from it to a grey callout box at the bottom right of the screenshot. The callout box contains the text 'One-click access to relevant primary data'. Below the data banner, there is a 'Share' section with buttons for 'citeulike', 'Like', and 'Tweet'. At the very bottom of the sidebar, the word 'Word' is partially visible.

Data integration & visualization apps



Marine Geology

Volume 204, Issues 1–2, 28 February 2004, Pages 43–57



Calcium carbonate corrosiveness in the South Atlantic during the Last Glacial Maximum as inferred from changes in the preservation of *Globigerina bulloides*: A proxy to determine deep-water circulation patterns?

A.N.A. Volbers  , R. Henrich

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[http://dx.doi.org/10.1016/S0025-3227\(03\)00372-4](http://dx.doi.org/10.1016/S0025-3227(03)00372-4), How to Cite or Link Using DOI

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The screenshot shows a web interface with a sidebar on the left containing menu items: 'Bibliographic information', 'Citing and related articles', and 'Applications and tools'. The main content area features a map titled 'PANGAEA° - Related Data' with the subtitle 'Dissolution index of Globigerina bulloides in recent and Last Glacial Maximum sediments'. The map displays the South Atlantic Ocean region, with two red circular markers indicating data points. A 'Hybrid' map style selector is visible in the top right of the map area. Navigation controls (arrows and zoom) are present on the left side of the map. At the bottom of the map, it reads 'Imagery ©2013, Map data ©2013 - Terms of Use'.

Interactive application that pulls in data from a data repository and visualizes it next to the article

Data integration & visualization apps



Abstract

Structure-based protein sequence alignments of family B DNA polymerases revealed a conserved motif that is formed from interacting residues between loops from the N-terminal and palm domains and between the N-terminal loop and a conserved proline residue. The importance of the motif for function of the bacteriophage T4 DNA polymerase was revealed by suppressor analysis. T4 DNA polymerases that form weak replicating complexes cannot replicate DNA when the dGTP pool is reduced. The conditional lethality provides the means to identify amino acid substitutions that restore replication activity under low-dGTP conditions either by correcting the defect produced by the first amino acid substitution or by generally increasing the stability of polymerase complexes; the second type are global suppressors that can effectively counter the reduced stability caused by a variety of amino acid substitutions. Some amino acid substitutions that increase the stability of polymerase complexes produce a new phenotype—sensitivity to the antiviral drug phosphonoacetic acid. Amino acid substitutions that confer decreased ability to replicate DNA under low-dGTP conditions or drug sensitivity were identified in the new motif, which suggests that the motif functions in regulating the stability of polymerase complexes. Additional suppressor analyses revealed an apparent network of interactions that link the new motif to the fingers domain and to two patches of conserved residues that bind DNA. The collection of mutant T4 DNA polymerases provides a foundation for future biochemical studies to determine how DNA polymerases remain stably associated with DNA while waiting for the next available dNTP, how DNA polymerases translocate, and the biochemical basis for sensitivity to antiviral drugs.

Abbreviations

PAA, phosphonoacetic acid; PPI, pyrophosphate; PDB, Protein Data Bank

Keywords

NPL motif in family B DNA polymerases; stability of DNA polymerase complexes; DNA replication fidelity; sensitivity to phosphonoacetic acid; DNA polymerase translocation

Proteins in this article

More information about this application Help

1IG9X 1IG9

1IG9 Jmol

Rotate Reset

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Display

Color

Stereo

Surface

Model Asymmetric unit Biological assembly

More about this structure on [RCSB PDB](#)

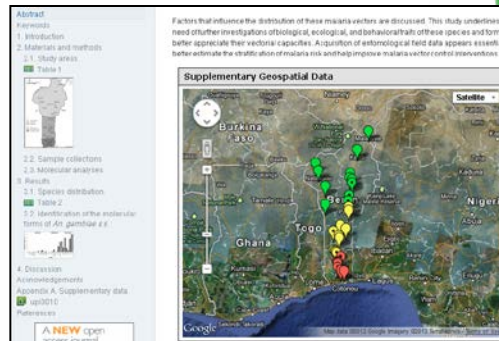
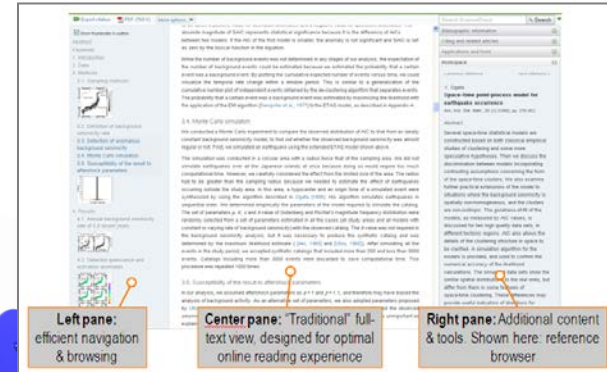
Interactive application that pulls in data from a data repository and visualizes it next to the article

Summary

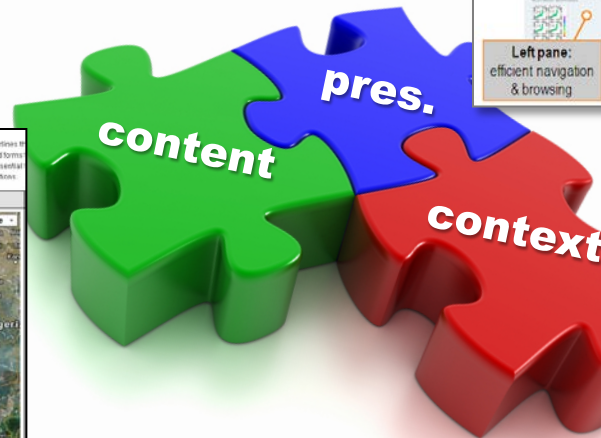


The Article of the Future: An innovative, new article format that aims to provide an optimal platform for the dissemination of scientific research in the digital age

Three-pane format for optimal reading experience



Digital content
(e.g. Interactive Maps)



Data for this Article

More information on this application

Data for this article is available at the following data repositories:

IEDA MGDS
2 data sets

Data Repository linking