Open Science

Chancen und Herausforderungen für Informationsinfrastrukturen

Fachhochschule Potsdam

Potsdam, 16.01.2014

Heinz Pampel, Deutsches GeoForschungsZentrum GFZ

GFZ Helmholtz-Zentrum POTSDAM

HELMHOLTZ GEMEINSCHAFT

AGENDA

- Forschungsprozess - Von einer Idee zur nächsten
- Offener Zugang zu Publikationen (Open Access)
- Potenzial der digitalen Wissenschaft
- Umgang mit Forschungsdaten
- Relevanz der Informationsinfrastrukturen
- re3data.org – Werkzeug für Open Science
- Forschungsdaten-Infrastruktur
- Herausforderung Open Science
- Ausblick

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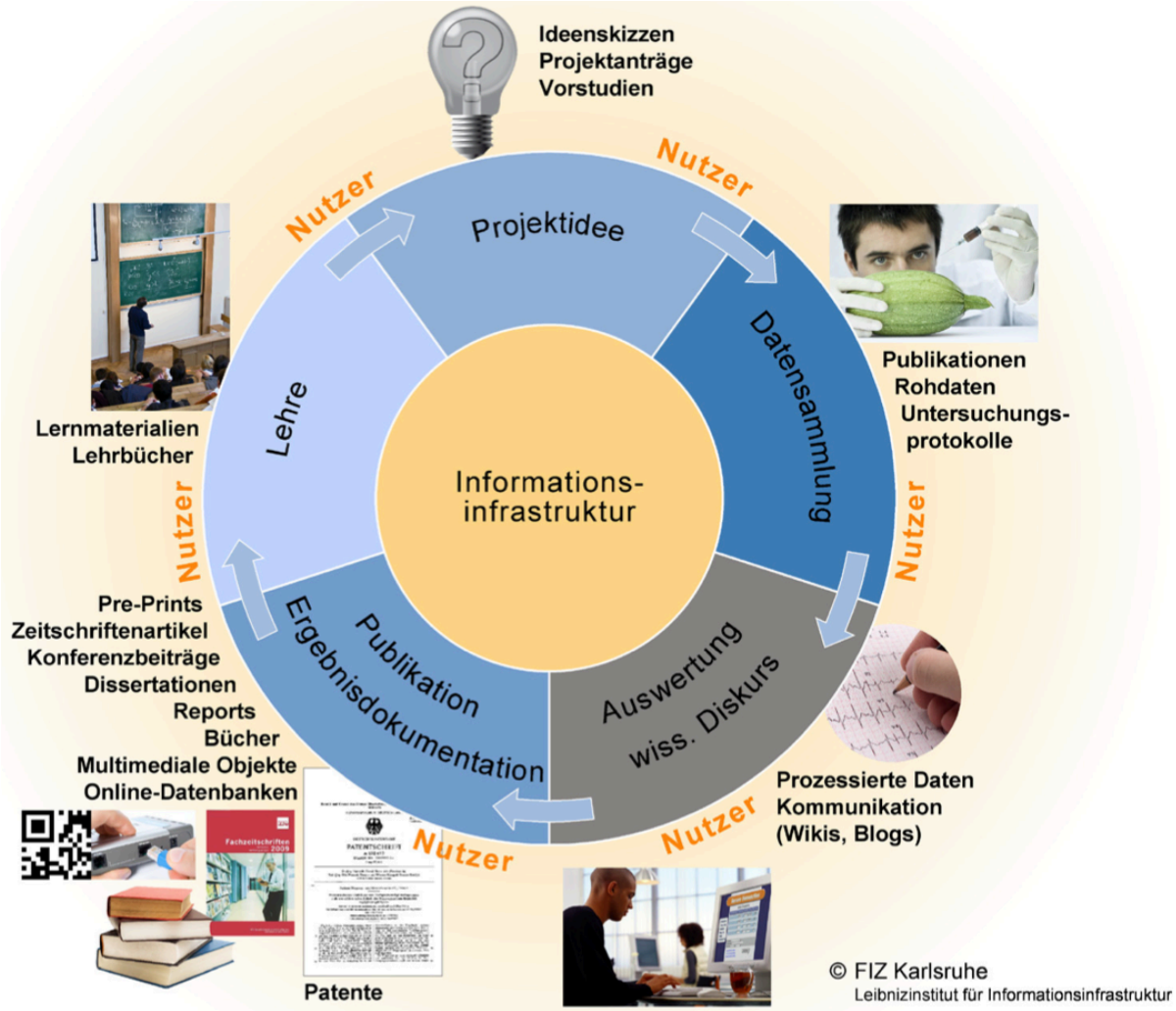
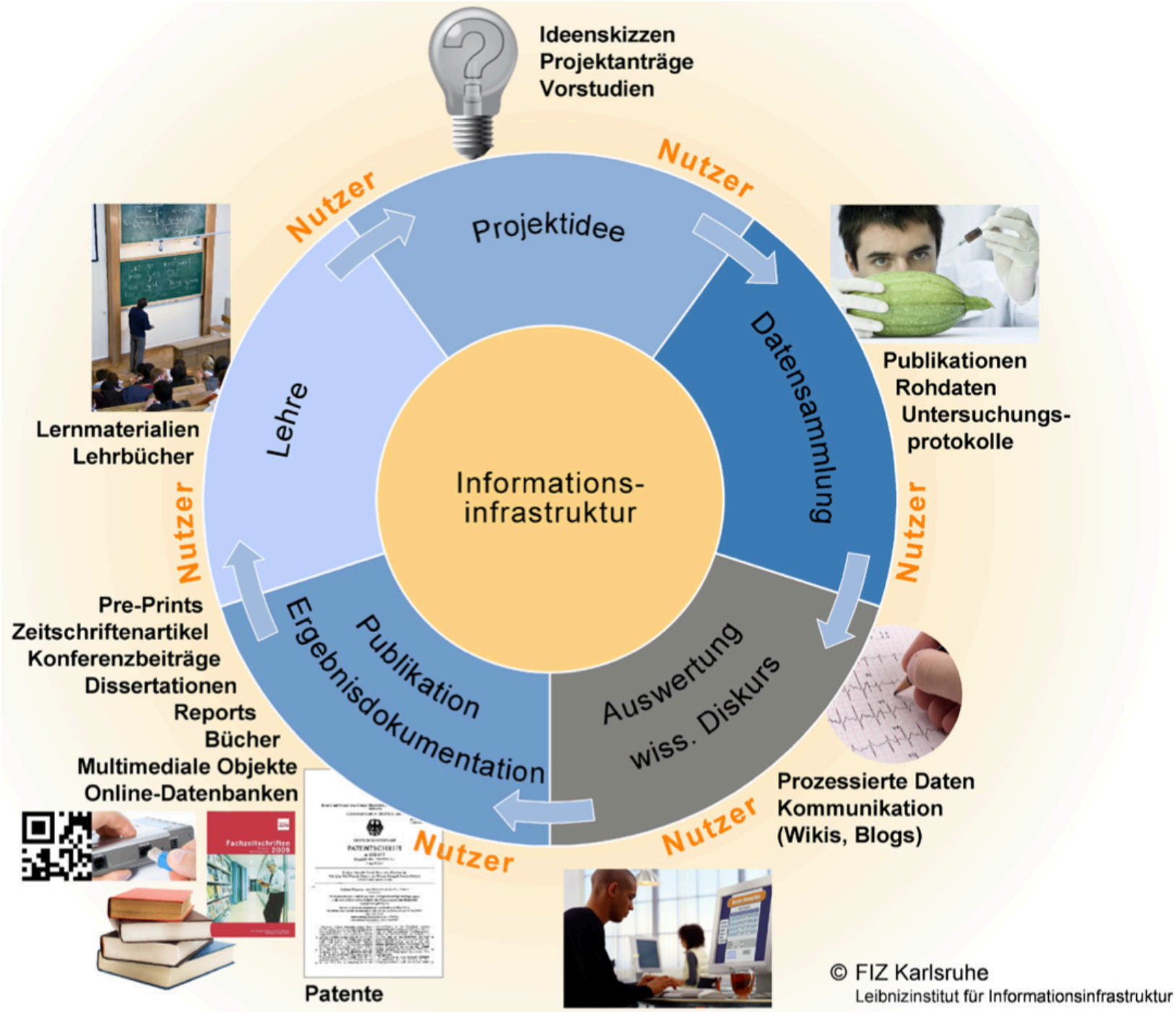
FORSCHUNGSPROZESS



Kommission Zukunft der Informationsinfrastruktur. (2011). Gesamtkonept für die Informationsinfrastruktur in Deutschland. Retrieved from http://www.allianz-initiative.de/fileadmin/user_upload/KII_Gesamtkonzept.pdf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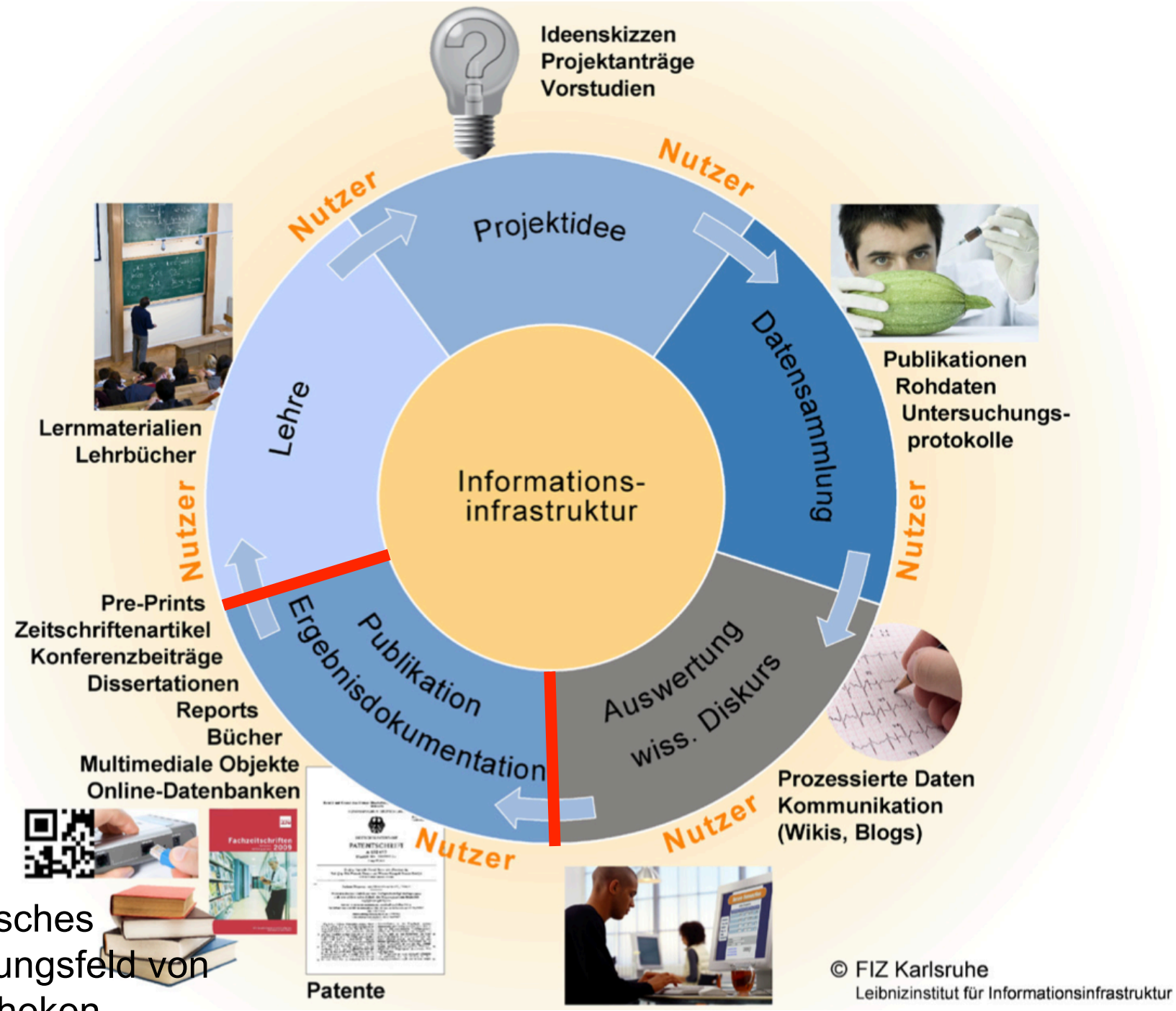

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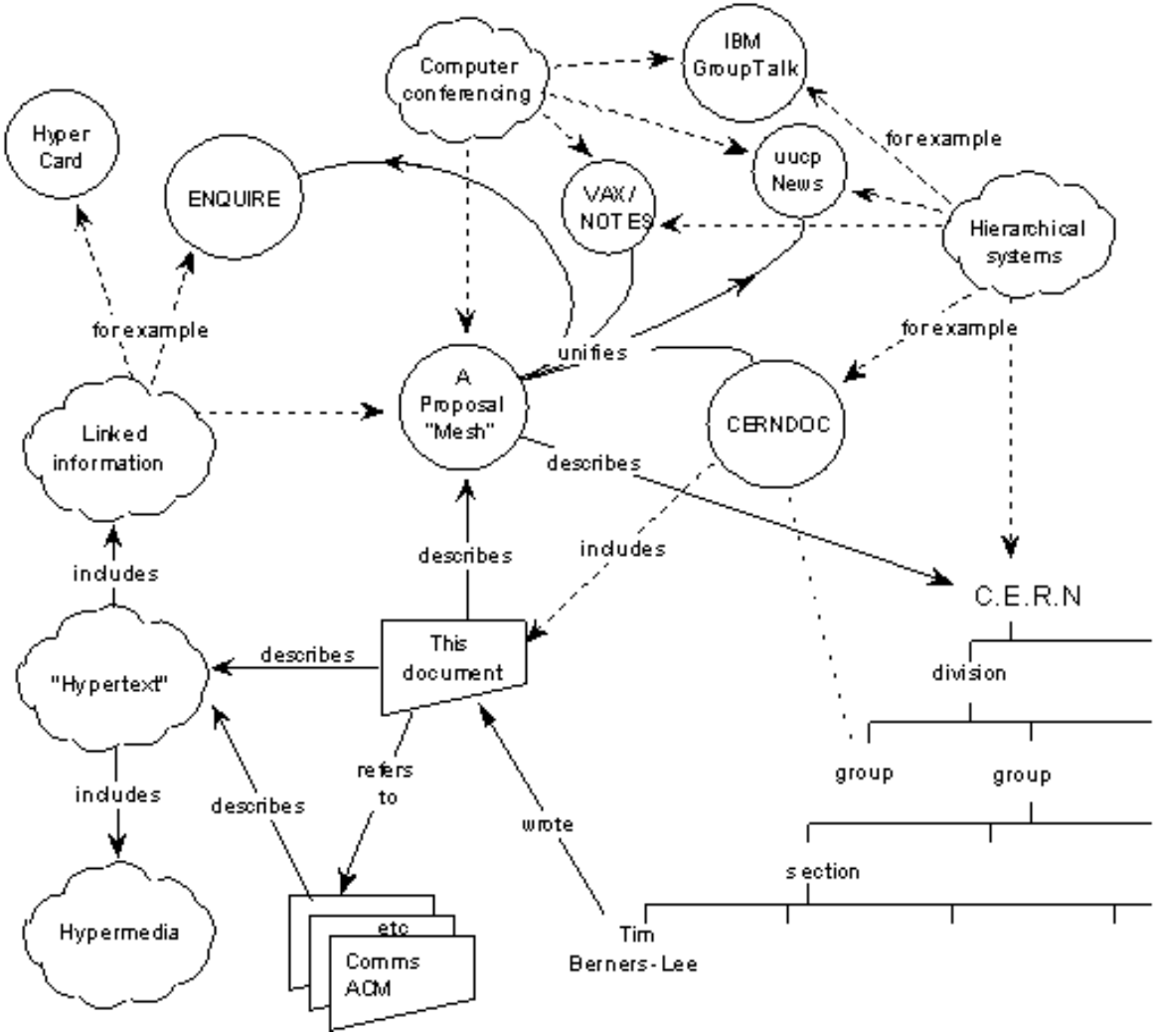

Berners-Lee, T. (1989). Information Management: A Proposal. Retrieved from http://www.w3.org/History/1989/proposal.html

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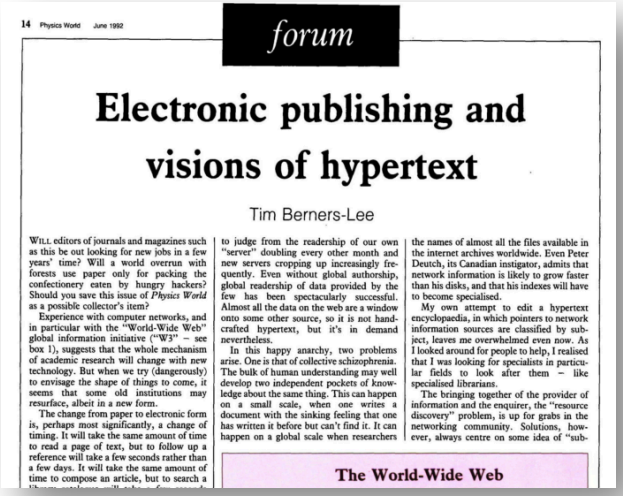


14 Physics World June 1992

forum

Electronic publishing and visions of hypertext

Tim Berners-Lee

WILL editors of journals and magazines such as this be out looking for new jobs in a few years' time? Will a world overrun with forests use paper only for packing the confectionery eaten by hungry hackers? Should you save this issue of *Physics World* as a possible collector's item?

Experience with computer networks, and in particular with the "World-Wide Web" global information initiative ("W3" – see box 1), suggests that the whole mechanism of academic research will change with new technology. But when we try (dangerously) to envisage the shape of things to come, it seems that some old institutions may resurface, albeit in a new form.

The change from paper to electronic form is, perhaps most significantly, a change of timing. It will take the same amount of time to read a page of text, but to follow up a reference will take a few seconds rather than a few days. It will take the same amount of time to compose an article, but to search a

to judge from the readership of our own "server" doubling every other month and new servers cropping up increasingly frequently. Even without global authorship, global readership of data provided by the few has been spectacularly successful. Almost all the data on the web are a window onto some other source, so it is not hand-crafted hypertext, but it's in demand nevertheless.

In this happy anarchy, two problems arise. One is that of collective schizophrenia. The bulk of human understanding may well develop two independent pockets of knowledge about the same thing. This can happen on a small scale, when one writes a document with the sinking feeling that one has written it before but can't find it. It can happen on a global scale when researchers

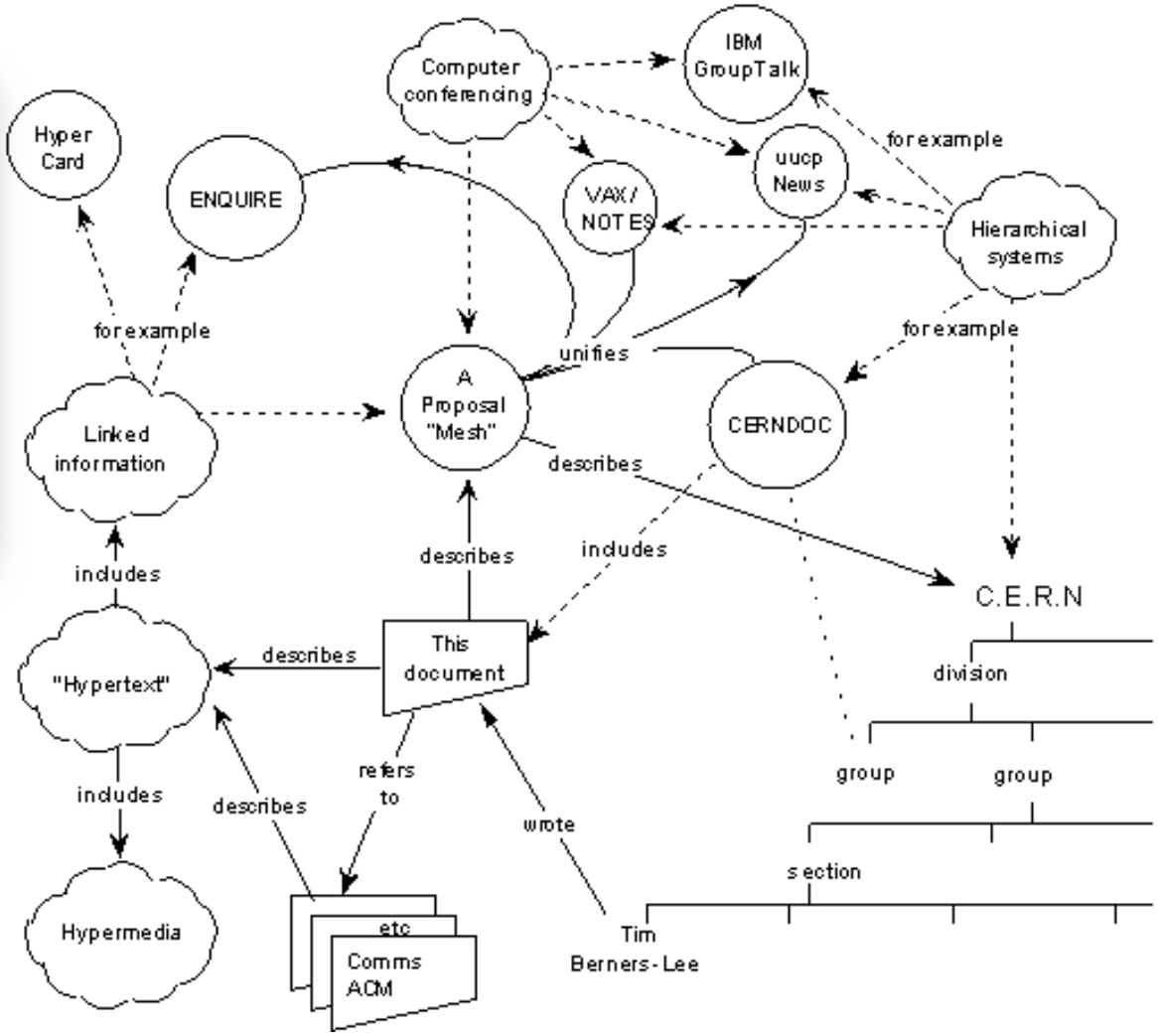
the names of almost all the files available in the internet archives worldwide. Even Peter Deutch, its Canadian instigator, admits that network information is likely to grow faster than his disks, and that his indexes will have to become specialised.

My own attempt to edit a hypertext encyclopaedia, in which pointers to network information sources are classified by subject, leaves me overwhelmed even now. As I looked around for people to help, I realised that I was looking for specialists in particular fields to look after them – like specialised librarians.

The bringing together of the provider of information and the enquirer, the "resource discovery" problem, is up for grabs in the networking community. Solutions, however, always centre on some idea of "sub-

The World-Wide Web

Berners-lee, T. (1992). Electronic publishing and visions of hypertext forum Electronic publishing and visions of hypertext. Physics World, (June), 14–18. Retrieved from http://physicsworldarchive.iop.org/full/pwa-pdf/5/6/phwv5i6a16.pdf



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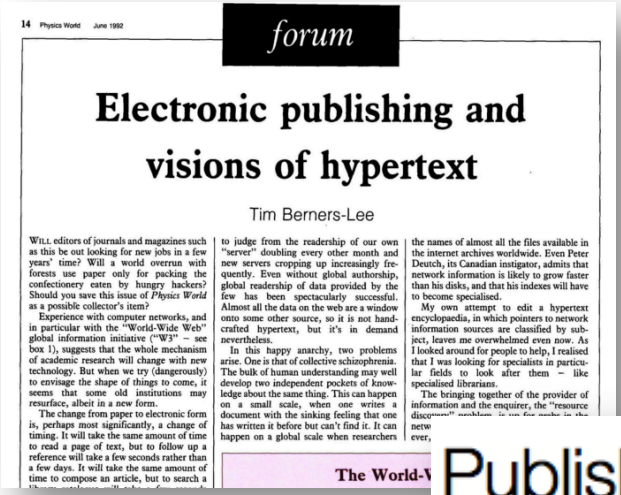

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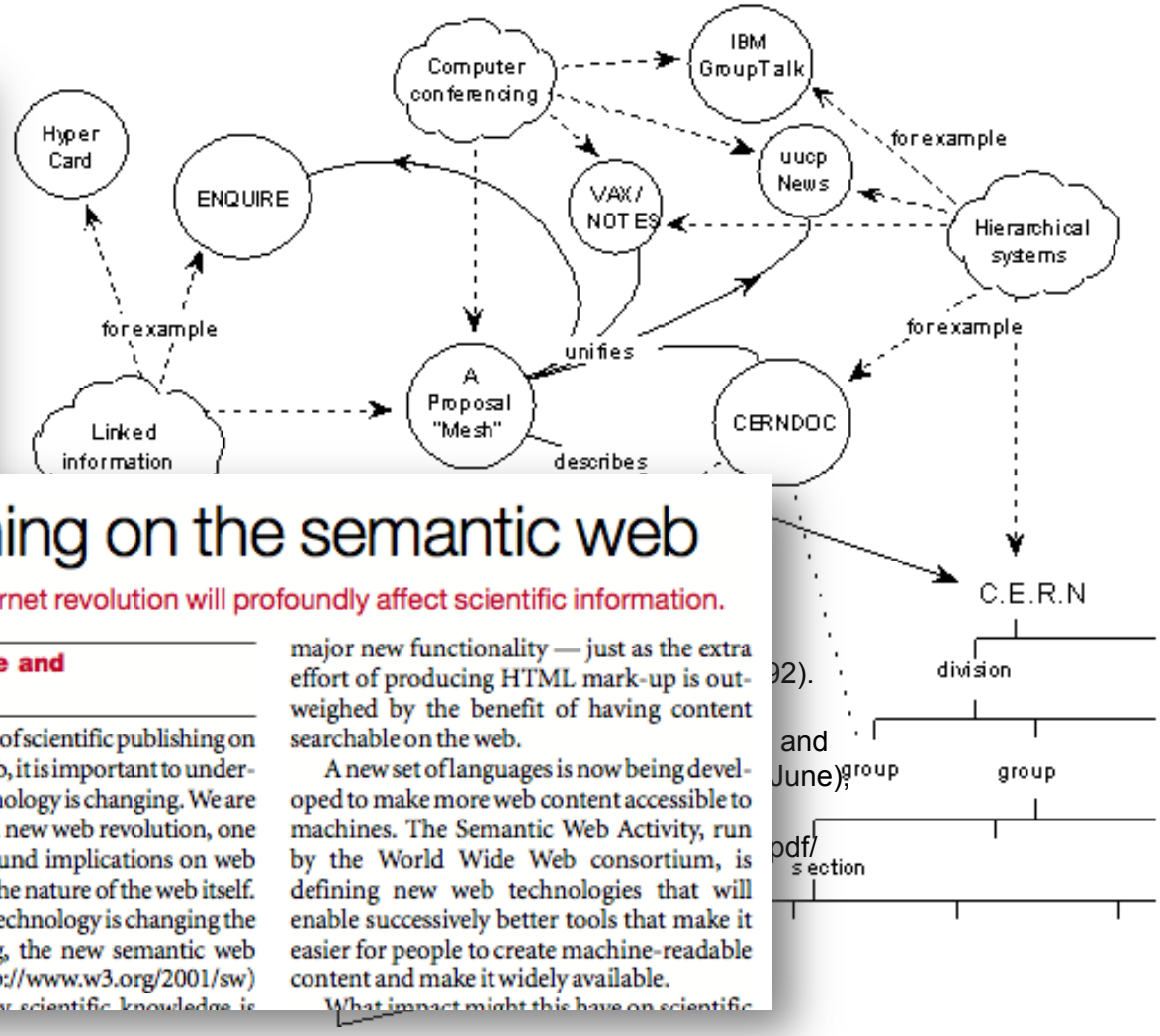

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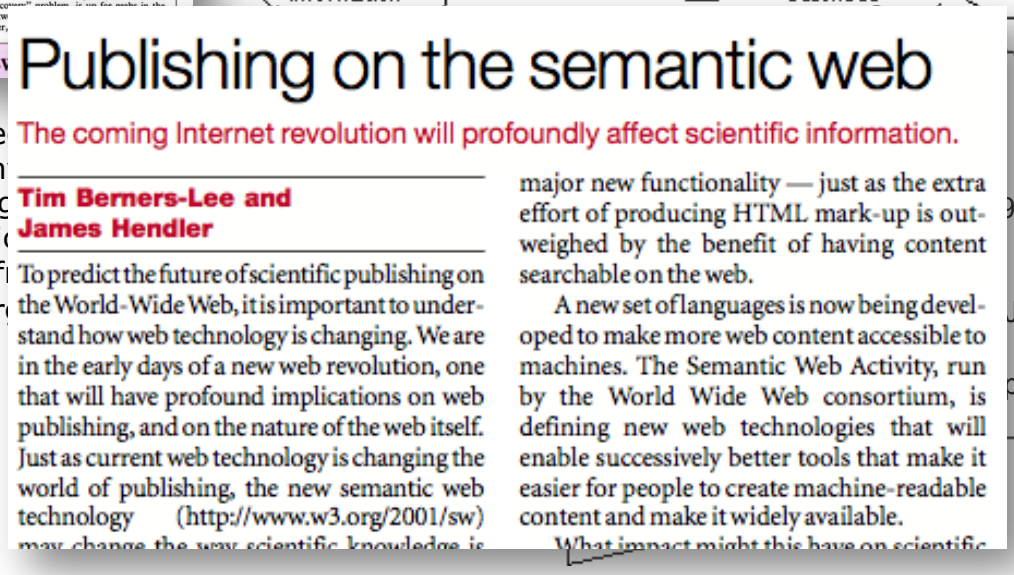


Publishing on the semantic web

The coming Internet revolution will profoundly affect scientific information.

Tim Berners-Lee and James Hendler

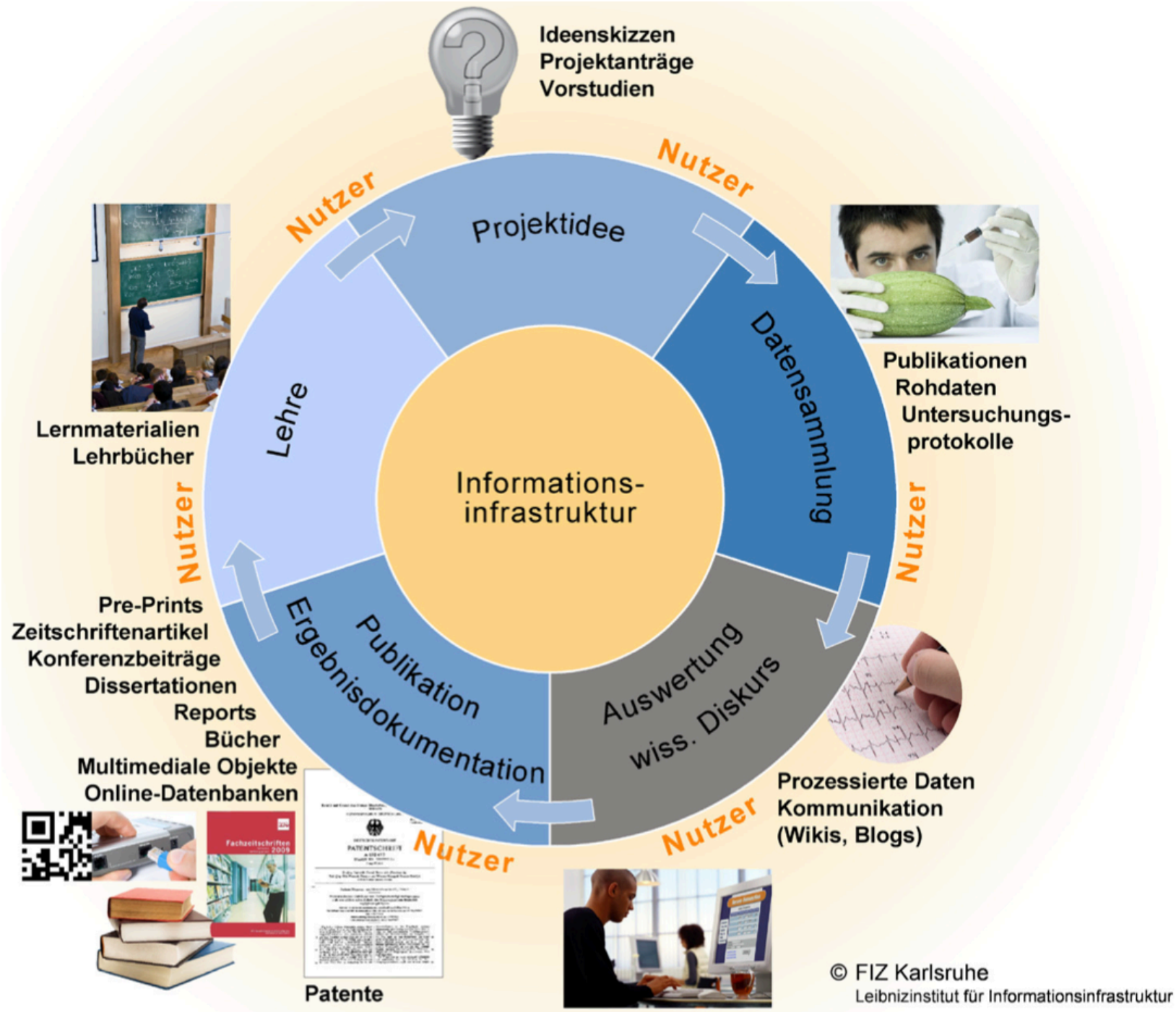
To predict the future of scientific publishing on the World-Wide Web, it is important to understand how web technology is changing. We are in the early days of a new web revolution, one that will have profound implications on web publishing, and on the nature of the web itself. Just as current web technology is changing the world of publishing, the new semantic web technology (http://www.w3.org/2001/sw) may change the way scientific knowledge is

major new functionality — just as the extra effort of producing HTML mark-up is outweighed by the benefit of having content searchable on the web.

A new set of languages is now being developed to make more web content accessible to machines. The Semantic Web Activity, run by the World Wide Web consortium, is defining new web technologies that will enable successively better tools that make it easier for people to create machine-readable content and make it widely available.

What impact might this have on scientific

Berners-Lee, T., & Hendler, J. (2001). Publishing on the semantic web. Nature, 410(6832), 1023–4. doi:10.1038/35074206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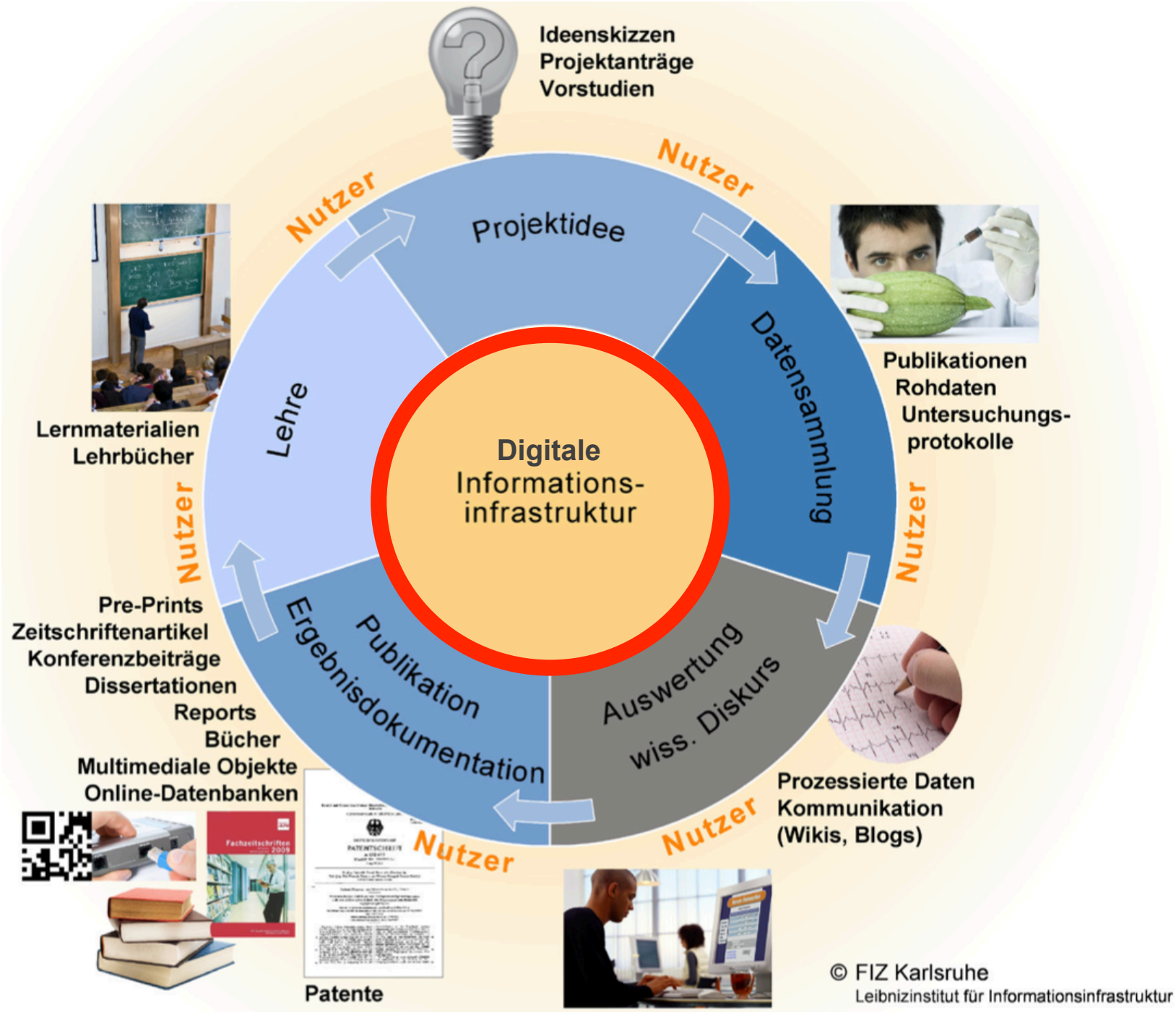
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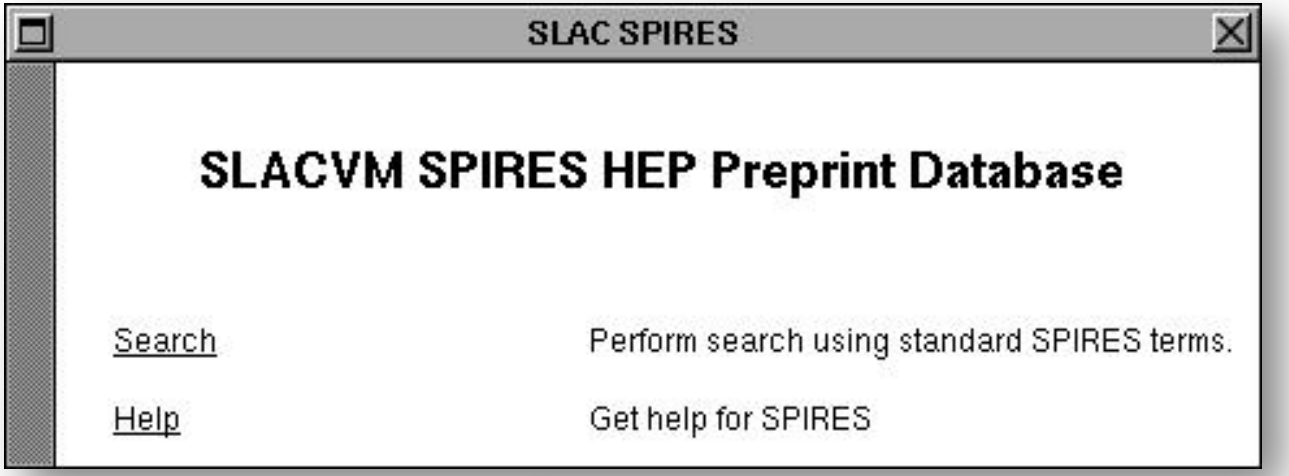
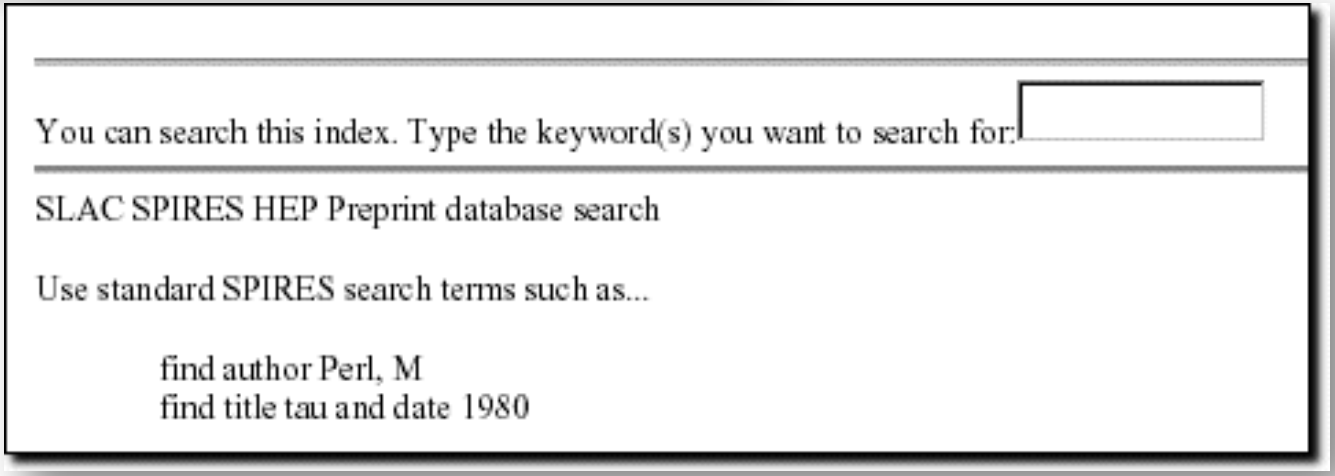


Khirallah, D. R. (2012). Happy Webiversary! Symmetry, Retrieved from http://www.symmetrymagazine.org/cms/?pid=1000922

SLAC (2006): The Early World Wide Web at SLAC. Retrieved from http://www.slac.stanford.edu/history/earlyweb/history.shtml



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Welcome to INSPIRE, the High Energy Physics information system. Please direct questions, comments or concerns to feedback@inspirehep.net.

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Information | Zitationen (3) | Dateien

Data from Figure 7 from: Measurements of Higgs boson production and couplings in diboson final states with the ATLAS detector at the LHC

ATLAS Collaboration (Aad, Georges (Freiburg U.) [...]) Zeige alle 2923 Autoren

Cite as: ATLAS Collaboration (2013) HepData, http://doi.org/10.7484/INSPIREHEP.DATA.A78C.HK44

Description: -2 log Likelihood for the H → γγ channel in the (μ_ggF+ttH * B/BSM, μ_VBF+VH * B/BSM) plane for a Higgs boson mass mH = 125.5 GeV.

Preview not available

Note: * Temporary entry *

This dataset complements the following publication:
Measurements of Higgs boson production and couplings in diboson final states with the ATLAS detector at the LHC

Datensatz erzeugt am 2013-09-11, letzte Änderung am 2013-12-16

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OPEN ACCESS

- Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003)
  - „Open Access-Veröffentlichungen umfassen **originäre wissenschaftliche Forschungsergebnisse** ebenso wie **Ursprungsdaten**, **Metadaten**, **Quellenmaterial**, digitale Darstellungen von **Bild- und Graphik-Material** und wissenschaftliches **Material in multimedialer Form**."
- Vorteile der Offenheit:
  - Transparenz der Forschung (Nachprüfbarkeit)
  - Effizienz der Forschung (Nachnutzung)
  - Steigerung der Wertschöpfung (Transfer)

Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003). Retrieved from http://oa.mpg.de/lang/de/berlin-prozess/berliner-erklarung/

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- Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003)
  - „Die Urheber und die Rechteinhaber solcher Veröffentlichungen gewähren allen Nutzern unwiderruflich das **freie, weltweite Zugangsrecht** zu diesen Veröffentlichungen und erlauben ihnen, diese Veröffentlichungen – in jedem beliebigen digitalen Medium und für jeden verantwortbaren Zweck – zu **kopieren**, zu **nutzen**, zu **verbreiten**, zu **übertragen** und **öffentlich wiederzugeben** sowie **Bearbeitungen** davon zu erstellen und zu verbreiten, **sofern die Urheberschaft korrekt angegeben wird**."

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Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003). Retrieved from http://oa.mpg.de/lang/de/berlin-prozess/berliner-erklarung/

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- 2003: Unterzeichnung der „Berliner Erklärung"
- 2004: Beschluss der Mitgliederversammlung
- 2005: Verabschiedung einer Roadmap
- 2006: Gründung eines Koordinationsbüros
- seit 2006: Projektarbeit
- seit 2008: Schwerpunktinitiative „Digitale Information" der Allianz der deutschen Wissenschaftsorganisationen
- seit 2010: EUROHORCs, Science Europe
- 2011: Compact for OA Publishing Equity
- 2013: Open-Access-Policy für die Helmholtz-Förderung

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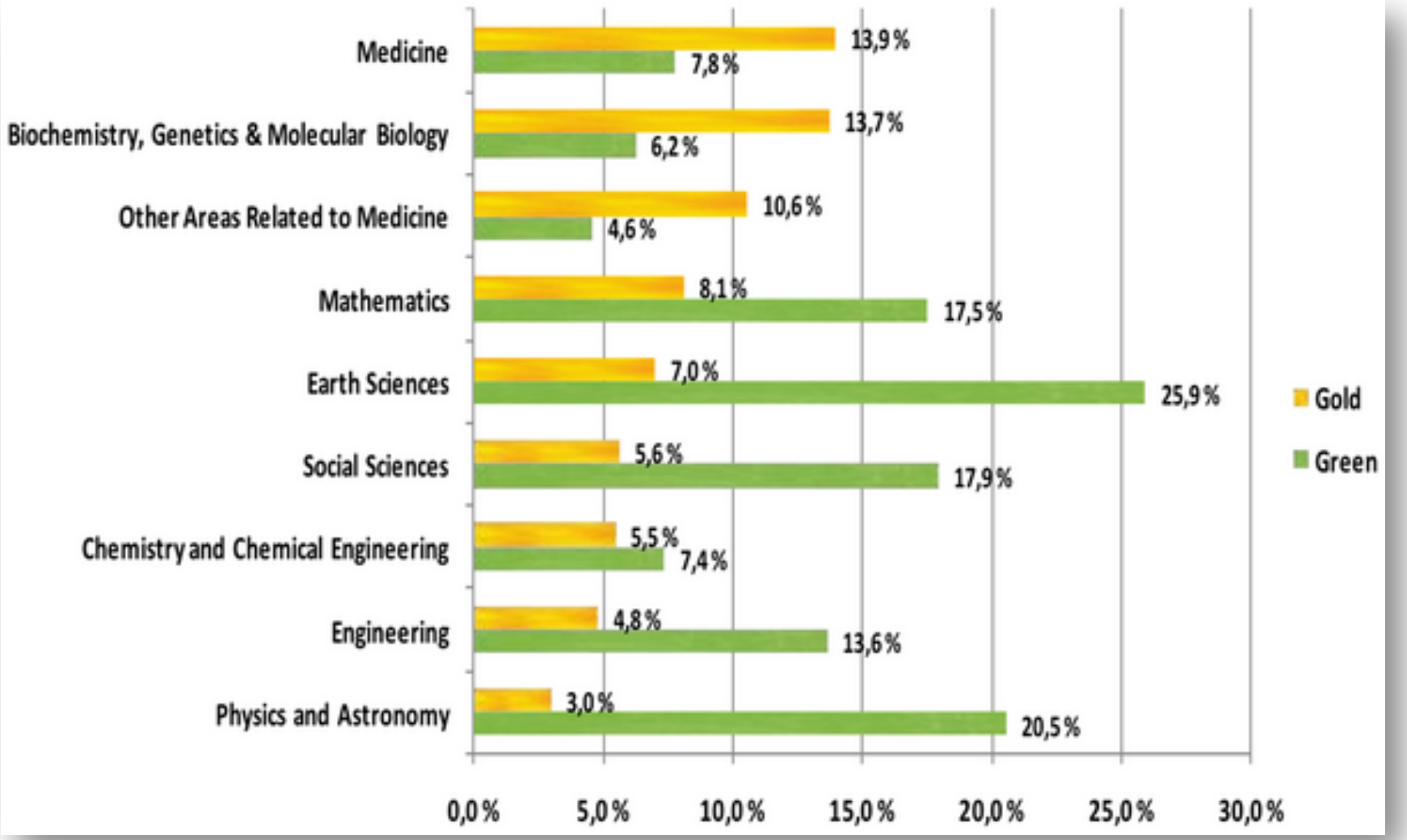

Björk, B.-C., et al. (2010). Open access to the scientific journal literature: situation 2009. PloS ONE, 5(6), e11273. doi:10.1371/journal.pone.0011273

OPEN ACCESS

EUROPÄISCHE KOMMISSION

PRESSEMITTEILUNG

Brüssel, den 21. August 2013

Freier Zugang zu Forschungsveröffentlichungen steht vor dem Durchbruch

Heute wurde in einer von der Europäischen Kommission finanzierten Studie bestätigt, dass die weltweite Umstellung auf die kostenlose Bereitstellung schriftlicher Forschungsergebnisse – auch als „Open Access" (freier Zugang) bezeichnet – kurz vor dem Durchbruch steht. Dieser Studie zufolge ist davon auszugehen, dass sich der freie Zugang durchgesetzt hat, dass also etwa 50 % aller im Jahre 2011 veröffentlichten wissenschaftlichen Artikel jetzt kostenlos abrufbar sind. Das ist das Doppelte dessen, was in vorangegangenen Studien vorhergesagt wurde; die neue Zahl erklärt sich durch ein genaueres Verfahren und eine breitere Definition

Archambault, É., et al. (2013). Proportion of open access peer-reviewed papers at the European and world levels - 2004-2011. Montréal. Retrieved from http://www.science-metrix.com/pdf/SM_EC_OA_Availability_2004-2011.pdf

OPEN ACCESS

- Bis 2016 sollen 60% der Publikationen, die im Rahmen der öffentlichen Forschung in Europa entstehen, frei zugänglich sein.
- Empfehlung an die EU-Mitgliedstaaten:
  - „Define **clear policies** for the dissemination of and open access to scientific publications resulting from publicly funded research. These policies should provide for: **concrete objectives** and **indicators to measure progress**; implementation plans, including the allocation of responsibilities; associated **financial planning**."
- Verankerung in der EU-Forschungsförderung (HORIZION 2020):
  - „articles will either immediately be made accessible online by the publisher ('**Gold**' open access) – up-front publication **costs can be eligible for reimbursement** by the European Commission; or
  - researchers will make their articles available through an open access repository **no later than six months** (12 months for articles in the fields of social sciences and humanities) after publication ('**Green**' open access)."

Pampel, H. (2012, July 17). EU-Kommission setzt auf Open Access und veröffentlicht Empfehlungen an die Mitgliedstaaten. ALBERTopen. Retrieved from http://albertopen.telegrafenberg.de/?p=678

OPEN ACCESS

- G8 Science Ministers Statement, 2013
  - Open Scientific Research Data
    - „Open scientific research data should be easily discoverable, accessible, assessable, intelligible, useable, and wherever possible interoperable to specific quality standards."
    - „To ensure successful adoption by scientific communities, open scientific research data appropriate principles will need to be underpinned by an policy environment, including recognition of researchers fulfilling these principles, and appropriate digital infrastructure."
  - Expanding Access to Scientific Research Results
    - „We endorse the principle that increasing access to the peer-reviewed, published results of publicly funded published research will accelerate research, drive innovation, and benefit the economy."
    - „We recognise that there are different routes to open access (green, gold and other innovative models) which need to be explored and potentially developed in a complementary way."

G8 Science Ministers. (2013). G8 Science Ministers Statement London UK, 12 June 2013. Retrieved from https://www.gov.uk/government/publications/g8-science-ministers-statement-london-12-june-2013

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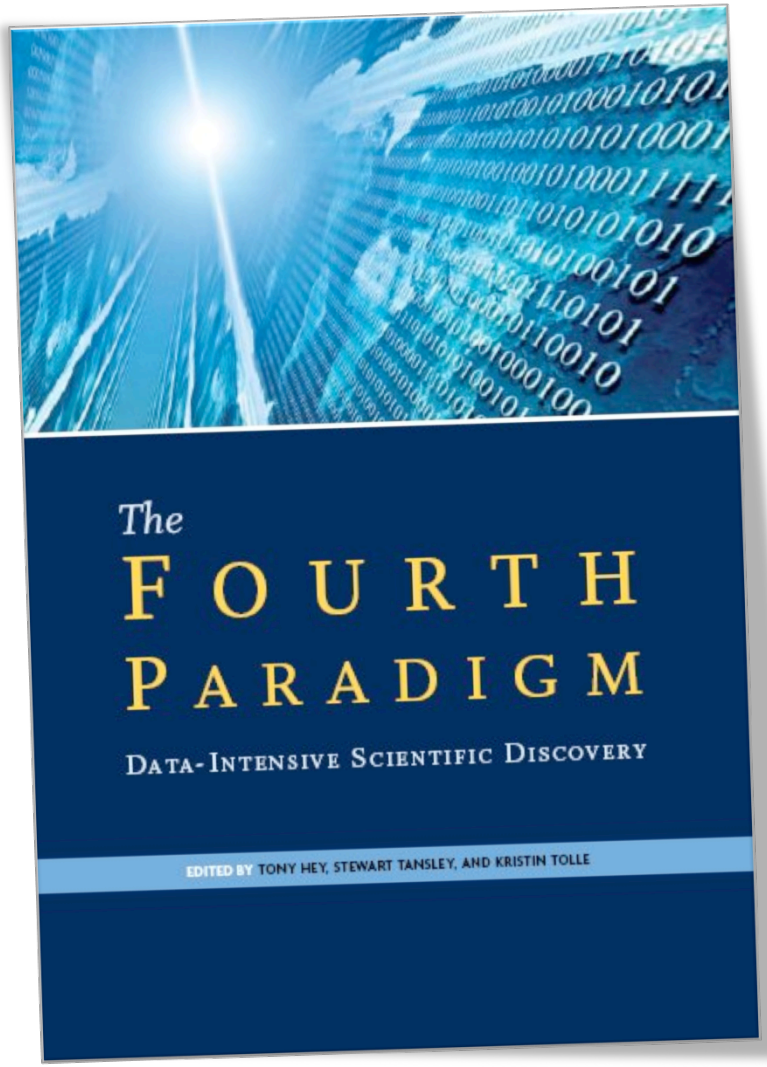

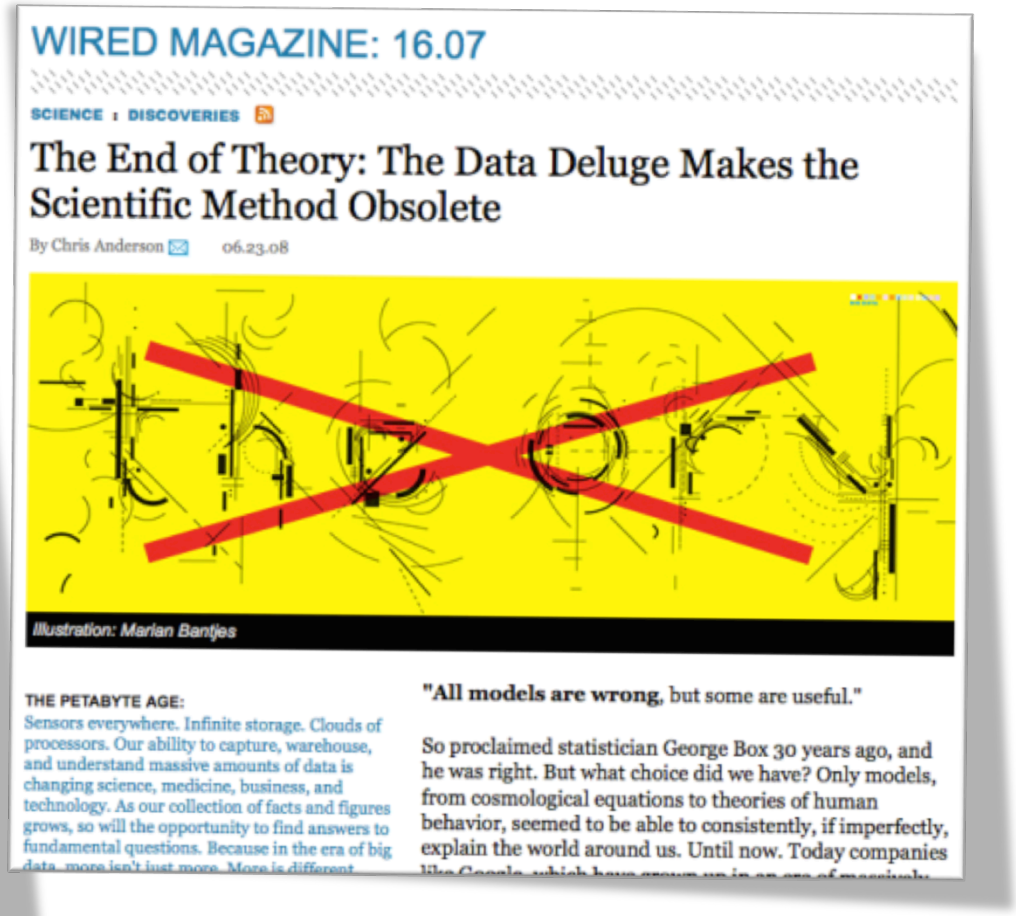

WIRED MAGAZINE: 16.07

SCIENCE : DISCOVERIES

The End of Theory: The Data Deluge Makes the Scientific Method Obsolete

By Chris Anderson 06.23.08

Illustration: Marian Bantjes

THE PETABYTE AGE:
Sensors everywhere. Infinite storage. Clouds of processors. Our ability to capture, warehouse, and understand massive amounts of data is changing science, medicine, business, and technology. As our collection of facts and figures grows, so will the opportunity to find answers to fundamental questions. Because in the era of big data, more isn't just more. More is different.

"All models are wrong, but some are useful."

So proclaimed statistician George Box 30 years ago, and he was right. But what choice did we have? Only models, from cosmological equations to theories of human behavior, seemed to be able to consistently, if imperfectly, explain the world around us. Until now. Today companies

Anderson, C. (2008). The End of Theory : The Data Deluge Makes the Scientific Method Obsolete. Wired Magazine, (16.07). Retrieved from http://www.wired.com/science/discoveries/magazine/16-07/pb_theory

Hey, T., Tansley, S., & Tolle, K. (Eds.). (2009). The Fourth Paradigm. Data-Intensive Scientific Discovery (Version 1.). Redmond, Washington: Microsoft Research. Retrieved from http://research.microsoft.com/fourthparadigm/

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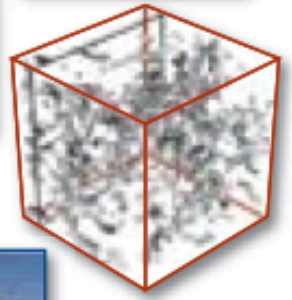
Science Paradigms

- Thousand years ago:
  science was **empirical**
  describing natural phenomena
- Last few hundred years:
  theoretical branch
  using models, generalizations
- Last few decades:
  a **computational** branch
  simulating complex phenomena
- Today: **data exploration** (eScience)
  unify theory, experiment, and simulation
  - Data captured by instruments or generated by simulator
  - Processed by software
  - Information/knowledge stored in computer
  - Scientist analyzes database/files using data management and statistics

$$\left(\frac{\dot{a}}{a}\right)^2 = \frac{4\pi G p}{3} - K\frac{c^2}{a^2}$$



(Version 1.). Redmond, Washington: Microsoft Research. Retrieved from http://research.microsoft.com/fourthparadigm/

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- „Data-Intensive Scientific Discovery“

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PLOS | ONE

The Expression of Emotions in 20th Century Books

Alberto Acerbi[1,2*], Vasileios Lampos[3], Philip Garnett[4], R. Alexander Bentley[1]

1 Department of Archaeology and Anthropology, University of Bristol, Bristol, United Kingdom, **2** Centre for the Study of Cultural Evolution, Stockholm University, Stockholm, Sweden, **3** Department of Computer Science, University of Sheffield, Sheffield, United Kingdom, **4** Department of Anthropology, Durham University, Durham, United Kingdom

Abstract

We report here trends in the usage of "mood" words, that is, words carrying emotional content, in 20th century English language books, using the data set provided by Google that includes word frequencies in roughly 4% of all books published up to the year 2008. We find evidence for distinct historical periods of positive and negative moods, underlain by a general decrease in the use of emotion-related words through time. Finally, we show that, in books, American English has become decidedly more "emotional" than British English in the last half-century, as a part of a more general increase of the stylistic divergence between the two variants of English language.

Citation: Acerbi A, Lampos V, Garnett P, Bentley RA (2013) The Expression of Emotions in 20th Century Books. PLoS ONE 8(3): e59030. doi:10.1371/journal.pone.0059030

Editor: Sune Lehmann, Technical University of Denmark, Denmark

Received July 26, 2012; **Accepted** February 11, 2013; **Published** March 20, 2013

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Funding: This research was partially supported by the Leverhulme Trust "Tipping Points" program. A. Acerbi was initially supported by the "Uniquely Human" project funded by the Swedish Research Council, and then by a Newton International Fellowship. V. Lampos acknowledges the support from the TrendMiner project (EU-FP7-ICT n.287863). The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Competing Interests: Co-author R. Alexander Bentley is a PLOS ONE Editorial Board member. This does not alter the authors' adherence to all the PLOS ONE policies on sharing data and materials.

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Acerbi, A., Lampos, V., Garnett, P., & Bentley, R. A. (2013). The Expression of Emotions in 20th Century Books. (S. Lehmann, Ed.)PLoS ONE, 8(3), e59030. doi:10.1371/journal.pone.0059030

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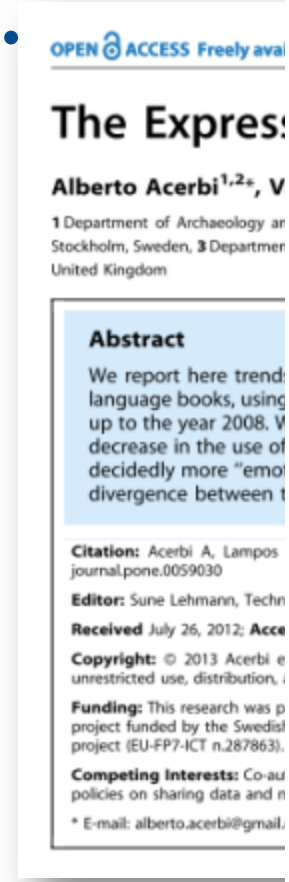
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The Expres

Alberto Acerbi[1,2*], V

1 Department of Archaeology ar
Stockholm, Sweden, 3 Departmer
United Kingdom

Abstract

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Citation: Acerbi A, Lampos
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Editor: Sune Lehmann, Techn

Received July 26, 2012; Acce

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Funding: This research was p
project funded by the Swedisl
project (EU-FP7-ICT n.287863).

Competing Interests: Co-au
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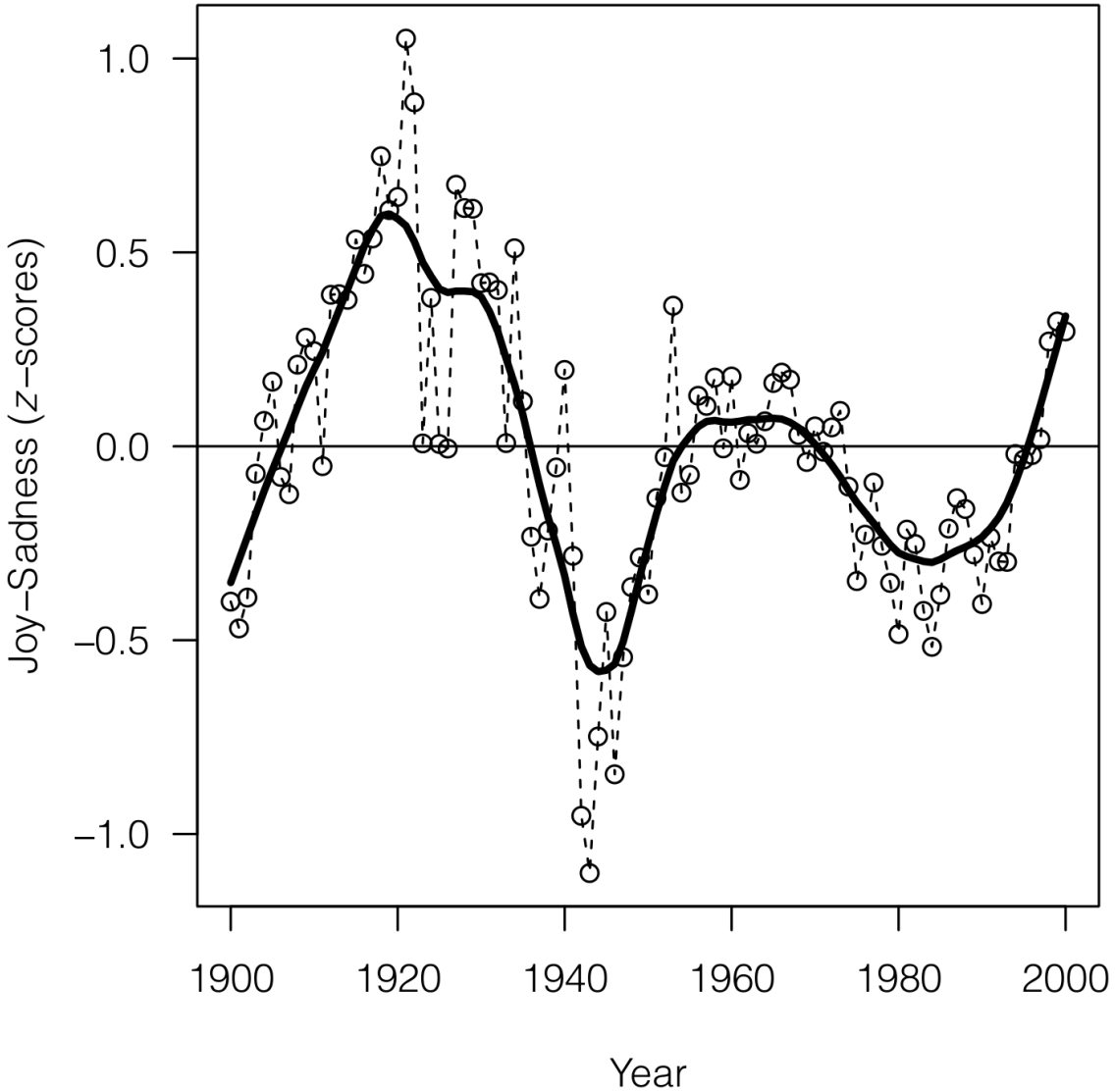
* E-mail: alberto.acerbi@gmail.



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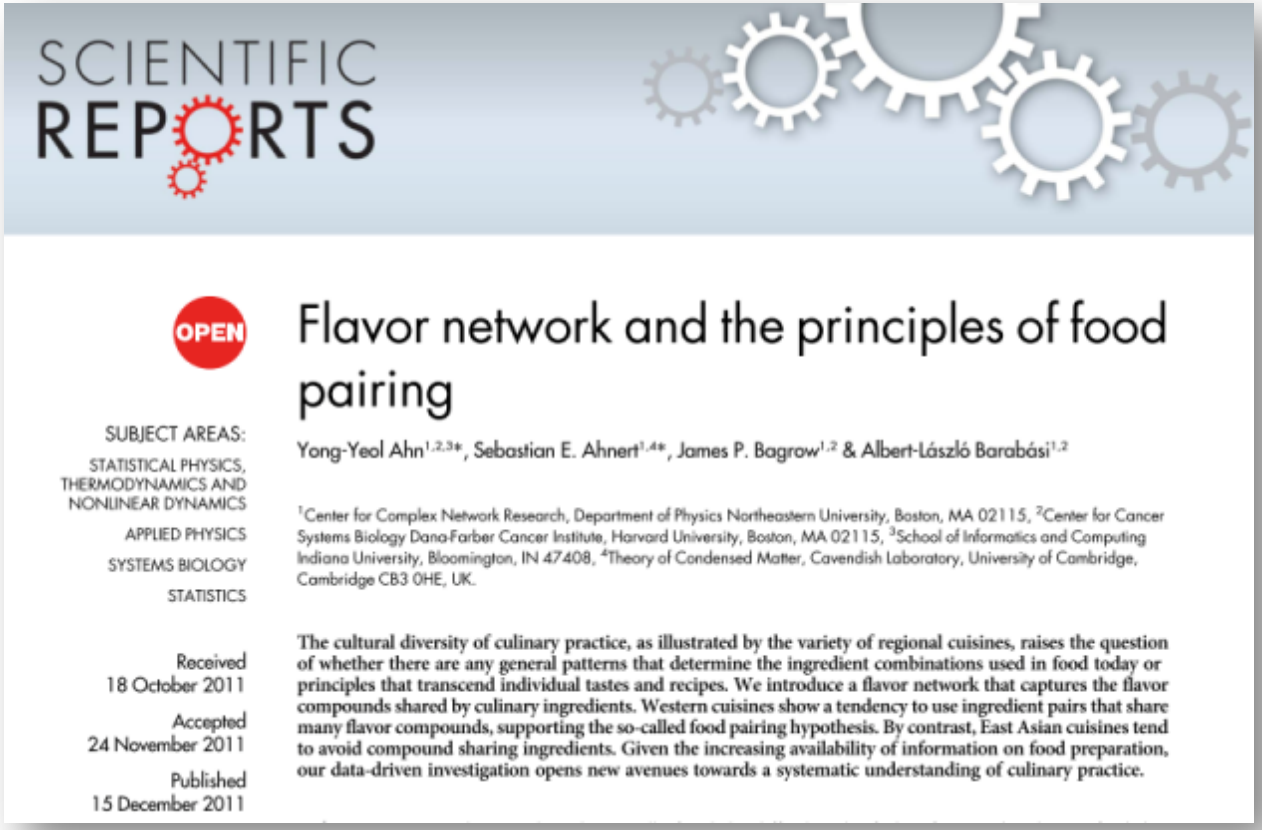

SCIENTIFIC REPORTS

OPEN

Flavor network and the principles of food pairing

Yong-Yeol Ahn[1,2,3]*, Sebastian E. Ahnert[1,4]*, James P. Bagrow[1,2] & Albert-László Barabási[1,2]

[1]Center for Complex Network Research, Department of Physics Northeastern University, Boston, MA 02115, [2]Center for Cancer Systems Biology Dana-Farber Cancer Institute, Harvard University, Boston, MA 02115, [3]School of Informatics and Computing Indiana University, Bloomington, IN 47408, [4]Theory of Condensed Matter, Cavendish Laboratory, University of Cambridge, Cambridge CB3 0HE, UK.

SUBJECT AREAS:
STATISTICAL PHYSICS, THERMODYNAMICS AND NONLINEAR DYNAMICS
APPLIED PHYSICS
SYSTEMS BIOLOGY
STATISTICS

Received
18 October 2011
Accepted
24 November 2011
Published
15 December 2011

The cultural diversity of culinary practice, as illustrated by the variety of regional cuisines, raises the question of whether there are any general patterns that determine the ingredient combinations used in food today or principles that transcend individual tastes and recipes. We introduce a flavor network that captures the flavor compounds shared by culinary ingredients. Western cuisines show a tendency to use ingredient pairs that share many flavor compounds, supporting the so-called food pairing hypothesis. By contrast, East Asian cuisines tend to avoid compound sharing ingredients. Given the increasing availability of information on food preparation, our data-driven investigation opens new avenues towards a systematic understanding of culinary practice.

Ahn, Y.-Y., Ahnert, S. E., Bagrow, J. P., & Barabási, A.-L. (2011). Flavor network and the principles of food pairing. Scientific reports, 1, 196. doi: 10.1038/srep00196

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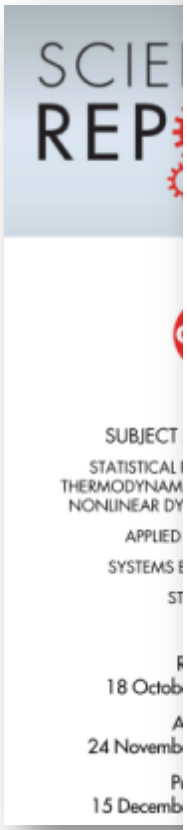

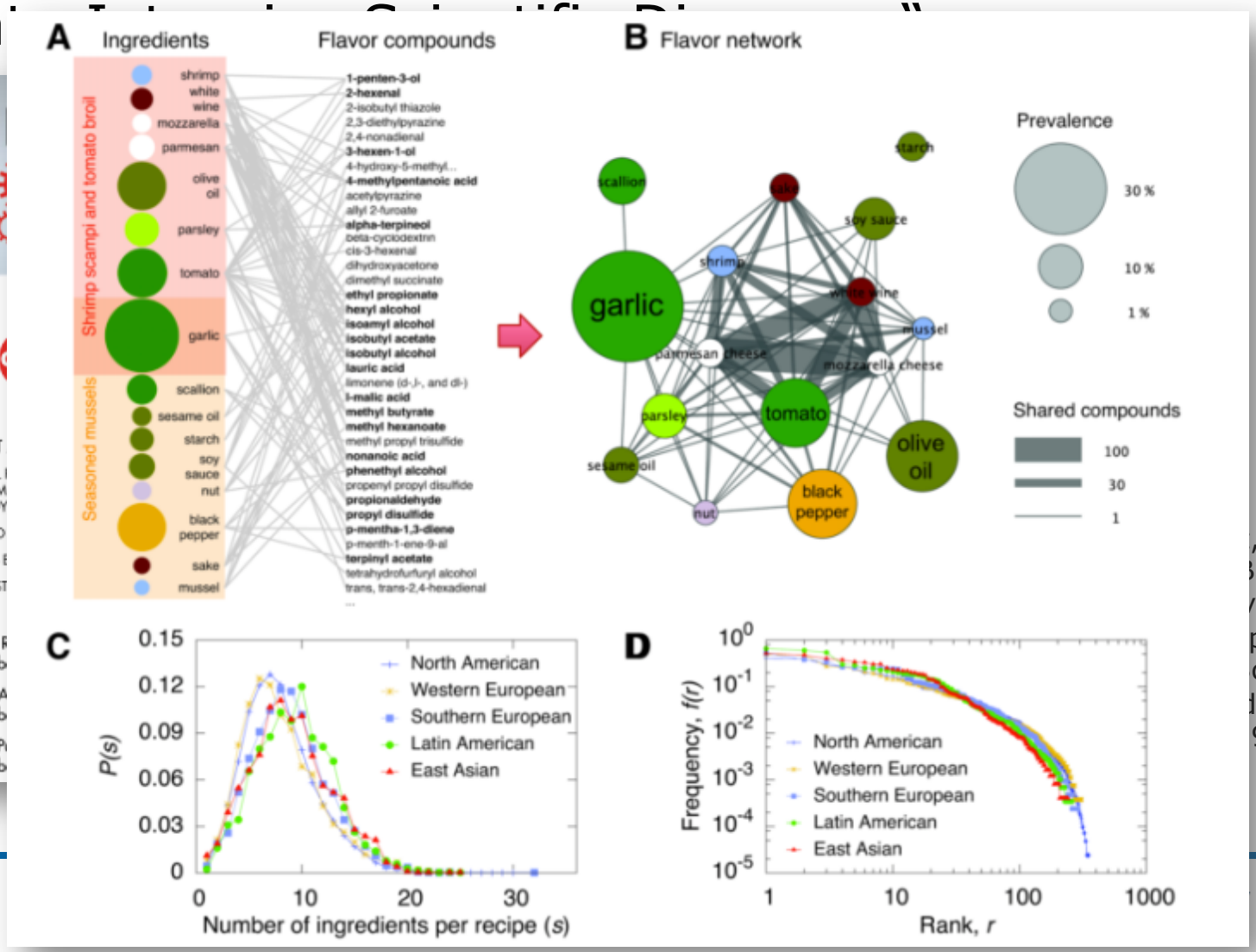

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- „Data-Intensive Scientific Discovery“

Sciencexpress | Reports

Tracking Individuals Shows Spatial Fidelity Is a Key Regulator of Ant Social Organization

Danielle P. Mersch,[1*] Alessandro Crespi,[2] Laurent Keller[1*]

[1]Department of Ecology and Evolution, University of Lausanne, Switzerland. [2]Biorobotics Laboratory, Ecole Polytechnique Fédérale de Lausanne, Switzerland.

*Corresponding author. E-mail: Danielle.Mersch@unil.ch (D.P.M.); Laurent.Keller@unil.ch (L.K.)

Ants live in organized societies with a marked division of labor among workers, but little is known about how this is generated. We use a tracking system to continuously monitor individually-tagged workers in six colonies of the ant *Camponotus fellah* over 41 days. Network analyses of over 9 million interactions revealed three distinct groups that differ in behavioral repertoires. Each group represents a functional behavioral unit with workers moving from one group to the next as they age. The rate of interactions was much higher within than between groups. The precise information on spatial and temporal distribution of all individuals permitted calculation of the expected rates of within- and between-group interactions. These values suggest that the network of interaction within colonies is primarily mediated by age-induced changes in the spatial location of workers.

Ant colonies have long fascinated human beings with their complex and

(fig. S1). The position and orientation of all individuals were recorded twice per second to reconstruct spatial movement and infer all social interactions occurring over the 41 days of the experiment. A pair of ants was considered to interact when the front end of one ant was located within the trapezoidal shape representing the other ant (12) (fig. S4). The data set obtained consisted of a total of 2,433,250,580 ant positions and 9,363,100 social interactions (movies S2 and S3).

We used this data set to first investigate whether workers organize themselves into cohesive social groups by using the Infomap community detection algorithm (13). To facilitate data analysis, we split the 41 experimental days into four periods of 11, 10, 10 and 10 days. In each of these periods we identified pairs of interacting ants. Analyses on the daily interaction networks of the first 11 days (supplementary text) revealed two robust groups to which the same set of workers was affiliated on almost all days. The first group always comprised the queen and 41 ± 12% (percentage ± SD across the six colonies, Fig. 1A) of the workers, while the

second group represented 31 ± 11% of the colony's workforce. Depend-

icemag.org on May 21, 2013

Mersch, D. P., Crespi, A., & Keller, L. (2013). Tracking Individuals Shows Spatial Fidelity Is a Key Regulator of Ant Social Organization. Science, 9(10), 735–48. doi:10.1126/science.1234316

Supplementary data:

http://dx.doi.org/10.5061/dryad.8d8h7

Supplementary video:

http://youtu.be/UbRRS-eDL0o

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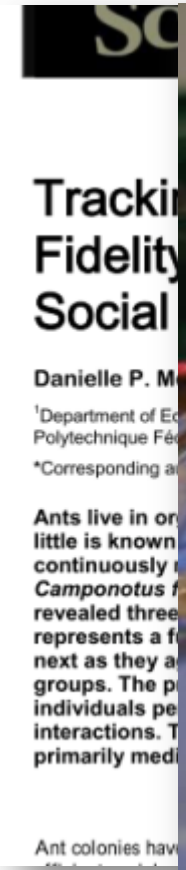
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Danielle P. M

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*Corresponding a

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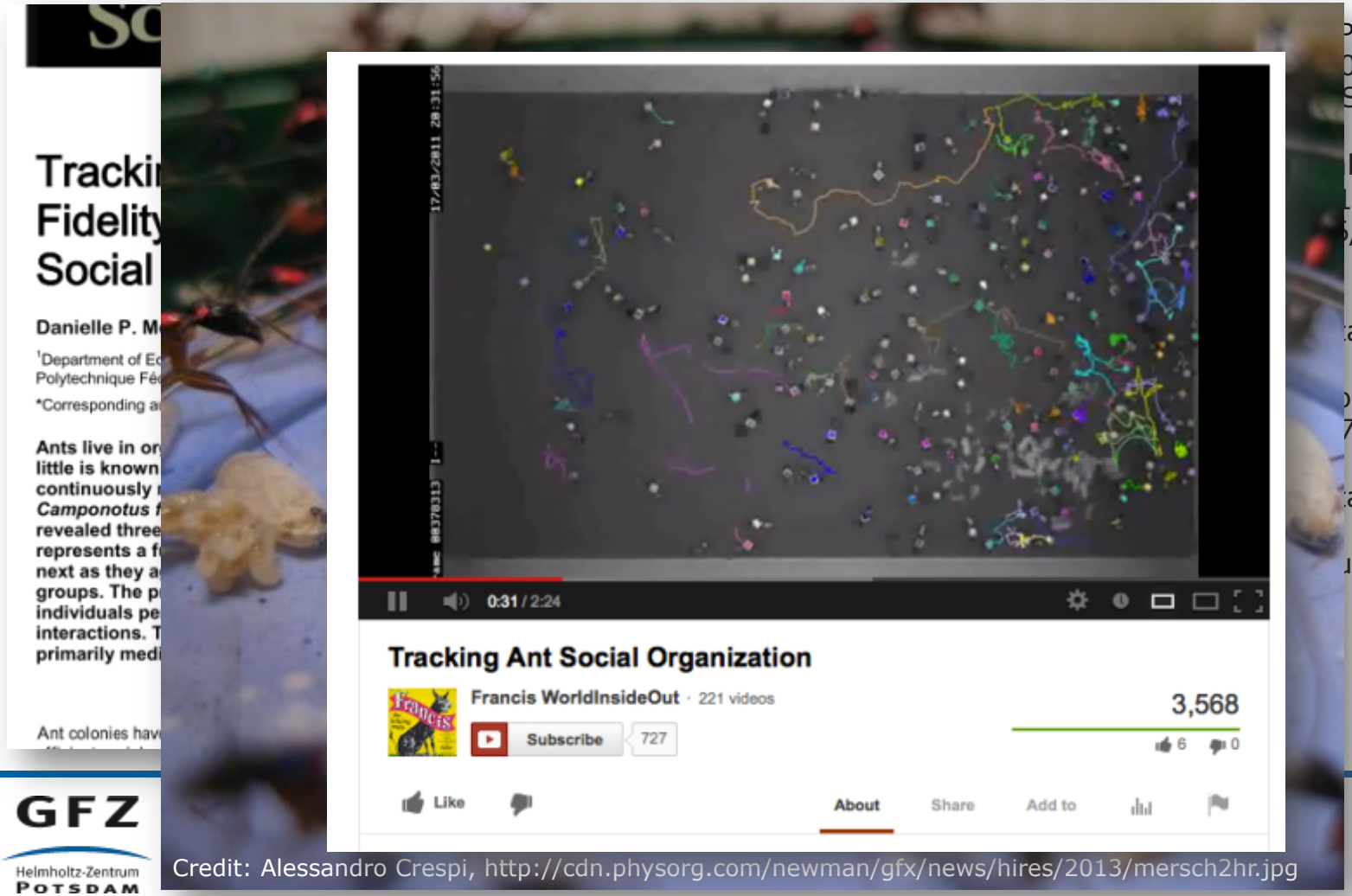

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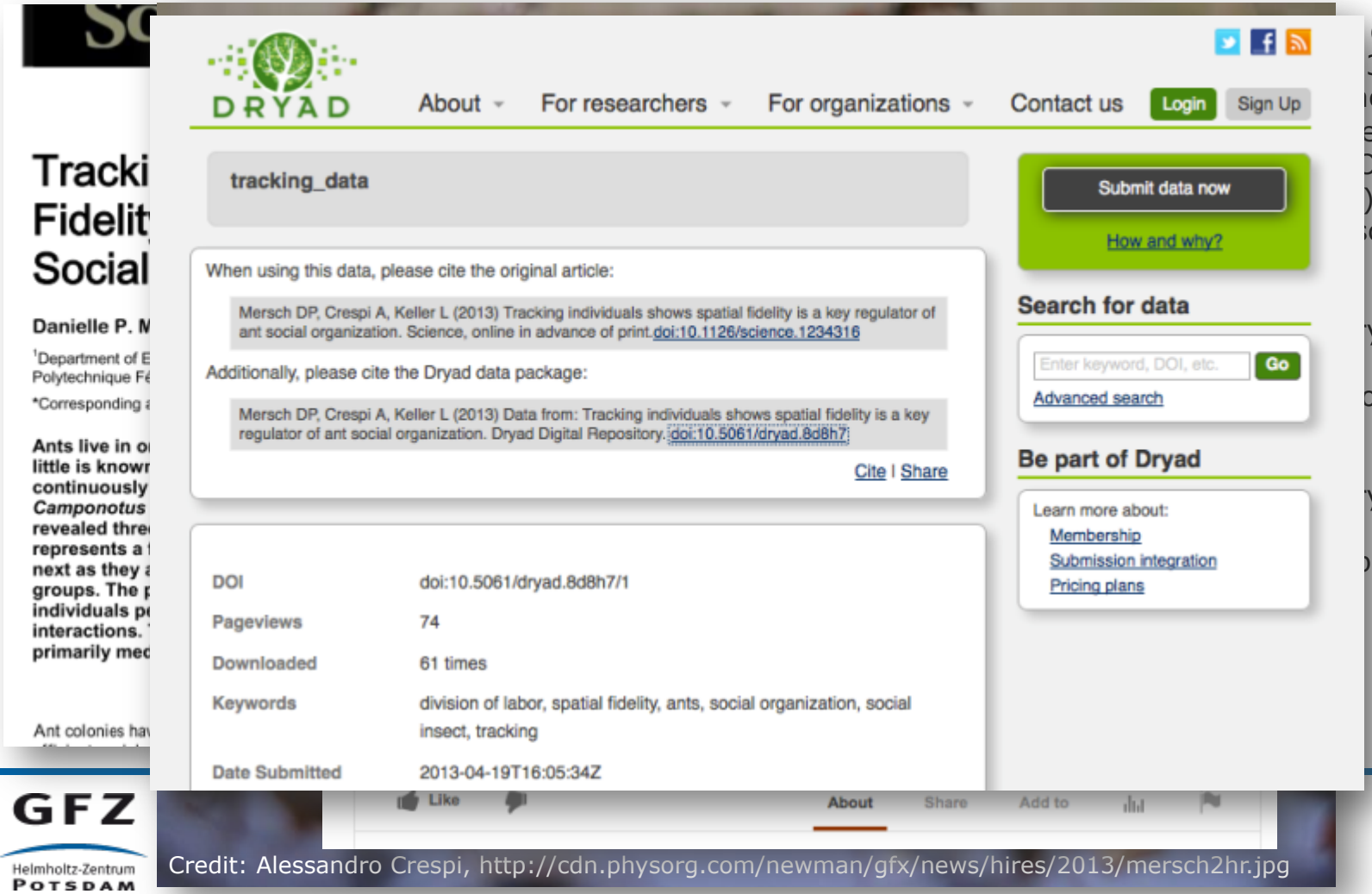

Credit: Alessandro Crespi, http://cdn.physorg.com/newman/gfx/news/hires/2013/mersch2hr.jpg

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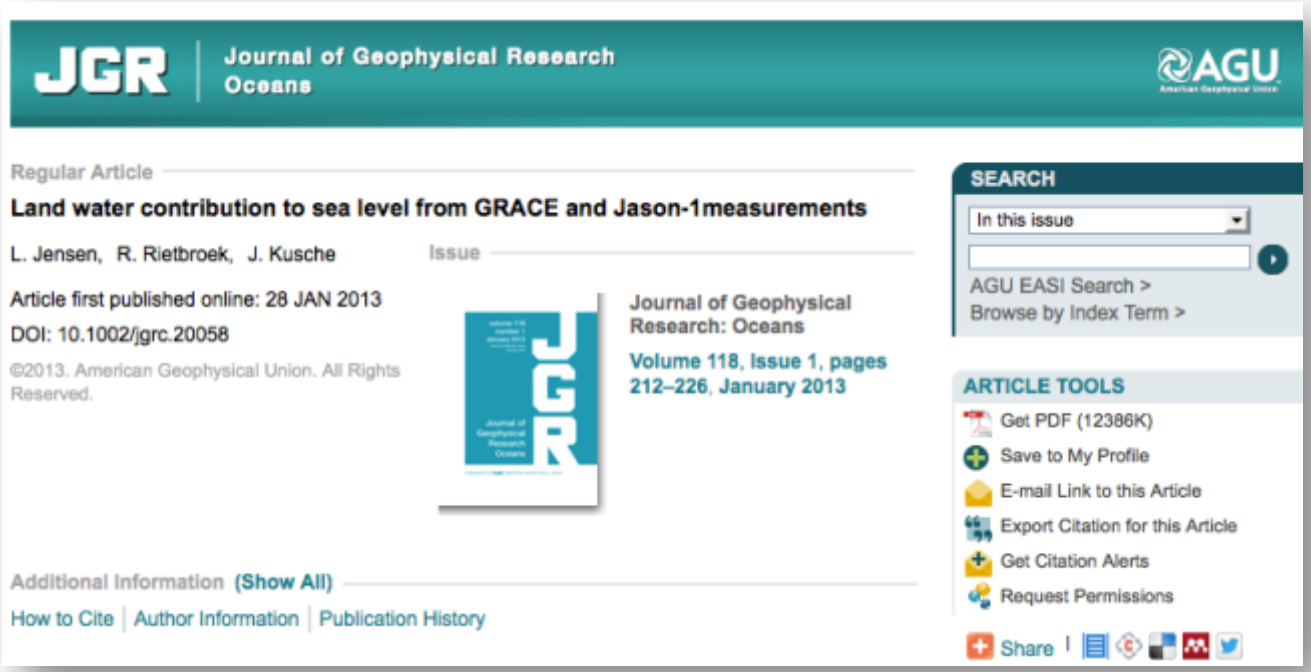

Jensen, L., Rietbroek, R., & Kusche, J. (2013). Land water contribution to sea level from GRACE and Jason-1measurements. Journal of Geophysical Research: Oceans, 118(1), 212–226. doi:10.1002/jgrc.20058

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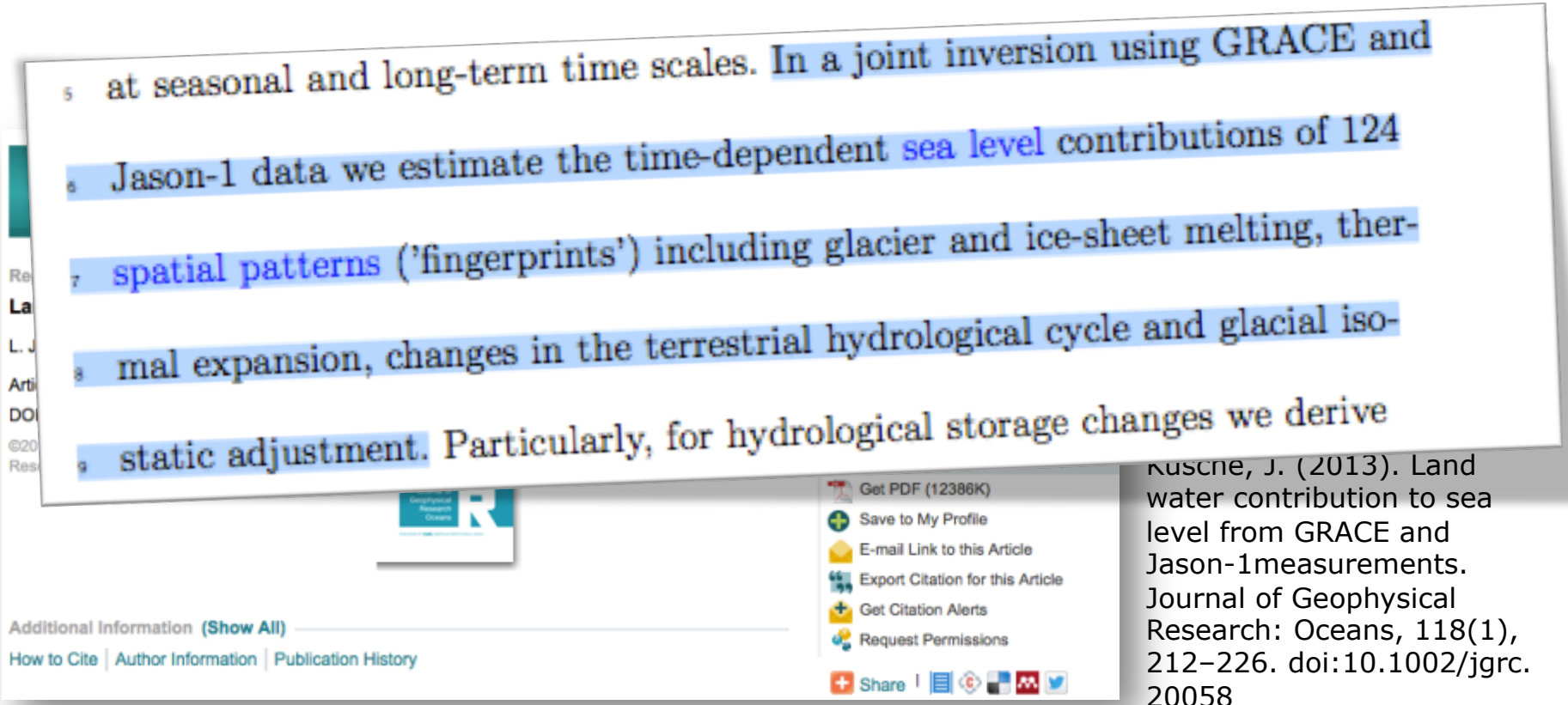
at seasonal and long-term time scales. In a joint inversion using GRACE and Jason-1 data we estimate the time-dependent sea level contributions of 124 spatial patterns ('fingerprints') including glacier and ice-sheet melting, thermal expansion, changes in the terrestrial hydrological cycle and glacial isostatic adjustment. Particularly, for hydrological storage changes we derive

Kusche, J. (2013). Land water contribution to sea level from GRACE and Jason-1measurements. Journal of Geophysical Research: Oceans, 118(1), 212–226. doi:10.1002/jgrc.20058

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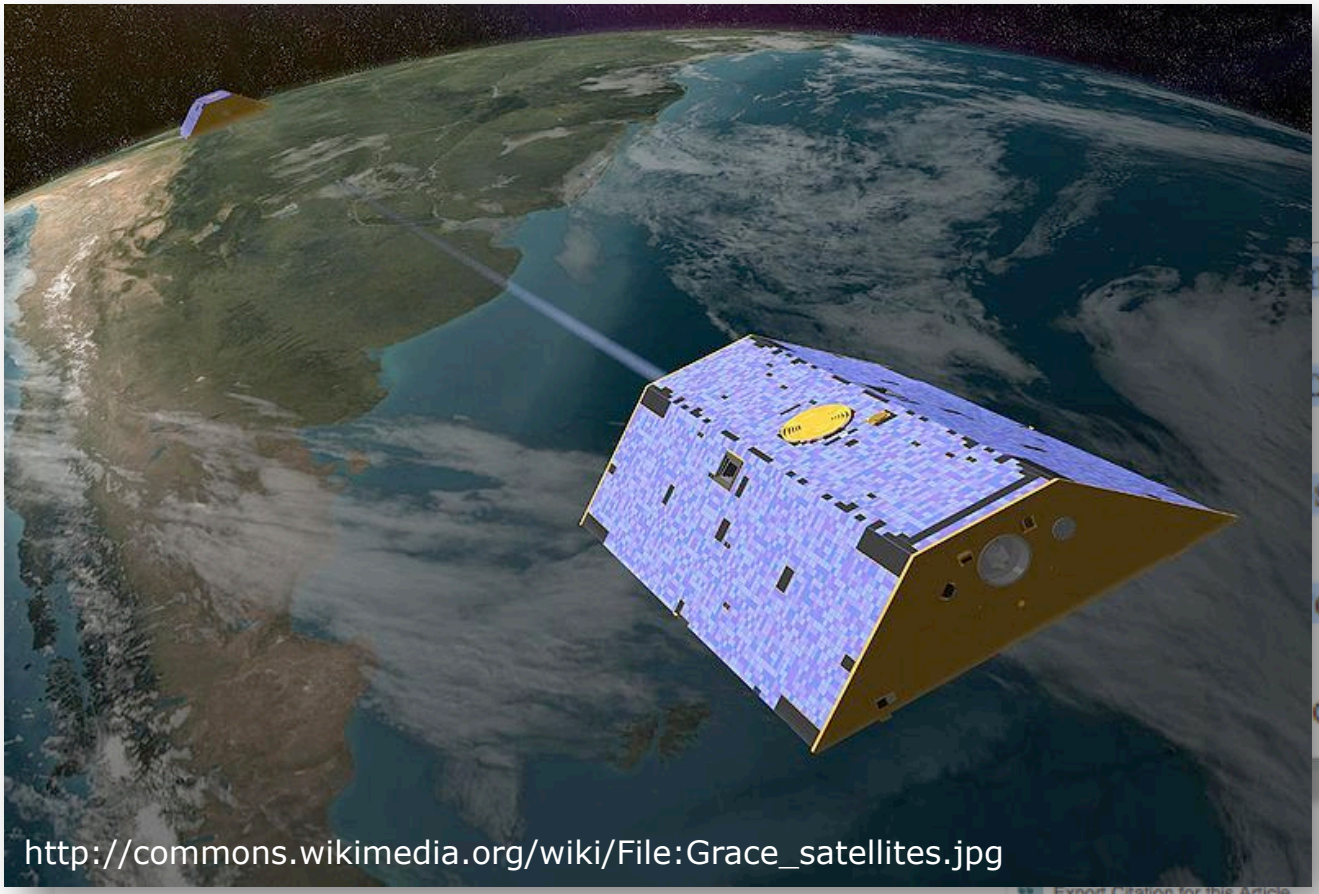

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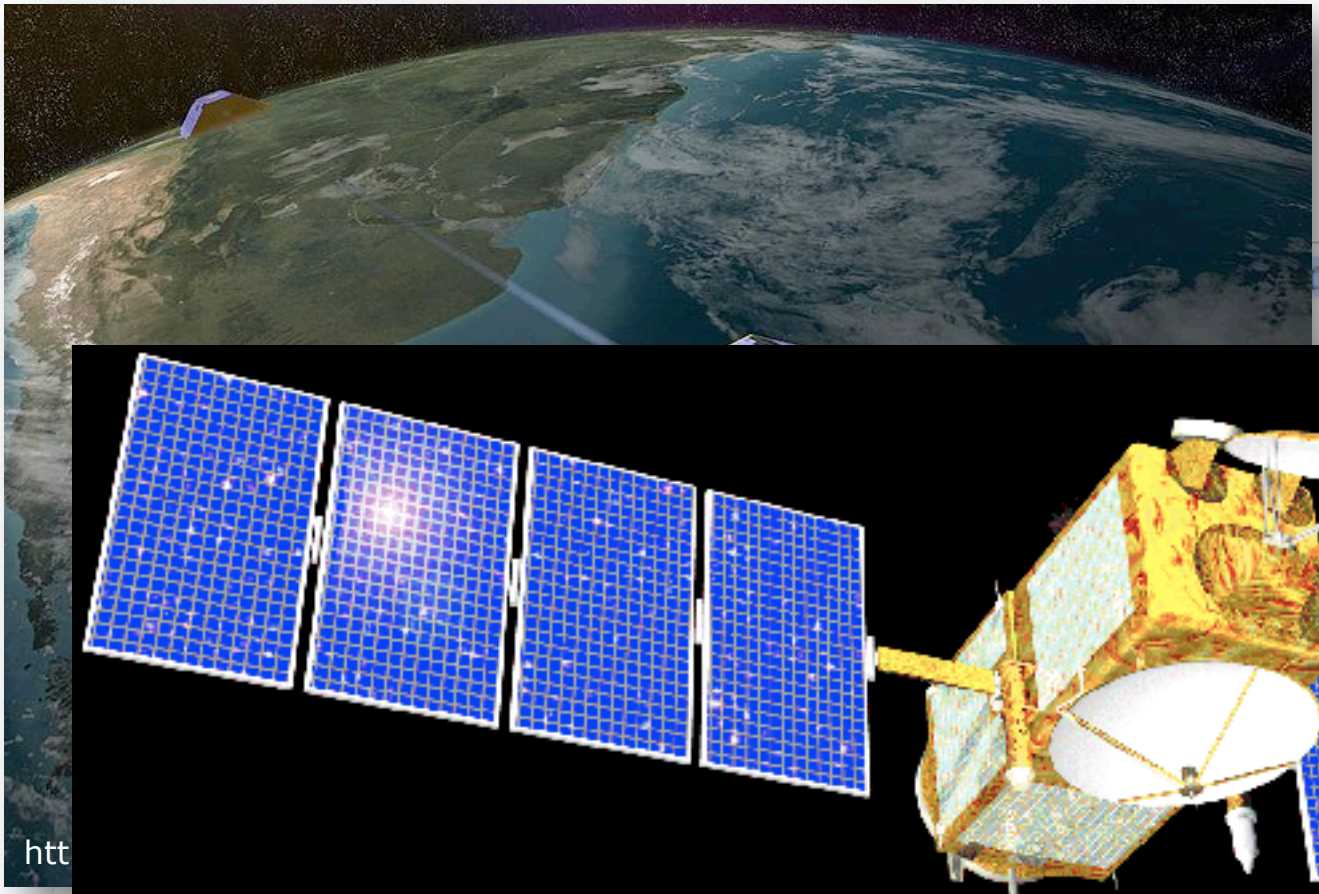

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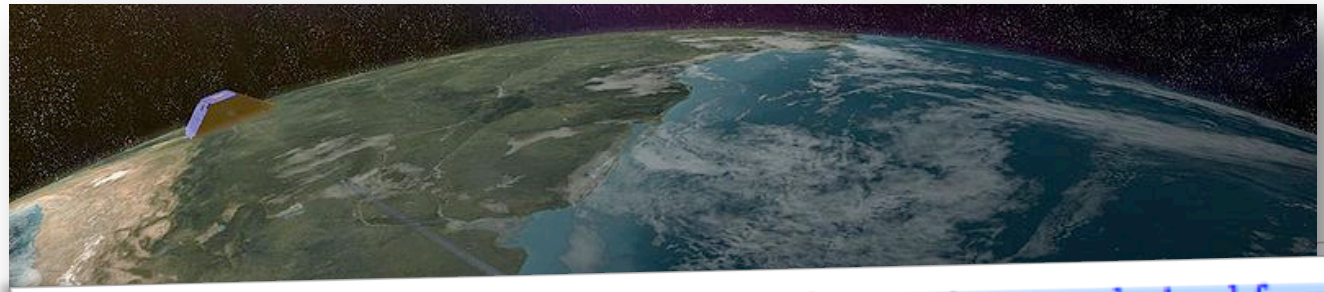
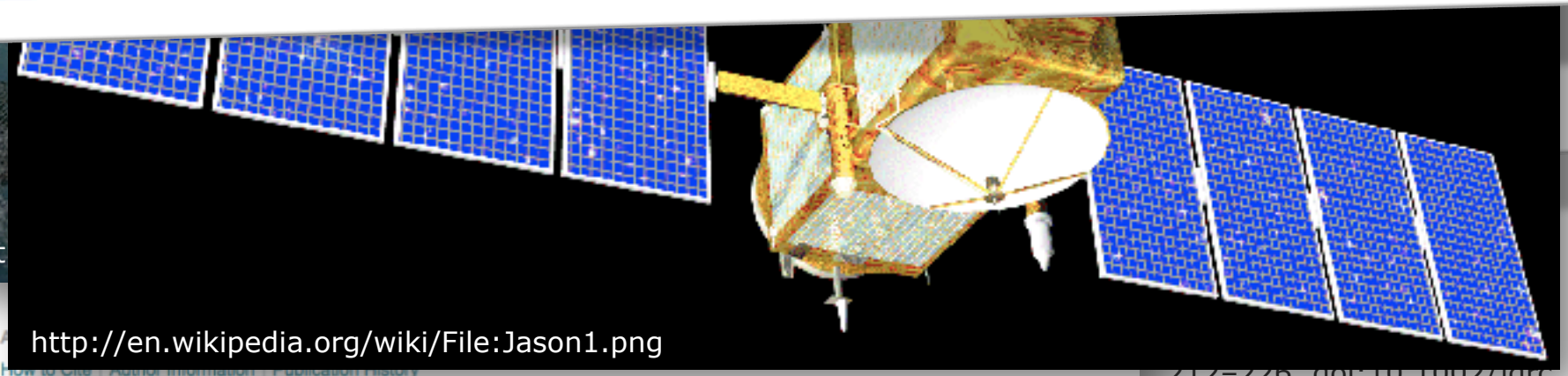


the steric contributions. The steric fingerprints are derived from gridded in-situ data from Argo floats, bouys and CTD casts: we use a dataset from *Hosoda et al.* [2008] who provide monthly global 1° grids of steric sea level height. Since the Argo data (temperature and



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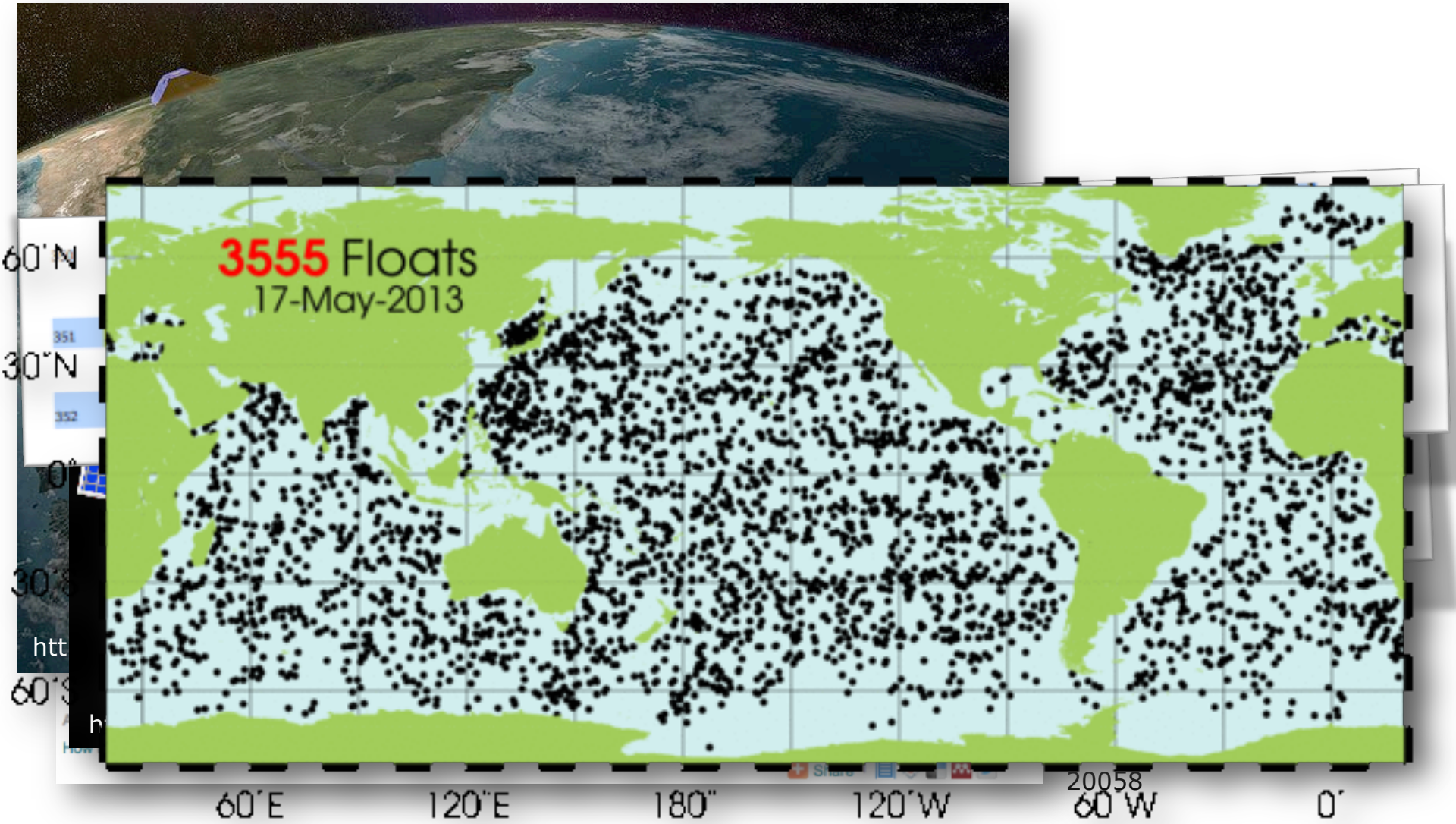

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Trajectory

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Number of profile	1	Status	Active
Deployed date/time(UTC)	2012/07/22 15:31:00	Deployed position	14.969N 160.063E
Last surfaced date/time(UTC)	2013/05/10 22:55:28	Last surfaced position	15.993N 151.348E
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- „Data-Intensive Scientific Discovery“

OPEN ACCESS Freely available online PLoS GENETICS

Comprehensive Research Synopsis and Systematic Meta-Analyses in Parkinson's Disease Genetics: The PDGene Database

Christina M. Lill[1,2,3,4], Johannes T. Roehr[1,5], Matthew B. McQueen[6], Fotini K. Kavvoura[7,8,9], Sachin Bagade[2], Brit-Maren M. Schjeide[1], Leif M. Schjeide[1], Esther Meissner[1], Ute Zauft[1], Nicole C. Allen[2], Tian Liu[1,10], Marcel Schilling[1,5], Kari J. Anderson[11], Gary Beecham[12], Daniela Berg[13,14], Joanna M. Biernacka[11], Alexis Brice[15,16,17,18], Anita L. DeStefano[19,20], Chuong B. Do[21], Nicholas Eriksson[21], Stewart A. Factor[22], Matthew J. Farrer[23], Tatiana Foroud[24], Thomas Gasser[13,14], Taye Hamza[25], John A. Hardy[26], Peter Heutink[27], Erin M. Hill-Burns[25], Christine Klein[28], Jeanne C. Latourelle[19], Demetrius M. Maraganore[29], Eden R. Martin[12], Maria Martinez[30,31], Richard H. Myers[19], Michael A. Nalls[32], Nathan Pankratz[24], Haydeh Payami[25], Wataru Satake[33], William K. Scott[12], Manu Sharma[13,14], Andrew B. Singleton[32], Kari Stefansson[34], Tatsushi Toda[33], Joyce Y. Tung[21], Jeffery Vance[12], Nick W. Wood[35,36], Cyrus P. Zabetian[37], 23andMe, The Genetic Epidemiology of Parkinson's Disease (GEO-PD) Consortium[*], The International Parkinson's Disease Genomics Consortium (IPDGC)[*], The Parkinson's Disease GWAS Consortium[*], The Wellcome Trust Case Control Consortium 2 (WTCCC2)[*], Peter Young[4], Rudolph E. Tanzi[2], Muin J. Khoury[38], Frauke Zipp[3], Hans Lehrach[1], John P. A. Ioannidis[7,39,40,41], Lars Bertram[1,2]

1 Neuropsychiatric Genetics Group, Department of Vertebrate Genomics, Max Planck Institute for Molecular Genetics, Berlin, Germany, 2 Department of Neurology, Massachusetts General Hospital, Charlestown, Massachusetts, United States of America, 3 Department of Neurology, Medical Center of the Johannes Gutenberg-University, Mainz, Germany, 4 Department of Neurology, University Hospital, Münster, Germany, 5 Department of Mathematics and Computer Science, Free University, Berlin, Germany, 6 Institute for Behavioral Genetics, University of Colorado, Boulder, Colorado, United States of America, 7 Clinical and Molecular Epidemiology Unit, Department of Hygiene and Epidemiology, University of Ioannina School of Medicine, Ioannina, Greece, 8 Centre for Diabetes and Endocrinology, Royal Berkshire Hospital, Reading, United Kingdom, 9 Oxford Centre for Diabetes, Endocrinology, and Metabolism, Churchill Hospital, University of Oxford, Oxford, United Kingdom, 10 Max Planck Institute for Human Development, Berlin, Germany, 11 Department of Health Sciences Research, Mayo Clinic, Rochester, Minnesota, United States of America, 12 John P. Hussman Institute for Human Genomics, Miller School of Medicine, University of Miami, Miami, Florida, United States of America, 13 Department for Neurodegenerative Diseases, Hertie Institute for Clinical Brain Research, University of Tübingen, Tübingen, Germany, 14 DZNE, German Center for Neurodegenerative Diseases, Tübingen, Germany, 15 INSERM, UMR_S975, Paris, France, 16 Université Pierre et Marie Curie-Paris, Centre de Recherche de l'Institut du Cerveau et de la Moelle épinière, UMR-S975, Paris, France, 17 CNRS, UMR 7225, Paris, France, 18 AP-HP, Pitié-Salpêtrière Hospital, Department of Genetics and Cytogenetics, Paris, France, 19 Department of Neurology, Boston University School of Medicine, Boston University, Boston, Massachusetts, United

Lill, C. M., Roehr, J. T., McQueen, M. B., Kavvoura, F. K., Bagade, S., Schjeide, B.-M. M., Schjeide, L. M., et al. (2012). Comprehensive research synopsis and systematic meta-analyses in Parkinson's disease genetics: The PDGene database. PLoS genetics, 8(3), e1002548. doi: 10.1371/journal.pgen.1002548

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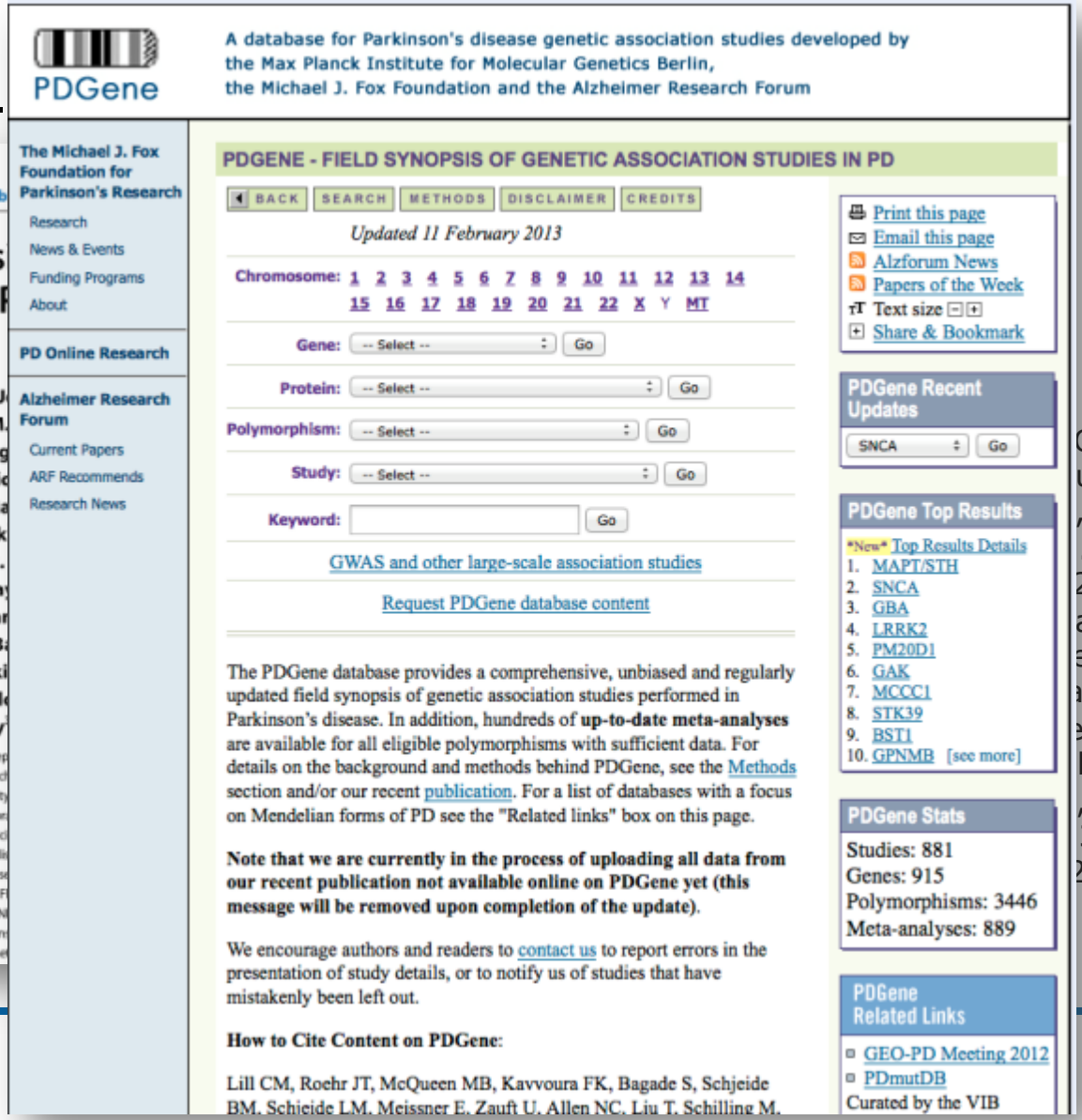

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Hydrol. Earth Syst. Sci., 17, 895-911, 2013
www.hydrol-earth-syst-sci.net/17/895/2013/
doi:10.5194/hess-17-895-2013
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Data expansion: the potential of grey literature for understanding floods

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[2]University of Potsdam, Institute of Earth and Environmental Science, University of Potsdam, Potsdam, Germany
[3]GFZ German Research Centre for Geosciences, Library and Information Services, Potsdam, Germany

Abstract. Sophisticated methods have been developed and become standard in analysing floods as well as for assessing flood risk. However, increasingly critique of the current standards and scientific practice can be found both in the flood hydrology community as well as in the risk community who argue that the considerable amount of information already available on natural disasters has not been adequately deployed and brought to effective use. We describe this phenomenon as a failure to synthesize knowledge that results from barriers and ignorance in

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Discussion Paper
Published on 2012-09-27

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Uhlemann, S., Bertelmann, R., & Merz, B. (2013). Data expansion: the potential of grey literature for understanding floods. Hydrology and Earth System Sciences, 17(3), 895–911. doi:10.5194/hess-17-895-2013

DIGITALE WISSENSCHAFT

- „Data-Intensive Scientific Discovery“

management of the entire spectrum of relevant content, that is, data, information and knowledge. In this paper we argue that the scientific community in flood risk research ignores event-specific analysis and documentations as another source of data. We present results from a systematic search that includes an intensive study on sources and ways of information dissemination of flood-relevant publications. We obtain 186 documents that contain information on the sources, pathways, receptors and/or consequences for any of the 40 strongest trans-basin floods in Germany in the period 1952–2002. This study therefore provides the most comprehensive metadata collection of flood documentations for the consid-

AGENDA

- Forschungsprozess - Von einer Idee zur nächsten
- Offener Zugang zu Publikationen (Open Access)
- Potenzial der digitalen Wissenschaft
- **Umgang mit Forschungsdaten**
- Relevanz der Informationsinfrastrukturen
- re3data.org – Werkzeug für Open Science
- Forschungsdaten-Infrastruktur
- Herausforderung Open Science
- Ausblick

UMGANG MIT FORSCHUNGSDATEN

- Regeln guter wissenschaftlicher Praxis (1998)
  - Empfehlung 7 „Datenhaltung“:
    - „Primärdaten als Grundlagen für Veröffentlichungen sollen auf haltbaren und gesicherten Trägern in der Institution, wo sie entstanden sind, für zehn Jahre aufbewahrt werden.“
  - Bieten „einen Rahmen für eigene Überlegungen“
  - Vorrausetzung für die Antragstellung bei der Deutschen Forschungsgemeinschaft (DFG)
  - Verankert in Arbeitsverträgen und Publikationsrichtlinien

Deutsche Forschungsgemeinschaft. (1998). Vorschläge zur Sicherung guter wissenschaftlicher Praxis : Empfehlungen der Kommission “Selbstkontrolle in der Wissenschaft”. Weinheim: Wiley-VCH. Retrieved from http://www.dfg.de/download/pdf/dfg_im_profil/reden_stellungnahmen/download/empfehlung_wiss_praxis_0198.pdf

Pampel, H., & Dallmeier-Tiessen, S. (2014). Open Research Data: From Vision to Practice. In S. Bartling & S. Friesike (Eds.), Opening Science. The Evolving Guide on How the Internet is Changing Research, Collaboration and Scholarly Publishing (pp. 213–224). Heidelberg: Springer. doi:10.1007/978-3-319-00026-8

UMGANG MIT FORSCHUNGSDATEN

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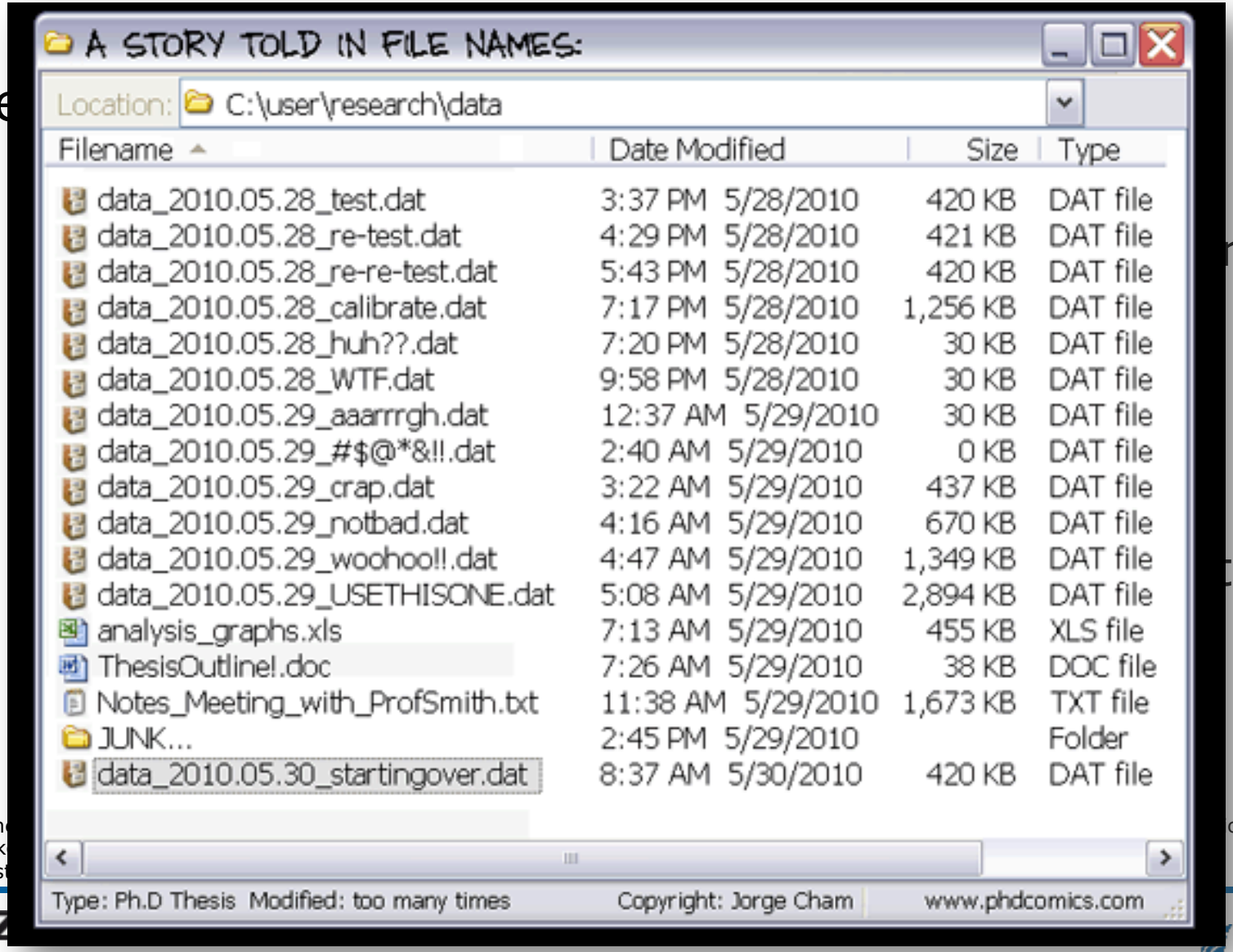

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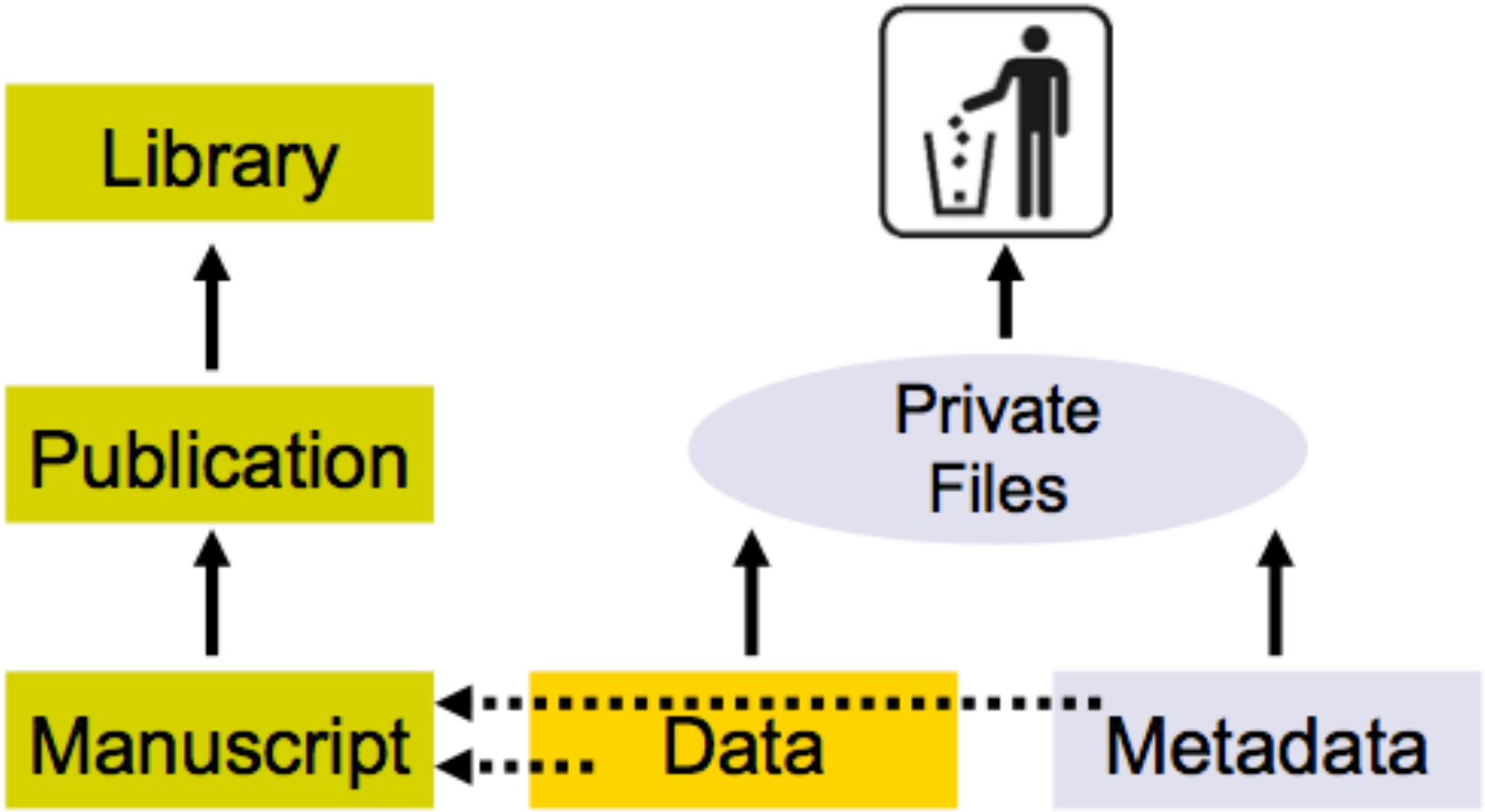
Cham, J. (2010). A story in file names. PhDcomics.com Retrieved from http://www.phdcomics.com/comics/archive.php?comicid=1323

UMGANG MIT FORSCHUNGSDATEN



Klump, J. (2007): Semantic linking of data and journal publications in the STD-DOI project. European GeoInformatics Workshop. Retrieved from http://www.nesc.ac.uk/talks/712/Klump_GI_2007.ppt

UMGANG MIT FORSCHUNGSDATEN

- Grundsätze zum Umgang mit Forschungsdaten der Wissenschaftsorganisationen (2010)

  - Sicherung und Zugänglichkeit
  - Unterschiede der wissenschaftlichen Disziplinen
  - Wissenschaftliche Anerkennung
  - Lehre und Qualifizierung
  - Verwendung von Standards
  - Entwicklung von Infrastrukturen

Allianz der deutschen Wissenschaftsorganisationen. (2010). Grundsätze zum Umgang mit Forschungsdaten. Retrieved from http://www.allianzinitiative.de/de/handlungsfelder/forschungsdaten/grundsaetze/

EMPFEHLUNGEN

- Wissenschaftspolitisch: Deutschland

Vernetzung von Datenbanken und Repositorien

Die Enquete-Kommission empfiehlt, den Aufbau, den Ausbau und die koordinierte nationale, europäische und internationale Vernetzung von (Forschungs-)Datenbanken, Repositorien und Open Access-Zeitschriften der Forschungseinrichtungen und insbesondere der öffentlichen Hochschulen im Rahmen eines eigenen Programms zu fördern. In einem solchen Programm ist auch der Aufbau und die Vernetzung von Forschungsdatenrepositorien der öffentlichen Hochschulen und Forschungseinrichtungen zu unterstützen, die nach Open Access-Kriterien und im Rahmen standardisierter Langzeitarchivierung für die Nachnutzung bereitgestellt werden. Bei der Weiterentwicklung und Vernetzung der Forschungsinfrastrukturen sind die Empfehlungen des

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Wissenschaftsrates und der Kommission Zukunft der Informationsinfrastruktur im Auftrag der Gemeinsamen Wissenschaftskonferenz zu berücksichtigen.

Enquete-Kommission Internet und digitale Gesellschaft. (2012). Projektgruppe Bildung und Forschung. Handlungsempfehlungen. Ausschussdrucksache 17(24)052. Retrieved from http://www.bundestag.de/internetenquete/dokumentation/Sitzungen/20120625/A-Drs_17_24_052_-_PG_Bildung_und_Forschung_Handlungsempfehlungen.pdf

EMPFEHLUNGEN

- Wissenschaftspolitisch: Europa

E-infrastructures

Further develop e-infrastructures underpinning the system for disseminating scientific information by:

– Supporting scientific data infrastructures for dissemination of knowledge, research institutions and funding entities to address all stages of the data life cycle. These stages should include acquisition, curation, metadata, provenance, persistent identifiers, authorisation, authentication and data integrity. Approaches need to be developed to provide a common look and feel to data discovery across disciplines, thus reducing the learning curve required to achieve productivity;

– supporting the development and training of new cohorts of data-intensive

European Commission. (2012). Commission Recommendation on access to and preservation of scientific information. C(2012) 4890 final. Retrieved from http://ec.europa.eu/research/science-society/document_library/pdf_06/recommendation-access-and-preservation-scientific-information_en.pdf

VERORDNUNGEN

- Wissenschaftspolitisch: USA

b) Ensure that all extramural researchers receiving Federal grants and contracts for scientific research and intramural researchers develop data management plans, as appropriate, describing how they will provide for long-term preservation of, and access to, scientific data in digital formats resulting from federally funded research, or explaining why long-term preservation and access cannot be justified;

c) Allow the inclusion of appropriate costs for data management and access in proposals for Federal funding for scientific research;

d) Ensure appropriate evaluation of the merits of submitted data management plans;

e) Include mechanisms to ensure that intramural and extramural researchers comply with data management plans and policies;

f) Promote the deposit of data in publicly accessible databases, where appropriate and available;

Office of Science and Technology Policy. (2013). Increasing Access to the Results of Federally Funded Scientific Research. Retrieved from http://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf

DATA POLICIES

- Data Policies von Förderorganisationen
  - NIH, 2003
    - „**The NIH expects and supports the timely release and sharing of final research data from NIH-supported studies for use by other researchers.** Starting with the October 1, 2003 receipt date, investigators submitting an NIH application seeking $500,000 or more in direct costs in any single year are expected to include a **plan for data sharing** or state why data sharing is not possible.“

National Institutes of Health. (2003, April 12). Final NIH Statement on Sharing Research Data. Retrieved from http://grants.nih.gov/grants/guide/notice-files/NOT-OD-03-032.html

DATA POLICIES

- Data Policies von Förderorganisationen
  - DFG, 2010
    - „Wenn [..] systematisch (Mess-)Daten erhoben werden, die für die Nachnutzung geeignet sind, legen Sie bitte dar, welche Maßnahmen ergriffen wurden bzw. während der Laufzeit des Projektes getroffen werden, um die Daten nachhaltig zu sichern und ggf. für eine erneute Nutzung bereit zu stellen. **Bitte berücksichtigen Sie dabei auch - sofern vorhanden - die in Ihrer Fachdisziplin existierenden Standards und die Angebote bestehender Datenrepositorien**."

Deutsche Forschungsgemeinschaft. (2012). Leitfaden für die Antragstellung. DFG-Vordruck 54.01 - 1/12. Retrieved from http://www.dfg.de/formulare/54_01/54_01_de.pdf

Deutsche Forschungsgemeinschaft. (2012). Merkblatt Sonderforschungsbereiche. DFG-Vordruck 50.06 – 6/12. Retrieved from http://www.dfg.de/formulare/50_06/50_06_de.pdf

DATA POLICIES

- Data Policies von Förderorganisationen

Im Einzelnen kann sich ein Teilprojekt Informationsinfrastruktur auf eins oder mehrere der folgenden Ziele beziehen.

- *Forschungsdaten:* Aufbau einer Datenbank zur Speicherung der im Sonderforschungsbereich anfallenden Forschungsdaten einschließlich der Vergabe von Metadaten. Die Interoperabilität mit weiteren relevanten internen oder externen Datenrepositorien soll dabei sichergestellt sein.
- *Pflege und Erschließung von Forschungsdaten:* Gefördert werden können die Implementierung und Entwicklung von Techniken und Verfahren zur Pflege und Erschließung von Informationen sowie zur Verknüpfung der Forschungsdaten, die im Sonderforschungsbereich erzeugt werden, mit anderen Datensystemen auch außerhalb des Verbunds oder eine Einbettung in diese (Referenzierung von Daten).
- *Nachnutzung von Forschungsdaten:* Das Datenspeicherungssystem ist so auf-

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www.dfg

dfg.de/

DATA POLICIES

- Data Policies von wissenschaftlichen Zeitschriften
  - Nature, 2013
    - „**Data sets must be made freely available to readers from the date of publication, and must be provided to editors and peer-reviewers at submission, for the purposes of evaluating the manuscript**. For the following types of data set, submission to a community-endorsed, public repository is mandatory. Accession numbers must be provided in the paper. Examples of **appropriate public repositories** are listed below.“

Nature. (2013). Availability of data and materials. Retrieved from http://www.nature.com/authors/policies/availability.html

DATA POLICIES

- Data Policies von wissenschaftlichen Zeitschriften

EDITORIAL

nature immunology

Raising standards

Nature journals' updated editorial policies aim to improve transparency and reproducibility

Beginning in May, *Nature* and the Nature research journals are adopting editorial measures to improve the consistency and quality of reporting in the life-sciences articles they publish. To facilitate the interpretation and improve the reliability of published results, we will more systematically ensure the reporting of key methodological details, give more space to Methods sections, examine the statistics more closely and offer more ways for authors to be transparent about these matters.

To allow authors to describe their experimental designs and methods in enough detail for others to interpret and replicate them, the participating journals are removing length restrictions on Methods sections.

To further increase transparency, we now also encourage authors to provide, in tabular form, the data underlying the graphical representations used in figures. This is in addition to our well-established data-deposition policy for specific types of experiments and large

Nature.

Nature Immunology. (2013). Raising standards. Nature Immunology, 14(5), 415. doi:10.1038/ni.2603

DATA POLICIES

- Data Policies von wissenschaftlichen Zeitschriften
  - AGU, 1993-1996
    - „**Data sets cited in AGU publications must meet the same type of standards for public access and long-term availability as are applied to citations to the scientific literature**. Thus data cited in AGU publications must be permanently archived in a data center or centers that meet the following **conditions**: a) are **open** to scientists throughout the world. b) are committed to archiving data sets **indefinitely**. c) provide services at **reasonable costs**."

American Geophysical Union. (1996). Policy on Referencing Data in and Archiving Data for AGU Publications. Retrieved from http://publications.agu.org/author-resource-center/publication-policies/data-policy/

DATA POLICIES

- Verankerung im Einreichungsprozess
  - Beispiel PLOS ONE

Required Statement
You must enter your initials to acknowledge your agreement to the following statement.

We strongly encourage adherence to appropriate reporting guidelines (e.g. CONSORT, MIAME, STROBE, PRISMA and other guidelines provided by EQUATOR) and community standards for data availability. Please indicate that you have read our Publishing Policies and that your manuscript adheres to the appropriate standards.

Instructions
Answer Required:

Character Count: 2

HP

Limit 3 characters

DATA POLICIES

- Verankerung im Einreichungsprozess
  - Beispiel PLOS ONE

Required Statement
You must enter your initials to acknowledge your agreement to the following statement.

We strongly encourage adherence to appropriate reporting guidelines (e.g. CONSORT, MIAME, STROBE, PRISMA and other guidelines provided by EQUATOR) and community standards for data availability. Please indicate that you have read our Publishing Policies and that your manuscript adheres to the appropriate standards.

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- Offener Zugang zu Publikationen (Open Access)
- Potenzial der digitalen Wissenschaft
- Umgang mit Forschungsdaten
- **Relevanz der Informationsinfrastrukturen**
- re3data.org – Werkzeug für Open Science
- Forschungsdaten-Infrastruktur
- Herausforderung Open Science
- Ausblick

INFRASTRUKTUREN

- Benötigt werden Informationsinfrastrukturen, die die dauerhafte Zugänglichkeit der Daten sicherstellen.
- Die Anforderungen an diese Infrastrukturen können je nach Disziplin (und Daten) variieren.

- Europäische Kommission (2009):
  - „The landscape of data repositories across Europe is **fairly heterogeneous**, but there is a solid basis to develop a coherent strategy to overcome the fragmentation and enable research communities to better manage, use, share and preserve data."

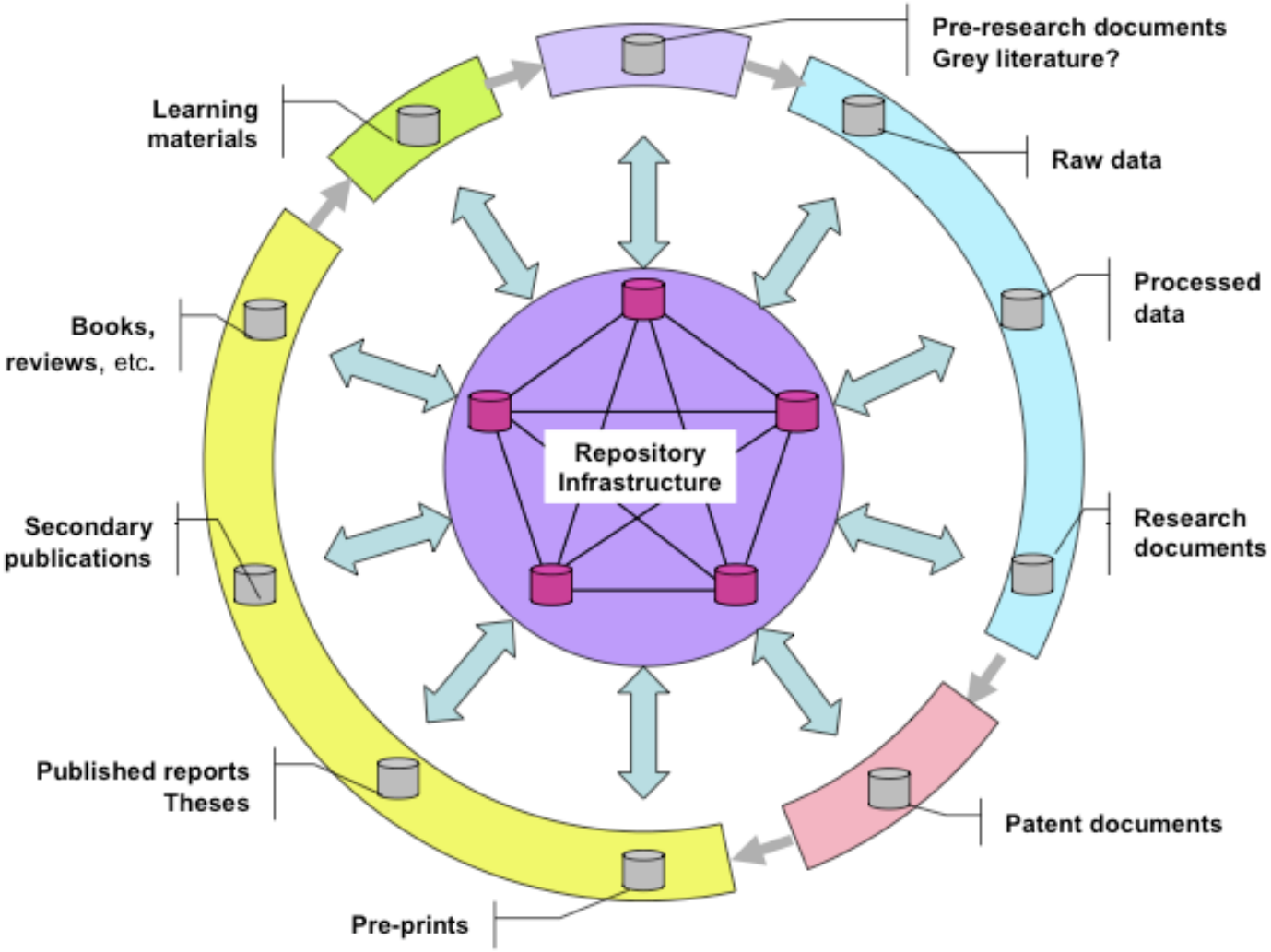
European Commission. (2009). ICT infrastructures for e-science. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. COM(2009) 108 final. Retrieved from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0108:FIN:EN:PDF

INFRASTRUKTUREN

- Herausforderungen:
  - „Researchers report many reasons why their data is not available electronically to others. The leading reasons were **insufficient time** and **lack of funding**. These are difficult to solve, but **systems that make it quick and easy to share data** without cost may help.“ (Tenopir et al. 2011)

Tenopir, C., et al. (2011). Data Sharing by Scientists: Practices and Perceptions. PLoS ONE, 6(6), e21101. doi:10.1371/journal.pone.0021101

INFRASTRUKTUREN



http://www.e-scidr.eu/wp-content/uploads/2007/03/e-SciDR_Workshop4_Presentation_DAC.pdf

INFRASTRUKTUREN

- Wissenschaftspolitisch: Deutschland

Wissenschaftsrat. (2011). Übergreifende Empfehlungen zu Informationsinfrastrukturen. Berlin. Retrieved from http://www.wissenschaftsrat.de/download/archiv/10466-11.pdf

Kommission Zukunft der Informationsinfrastruktur. (2011). Gesamtkonzept für die Informationsinfrastruktur in Deutschland. Retrieved from http://www.allianz-initiative.de/fileadmin/user_upload/KII_Gesamtkonzept.pdf

AGENDA

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- Ausblick

re3data.org

- Werkzeug zur Identifikation von Repositorien für die Speicherung und Zugänglichkeit von Forschungsdaten
- Unterstützung für Forschende beim „data sharing"
- Orientierung in der heterogene Landschaft der Forschungsdaten-Repositorien
- Projektpartner:
  - Deutsches GeoForschungsZentrums GFZ, LIS
  - Humboldt-Universität zu Berlin, IBI
  - Karlsruher Instituts für Technologie (KIT), KIT-Bibliothek
- Förderer: Deutschen Forschungsgemeinschaft (DFG)
- Vernetzungspartner: Deutsche Initiative für Netzwerkinformation (DINI)

Pampel, H., et al. (2013). Making Research Data Repositories Visible: The re3data.org Registry. PLOS ONE, 8(11), e78080. doi: 10.1371/journal.pone.0078080

TYPOLOGIE DER REPOSITORIEN

- Disziplinäre Forschungsdaten-Repositorien
- Institutionelle Forschungsdaten-Repositorien
- Projektspezifische Forschungsdaten-Repositorien
- Multidisziplinäre Forschungsdaten-Repositorien
- Portale, die verteile Datensammlungen zugänglich machen

Pampel, H., et al. (2013). Making Research Data Repositories Visible: The re3data.org Registry. PLOS ONE, 8(11), e78080. doi: 10.1371/journal.pone.0078080

re3data.org

- Icon-System

re3data.org

REGISTRY OF RESEARCH DATA REPOSITORIES

Home | Search | Browse | Suggest | FAQ | About | Schema | Contact | Imprint

Search for repositories (611 repositories)

geosciences [Search]

Filter results

65 results for: geosciences

65 results (1 – 25)

« 1 2 3 »

Australian Antarctic Data Centre

Data management and spatial data services

Subjects: Biology | Geosciences (including Geography) | Physics

Content types: Images | Plain text | Scientific and statistical data formats | Standard office documents

Countries: Australia

The Australian Antarctic Data Centre (AADC) provides data collection and data management services in Australia's Antarctic Science Program. The AADC manages science data from Australia's Antarctic research, maps Australia's areas of interest in the Antarctic region, manages Australia's Antarctic state of the environment reporting, and provides advice and education and a range of other products.

http://www.re3data.org

re3data.org

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geosciences

Search

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http://www.re3data.org

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Search for repositories (611 repositories)

geosciences [Search]

Filter results

65 results for: geosciences (unfiltered)

Subject Add subjects

Content Type Add content types

Country (of the responsible institutions) Add countries

☐ Certificates ☐ Open Access ☑ Persistent Identifier ☐ Repository reviewed by re3data.org

remove filters

18 results (filtered) (1 – 18)

Australian Antarctic Data Centre

Data management and spatial data services

Subjects: Biology | Geosciences (including Geography) | Physics

Content types: Images | Plain text | Scientific and statistical data formats | Standard office documents

Countries: Australia

The Australian Antarctic Data Centre (AADC) provides data collection and data management services in Australia's Antarctic Science Program. The AADC

re3data.org
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Home | Search | Browse | Suggest | FAQ | About | Schema | Contact | Imprint

Search for repositories (611 repositories)

geosciences [Search]

Filter results

65 results for: geosciences (unfiltered)

Subject Add subjects

Content Type Add content types

Country (of the responsible institutions) Add countries

☐ Certificates ☐ Open Access ☑ Persistent Identifier ☐ Repository reviewed by re3data.org

remove filters

18 results (filtered) (1 – 18)

Australian Antarctic Data Centre

Data management and spatial data services

Subjects: Biology | Geosciences (including Geography) | Physics

Content types: Images | Plain text | Scientific and statistical data formats | Standard office documents

Countries: Australia

The Australian Antarctic Data Centre (AADC) provides data collection and data management services in Australia's Antarctic Science Program. The AADC

Repository details

Australian Antarctic Data Centre

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General information

Name of repository	**Australian Antarctic Data Centre**
Additional name	Data management and spatial data services AADC
Repository URL	http://data.aad.gov.au/
Subjects	Biology · Geosciences (including Geography) · Physics
Description	The Australian Antarctic Data Centre (AADC) provides data collection and data management services in Australia's Antarctic Science Program. The AADC manages science data from Australia's Antarctic research, maps Australia's areas of interest in the Antarctic region, manages Australia's Antarctic state of the environment reporting, and provides advice and education and a range of other products.
Content types	Images · Plain text · Scientific and statistical data formats · Standard office documents
Keywords	Antarctic Treaty System · Antarctic Data · Polar Data
Repository type	disciplinary
Research data repository language(s)	eng
Data and/or service provider	dataProvider serviceProvider

Back to results

Repository details

Australian Antarctic Data Centre

Back to results

General | Institutions | Policies | Misc

General information

Name of repository	**Australian Antarctic Data Centre**
Additional name	Data management and spatial data services AADC
Repository URL	http://data.aad.gov.au/
Subjects	Biology, Geosciences (including Geography), Physics
Description	The Australian Antarctic Data Centre (AADC) provides data collection and data management services in Australia's Antarctic Science Program. The AADC manages science data from Australia's Antarctic research, maps Australia's areas of interest in the Antarctic region, manages Australia's Antarctic state of the environment reporting, and provides advice and education and a range of other products.
Content types	Images, Plain text, Scientific and statistical data formats, Standard office documents
Keywords	Antarctic Treaty System, Antarctic Data, Polar Data
Repository type	disciplinary
Research data repository language(s)	eng
Data and/or service provider	dataProvider serviceProvider

Back to results

re3data.org

- Stand (Dezember 2013)
  - über 600 Repositorien
  - davon 503 indexiert (Vierkant et al. 2013)
- Kooperationen
  - MoU mit DataCite
  - MoU mit OpenAIREplus
  - MoU mit BioSharing
- Zusammenarbeit mit Verlagen

Vierkant, P., et al. (2013). Schema for the Description of Research Data Repositories. Version 2.1. doi:10.2312/re3.004

re3data.org & Verlage

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Copernicus Publications
The Innovative Open Access Publisher

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Data Policy

Copernicus Publications recommends depositing data that correspond to journal articles in reliable data repositories, assigning digital object identifiers, and properly citing a data set as a proper citation. Please find your appropriate data repository in the Registry for Research Data Repositories re3data.org or in Databib.

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REGISTRY OF RESEARCH DATA REPOSITORIES

festo on Data Citation Principles initiated by FORCE11.

SCIENTIFIC DATA

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Data deposition policies

Scientific Data **publishes descriptions of scientifically va**
make described datasets available to editors and referee
these datasets with the scientific community as a conditi

Scientific Data will provide a searchable publication platform
datasets across many different data repositories, but will not
Data encourages submission of datasets to community-recog
repositories exist, and recommends deposition to figshare or
exist for a particular dataset. For more information on this pol

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Open, ethical, and adherance to discipline-specific best practices.

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AGENDA

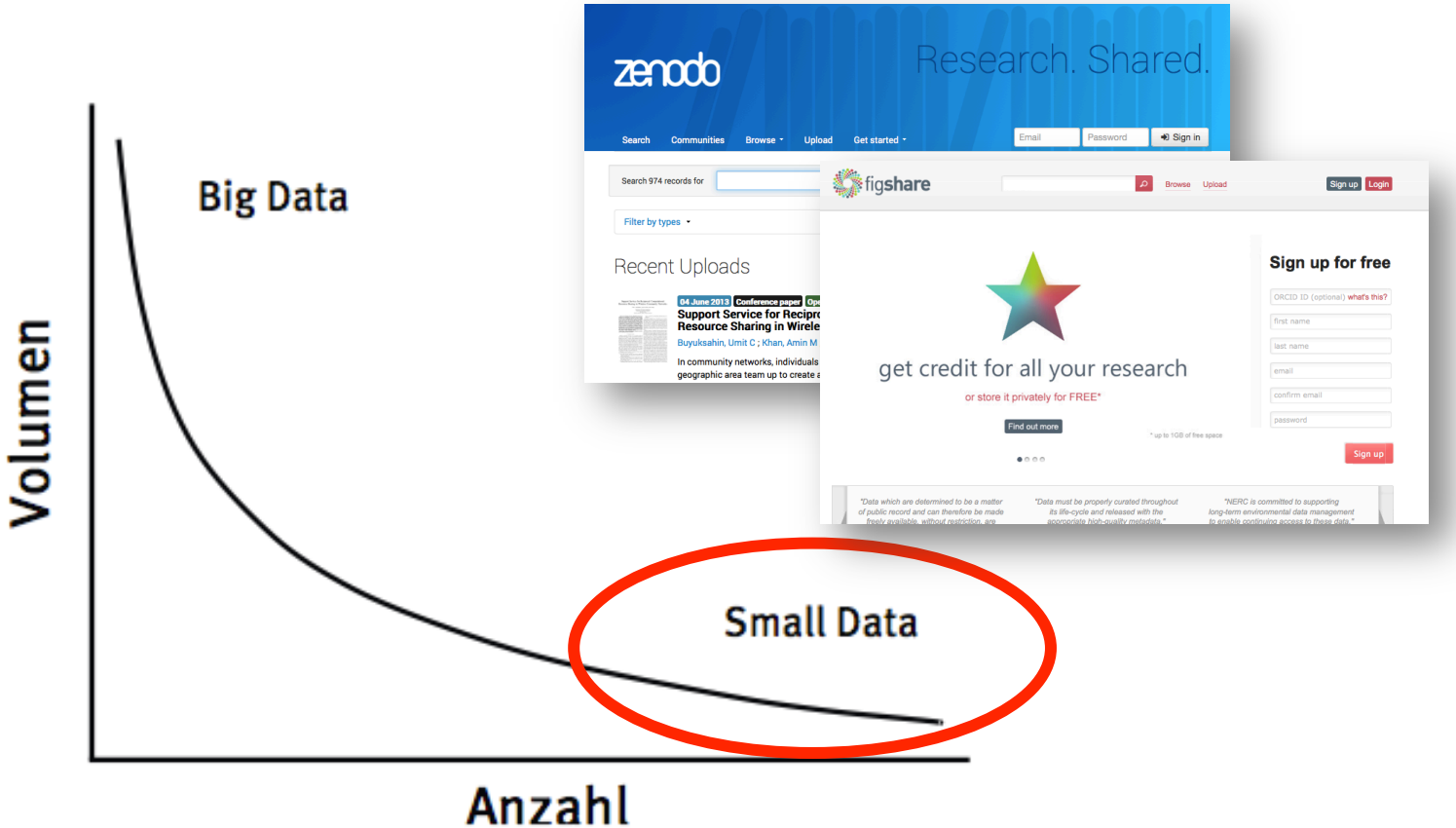
- 20 Jahre „Offenheit“ des WWW
- 10 Jahre „Berliner Erklärung“
- Potenzial der digitalen Wissenschaft
- Umgang mit Forschungsdaten
- Relevanz der Informationsinfrastrukturen
- re3data.org – Werkzeug für Open Science
- **Herausforderungen für die Forschungsdaten-Infrastruktur**
- Auf dem Weg zu Open Science
- Ausblick

HERAUSFORDERUNGEN

- Vier Herausforderungen
  - Lücken in der Forschungsdaten-Landschaft
  - Anreize zur Nutzung der Infrastrukturen (Reputation)
  - Dauerhafte Finanzierungsstrategien und Geschäftsmodelle
  - Persistente Verlinkungen („connectivity“)

HERAUSFORDERUNGEN

- Lücken in der Forschungsdaten-Landschaft



Klump, J., & Bertelmann, R. (2013). Forschungsdaten. In R. Kuhlen, W. Semar, & D. Strauch (Eds.), Grundlagen der praktischen Information und Dokumentation. doi:10.1515/9783110258264.575

HERAUSFORDERUNGEN

- Anreize zur Nutzung der Infrastrukturen (Reputation)

http://dx.doi.org/10.3334/CDIAC/GCP_V2012

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- Anreize zur Nutzung der Infrastrukturen (Reputation)

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Earth Syst. Sci. Data Discuss., 5, 1107-1157, 2012
www.earth-syst-sci-data-discuss.net/5/1107/2012/
doi:10.5194/essdd-5-1107-2012
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The global carbon budget 1959–2011

C. Le Quéré[1], R. J. Andres[2], T. Boden[2], T. Conway[3], R. A. Houghton[4], J. I. House[5], G. Marland[6], G. P. Peters[7], G. van der Werf[8], A. Ahlström[9], R. M. Andrew[7], L. Bopp[10], J. G. Canadell[11], P. Ciais[10], S. C. Doney[12], C. Enright[1], P. Friedlingstein[13], C. Huntingford[14], A. K. Jain[15], C. Jourdain[1,*], E. Kato[16], R. F. Keeling[17], K. Klein Goldewijk[25], S. Levis[18], P. Levy[14], M. Lomas[19], B. Poulter[10], M. R. Raupach[11], J. Schwinger[20], S. Sitch[21], B. D. Stocker[22], N. Viovy[10], S. Zaehle[23], and N. Zeng[24]

[1]Tyndall Centre for Climate Change Research, University of East Anglia, Norwich Research Park, Norwich, NR4 7TJ, UK
[2]Carbon Dioxide Information Analysis Center (CDIAC), Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA
[3]National Oceanic & Atmosphere Administration, Earth System Research Laboratory (NOAA/ESRL), Boulder, Colorado 80305, USA
[4]Woods Hole Research Centre (WHRC), Falmouth, Massachusetts 02540, USA
[5]Cabot Institute, Dept of Geography, University of Bristol, UK
[6]Research Institute for Environment, Energy, and Economics, Appalachian State University, Boone, North Carolina 28608, USA
[7]Center for International Climate and Environmental Research – Oslo (CICERO), Norway
[8]Faculty of Earth and Life Sciences, VU University Amsterdam, The Netherlands
[9]Department of Physical Geography and Ecosystem Science, Lund University, Sweden

http://dx.doi.org/10.3334/CDIAC/GCP_V2012
http://dx.doi.org/10.5194/essdd-5-1107-2012

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- Anreize zur Nutzung der Infrastrukturen (Reputation)

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nature climate change

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NATURE CLIMATE CHANGE | COMMENTARY

The challenge to keep global warming below 2 °C

Glen P. Peters, Robbie M. Andrew, Tom Boden, Josep G. Canadell, Philippe Ciais, Corinne Le Quéré, Gregg Marland, Michael R. Raupach & Charlie Wilson

Affiliations | Contributions | Corresponding author

Nature Climate Change 3, 4–6 (2013) | doi:10.1038/nclimate1783
Published online 02 December 2012

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The latest carbon dioxide emissions continue to track the high end of emission scenarios, making it even less likely global warming will stay below 2 °C. A shift to a 2 °C pathway requires immediate significant and sustained global mitigation, with a probable reliance on net negative emissions in the longer term.

http://dx.doi.org/10.3334/CDIAC/GCP_V2012
http://dx.doi.org/10.5194/essdd-5-1107-2012

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- Anreize zur Nutzung der Infrastrukturen (Reputation)

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Forschung: Wer Daten publik macht, wird öfter zitiert

Freier Zugang zu Forschungsergebnissen - das fordern immer mehr Wissenschaftler und Politiker. Eine Analyse von Gen-Studien zeigt nun, dass sich Offenheit lohnt. Wer die Quelldaten seiner Untersuchung publiziert, wird häufiger von Forscherkollegen zitiert.

Dienstag, 01.10.2013 – 13:51 Uhr

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  - Astrophysik
    - Henneken, E. A., & Accomazzi, A. (2011). Linking to Data - Effect on Citation Rates in Astronomy. Digital Libraries; Instrumentation and Methods for Astrophysics. Retrieved from http://arxiv.org/abs/1111.3618v1
    - Dorch, B. (2012). On the Citation Advantage of linking to data: Astrophysics. Retrieved from http://hprints.org/hprints-00714715/
  - Geowissenschaften
    - Sears, J. R. (2012). Data Sharing Effect on Article Citation Rate in Paleoceanography. IN53B-1628. AGU Fall Meeting 2011. Retrieved from http://static.coreapps.net/agu2011/html/IN53B-1628.html
  - Biomedizin
    - Piwowar, H. A., Day, R. S., & Fridsma, D. B. (2007). Sharing Detailed Research Data Is Associated with Increased Citation Rate. PLoS ONE, 2(3), e308. doi:10.1371/journal.pone.0000308
    - Botstein, D. (2010). It's the data! Molecular Biology of the Cell, 21(1), 4–6. doi:10.1091/mbc.E09-07-0575
    - Piwowar, H. A., & Vision, T. J. (2013). Data reuse and the open data citation advantage. PeerJ, 1, e175. doi:10.7717/peerj.175

HERAUSFORDERUNGEN

- Finanzierungs- und Geschäftsmodelle
  - Häufig Anschubfinanzierung durch Drittmittel
  - Herausforderung: Betriebskosten (und Investitionen)
  - Beispiel: Deutsches Fernerkundungsdatenzentrum
    - ca. 3,8 Mio. Euro jährliche Betriebskosten
    - Gesamtkapazität 2,7 Petabyte
    - Datenzuwachs: 300 Gigabyte/Tag
    - Prozessierte Produkte pro Monat: 100.000
    - Betriebsbereithaltung 690k€ pro Jahr
    - Systembetrieb 660 k€ Kosten pro Jahr
    - Softwareentwicklung 700 k€ pro Jahr
    - Datenzugang 420 k€ pro Jahr
    - Anwenderbetreuung 400 k€ pro Jahr
    - Anlagenerneuerung alle sechs Jahre 3.500 k€

Kommission Zukunft der Informationsinfrastruktur. (2011). Gesamtkonzept für die Informationsinfrastruktur in Deutschland. Retrieved from http://www.allianz-initiative.de/fileadmin/user_upload/KII_Gesamtkonzept.pdf

HERAUSFORDERUNGEN

Databases in peril

Life-sciences databases are in crisis, say their operators, as funders keen to support exciting new

Budget Cuts Shutter Biodiversity Program

The US Geological Survey's database, a compendium of biodiversity information, will be shut down this month due

INFORMATICS

Databases fight funding cuts

Online tools are becoming ever more important to biology, but financial support is unstable.

BY MONYA BAKER

ENDANGERED DATABASES

SCIENCE PRIORITIES

Who Will Pay for Public Access to Research Data?

Francine Berman[1] and Vint Cerf[2]

NATURE | NEWS

Popular plant database set to charge users

Loss of grant support leaves resource with no other option.

Erika Check Hayden

31 August 2013

Merali, Z., & Giles, J. (2005). Databases in peril. Nature, 435(7045), 1010–1. doi: 10.1038/4351010a

Zielinska, E. (2012, January 16). Budget Cuts Shutter Biodiversity Program. The Scientist, Retrieved from http://the-scientist.com/2012/01/16/budget-cuts-shutter-biodiversity-program/

Baker, M. (2012). Databases fight funding cuts. Nature, 489(7414), 19–19. doi: 10.1038/489019a

Berman, F., & Cerf, V. (2013). Science priorities. Who will pay for public access to research data? Science, 341(6146), 616–7. doi:10.1126/science.1241625

Check Hayden, E. (2013). Popular plant database set to charge users. Nature. doi: 10.1038/nature.2013.13642

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Keeping Research Data Safe Factsheet

Cost issues in digital preservation of research data

This factsheet illustrates for institutions, researchers, and funders some of the key findings and recommendations from the JISC-funded Keeping Research Data Safe (KRDS1) and Keeping Research Data Safe 2 (KRDS2) projects. Further information on the research and findings can be found in the final reports and on the KRDS website.

What Costs Most?

Acquisition and ingest costs most. The costs of archival storage and preservation activities are consistently a very small proportion of the overall costs and significantly lower than the costs of acquisition/ingest or access activities for all our case studies. Note we believe early preservation action during ingest or pre-ingest produces lower costs over the lifecycle as a whole. (KRDS1, p.25; KRDS2, pp.31-52)

Activity Costs for the Archaeology Data Service

Outreach/ Acquisition/ Ingest	Archival Storage and Preservation	Access
c. 55%	c. 15%	c. 31%

Recommendation to Funders

From our research, it is likely that the largest potential cost efficiencies will come from future tool development supporting automation of ingest and access activities for curation and preservation. (KRDS2, p.83)

Impact of Fixed Costs

- The costs of long-term data curation/preservation are dominated by fixed costs that do not vary with the size of the collections;
- Staff are the major cost component overall and there is a minimum base-level of staff cover, skills and equipment required for any service;
- Activities characterised by significant fixed costs can reduce the per-unit cost of long-term preservation by leveraging economies of scale.

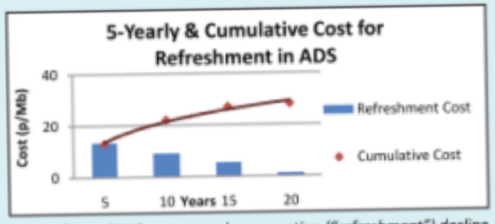
(KRDS2, pp.32-34, 79-80)

Recommendation to Institutions

Repositories should take advantage of economies of scale, using multi-institutional collaboration and outsourcing as appropriate. Once core capacity is in place additional content can be added at increasing levels of efficiency and lower cost. (KRDS1, pp.77-78)

Declining Costs over Time

We found a trend of relatively high preservation costs in the early years reducing substantially over time for data collections. An example is the preservation costs projected for the Archaeology Data Service (ADS) based on their experience of the first 10 years of operating the data service. (KRDS1, pp.4-6)



Costs for archival storage and preservation ("refreshment") decline to a minimal level over 20 years

Recommendation to Funders and Institutions

The implications of these factors and projection for sustainability of data archives e.g. via archive charges to project budgets, are notable and worthy of more extensive study and testing. (KRDS1, pp.5-6)

Beagrie, C. (2011). Keeping Research Data Safe Factsheet. Cost issues in digital preservation of research data. Retrieved from http://www.beagrie.com/KRDS_Factsheet_0711.pdf

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Unabhängig davon ist festzuhalten, dass der dauerhafte Betrieb von Forschungsdatenzentren als Teil der Forschungskosten etabliert werden muss und grob geschätzt einen dauerhaft zu finanzierenden Anteil von 5 % bis 10 % für den Bereich der „Datenpflege" an den Gesamtkosten für Forschung vorzusehen ist. Um international kompetitiv zu bleiben bedeutet dies, dass auch in Deutschland mittelfristig etwa 5 % bis 10 % der Forschungskosten zusätzlich für nachhaltige „Datenbereitstellung" aufgebracht werden müssen.

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(KRDS2, pp.32-34, 79-80)

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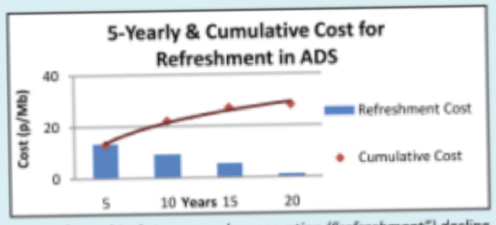

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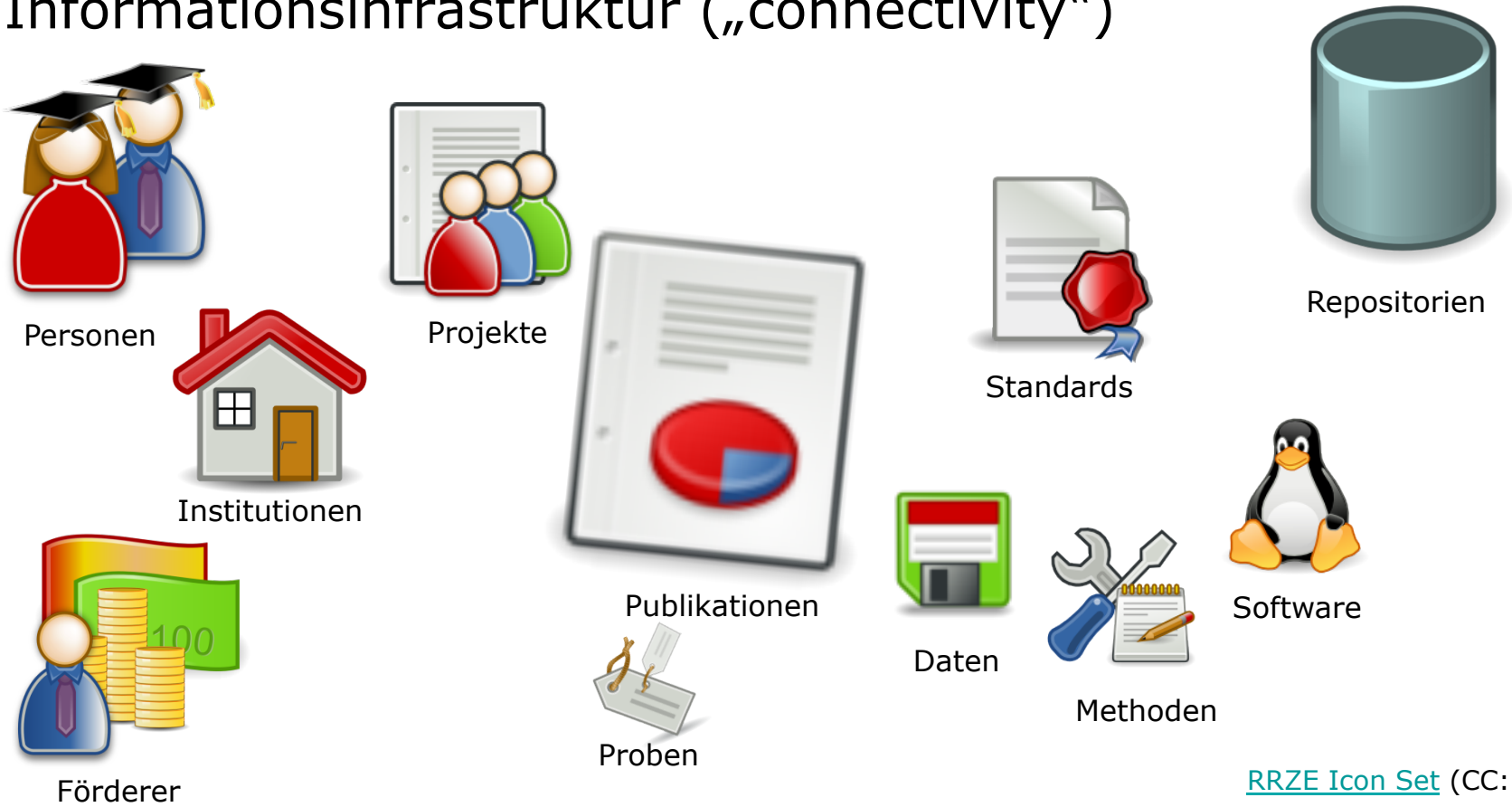
- Persistente Verlinkungen aller Objekte der Informationsinfrastruktur („connectivity“)



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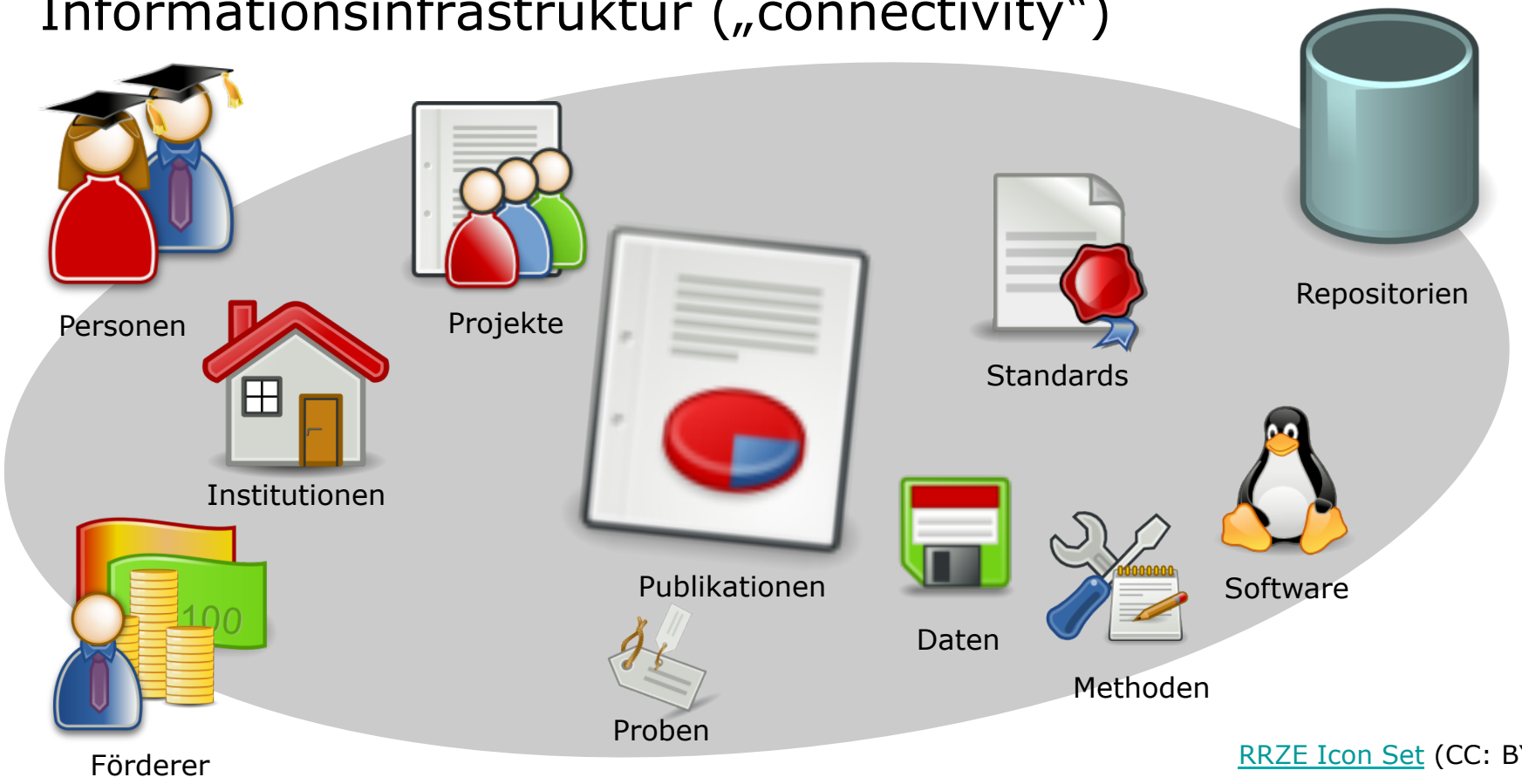

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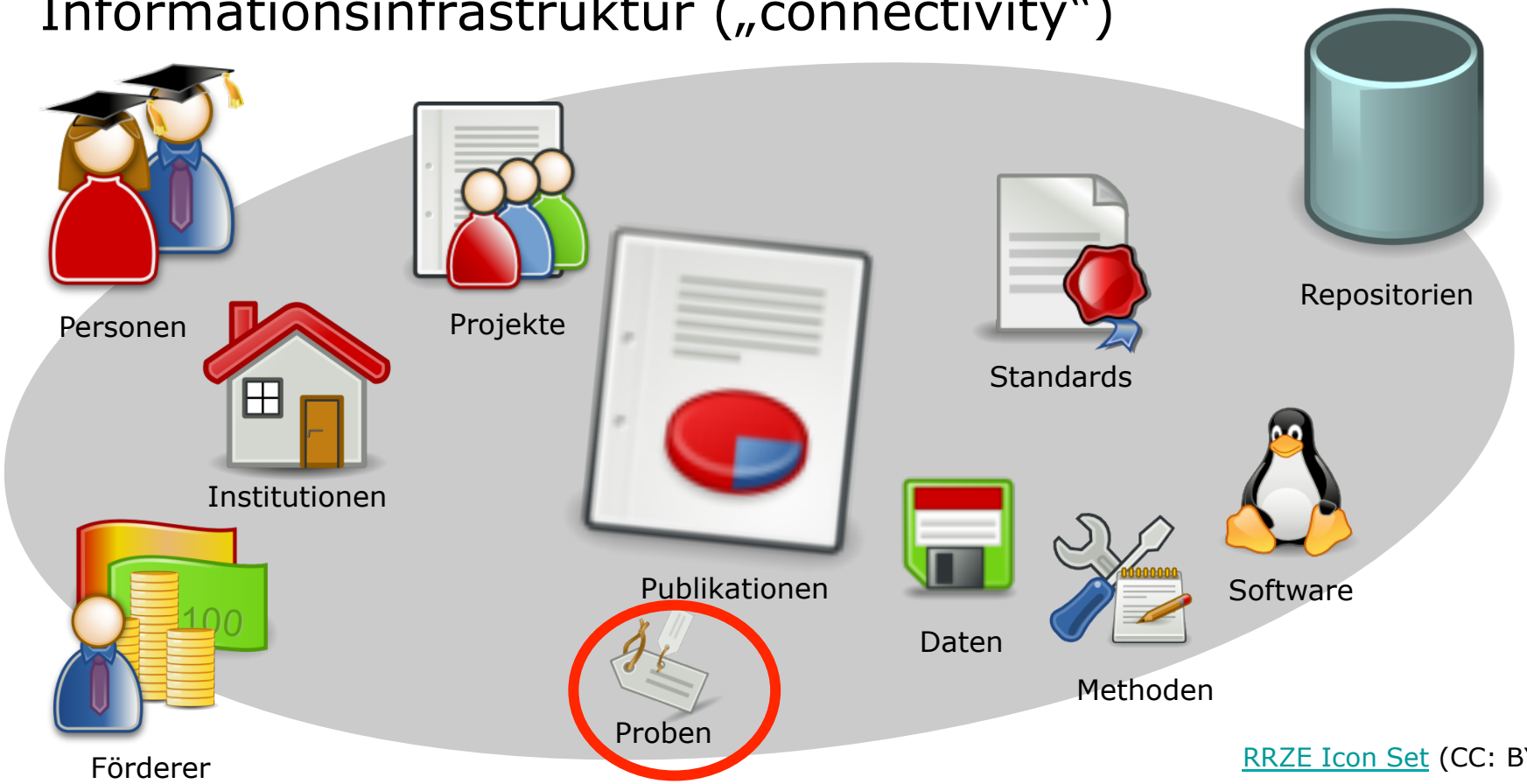

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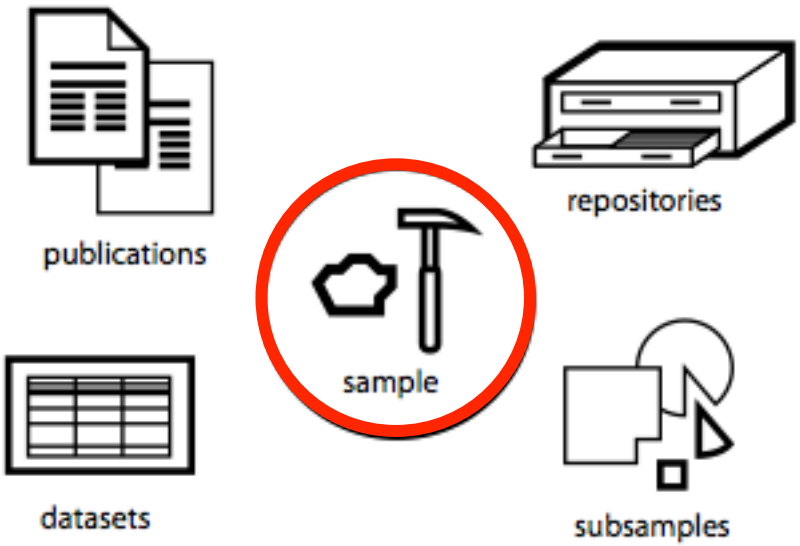

„Using persistent identifiers for physical samples, such as the **International GeoSample Number (IGSN)**, provides solutions. The IGSN Implementation Organization (IGSN e.V.) offers a system of unique persistent identifiers for samples. Use of persistent identifiers in digital data systems builds linkages between the digital representation of samples in community repositories, museums, and university collections, their subsamples, their related data in the literature and published datasets, and in web-accessible databases.“

http://www.igsn.org

Lehnert, K., & Klump, J. (2012). The Geoscience Internet of Things. Geophysical Research Abstracts, 14, 13370. Retrieved from http://meetingorganizer.copernicus.org/EGU2012/EGU2012-13370.pdf

HERAUSFORDERUNG

- Forschungsprozesse und deren Objekte intelligent nachnutzbar machen

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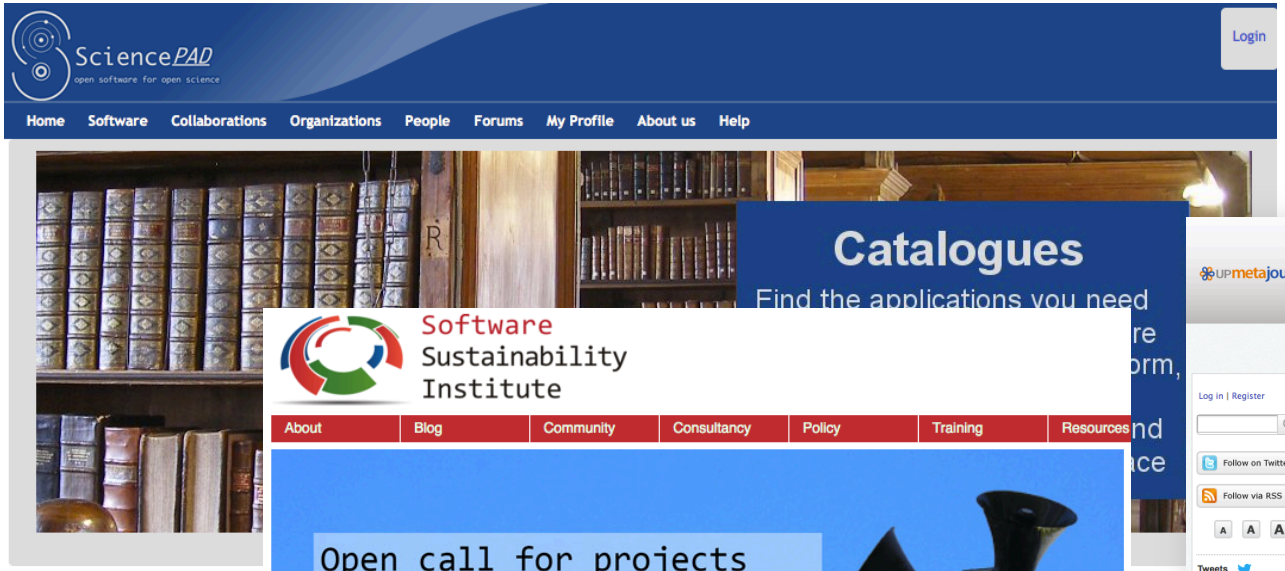

http://sciencepad.web.cern.ch/

http://www.software.ac.uk/

http://openresearchsoftware.metajnl.com/

SciForge

DFG-gefördertes Projekt am Deutschen GeoForschungsZentrum GFZ

http://tinyurl.com/sciforge

AGENDA

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- re3data.org – Werkzeug für Open Science
- Herausforderungen für die Forschungsdaten-Infrastruktur
- **Auf dem Weg zu Open Science**
- Ausblick

OPEN SCIENCE

- Open Notebook Science – eine Maximalforderung
  - „is a way of doing science in which - as best as you can - you **make all your research freely available to the public**, and **in real time**"

    (Jean-Claude Bradley, 2010)

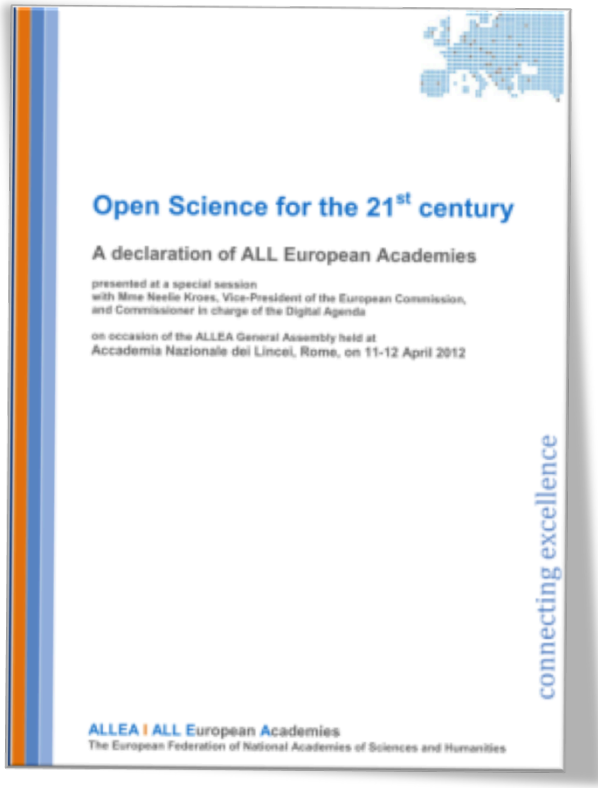
- Science Commons: Principles for open science, 2008
  - Open Access to **Literature** from Funded Research
  - Access to Research **Tools** from Funded Research
  - **Data** from Funded Research in the Public Domain
  - Invest in **Open Cyberinfrastructure**

Poynder, R. (2010, September). Interview with Jean-Claude Bradley - The impact of open notebook science. Information Today, 27(8). Retrieved from http://www.infotoday.com/IT/sep10/Poynder.shtml

Science Commons (2008). Principles for open science. Retrieved from http://sciencecommons.org/resources/readingroom/principles-for-open-science/

OPEN SCIENCE

- All European Academies (2012)
  - „Encouraging scientific and research institutions in their countries and the supporting industries to innovate and **promote open science platforms, making research results discoverable and re-usable**, interacting also with publishers and libraries/repositories to explore new business models for sustainable open science data management [..]“


Open Science for the 21st century

A declaration of ALL European Academies

presented at a special session
with Mme Neelie Kroes, Vice-President of the European Commission,
and Commissioner in charge of the Digital Agenda

on occasion of the ALLEA General Assembly held at
Accademia Nazionale dei Lincei, Rome, on 11-12 April 2012

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ALLEA | ALL European Academies
The European Federation of National Academies of Sciences and Humanities

All European Academies. (2012). Open Science for the 21st Century. Declaration of All European Academies. Retrieved from http://cordis.europa.eu/fp7/ict/e-infrastructure/docs/allea-declaration-1.pdf

OPEN SCIENCE

- Neelie Kroes, EU-Kommissarin:
  - **„Of nness an** e must pro here ma dist stments to ot the **rul**
  - **„Al art of EU**
  - „[L pro ning sealed off. **And let's make science open**.

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http://europa.eu/rapid/press-release_SPEECH-13-236_en.htm
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OPEN SCIENCE

- Neelie Kroes, EU-Kommissarin:
  - „**Of course I recognise there are limits to openness and that there are costs associated with it.** We must protect personal data, for example. Occasionally there may be security reasons that argue against wide distribution. And sometimes there are private investments to defend. **But for me, these are exceptions, not the rule.**"
  - „**All in all, we are putting openness at the heart of EU research and innovation funding**."
  - „[L]et's invest in the collaborative tools that let us progress. Let's tear down the walls that keep learning sealed off. **And let's make science open**."

http://europa.eu/rapid/press-release_SPEECH-13-236_en.htm
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INTELLIGENT OPENNESS

Terms	Defi	
accessible	„Dat and	can readily be found
assessable	„In a infor scie scru audi	to the data or ccount of the results of ng to under- stand or ntiated for different
intelligible	„Co Aud wha clai relia disc	se something. ment or assessment of the nature of the competence and bility also includes the ence public trust.“
useable	„In sho the The	information. Data purposes, and nation and meta- data. who wish to use them.“

The Royal Society. (2012). Science as an open enterprise. The Royal Society Science Policy Centre report 02/12. Retrieved from http://royalsociety.org/uploadedFiles/Royal_Society_Content/policy/projects/sape/2012-06-20-SAOE.pdf

INTELLIGENT OPENNESS

Terms	Definition
accessible	„Data must be located in such a manner that it can readily be found and in a form that can be used.“
assessable	„In a state in which judgments can be made as to the data or information’s reliability. Data must provide an account of the results of scientific work that is intelligible to those wishing to under- stand or scrutinise them. Data must therefore be differentiated for different audiences.“
intelligible	„Comprehensive for those who wish to scrutinise something. Audiences need to be able to make some judgment or assessment of what is communicated. They will need to judge the nature of the claims made. They should be able to judge the competence and reliability of those making the claims. Assessability also includes the disclosure of attendant factors that might influence public trust.“
useable	„In a format where others can use the data or information. Data should be able to be reused, often for different purposes, and therefore will require proper background information and meta- data. The usability of data will also depend on those who wish to use them.“

The Royal Society. (2012). Science as an open enterprise. The Royal Society Science Policy Centre report 02/12. Retrieved from http://royalsociety.org/uploadedFiles/Royal_Society_Content/policy/projects/sape/2012-06-20-SAOE.pdf

AGENDA

- 20 Jahre „Offenheit“ des WWW
- 10 Jahre „Berliner Erklärung“
- Potenzial der digitalen Wissenschaft
- Umgang mit Forschungsdaten
- Relevanz der Informationsinfrastrukturen
- re3data.org – Werkzeug für Open Science
- Herausforderungen für die Forschungsdaten-Infrastruktur
- Auf dem Weg zu Open Science
- **Ausblick**

AUSBLICK

- Open Access ist **Grundlage der digitalen Wissenschaft**
- Die Diskussion um den **Umgang mit Forschungsdaten** gewinnt deutlich an Fahrt
- **Policies**, **Anreize** (Reputation) sowie dauerhafte und serviceorientierte **Infrastrukturen** sind nötig
- Die **persistente Vernetzung** der Akteure und Ressourcen der digitalen Wissenschaft ermöglicht vielfältige Möglichkeiten
- Zugang, Nachnutzug und Erhaltung von **Software** steht noch am Anfang
- Der Ruf nach **Open Science** gewinnt an Relevanz
- Es gibt viel zu tun! **Let's make science intelligent open**.

DANKE FÜR DIE AUFMERKSAMKEIT!

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  - http://oa.helmholtz.de
  - http://www.re3data.org
  - http://forschungsdaten.org
  - http://ode-project.eu
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forschungsdaten.org Wiki

Anmelden

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forschungsdaten.org

Dieses Wiki sammelt Informationen rund um dem Umgang mit digitalen Forschungsdaten. Initiator sind die DFG-Projekte re3data.org, Radieschen, KomFor unf EWIG. Das Wiki wird in Zusammenarbeit mit den Arbeitsgruppen "Elektronisches Publizieren" und "Virtuelle Forschungsumgebungen" der Deutschen Initiative für Netzwerkinformation (DINI) betrieben. Mitarbeit (z.B. in Form von Ergänzungen und Änderungen) ist sehr willkommen!

Das Redaktionsteam besteht aus Jochen Klar (AIP), Maxi Kindling (HU Berlin) und Heinz Pampel, Jens Klump, Leonie Schäfer (GFZ Potsdam).

Gehostet wird das Wiki vom Helmholtz-Zentrum Potsdam, Deutsches GeoForschungsZentrum GFZ.

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