

# **Altmetrics 101: A hands-on introduction**

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Andrea Michalek, Plum Analytics

# AGENDA

- 1 **Introduction to altmetrics**
- 2 **Show & tell:  
PlumX & Altmetric for Institutions**
- 3 **Hands-on exercises**
- 4 **VIVO case studies**
- 5 **Wrap-up**

# Introduction to altmetrics

an altmetrics *company*



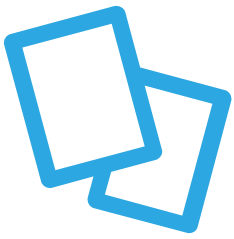
Altmetric  $\neq$  “altmetrics”


*a type of metric*, usually  
sourced from the social web,  
that points to attention,  
influence, or impact



Scholarship is  
changing...

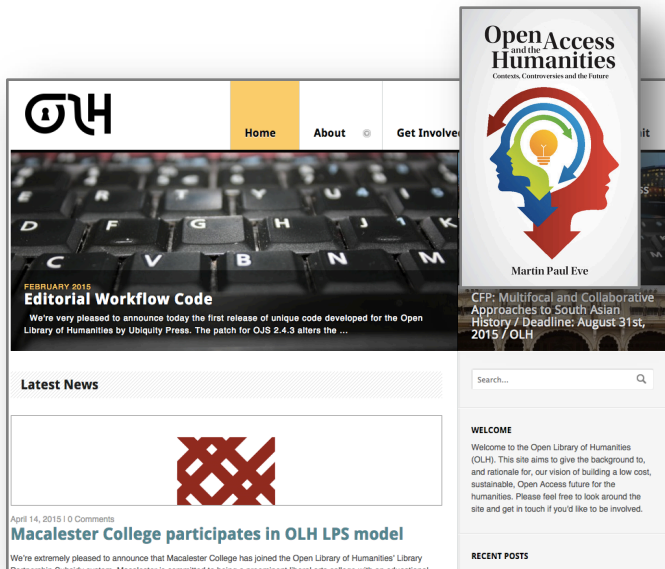
for the better



- 
- An orange L-shaped line that starts at the top right, extends horizontally to the left, then turns 90 degrees and extends vertically down the right side of the slide, framing the list items.
- More opennness ▶
  - More transparency ▶
  - More engagement ▶

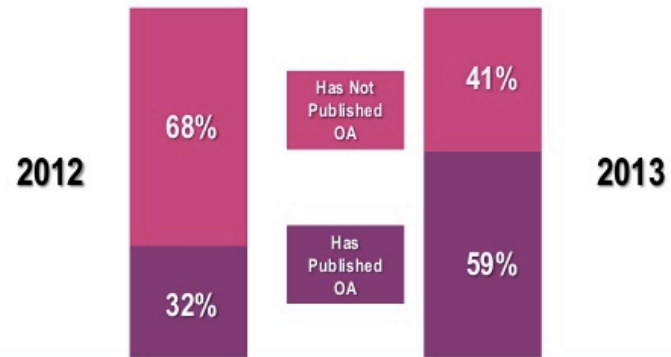
# More openness

**R**OpenSci  
zotero



## Increase in OA Authors

The number of Wiley authors who have published at least one open access article almost doubled since last year.



Within the past 3 years, how many peer-reviewed articles have you published via each of the following types of journals?  
Subscription journal; Fully open access journal (with APC); Hybrid open access journal (with APC); Open access journal (no APC)

8

Wiley Open Access

WILEY

<http://www.slideshare.net/WileyScienceNewsroom/wiley-2013-open-access-author-survey>

# More transparency

Home Vita Research Teaching Community Lab Notebook Search

## Gpdd Explore

06 Apr 2015

```
library("ggplot2")
library("dplyr")
library("tidyr")
library("knitr")
library("rmarkdown")
library("R")
```

Working through Knappe and de Valpine (2011) provides a nice way to play around with the GPDD data and Kalman filtering. More interested in exploring the data and methods than in just replicating the results, which are important but also rather intuitive and thus I expect rather robust – as we add (observational) uncertainty, or indeed, any additional parameters that must be ended, we should expect to have less power to pin down a particular parameter associated with density dependence, as the paper illustrates rather nicely.

### Data preparation

627 time series with population indices obtained from the GPDD (NERC Centre for Population Biology 1999). Data sets were filtered out from the database by removing harvest and non-index based data, data sampled at non-annual intervals and time series taking less than 15 unique values.

<http://carlboettger.info>

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Data from: Social information from immigrants: multiple immigrant based sources of information for dispersal decisions in a ciliate

Submit data now

How and why?

Search for data

Enter keyword, DOI, etc. Go

Advanced search

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- [Integrate your journal\(s\)](#), or
- All of the above

figshare search figshare (titles, tags, authors, etc.) Browse Upload

### Historical median heights for various countries, 1818-2013

	A	B	C	D	E
1	Year	The Netherlands	Italy	France	Sweden
2	1818	163.79	N/A	N/A	N/A
3	1819	164.46	N/A	N/A	N/A
4	1820	164.72	N/A	N/A	N/A
5	1821	164.71	N/A	N/A	N/A

2167 views 0 shares

Published on 23 Jun 2014 - 02:30 (GMT)  
Filesize is 6.83 KB



# More engagement



**Ritu Gairola Khanduri** At another level, my book is about the significance of ephemeral forms and how they incite politics.

Like · Reply · 1 · March 19 at 8:09am



**Sezoni Whitfield** Ritu Gairola Khanduri Why do you think students of Indian political culture will find your book of interest?

Like · 1 · March 19 at 8:16am · Edited



**Ritu Gairola Khanduri** Students will find a longer history of the significance of an every day visual form--the newspaper cartoon. Nowadays when we are awash with social media and all sorts of digital platforms, it is also a gentle reminder that the older media forms, newspapers cartoons, remain significant in our political communication.

**PubPeer**

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[Permalink](#)

**1**

**Jonathan D G Jones:** ( June 29th, 2014 9:36am UTC )

Dear PubPeer readers

Many thanks to some of you for pointing mistakes in Caillaud et al (2013), and to those of you who made constructive criticisms.

I am pleased to be able to tell you that the corrections to Caillaud et al (2013) have now been published online.

[10.1371/journal.pbio.1001909](https://doi.org/10.1371/journal.pbio.1001909)



Research evaluation  
is changing...  
for the better

# Traditional metrics for evaluation

- Journal impact factors
- Rejection rates
- Journal prestige
- Book publisher prestige
- Raw citation counts

# Traditional metrics for evaluation

Datasets

- Journal impact factors
- Rejection rates
- Journal prestige
- Book publisher prestige
- Raw citation counts

White  
Papers

Position  
Statements

Software  
code

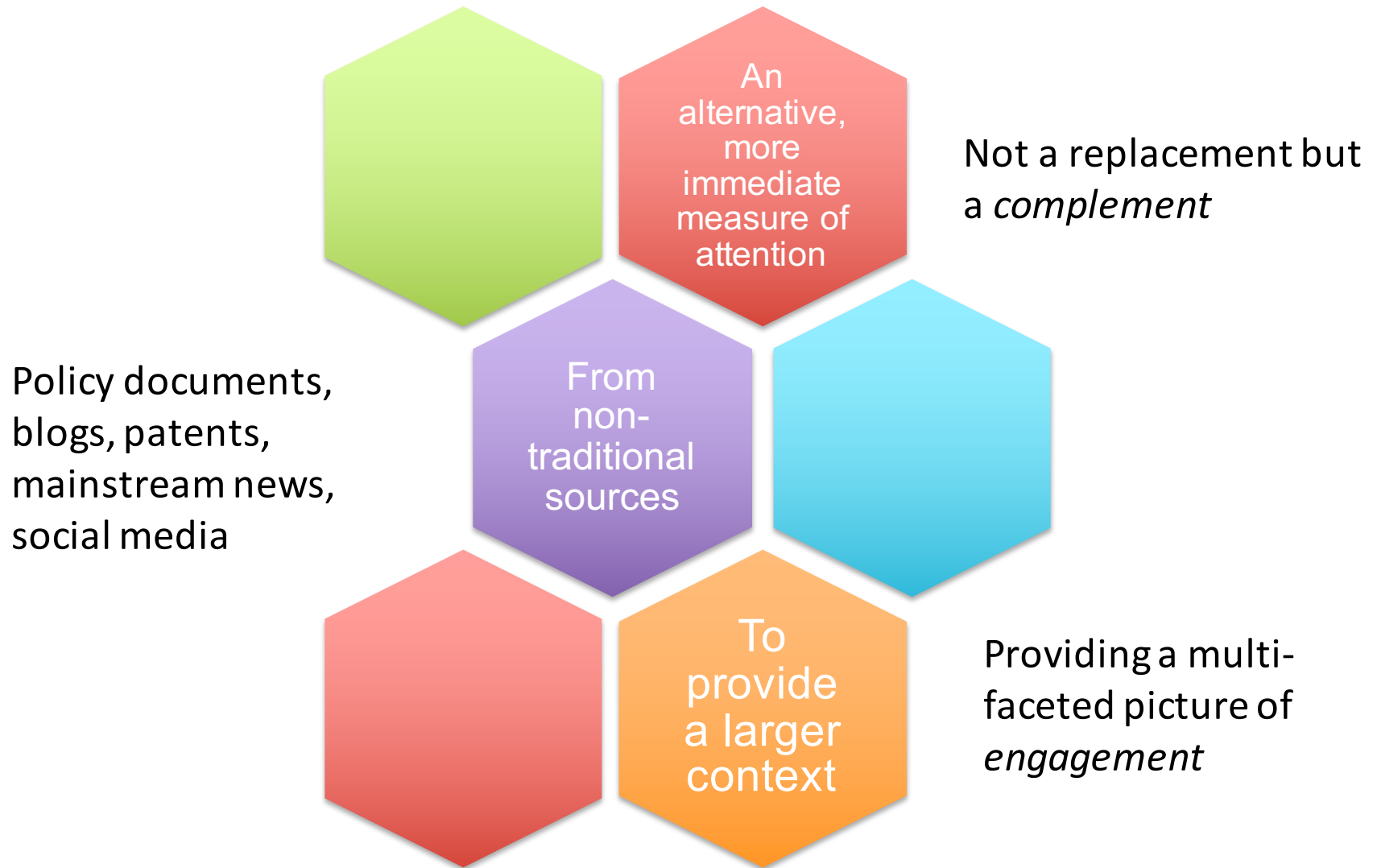
Conferences/P  
resentations

Blogs



How?

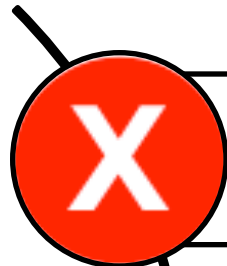
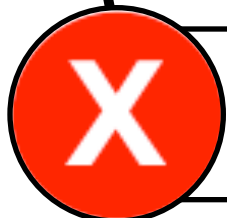
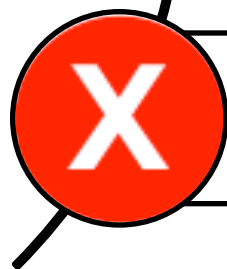
# What are altmetrics?



# What can the data tell you?

- ✓ What type of attention is this research receiving?
- ✓ Where has this article received the most traction?
- ✓ Which countries are engaging most with the content?
- ✓ Has this article influenced policy, spurred new research, or engaged a new audience?
- ✓ Are reactions to this article positive or negative?

# What the data ***doesn't*** tell you

-  The quality of the paper
-  The quality of the researchers
-  The whole story





# The Leiden Manifesto for research metrics

Use these ten principles to guide research evaluation, urge **Diana Hicks**,  
**Paul Wouters** and colleagues.

# Where altmetrics come from

- It's possible to source altmetrics from independent web APIS...
- But in many ways it's easier to use an aggregator



**Impactstory**



Show & tell: PlumX

# Show & tell: Altmetric for Institutions

# Who are we?

Altmetric is a **data science company** that **tracks attention** to research outputs, delivering **article level metrics** via visually engaging, intuitive interfaces.

In other words, we help give ***credit where credit is due.***

Altmetric tracks mentions of all scholarship across the Web

(More than 4 million articles tracked to date!)

Each day, scholarly articles receive **~40,000** new mentions across news, policy docs, and social media.

That's  
1 mention  
every  
2 seconds!

Mentions range in complexity, from quick shares to comprehensive reviews.

Each week, **50,000+** unique articles are shared.

# Altmetric data sources

- News outlets
- Policy documents
- Peer reviews
- Reference managers
- Research and popular blogs
- Social media
- Forums and Q&A sites

Altmetric can track anything with a URI



# Who uses Altmetric data?

40+ publishers and 5,000+ journals including...

nature publishing group 



WILEY



# Who uses Altmetric data?

First **Cambridge University** and now funders & institutions including...



MAX-PLANCK-GESELLSCHAFT



**wellcome**trust



**iDiv**

German Centre for Integrative  
Biodiversity Research (iDiv)  
Halle-Jena-Leipzig



John  
Templeton  
Foundation



Stony Brook  
School of Medicine



**Brunel**  
University  
London

MANCHESTER  
1824

**ETH** Zürich

**RSM**

ERASMUS  
UNIVERSITY



novo nordisk®

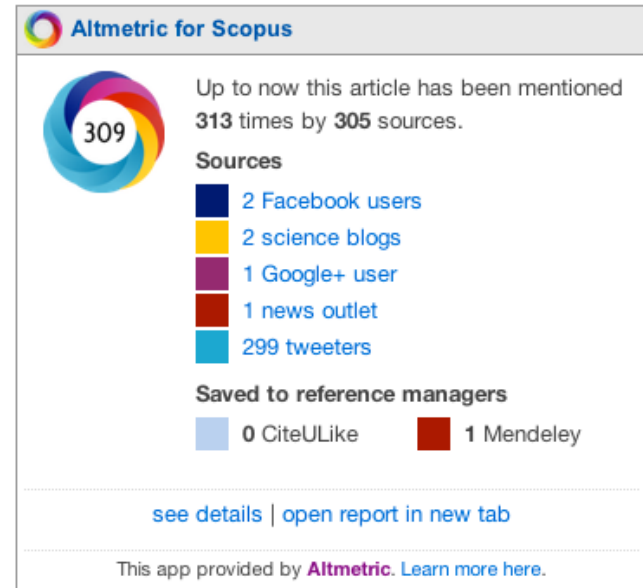


CIFOR

**Duke**  
UNIVERSITY

# Who uses Altmetric data?

Other metrics providers, including...



# Scopus

# Who uses Altmetric data?

## Institutional repositories and library discovery systems

CSHL Cold Spring Harbor Laboratory

Home User Guide About Year Subject Community CSHL Author

Login Search

### A Chromatin-Dependent Role of the Fragile X Mental Retardation Protein FMRP in the DNA Damage Response

Alpatov, R. and Lesch, B. J. and Nakamoto-Kinoshita, M. and Blanco, A. and Chen, S. and Stutzer, A. and Armache, K. J. and Simon, M. D. and Xu, C. and Ali, M. and Murn, J. and Priscic, S. and Kutateladze, T. G. and Vakoc, C. R. and Min, J. and Kingston, R. E. and Fischle, W. and Warren, S. T. and Page, D. C. and Shi, Y. (2014) *A Chromatin-Dependent Role of the Fragile X Mental Retardation Protein FMRP in the DNA Damage Response*. Cell, 157 (4). pp. 869-81. ISSN 0092-8674

URL: <http://www.ncbi.nlm.nih.gov/pubmed/24813610>

DOI: [10.1016/j.cell.2014.03.040](https://doi.org/10.1016/j.cell.2014.03.040)


**Abstract**

Fragile X syndrome, a common form of inherited intellectual disability, is caused by loss of the fragile X mental retardation protein FMRP. FMRP is present predominantly in the cytoplasm, where it regulates translation of proteins that are important for synaptic function. We identify FMRP as a chromatin-binding protein that functions in the DNA damage response (DDR). Specifically, we show that FMRP binds chromatin through its tandem Tudor (Agenet) domain in vitro and associates with chromatin in vivo. We also demonstrate that FMRP participates in the DDR in a chromatin-binding-dependent manner. The DDR machinery is known to play important roles in developmental processes such as gametogenesis. We show that FMRP occupies meiotic chromosomes and regulates the dynamics of the DDR machinery during mouse spermatogenesis. These findings suggest that nuclear FMRP regulates genomic stability at the chromatin interface and may impact gametogenesis and some developmental aspects of fragile X syndrome.

**Item Type:** Paper

**Subjects:** [bioinformatics > genomics and proteomics > genetics & nucleic acid processing > DNA, RNA structure, function, modification](#)  
[bioinformatics > genomics and proteomics > genetics & nucleic acid processing > DNA, RNA structure, function, modification > Chromatin dynamics](#)  
[diseases & disorders > congenital hereditary genetic diseases > fragile X syndrome](#)  
[diseases & disorders > congenital hereditary genetic diseases > mental retardation](#)

**Altmetric**



5  
Tweeted by 4  
56 readers on Mendeley  
0 readers on Connotea  
1 readers on CiteULike  
[View details on Altmetric's website](#)

ExLibris Primo

Books, Articles, More... WorldCat

10.1038/nature10553

### Ascaris suum draft genome

Jex, Aaron R. Liu, Shiping ; Li, Bo ; Young, Neil D. ; Hall, Ross S. Chen, Fangyuan ; Wu, Xuan ; Zhang, Guojie ; Fang, Xiaodong ; Ka Bronwyn E. ; Vlaminck, Johnny ; Wang, Tao ; Cantacessi, Cinzia ; Nejsum, Peter ; Sternberg, Paul W. ; Yang, Huanming ; Wang, Jun Nature, 2011, Vol.479(7374). pp.529-533 [Peer Reviewed Journal]

Full text available

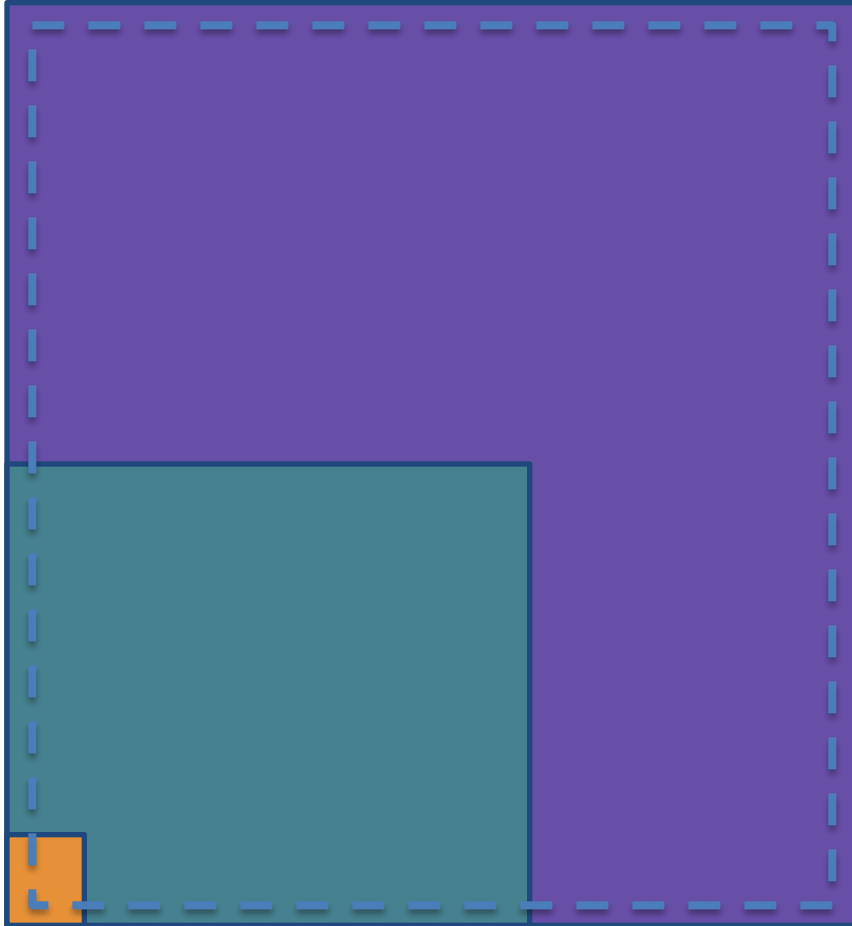
[View Online](#) [Details](#) [Reviews & Tags](#) [Recommendations](#)

**Altmetric.com**



33  
Tweeted by 26  
On 1 Facebook page  
Picked up by 1 news outlet  
Subject of a Research Highlight  
39 readers on Mendeley  
0 readers on Connotea  
5 readers on CiteULike  
[See more details](#)

# Altmetric products

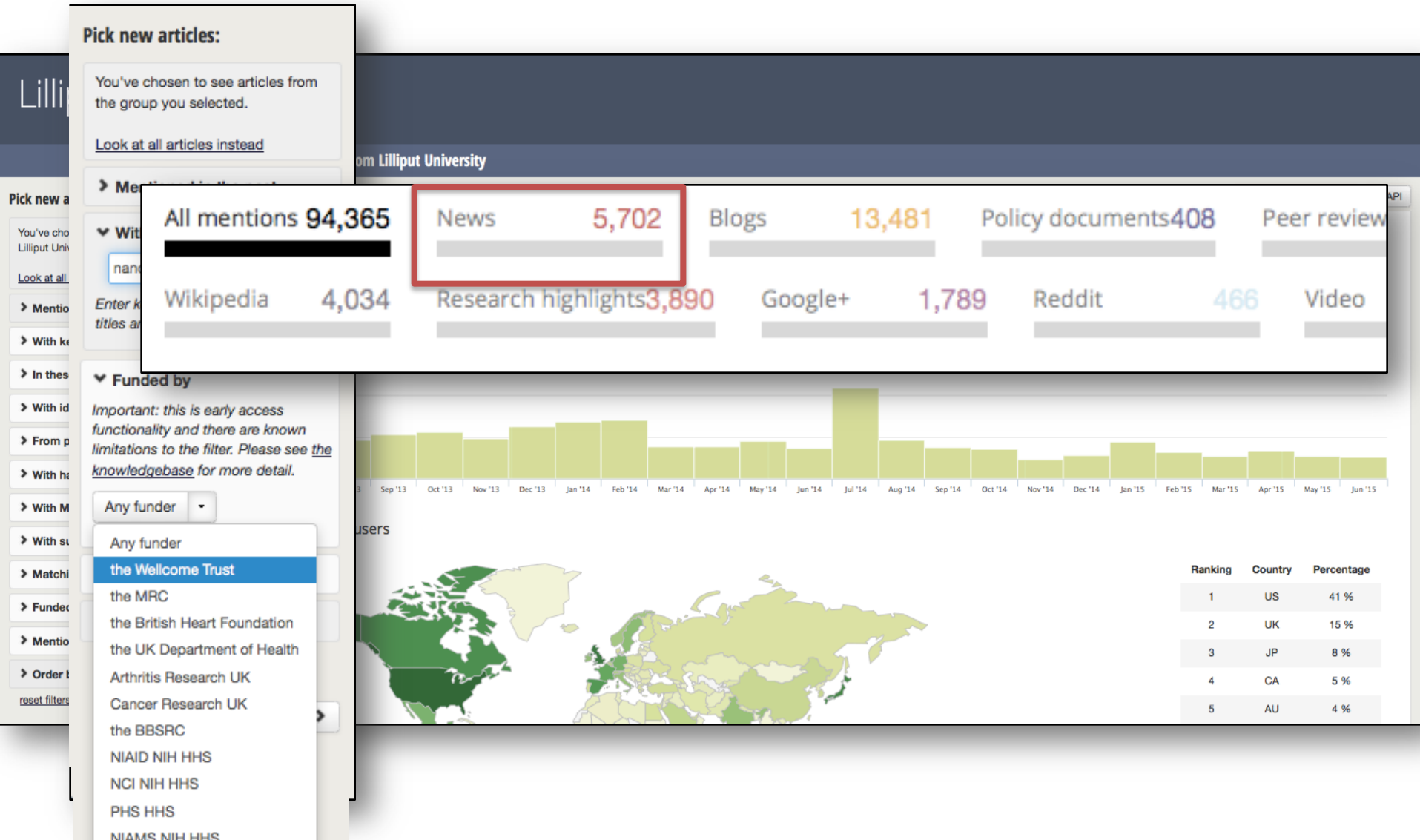


Altmetric Explorer  
(free API)

Altmetric for Institutions  
(API)

Altmetric bookmarklet

# Altmetric for Institutions: Summary



# Altmetric for Institutions: Sources

Lilliput University

All mentioned articles from Lilliput University

## Pick new articles:

You've chosen to see articles from the group you selected.

[Look at all articles instead](#)

➤ Mentioned in the past

➤ With keyword

➤ In these journals

➤ With identifiers

➤ From publisher

➤ With handle prefix

➤ With Medline subjects

➤ With subjects

➤ Matching PubMed query

➤ Funded by

➤ Mentioned at any time on

➤ Order by

[reset filters and search terms](#)

Summary report

Articles

Activity

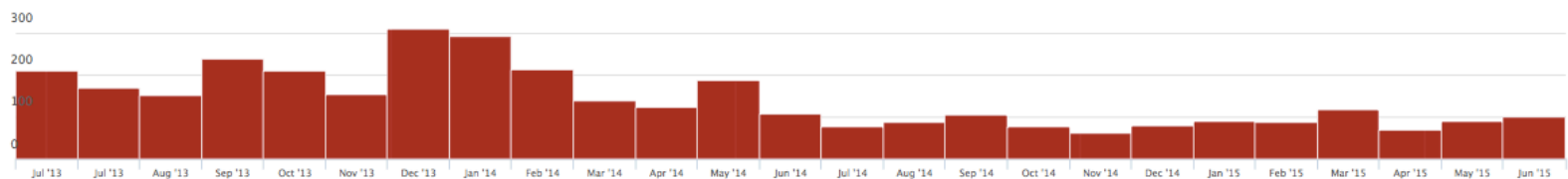
Journals

Save this workspace

API

All mentions	94,365	News	5,702	Blogs	13,481	Policy documents	408	Peer reviews	330	Twitter	55,916	Facebook	7,507	Weibo	324
Wikipedia	4,034	Research highlights	3,890	Google+	1,789	Reddit	466	Video	349	Q&A	134	Pinterest	30	LinkedIn	5

Chart of news stories of 2,055 matched articles from 30th July 2013 to 30th July 2015



Top articles in news stories

	Rank	News Stories	Score	Title	Journal
	1st	55	786	High income improves evaluation of life but not emotional well-being	Proceedings Of The National Academy Of Sciences Of The United States Of America
	2nd	46	981	A Bacterium That Can Grow by Using Arsenic Instead of Phosphorus	Science
	3rd	45	1,760	Neurobehavioural effects of developmental toxicity	Lancet Neurology
	3rd	45	378	Epigenomic Analysis of Multilineage Differentiation of Human Embryonic Stem Cells	Cell



# Altmetric for Institutions: Data

Lilliput University

Evolutionary psychology, cultural evolution, gender, behavioural genetics, IQ, atheism, philosophy, ethics. Author of the book Darwin, God & the Meaning of Life

TWEET



SteveStewartWilliams  
@stevestuwill

@SteveStuWill This is a good place to start. <http://t.co/okR0relln6>

269 A gradient of childhood self-control predicts health, wealth, and public safety.

> With identifiers

Screening therapeutic EMT blocking agents in a three-dimensional microenvironment Integrative Biology

Senior digital editor  
@MotherJones

TWEET



James West  
@jameswest2010

@EmilyDreyfuss @bendreyfuss @MotherJones <http://t.co/ASowEaTPZQ>

1228 Ecology: A world without mosquitoes Nature

> Funded by

Reconstituting Organ-Level Lung Functions on a Chip Science

> Mentioned at any time

> Order by

reset filters and search terms

Miss Dunkin Donuts 2003

TWEET



Nicole Gruszka  
@nikolkasniezka

@lukescotta <http://t.co/0WZHGmmdSQ>

1228 Ecology: A world without mosquitoes Nature

3 Jul 15 05:28



# AFI: Benchmarking

Lilliput University

All mentioned articles from your institution

## Pick new articles:

You've chosen to see articles from the group you selected.

[Look at all articles instead](#)

➤ Mentioned in the past

➤ With keyword

➤ In these journals

➤ With identifiers

➤ From publisher

➤ With handle prefix

➤ With Medline subjects

➤ With subjects

➤ Matching PubMed query

➤ Funded by

➤ Mentioned at any time on

➤ Order by

[reset filters and search terms](#)

Summary report

Articles

Activity

Journals

Save this workspace

API

All mentions **1,275**

News **34**

Blogs **50**

Policy documents **9**

Twitter **1,109**

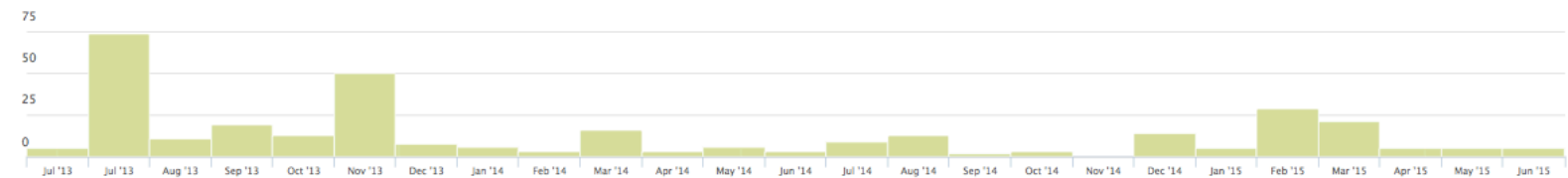
Facebook **56**

Wikipedia **11**

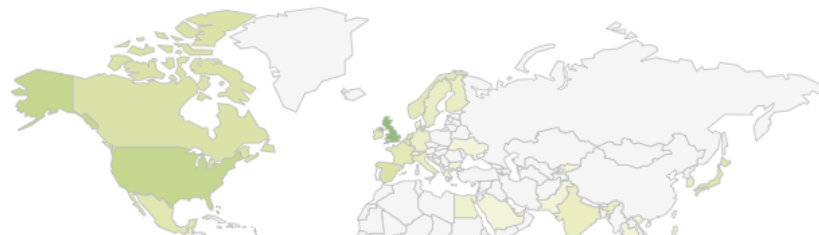
Google+ **4**

Reddit **2**

Chart of mentions of 44 matched articles from 30th July 2013 to 30th July 2015



Location of Twitter users



Ranking	Country	Percentage
1	UK	42 %
2	US	18 %
3	CA	5 %
4	ES	4 %
4	NL	4 %

# AFI: Benchmarking

## Pick new articles:

You've chosen to see articles from the group you selected.

at least once in the past 1m

With Medline subjects

With subjects

Matching PubMed query

Funded by

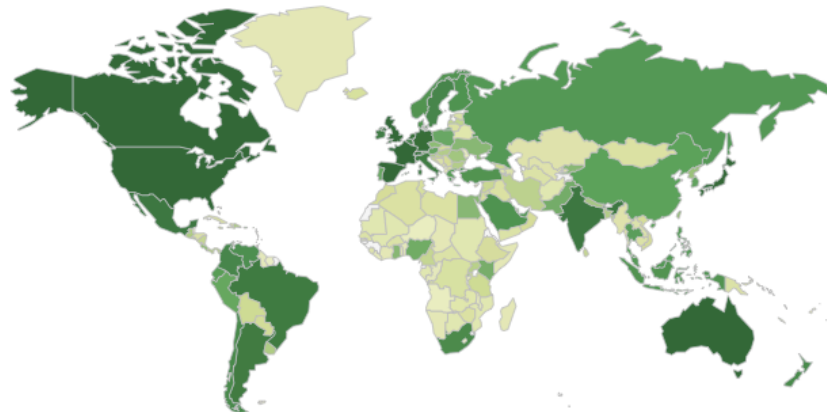
Mentioned at any time on

Order by

[reset filters and search terms](#)

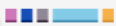





Show matching articles

## Location of Twitter users



Ranking	Country	Percentage
1	US	35 %
2	UK	21 %
3	CA	6 %
4	ES	5 %
5	AU	4 %
6	FR	3 %
7	JP	2 %
7	DE	2 %
7	CH	2 %
-	Other	20 %

## Top articles by mentions in all sources

	Rank	Mentions	Score in past 1m	Title	Journal
	1st	6,379	1,319	Anti-drug Antibodies in Psoriasis: A Systematic Review.	British Journal Of Dermatology
	2nd	2,060	1,413	Why we are teaching science wrong, and how to make it right	Nature
	3rd	1,977	1,283	Four-legged fossil snake is a world first	Nature
	4th	1,707	1,164	US vaccine researcher sentenced to prison for fraud	Nature
	5th	1,678	1,107	Greek scientists lose access to digital journals	Nature
	6th	1,390	1,008	NASA spies Earth-sized exoplanet orbiting Sun-like star	Nature

NIAID NIH HHS

NCI NIH HHS

PHS HHS

NIAMS NIH HHS

# Altmetric for Institutions: Details



## About this score

In the top 5% of all articles scored by Altmetric

MORE...

## Mentioned by




## Readers on



**SUMMARY**TwitterWeiboFacebookWikipediaGoogle+

? So far, Altmetric has seen 1 Wikipedia article.

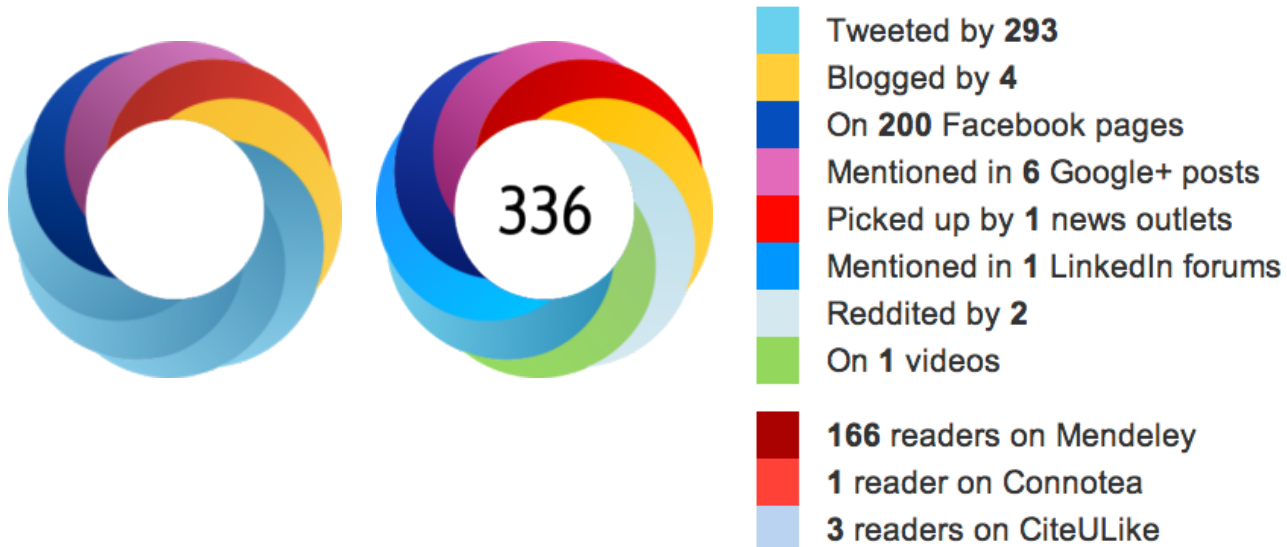
**Psoriasis**

Cited by user [BSatDrSocial](#) on 02 Jul 2014

Psoriasis (from Greek ψωρίασις, meaning "itching condition" or "being itchy", from psora, "itch" and -sis, "action, condition"; also termed psoriasis vulgaris), is a...

# The score: a means of filtering

Volume	Sources	Authors
The score for an article rises as more people mention it.	Each source category contributes a different base amount to the final score.	Assess the author of each mention in terms of their reach, promiscuity and bias.



Break

# Hands-on exercises

# Exercise 1: Getting comfortable with Altmetric



Role

- You are a researcher, Michael Kane (Director of Social Policy)



Scenario

- You are new to the idea of altmetrics and you'd like to know what attention your work is receiving online.
- If you find anything especially "impactful," you plan to highlight that in your annual review and on your VIVO profile.



Instructions

- Navigate to Michael Kane's list of research articles
- In your group, determine amongst yourselves which three articles are "more impactful." What criteria did you use? How did you come to your decision?
- Are there any articles that showcase new or unexpected types of impact?

10 mins working in your groups

# Exercise 2: Getting comfortable with PlumX



Role

- You are Stephen Scherer



Scenario

- You are applying for a new grant for Autism Speaks.
- What would you use to showcase the impact of the work that you have done.



Instructions

- Go to <http://plu.mx/autismspeaks>
- Find your profile
- What evidence you use?

10 mins working in your groups



# Exercise 3: Altmetric for Institutions



Role

- You are a liaison librarian to a translational research group.



Scenario

- The research group's PI has asked you to compare her group's publications' impacts to those of her colleagues (and competitors) at other institutions.
- She wants to know:
  - What could she highlight as evidence of “broader impacts” and “engagement”?
  - How does her research compare to the highest-attention HIV research overall?
  - How could she improve her reach & engagement?



Instructions

- Navigate to the Groups to find lists of your PI and her colleague's articles, then explore the data
- Next, search “HIV” and related terms in the Explorer view to find comparable publications

10 mins working in your groups

# Exercise 4: PlumX and the Humanities



Role

- You are a faculty member (Susan Rowland) who has books as your main research output.



Scenario

- You are trying to get promoted, and want to showcase your research, but your seminal work is represented through books, not journal articles.
- How can you highlight the work that you have performed?



Instructions

- Go to Pacifica Graduate Institute's PlumX site:  
<http://plu.mx/pacifica>
- Find Susan Rowland's profile
- What of her work would you highlight?
- What evidence would you use?
- Was there anything surprising?

10 mins working in your groups

# VIVO case studies

# Altmetric: Stony Brook University Medical School

School of Medicine  
Sciences

College of Engineering and Applied

Joel Saltz, MD/PhD

## Publications


Grants/Research

Teaching Activities

Altmetric 2

GlycoPattern: a  
Agravat SB | S  
Bioinformatics.

 Tweeted by 2

 2 readers on Mendeley

 1 readers on CiteULike

[See more details](#) | [Close this](#)

informatics/btu559. Epub 2014 Aug 20..

Altmetric 0

NCI Workshop Report: Clinical and Computational Requirements for Correlating Imaging Phenotypes with Genomics Signatures.

Colen R | Foster I | Gatenby R | Giger ME | Gillies R | Gutman D | Heller M | Jain R | Madabhushi A | Madhavan S | Napel S | Rao A | Saltz J | Tatum J | Verhaak R | Whitman G.

Transl Oncol. 2014 Oct 24;7(5):556-69. doi: 10.1016/j.tranon.2014.07.007. eCollection 2014 Oct..

Altmetric 2

GlycoPattern: a web platform for glycan array mining.

Agravat SB | Saltz JH | Cummings RD | Smith DF.

Bioinformatics. 2014 Dec 1;30(23):3417-8. doi: 10.1093/bioinformatics/btu559. Epub 2014 Aug 20..

Altmetric 0

NCI Workshop Report: Clinical and Computational Requirements for Correlating Imaging Phenotypes with

# Altmetric:

## Stony Brook University Medical School

- Uses the Altmetric API
- Synced with AFI
  - Mirrored group hierarchy
  - Filters for only relevant content (department, people, etc)
- Can limit by type of mention
- Can create “Top 10” lists on homepages

Wrap-up