The complex world of science editing

TWELFTH GENERAL ASSEMBLY AND CONFERENCE

Split, 13-15 June 2014

Session: Publishing metrics

Metrics, what metrics?

Remedios Melero

Instituto de Agroquímica y Tecnología de Alimentos- CSIC

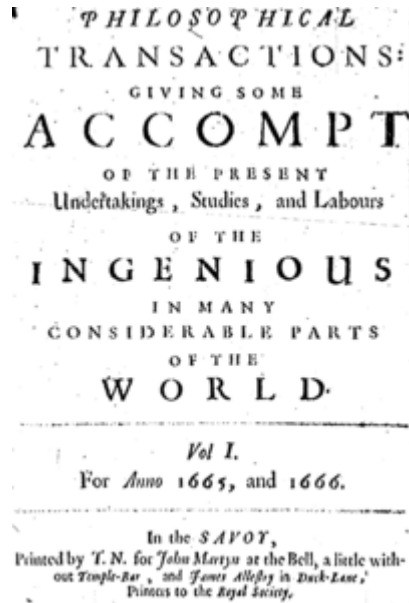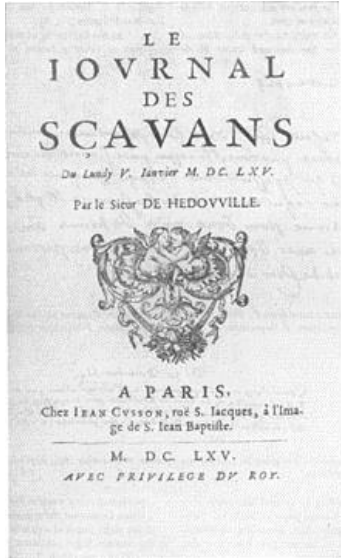Lancet 1923

Lancet 1990

Lancet 2014

THE LANCET

May 24, 2014

Volume 383
Number 9931
p1781 - 1860

Latest Podcast
Bec Cooney discusses a new report and Lancet editorial, giving a US perspective on climate change and health.
(mp3, 11:54 mins, 10.9Mb)

New Issue Alerts

This Week in Medicine

i May 24, 2014
Preview | Full Text | PDF

Editorial

1781 Nursing in the UK: where next?
The Lancet
Preview | Full Text | PDF

1782 Seizing the opportunity to rethink renal research
The Lancet
Preview | Full Text | PDF

1782 MERS-CoV: address the knowledge gaps to move forward
The Lancet
Preview | Full Text | PDF

Articles

1807 Continuous renal replacement therapy in neonates and small infants: development and first-in-human use of a miniaturised machine (CARPEDIEM)
Claudio Ronco, Francesco Garzotto, Alessandra Brendolan, Monica Zanella, Massimo Bellettato, Stefania Vedovato, Fabio Chiarenza, Zaccaria Ricci, Stuart L Goldstein
Preview | Summary | Full Text | PDF

1814 Haemodynamic-guided fluid administration for the prevention of contrast-induced acute kidney injury: the POSEIDON randomised controlled trial
Somjot S Brar, Vicken Aharonian, Prakash Mansukhani, Naing Moore, Albert Y-J Shen, Michael Jorgensen, Aman Dua, Lindsay Short, Kevin Kane
Preview | Summary | Full Text | PDF

1824 Nurse staffing and education and hospital mortality in nine European countries: a retrospective observational study

Traditional view

LE
IOVRNAL
DES
SCAVANS

Du Lundy V. Ianvier M. DC. LXV.

Par le Sieur DE HEDOVVILLE.

A PARIS.
Chez IEAN CVSSON, roë S. Iacques, à l'Image de S. Iean Baptiste.

M. DC. LXV.
AVEC PRIVILEGE DV ROY.

PHILOSOPHICAL
TRANSACTIONS:
GIVING SOME
ACCOMPT
OF THE PRESENT
Undertakings, Studies, and Labours
OF THE
INGENIOUS
IN MANY
CONSIDERABLE PARTS
OF THE
WORLD.

Vol I.
For Anno 1665, and 1666.

In the SAVOY,
Printed by T. N. for John Martyn at the Bell, a little without Temple-Bar, and James Allestry in Duck-Lane, Printers to the Royal Society.

http://www.

Post-Gutemberg era

From the journal as a whole unit

To disaggregation into articles

From traditional metrics based on citations to the journal (IF)
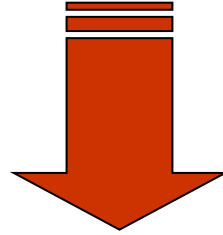
To emerging metrics based on article-level

One does not exclude the other, they can be employed in conjuction to offer a richer picture of an article use from immediate to long terms

Note: article-level metrics (ALMs) is the result of the agreggation of different data sources (altmetrics)

Altmetrics ≠ Alternative Metrics

ALL METRICS ARE WRONG, BUT SOME ARE USEFUL

May 31, 2014 in Panton Fellowships, Uncategorized

Altmetrics, web-based metrics for measuring research output, have recently received a lot of attention. Started only in 2010, altmetrics have become a phenomenon both in the scientific community and in the publishing world. This year alone, EBSCO acquired PLUM Analytics, Springer included Altmetric info into SpringerLink, and Scopus augmented articles with Mendeley readership statistics.

Altmetrics have a lot of potential. They are usually earlier available than citation-based metrics, allowing for an early evaluation of articles. With altmetrics, it also becomes possible to

by Leo Reynolds

assess the many outcomes of research besides just the paper – meaning data, source code, presentations, blog posts etc.

One of the problems with the recent hype surrounding altmetrics, however, is that it leads some people to believe that altmetrics are somehow intrinsically better than citation-based metrics. They are, of course, not. In fact, if we just replace the impact factor with the some aggregate of altmetrics then we have gained nothing. Let me explain why.

The problem with metrics for evaluation

You might know this famous quote:

"All models are wrong, but some are useful" (George Box)

WRITTEN BY
PETER KRAKER

Peter is a researcher at Know-Center of Graz University of Technology and a 2013/14 Panton Fellow. His main research interests are visualizations based on scholarly communication on the web, open science, and alternative metrics for science (altmetrics).
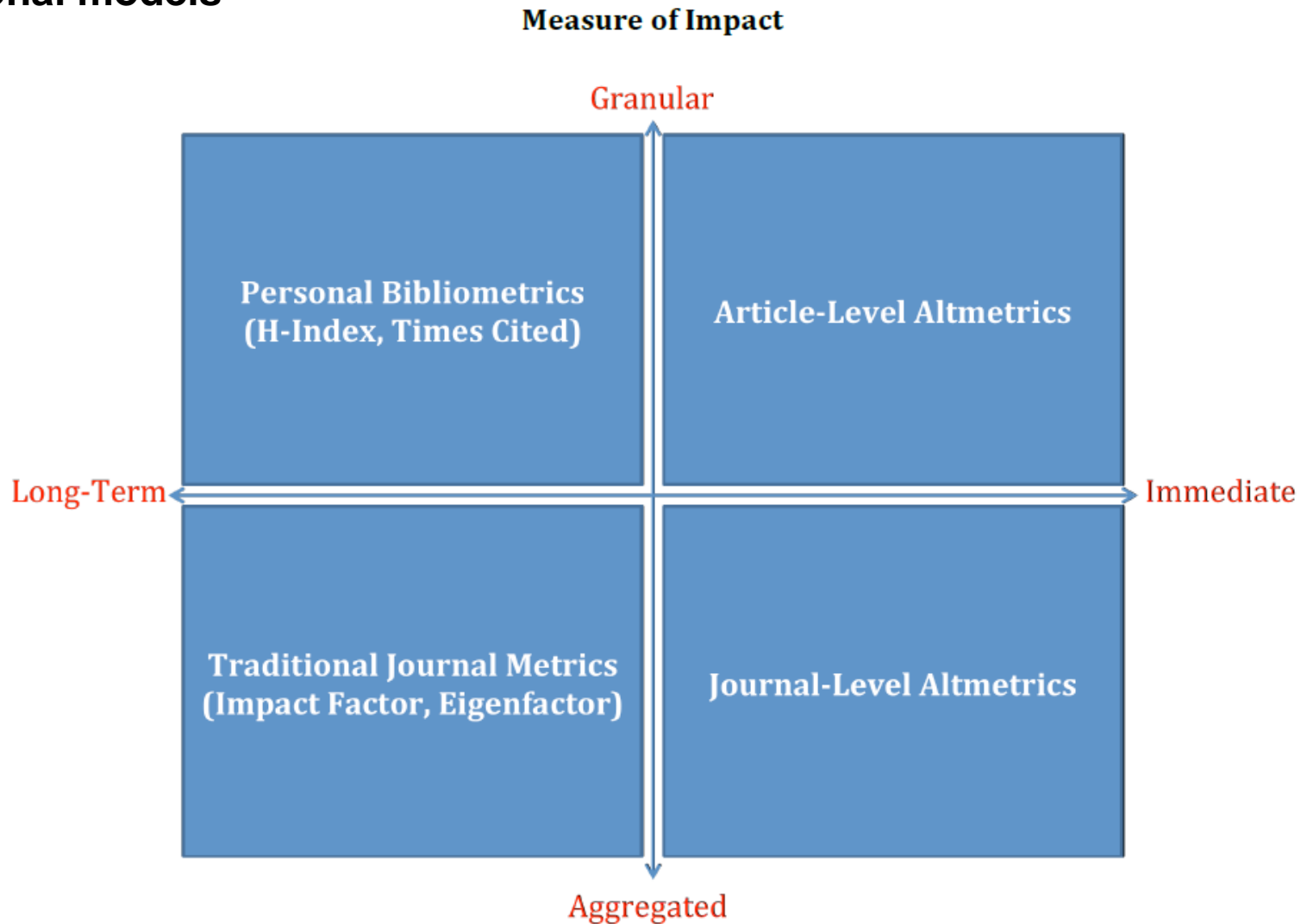
Article-level metrics aggregate a variety of data that taking together quantify the impact of an article in terms of social immediacy and visibility

Immediacy because dissemination of scientific outputs is faster than before and occurs across more channels (blogs, social networks tools ....) than in the print age

Socialization *or social visibility:* interactions, coments, mentions in tweeter, facebook, linkedIn could potentially to reach a broader audience

Article-level metrics are both more granular and more immediate than traditional models

Measure of Impact

Granular

Personal Bibliometrics (H-Index, Times Cited)	Article-Level Altmetrics
Traditional Journal Metrics (Impact Factor, Eigenfactor)	Journal-Level Altmetrics

Long-Term ← → Immediate

Aggregated

Article-Level Metrics A SPARC Primer. Prepared by Greg Tananbaum April, 2013. Available at http://www.sparc.arl.org/sites/default/files/sparc-alm-primer.pdf

Sources used for the aggregation can be broken down into 5 categories*:

Usage. Views and downloads, from the journal site or from a third party, i.e PubMed Central,

Captures. Bookmarks in CiteULike bookmarks, shared within Mendely or Delicio.us

Mentions. Blog post, wikipedia articles, comments, reviews

Social Media. Tweets, Google+, Facebook Likes, shares and ratings

Citations. WOS; SCOPUS; Crossref, PubMed Central

*Based on Richard Cave for PLOS. Available at:
http://www.slideshare.net/rcave/overview-of-the-altmetrics-landscape)

Some article- level metrics tools

PLOS ONE

Altmetric

ImpactStory.

PLUM ANALYTICS

Altmetrics business models

PLOS	non-profit	publisher	usage stats provided by publisher
Altmetric	for profit	service provider	coverage of all journals
ImpactStory.	non-profit		coverage of books, datasets, etc.
PLUM ANALYTICS	for profit		value-added services

Overview of of the altmetrics landscape by Richard Cave, D.
http://www.slideshare.net/rcave/overview-of-the-altmetrics-landscape**Overview**

PLOS | ONE

Subject Areas   For Authors   About Us   Search

OPEN ACCESS   PEER-REVIEWED

172,035	1	30	630
VIEWS	CITATION	SAVES	SHARES

RESEARCH ARTICLE

Nutrition and Health – The Association between Eating Behavior and Various Health Parameters: A Matched Sample Study

Nathalie T. Burkert, Johanna Muckenhuber, Franziska Großschädl, Éva Rásky, Wolfgang Freidl

Article	About the Authors	Metrics	Comments	Related Content

Download PDF
Print   Share

CrossMark

Subject Areas

Carnivory
Diet
Eating
Habits
Meat
Socioeconomic asp...
Trophic interactions
Vegetables

Viewed

Total Article Views
172,035
Feb 7, 2014 (publication date)
through May 20, 2014*

	HTML Page Views	PDF Downloads	XML Downloads	Totals
PLOS	101,168	61,301	73	162,542
PMC	8,921	572	n.a.	9,493
Totals	110,089	61,873	73	172,035

56.20% of article views led to PDF downloads
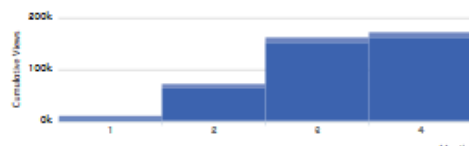
*Although we update our data on a daily basis, there may be a 48-hour delay before the most recent numbers are available. PMC data is posted on a monthly basis and will be made available once received.

Cited

cross ref	ISI Web of Science	Europe PubMed Central	Google scholar
1	330834400049	1	Search

Saved

MENDELEY
30

Discussed

WordPress.com	twitter	reddit	Comments	Google
4	630	105	14	Search

Information on PLOS Article-Level Metrics
Questions or concerns about usage data? Please let us know.

Archived Tweets

20 May
Guido Davidzon
@guidodavidzon
Eating behavior and #health:
#Austrian study contradicting
The #China #Study http://t.co
/44KcRBMUeO #PLOSONE
#diet #vegan #vegetarian

ALM: Measuring the Impact of Research

ALM Reports allows you to view article-level metrics for any set of PLOS articles as well as summarize and visualize the data results.

About | Samples | Send Us Feedback

Your List   50

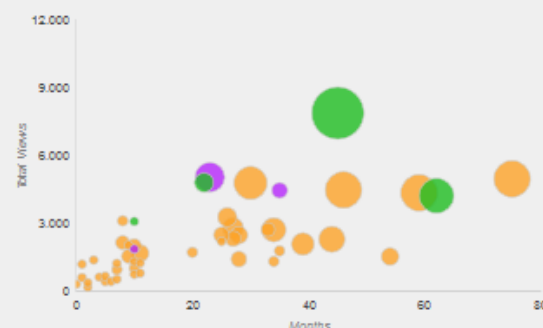1 Select Articles   2 Preview List   3 View Report

Metrics Data   Visualizations

Edit List
Start Over

Print

Visualizations

Share

1 Article Usage and Citations as a function of Age

Total usage includes page views and downloads from PLOS and PMC. Bubble size correlates with Scopus citations and bubble color with the PLOS journal.

SOURCE: 50 published articles from March 19, 2008 to May 05, 2014

2 Article Usage and Mendeley Bookmarks as a Function of Time
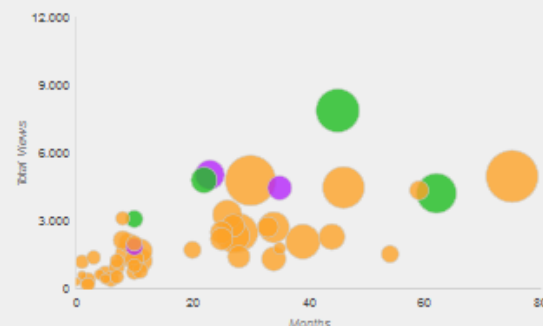
Total usage includes page views and downloads from PLOS and PMC. Bubble size correlates with Mendeley bookmarks and bubble color with the PLOS journal.

SOURCE: 50 published articles from March 19, 2008 to May 05, 2014

Altmetric

About Altmetric and the Altmetric score

← Knowledge Base

What is Altmetric?

Altmetric is a system that tracks the attention that scholarly articles and datasets receive online. It does this by pulling in data from three main sources:

- Social media like Twitter, Facebook, Google+, Pinterest and blogs
- Traditional media - both mainstream (The Guardian, New York Times) and science specific (New Scientist, Scientific American). Many non-english language titles are covered.
- Online reference managers like Mendeley and CiteULike

We track too many sources to list individually but a more detailed breakdown is available here.

Altmetric cleans up and normalizes the data from these sources then makes it available for analysis. A key difference between Altmetric and other social media monitoring services is that Altmetric will disambiguate links to articles: it knows that even though some tweets might link to a PubMed abstract, newspapers to the publisher's site and blog posts to a dx.doi.org link they're all talking about the same paper.

What does it provide?

After Altmetric aggregates all of the information (we call each piece of information a **post**) it can find about a scholarly article it looks at both the quantity and the quality of attention being paid to an article and visualises it:

The Altmetric score for this article is 362

A bacterium that can grow by using arsenic instead of phosphorus.
Science (New York, N.Y.)
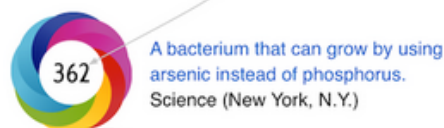
Each colour represents a different source of attention (mainstream news, Twitter...)

The number inside the coloured circle is the **Altmetric score** for the article being viewed. This is a quantitative measure of the quality and quantity of attention that the article has received - you can read more about the scoring algorithm here.

The colours themselves reflect where the posts mentioning the article came from. For example, red means that the article has been mentioned by mainstream news outlets, blue means it has been tweeted about. In the Altmetric Explorer tool you can hover the mouse cursor over a visualization to see the appropriate legend.

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nature
International weekly journal of science

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Archive ⟩ Volume 505 ⟩ Issue 7481 ⟩ Articles ⟩ Article ⟩ Article metrics

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Article metrics for:

The complete genome sequence of a Neanderthal from the Altai Mountains

Kay Prüfer, Fernando Racimo, Nick Patterson, Flora Jay, Sriram Sankararaman, Susanna Sawyer, Anja Heinze, Gabriel Renaud, Peter H. Sudmant, Cesare de Filippo, Heng Li, Swapan Mallick, Michael Dannemann, Qiaomei Fu, Martin Kircher, Martin Kuhlwilm, Michael Laohmann, Matthias Meyer, Matthias Ongyerth, Michael Siebauer, Christoph Theunert, Arti Tandon, Priya Moorjani, Joseph Pickrell, James C. Mullikin ... et al.
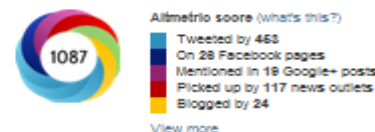
Total citations

8 Web of Science

18 CrossRef

13 Scopus

Online attention

1087

Altmetric score (what's this?)
- Tweeted by 463
- On 28 Facebook pages
- Mentioned in 19 Google+ posts
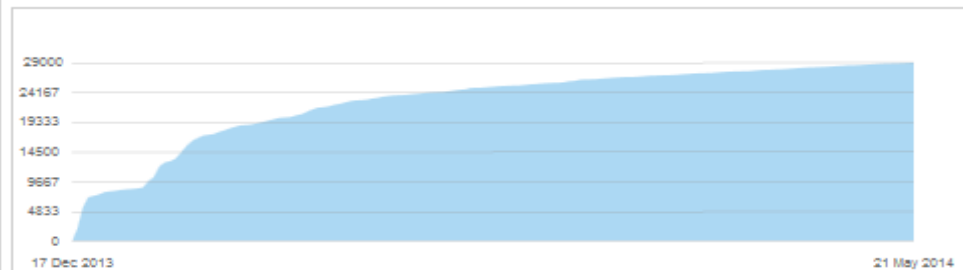- Picked up by 117 news outlets
- Blogged by 24

View more

This Altmetric score means that the article is:

- In the 99 percentile (ranked 19th) of the 79,315 tracked articles of a similar age in all journals
- In the 98 percentile (ranked 12th) of the 908 tracked articles of a similar age in Nature

Page views   29,023

29000
24167
19333
14500
9667
4833
0
17 Dec 2013   21 May 2014

Mentions in news, blogs & Google+

News articles (117) | Scientific blogs (24) | Google+ posts (19)

Neandertal genes point to interbreeding, inbreeding
Science News

The mating habits of early hominins
The Scientist Magazine

Neandertaler-dna aus zehenknochen: erbgut deutet auf unbekannte frühmenschen hin
Neue Zürcher Zeitung (NZZ)

Cuatro especies humanas se aparearon entre si en europa
elmundo.es

Twitter demographics
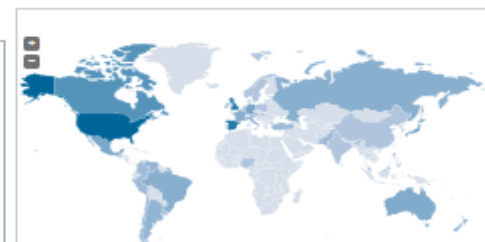
Altmetric for Scopus

Altmetric for Scopus is a powerful 3rd party web application that runs within the sidebar of Scopus article and abstract pages. It's a quick and easy way to see all of the social or mainstream media mentions gathered for a particular paper as well as reader counts on popular reference managers.

The Altmetric application is currently installed for all Scopus users by default (you can choose to disable it if you wish) but will only appear in the sidebar when there is data available for the article that you're currently viewing.

You can usually find it underneath the "Related Documents" box on the right hand side of the screen.

What does Altmetric do?
Altmetric watches social media sites (e.g. Twitter, Facebook, Pinterest, Google+), science blogs, many mainstream media outlets (including the NY Times, The Guardian, non-English language publications like Die Zeit & Le Monde and special interest publications like Scientific American, New Scientist) and reference managers for mentions of academic papers.

It cleans up this data, enriches it and then allows authors, readers and

Altmetric for Scopus

Up to now this article has been mentioned **313** times by **305** sources.

Sources
- 2 Facebook users
- 2 science blogs
- 1 Google+ user
- 1 news outlet
- 299 tweeters

Saved to reference managers
- **0** CiteULike
- **1** Mendeley

see details | open report in new tab

This app provided by **Altmetric.** Learn more here.

BMC Biology
IMPACT FACTOR 6.53

Search BMC Biology for

Home | Articles | Authors | Reviewers | About this journal | My BMC Biology

Comment   Highly accessed   Open Access

Open questions: microbes, metabolism and host-pathogen interactions
Malcolm McConville

Correspondence: Malcolm McConville malcolmm@unimelb.edu.au

BMC Biology 2014, **12**:18   doi:10.1186/1741-7007-12-18

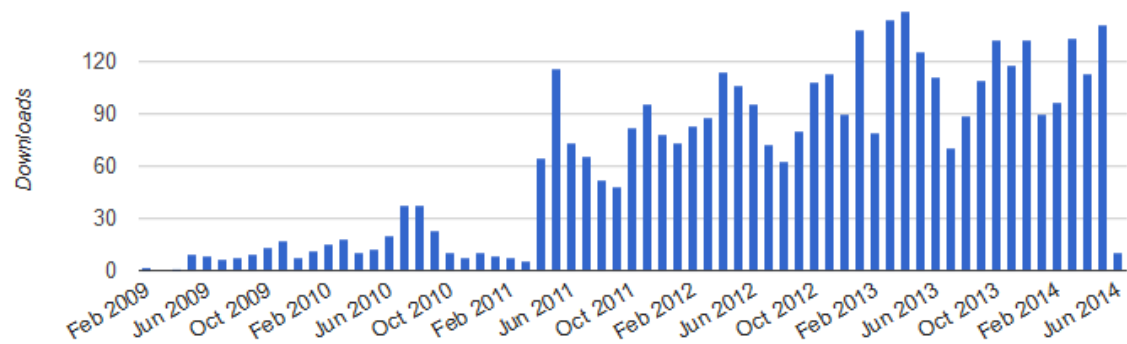### Article Metrics

4049
Total accesses

Article metric FAQ

Statistics Overview

Social network markets : a new definition of the creative industries

Key Figures

Details	Total Usage	Last 28 Days
Deposited **19 February 2009**	**4,078** Downloads ?	**116** Downloads
	2 Referrals to Published Version ?	

Impact and Interest

Source	Times Cited
Scopus	65
Web of Science®	33
Google Scholar™	Search
Altmetric	Altmetric 0

View full report

Top 5 Geographic Location

Country	Downloads
United Kingdom	521
United States	438
Australia	336
Germany	307
Netherlands	250

View full report

QUT vs. External Downloads ?

http://eprints.qut.edu.au/statistics/eprint/18071/

Article   Figures & data   Metrics   Article & author info

Molecular architecture of human polycomb repressive complex 2

Claudio Ciferri ✉, Gabriel C Lander, Alessio Maiolica, Franz Herzog, Ruedi Aebersold, Eva Nogales ✉

University of California, United States; Lawrence Berkeley National Laboratory, United States; ETH Zurich, Switzerland; University of Zurich, Switzerland; Howard Hughes Medical Institute, UC Berkeley, United States

Total views: 9,108
Since publication on 30 October 2012

Show data:
since publication

	HTML	PDF	XML
HighWire	6,498	698	1,912

last year   last 3 months   last month

Scholarly impact
via ImpactStory

● Citations via Scopus
13 citations

Citations via HighWire
3 citations

ImpactStory.

Used by HighWire Press

ImpactStory.
Open carrots for Open science

Funders bring the sticks, we add carrots. ImpactStory helps open scientists tell the full story of their research impact: we reveal diverse metrics of engagement and reuse for articles, datasets, software, and more.

Context for your metrics

highly saved | highly discussed | cited | saved

Highly saved by scholars

This item has 25 Mendeley readers. That's better than 91% of items indexed by Web of Science in 2012, suggesting it's highly saved by scholars. Click to learn more.

Custom persistent URL

impactstory.org/CarlBoettiger

Embed on your CV

Roberts SB, Hauser L, Seeb LW, Seeb JE (2012) Development of genomic resources for Pacific herring through targeted transcriptome pyrosequencing.
highly saved | highly discussed | cited | viewed | viewed
PLoS ONE 7(2): e30908.
doi:10.1371/journal.pone.0030908

Roberts SB and Gavery MR (2012) Is there a relationship between DNA methylation and phenotypic plasticity in invertebrates? highly saved | saved Frontiers in Physiology. 2:116. doi:10.3389/fphys.2011.00116

Seeb JE, Pascal CE, Graue ED, Seeb LW, Templin WD, Harkins T, Roberts SB. (2010) Transcriptome sequencing and high resolution melt analysis advance single nucleotidepolymorphism discovery in duplicated salmonids.
highly cited | Highly saved | discussed | Molecular Ecology Resources. doi: 10.1111/j.1755-0998.2010.02936.x

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ImpactStory.   Welcome back,

Carl Boettiger
56 products (expand all)

+ add products | ↻ refresh metrics | ↓ download ▾

article

rfishbase: exploring, manipulating and visualizing FishBase data from R
(2012) Boettiger, Lang, Wainwright Journal of Fish Biology
highly saved | highly discussed | cited | saved

Fluctuation domains in adaptive evolution
(2010) Boettiger, Dushoff, Weitz Theoretical Population Biology
highly saved | highly discussed | cited | saved

Early warning signals and the prosecutor's fallacy
(2013) Boettiger, Hastings Proceedings of the Royal Society B: Biological Sciences
highly cited | highly saved | discussed

dataset

Data from: Is your phylogeny informative? Measuring the power of comparative methods
(2012) Boettiger, Coop, Dryad Digital Repository
highly viewed | saved | discussed

Data from: Fluctuation domains in adaptive evolution
(2012) Boettiger, Dushoff, Weitz Dryad Digital Repository
highly viewed

... D Dissertation)
viewed | discussed | discussed

...ics in Multispecies Forest Populations (Senior
viewed | discussed | discussed

Open data, open source

"metrics": {
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        },
        "values": {
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Five Categories of Metrics

When we started working with all of the metrics that we could gather from the data exhaust created when people interacted with research we quickly realized three things:

1. Not all metrics are created equal, a download is not the same as a tweet.
2. Synthesizing all of the metric data into a single number dilutes the meaning.
3. Categorizing the metrics into buckets gives you useful information.

For example, we have seen that people "capturing" work to save it for later is often an early indicator of later citations. Since citation counts lag, this is a great way to find work that other researchers are finding valuable. But, we don't want to "bury" the fact of those captures inside some grand number - you would lose this valuable information.

After a lot of experimentation and working with early customers, we categorized metrics into these useful categories:

USAGE   CAPTURES   MENTIONS   SOCIAL MEDIA   CITATIONS

Here is a list of examples of what we put into each category:

- **Usage** - Downloads, views, book holdings
- **Captures** - Favorites, bookmarks, saves, readers, groups, watchers
- **Mentions** - blog posts, news stories, Wikipedia articles, comments, reviews
- **Social media** - Tweets, +1's, likes, shares
- **Citations** - PubMed, Scopus, patents

http://www.plumanalytics.com/

Example of a Plum Analytics record
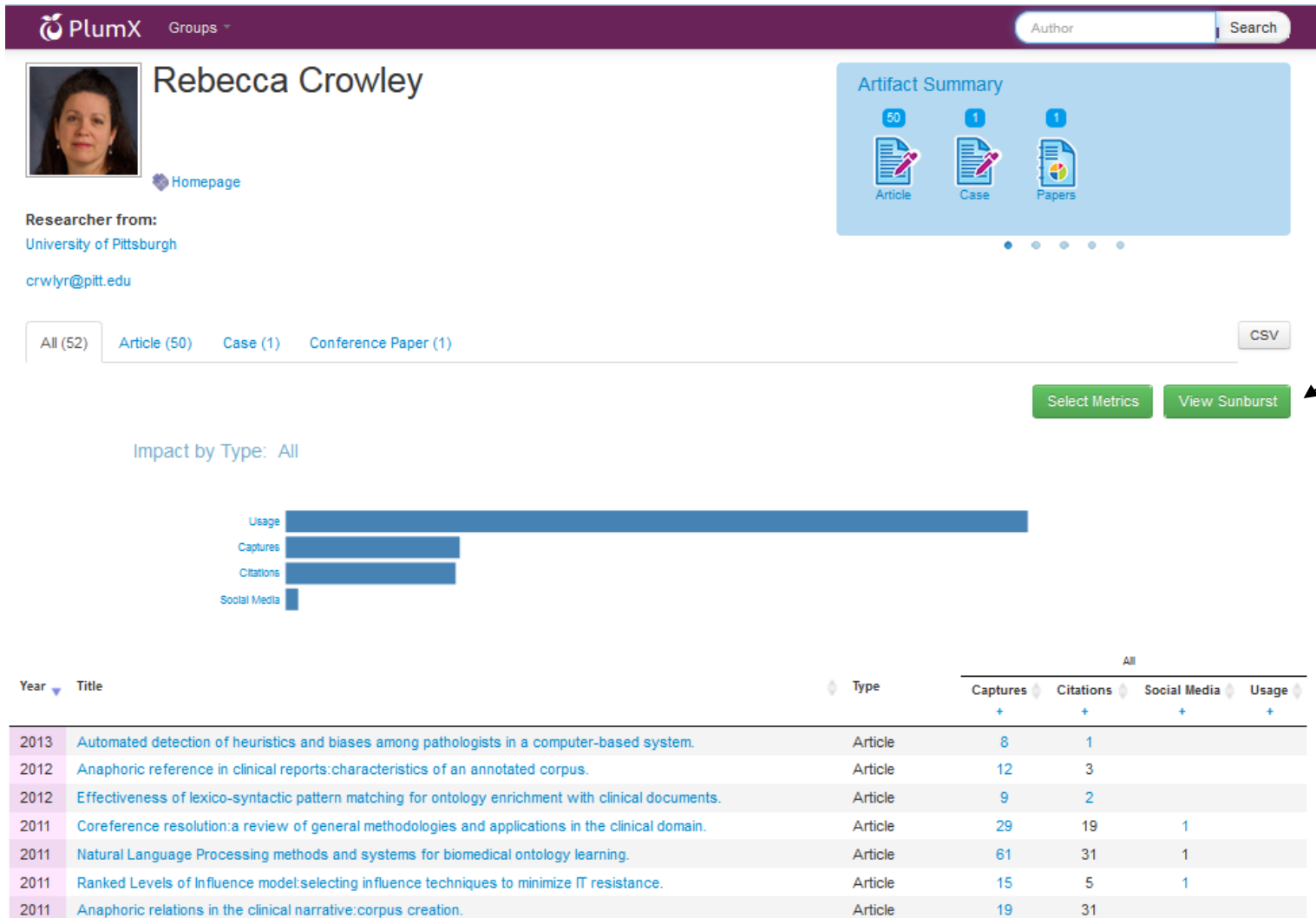
All (52)   Article (50)   Case (1)   Conference Paper (1)

Type   Impact

Select Metrics ✔   Vi
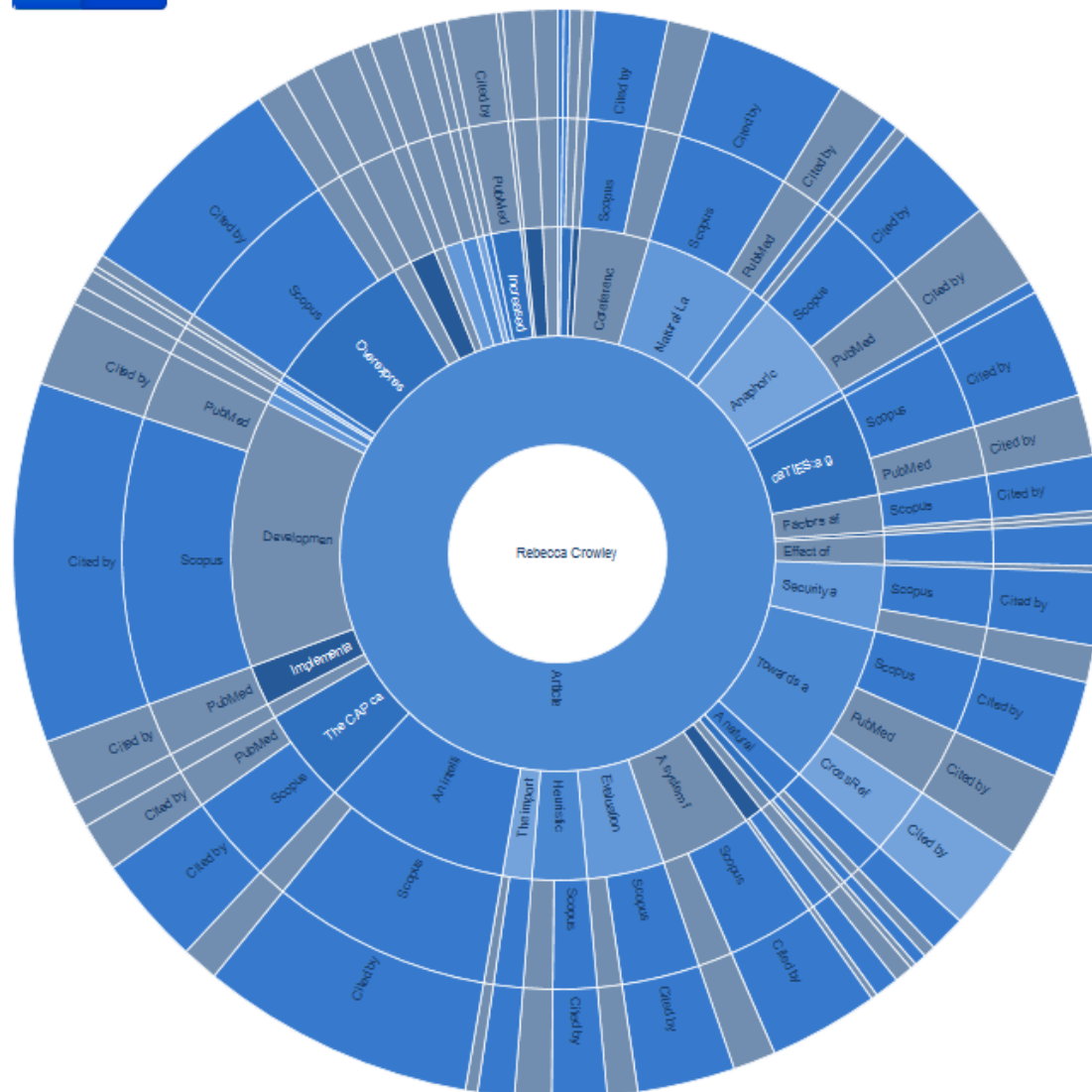
Natural Language Processing methods and systems for biomedical ontology learning.

Author(s): Kaihong Liu, William R Hogan, Rebecca S Crowley

Captures
Mendeley - Readers: 61

Social Media
Google+ - +1s: 1

Citations
Scopus - Cited by: 23
PubMed - Cited by: 8

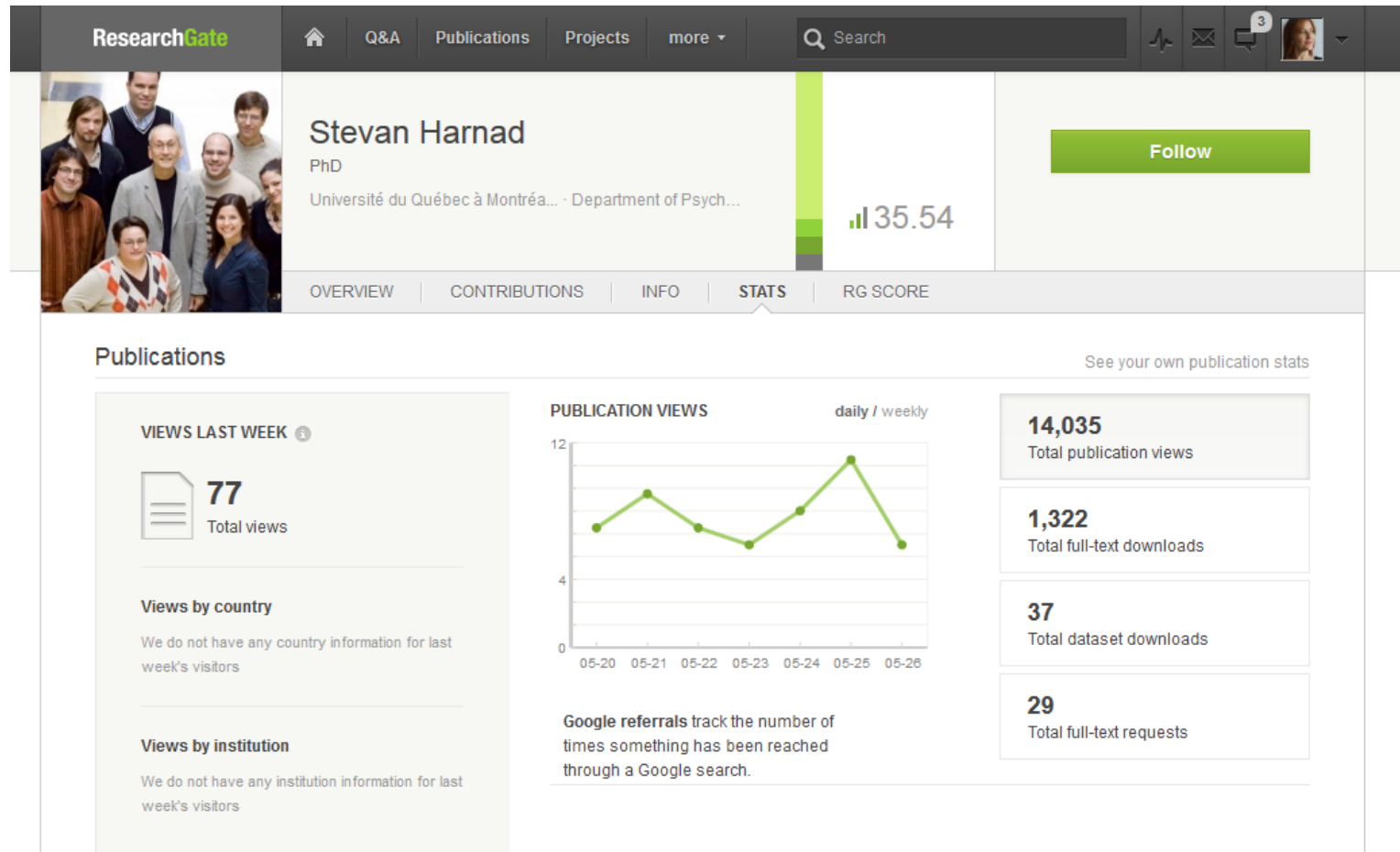# Effect of social networks on the impact of OA publications
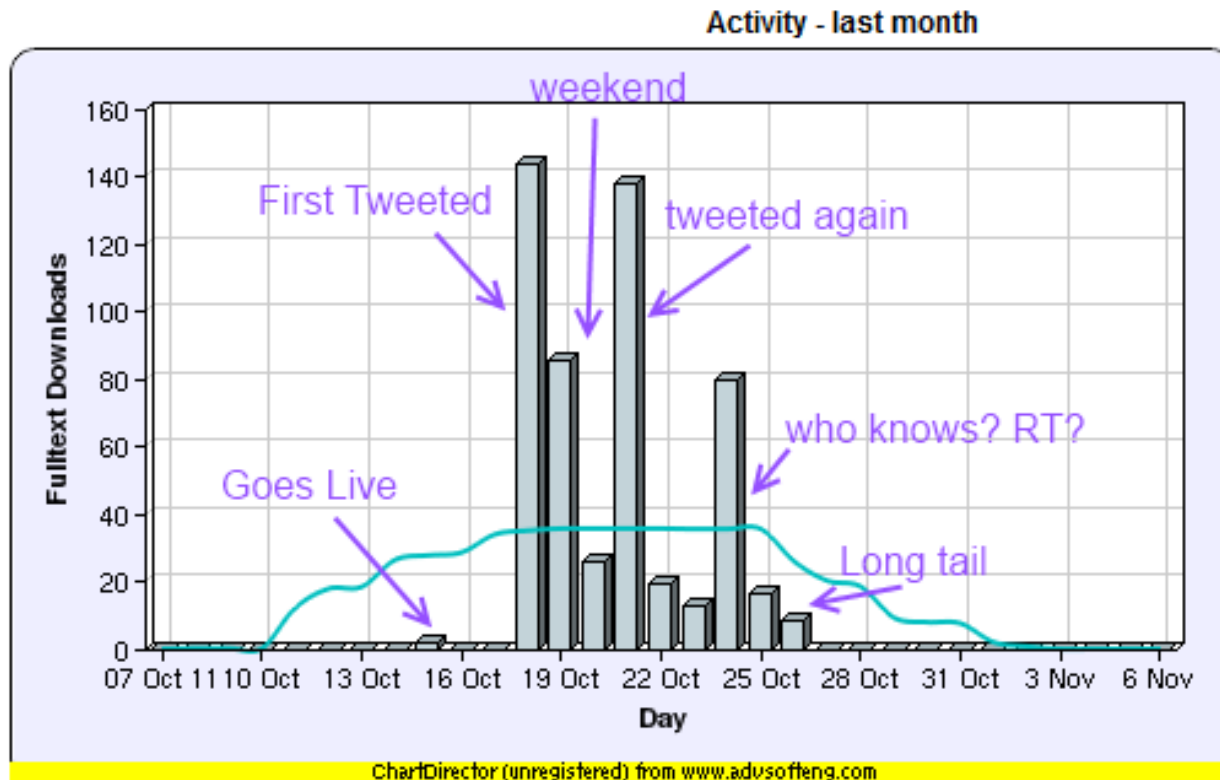
http://www.rsp.ac.uk/documents/get-uploaded-file/?file=SocialMedia_MTerras.pptx

Another type of statistics provided by professional networks….

Two cases: **Academia.edu and ResearchGate**

Example of a record in ResearchGate

https://www.researchgate.net

Academia.edu analytics https://www.academia.edu/
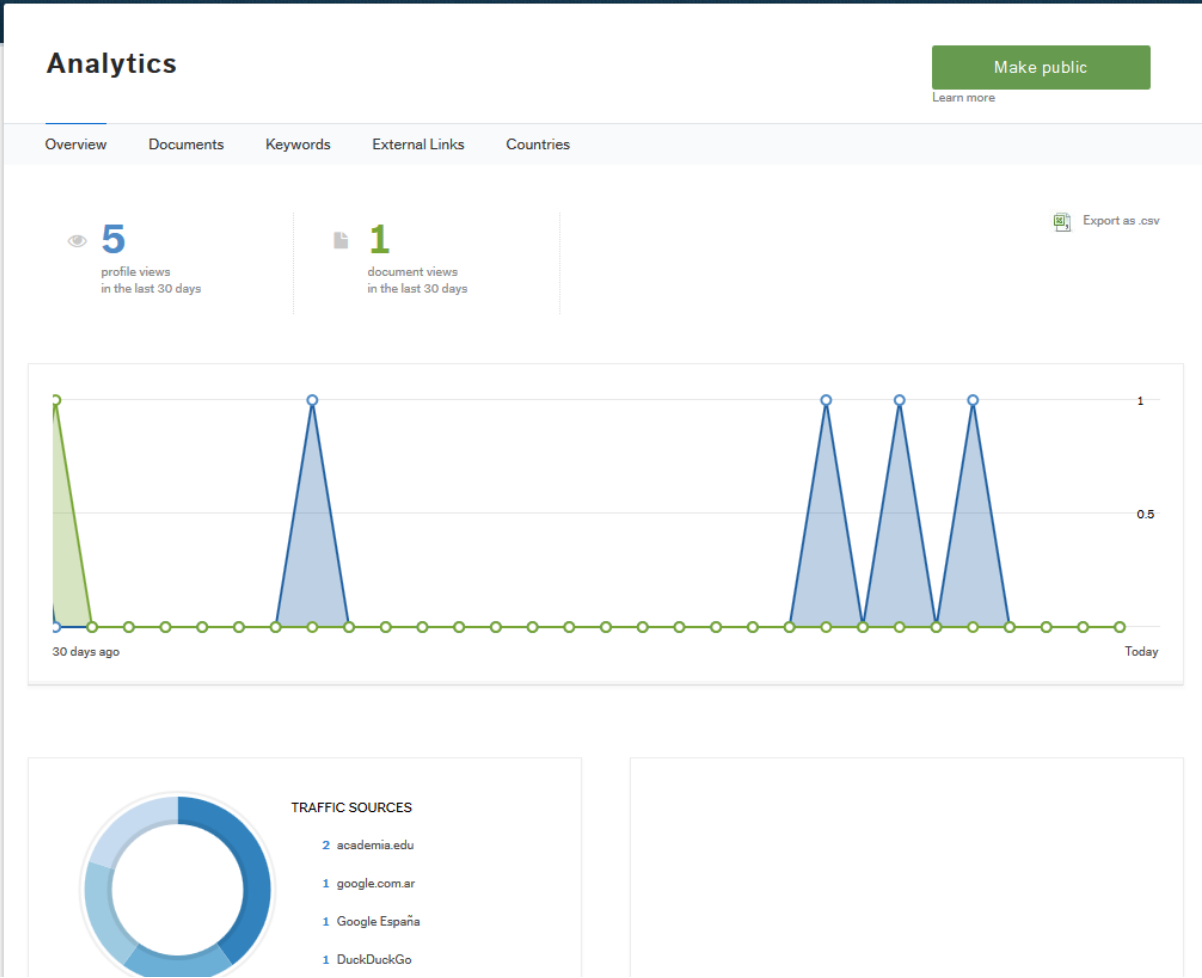
Google scholar statistics

Thank you!

Reme

rmelero@iata.csic.es