

Social Media as Research Data

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Slides are available at: <http://de.slideshare.net/katrinweller>



SERIOUSLY? DO THEY NOT REALIZE THAT 99% OF TWEETS ARE WORTHLESS BABBLE THAT READ SOMETHING LIKE 'JUST WOKE UP. GOING TO STARBUCKS NOW. GETTING LATTE.'

READER'S COMMENT FOUND IN THE COMMENT SECTION FOR GROSS, D. (2010, APRIL 14). LIBRARY OF CONGRESS TO ARCHIVE YOUR TWEETS. CNN. RETRIEVED FROM [HTTP://EDITION.CNN.COM/2010/TECH/04/14/LIBRARY.CONGRESS.TWITTER/](http://edition.cnn.com/2010/tech/04/14/library.congress.twitter/), RETRIEVED NOVEMBER 19.

PHOTOS: [HTTPS://WWW.FLICKR.COM/SEARCH/?TEXT=COFFEE&LICENSE=4%2C5%2C6%2C9%2C10](https://www.flickr.com/search/?text=coffee&license=4%2C5%2C6%2C9%2C10)



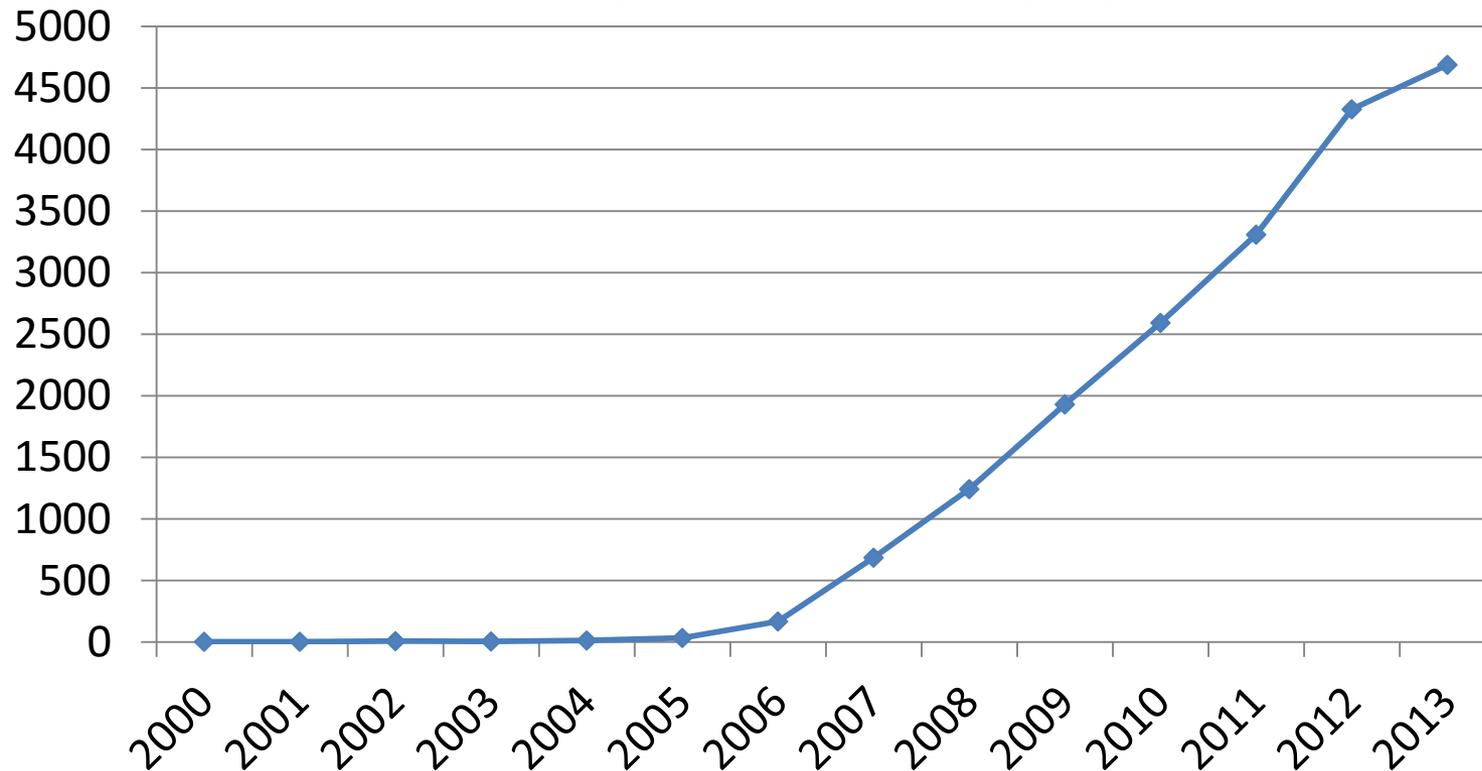
Chances in Social Media Research

- Researchers value social media as a new type of data
- Previously „ephemeral data“ become visible
- Immediate – quick reaction to events
- Structured
- „natural“ data

“What I find really interesting is that structure becomes manifest in internet communication. So it’s the first time in history actually that we can, that social structures between people become manifest within a technology. (...) They become visible, they become crawlable, they become analyzable.”

Social media research 2000-today

No. of publications (Scopus)

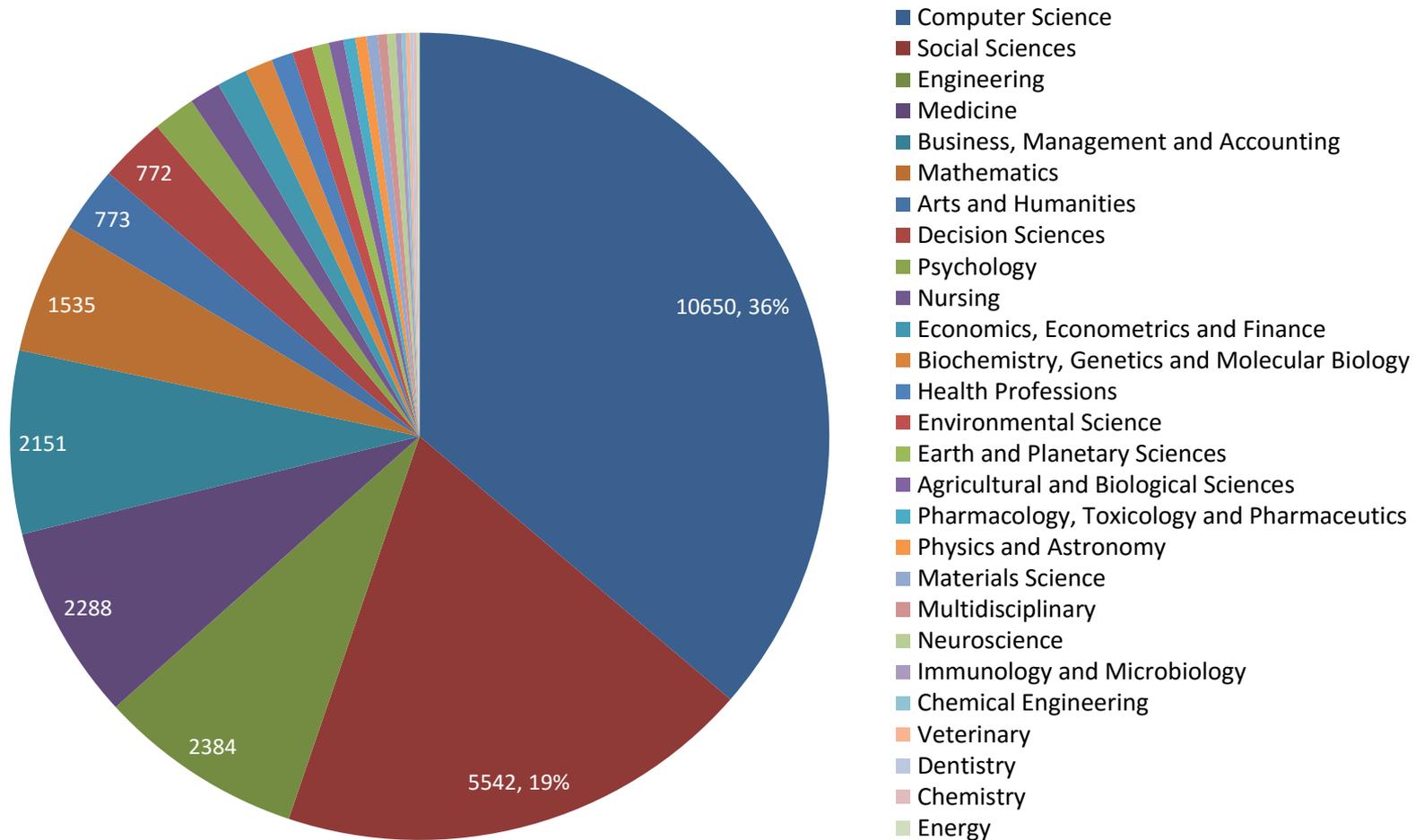


What is being studied?

- User groups
- Events
- Audiences
- Practices
- Information flow
- Influence
- Opinions and sentiments
- Networks
- Interactions
- Predictions
- Language
- Political communication
- Activism
- Crisis communication/disaster response
- E-learning
- Health
- Brand communication
- ...

A new discipline?

Scopus: 2000-today by subject area



Social Media Data

- Texts
- Images
- Videos
- Mixed formats
- Connections I (friends, followers)
- Connections II (links/URLs)
- Connections/Actions (likes, favs, comments, downloads)

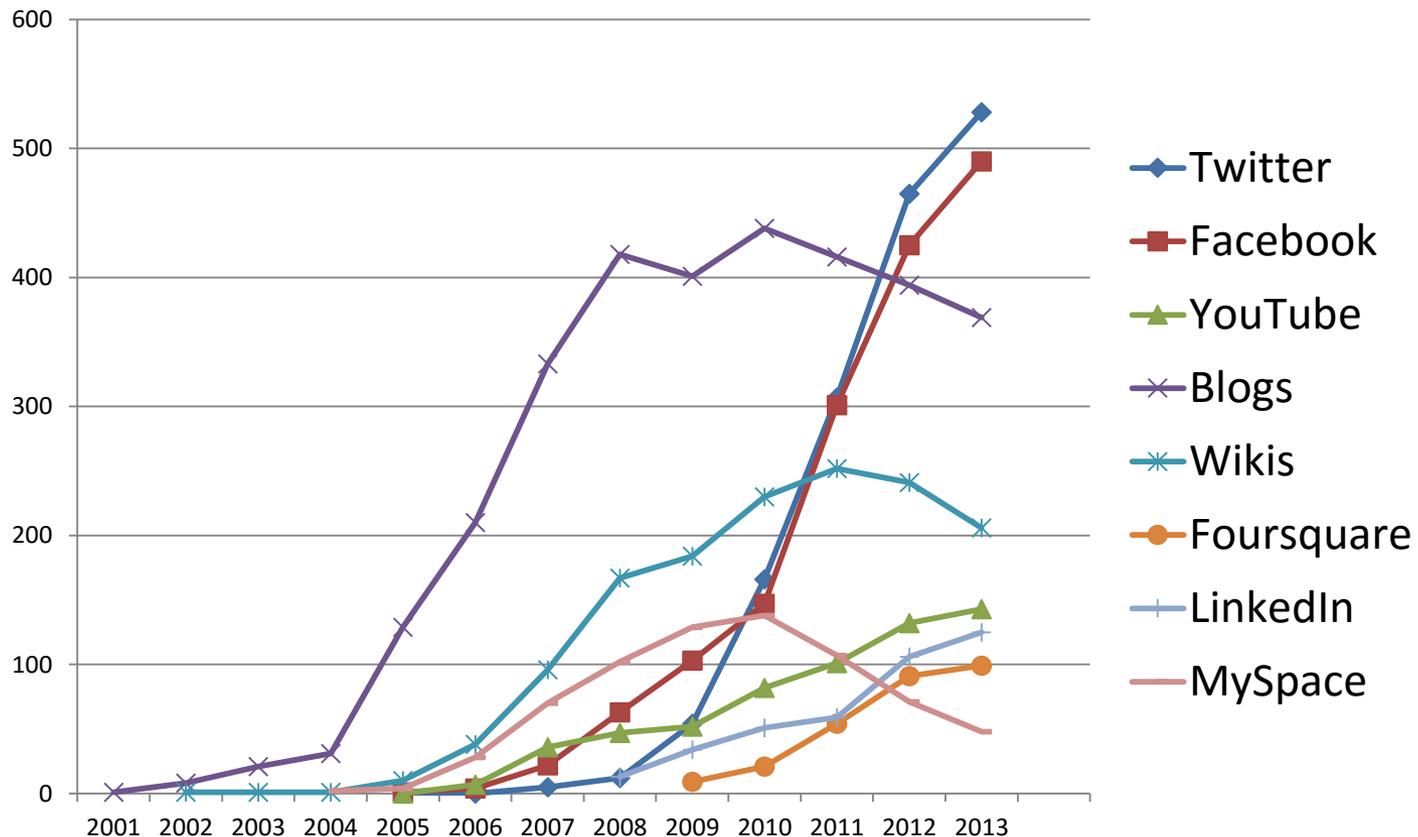
→ Different methods!

Different methods and types of datasets, examples from popular social science papers

No.	Method	Domain	Dataset
[1]	Analytic: Twitter metrics	Technical	309,740 Twitter users (with followers and tweets)
[2]	Examination: interviews	Communication	Interviews with 181 Twitter users
[3]	Examination: experiment	Education	Experiment with 125 students.
[4]	Analytic: linguistic (sentiment analysis)	Linguistics	20,000 tweets
[5]	Analytic: linguistic (event detection)	Linguistics	163,500,000 tweets
[6]	Analytic: linguistic (part of speech)	Linguistics	1,827 annotated tweets
[7]	Analytic: linguistic (sentiment analysis)	Linguistics	475,000,000 tweets
[8]	Analytic: quantitative (network analysis)	Security	17,803 tweets from 8,616 users + 1st degree network (3,048,360 directed edges, 631,416 unique followers, and 715,198 unique friends)
[9]	Analytic: linguistic (sentiment analysis)	Linguistics	200,000 annotated tweets
[10]	Analytic: linguistic (conversation structures)	Linguistics	1.3 million Twitter conversations, with each conversation containing between 2 and 243 posts
[11]	Analytic: network analysis, Twitter metrics, clustering, content analysis	Classification	One person's Twitter network (652 followers, 114 followings). 3,112 tweets.
[12]	Analytic: network analysis	Geography	481,248 tweets, 1,953 user pairs
[13]	Analytic: content analysis, Twitter metrics	Communication	102,500 tweets
[14]	Examination: experiment	Business	Experiment with 1,677 participants
[15]	Design and Development: linguistic (method development)	Linguistics	449 tweets sampled from 1.5 GB of Twitter data
[16]	Examination: survey	Classification	Survey with 505 young American adults
[17]	Design and Development: event detection (method development)	Geography	21,623,947 geo-tagged tweets
[18]	Analytic: Twitter metrics, linguistic (sentiment analysis)	Politics	104,003 tweets
[19]	Analytic: content analysis	Business	93 user profiles and 930 tweets
[20]	Analytic: content analysis, Twitter metrics Examination: survey	Education	4,574 tweets Qualitative survey with 11 participants
[21]	Analytic: content analysis	Communication	22,248 tweets
[22]	Analytic: network analysis, Twitter metrics	Geography	99,832 tweets
[23]	Analytic: Twitter metrics, linguistic	Geography	1,535,929,521 tweets from 71,273,997 users
[24]	Analytic: content analysis	Politics	4,869,264 tweets (and 43,378 YouTube URLs)
[25]	Examination: experiment	Education	Two experiments with 125 and 135 students.

Table 2. Analysis of methods, domains and datasets in the selected publications.

Social Media Research



Number of publications per year, which mention the respective social media platform's name in their **title**. Scopus Title Search. For details: <http://kwelle.wordpress.com/2014/04/07/bibliometric-analysis-of-social-media-research/>

One of the Challenges: Data Collection and Sharing

“But you can’t make your data available for others to look at, which means both your study can’t really be replicated and it can’t be tested for review. But also it just means your data can’t be made available for other people to say, Ah you have done this with it, I’ll see what I can do with it, (...) There is no open data.”

Weller, Katrin, and Katharina E. Kinder-Kurlanda. 2015. "Uncovering the Challenges in Collection, Sharing and Documentation: The Hidden Data of Social Media Research?." In *Standards and Practices in Large-Scale Social Media Research: Papers from the 2015 ICWSM Workshop. Proceedings Ninth International AAAI Conference on Web and Social Media Oxford University, May 26, 2015 – May 29, 2015*, 28-37. Ann Arbor, MI: AAAI Press.

Example 2008-2013 papers on Twitter and elections: data sources

Data source	number
No information	11
Collected manually from Twitter website (Copy-Paste / Screenshot)	6
Twitter API (no further information)	8
Twitter Search API	3
Twitter Streaming API	1
Twitter Rest API	1
Twitter API user timeline	1
Own program for accessing Twitter APIs	4
Twitter Gardenhose	1
Official Reseller (Gnip, DataSift)	3
YourTwrapperKeeper	3
Other tools (e.g. Topsy)	6
Received from colleagues	1

Archiving Twitter Datasets? Current approaches



ID	User Name	Universal Time	Local Time Stamp	Text	Language	Profile Image	Source	Location	Time Zone	Geo	Hashtags	Urls	User Mention
2	dimazest	5/13/2013 3:31	5/13/2013 4:31:08 PM	Finally I've arrived to #www2013 and queuing for the en		http://a0.twimg	<a href="http	Groningen, Th Rome			www2013		
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4	www2013rio	5/13/2013 3:21	5/13/2013 12:21:01 PM	#www2013 Pictures on Flickr: http://t.co/TDbPwBQ3 en		http://a0.twimg	web	Rio de Janeiro Brasilia			www2013	http://www.f	
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6	www2013rio	5/13/2013 3:10	5/13/2013 12:10:25 PM	#www2013 Participants, if you have any Internet pro en		http://a0.twimg	web	Rio de Janeiro Brasilia			www2013		
7	wisdelft	5/13/2013 3:06	5/13/2013 4:06:56 PM	RT @aleboz: #WWW2013 when doing experiments v en		http://a0.twimg	<a href="http	Delft, the Net Amsterdam			WWW2013	http://www2.	aleboz
8	mdaquin	5/13/2013 3:06	5/13/2013 3:06:36 PM	RT @stefandietze: #linkeddata and Online Learning ti en		http://a0.twimg	<a href="http	Milton Keynes: London			linkeddata linl		stefandietze
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11	rtroncey	5/13/2013 3:00	5/13/2013 4:00:36 PM	RT @mzurko: ooops! @micbuffa discovers that the p en		http://a0.twimg	<a href="http	Sophia Antipo Paris			www2013		mzurko micbu
12	mzurko	5/13/2013 2:58	5/13/2013 9:58:22 AM	Final section of HTML5 talk slides http://t.co/l3PzIW en		http://a0.twimg	web	Quito			www2013	http://mainlin	
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25	chrisDircom	5/13/2013 2:40	5/13/2013 3:40:25 PM	RT @ocsigen: Members of the Ocsigen team are in Ri en		http://a0.twimg	web	PMA Paris			www2013	http://fb.me/	ocsigen
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Format supported by
Twitter Terms of services

7	33396123434702848
8	333961480972152834
9	333961423434702848
10	333961221181157378
11	333959973027594242
12	333959407513792512
13	333957923514482690
14	333957911611052032
15	333957828970680320
16	333957109010010112
17	333956676187205632
18	333956463057833984
19	333956173978013697
20	333956106797871104
21	333955660553256961
22	333955400959422464
23	333955131978690560
24	333954996469108736
25	333954893117276160
26	333954704755265536
27	333954630012780544
28	333954511599181827
29	333954343525044224
30	333953031949398017
31	333952834963927040

Available datasets

- From individual researchers/groups (sometimes „black market“).
- From conferences: e.g. ICWSM
- Archival institutions: e.g. GESIS ([doi:10.4232/1.12319](https://doi.org/10.4232/1.12319))

TECHNOLOGY

Library of Congress' Twitter archive is a huge #FAIL

More than five years on, the library's Twitter archive project is in limbo — with no end in sight.

By NANCY SCOLA | 7/11/15 5:09 PM EDT



<http://www.politico.com/story/2015/07/library-of-congress-twitter-archive-119698.html>

INSIDE
HIGHER ED

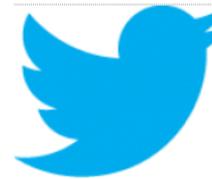
| View Exclusive AAUP Compensation Survey Data |

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Views



The Archive Is Closed

June 3, 2015

By **Scott McLemee**

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Visiting
Fellows



Five years ago, [this column](#) looked into scholarly potential of the Twitter archive the Library of Congress had recently acquired. That potential was by no means self-evident. The incensed “my tax dollars are being used for this?” comments practically wrote themselves, even without the help of Twitter bots.

For what -- after all -- is the value of a dead tweet? Why would anyone study 140-character messages, for the most part concerning mundane and hyperephemeral topics, with many of them written as if to document the lowest possible levels of functional literacy?

As I wrote at the time, papers by those actually doing the research treated Twitter as one more form of human communication and interaction. The focus was not on the content of any specific message, but on the patterns that emerged when they were analyzed in the

<https://www.insidehighered.com/views/2015/06/03/article-difficulties-social-media-research>

Challenges in Archiving Twitter Data

Sources for Challenges

- (1) the Twitter Terms of Services
- (2) ethical challenges
- (3) lack of standard metadata and collection methods
- (4) the ever changing nature of Twitter – and Twitter users

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The changing nature of Twitter in 5 examples

#1

Deleted content

#2

Lost context: interfaces, look and feel

#3

Lost context: stories, meanings

#4

Lost context: user names

#5

URLs and images

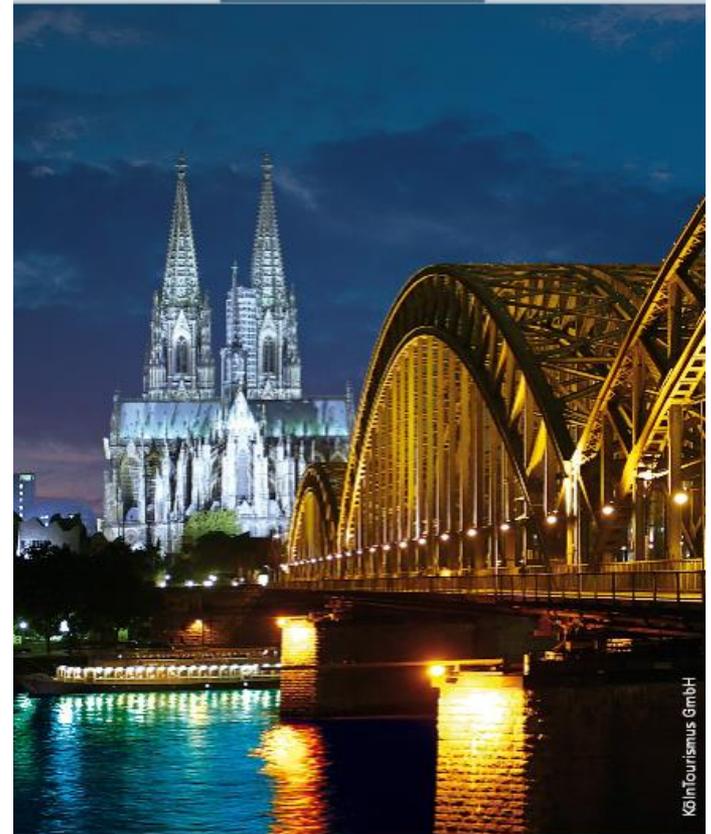
Questions and Feedback

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<http://katrinweller.net>

www.gesis.org/css-wintersymposium



KölnTourismus GmbH

Further information:

www.gesis.org/css-wintersymposium

Supplement: some useful references

Tools / Methods for collecting tweets:

- Borra, E., & Rieder, D. (2014). Programmed method: developing a toolset for capturing and analyzing tweets, *Aslib Journal of Information Management*, 66(3), 262 – 278. DOI: <http://dx.doi.org/10.1108/AJIM-09-2013-0094>
- Bruns, A., & Liang, Y. E. (2012). Tools and methods for capturing Twitter data during natural disasters. *First Monday*, 17(4). doi:10.5210/fm.v17i4.3937
- Gaffney, D., & Puschmann, C. (2014). Data collection on Twitter. In Weller, A. Bruns, J. Burgess., M. Mahrt and C. Puschmann (Ed.), *Twitter and Society* (pp. 55–68). New York: Peter Lang.

[There are much more tools, though. See, e.g. collection at:

https://docs.google.com/document/d/1UaERzROI986HqcwrBDLaqGG8X_IYwctj6ek6ryqDOiQ/edit (curated by D. Freelon).

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Challenges in collecting tweets / data quality:

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- Weller, K. (2014b). What do we get from Twitter – and what not? A close look at Twitter research in the social sciences. *Knowledge Organization* 41(3), 238-248.
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Critical perspectives on data access and inequalities:

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Supplement: some useful references

Examples of Twitterdatasets shared publicly:

- CrisisLex on Github: <https://github.com/sajao/CrisisLex/tree/master/data/CrisisLexT26/>
- Hadgu & Jäschke 2014 dataset on Github: <https://github.com/L3S/twitter-researcher>
- ICWSM 2012 datasets: <http://www.icwsm.org/2012/submitting/datasets/> ICWSM 2014 datasets: <http://www.icwsm.org/2014/datasets/datasets/>
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