

Social Media and Scientific Communication: Case Studies of Twitter Use by Contemporary Scientists

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MacDonald

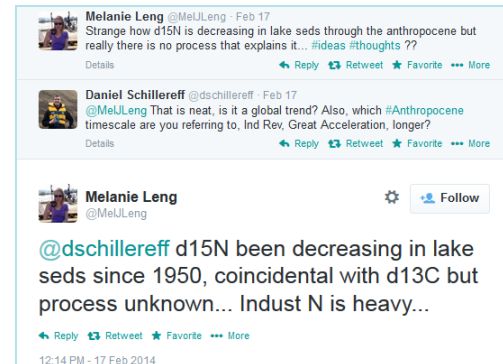


Background

This study examines the use of Twitter as a means of modern scientific communication. It is part of a larger project that will examine changes in scientific communication practices by comparing these results with historical scientists who did much of their communicating through “snail mail.”



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Research Questions

1. What criteria and data source should be used to collect comparable historical and contemporary datasets of scientific networks?
2. What can we determine about contemporary scientific networks by creating a framework for analyzing messages sent between individuals in networks that is applicable to the historical and present day dataset alike?



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Tweet

Methodology

Choosing a present-day scientist:

- a) find users who identify as earth scientists
- b) find scientists who are in academia and/or government
 - i) who are experienced in their fields, and
 - ii) who actively use Twitter

Developing a framework for content analysis:

- Facet 1: Function (e.g. Conversation)
- Facet 2: Content (e.g. Sharing Information)
- Facet 3: Reference (e.g. Link – picture)

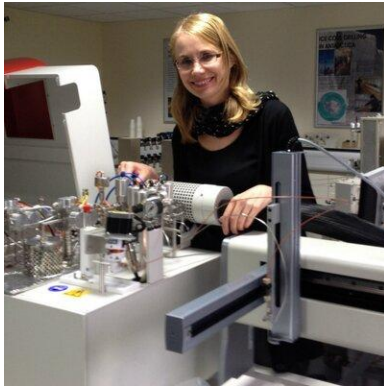


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Case Studies

@MelJLeng



Melanie Leng

*Professor of Isotope
Geosciences
British Geological
Survey & University of
Leicester*

@cbdawson



Cian Dawson

*Hydrologist
U.S. Geological Survey*

@Profiainstewart



Iain Stewart

*Professor of Geosciences
Communication
Plymouth University*

 Add photo

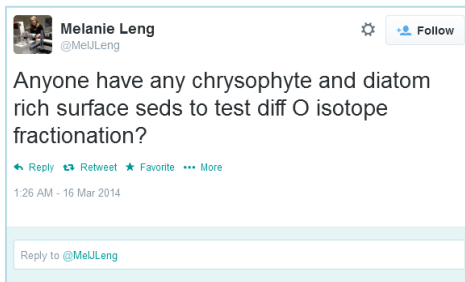
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 Tweet

Findings

Using Netlytic and the search string “@username OR from: username,” 2,036 total tweets were collected between 17 February 2014 – 17 March 2014. A sample of 521 tweets were coded based on the framework developed for this study.



Melanie Leng
@MeULeng

Anyone have any chrysophyte and diatom rich surface sed to test diff O isotope fractionation?

← Reply ↻ Retweet ★ Favorite ... More

1:26 AM - 16 Mar 2014

Reply to @MeULeng



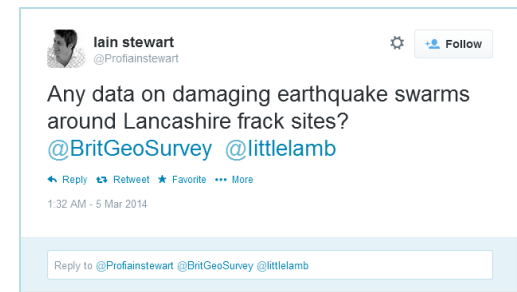
Cian Dawson
@cbdawson

Nice media coverage about Colorado School of Mines interdisciplinary hydro class to hook students: denverpost.com/news/ci_251666

...
↻ Reply ↻ Retweet ★ Favorite ... More

8:13 AM - 20 Feb 2014

Reply to @cbdawson



Iain Stewart
@ProfIainStewart

Any data on damaging earthquake swarms around Lancashire frack sites?
[@BritGeoSurvey](#) [@littlelamb](#)

↻ Reply ↻ Retweet ★ Favorite ... More

1:32 AM - 5 Mar 2014

Reply to @ProfIainStewart @BritGeoSurvey @littlelamb

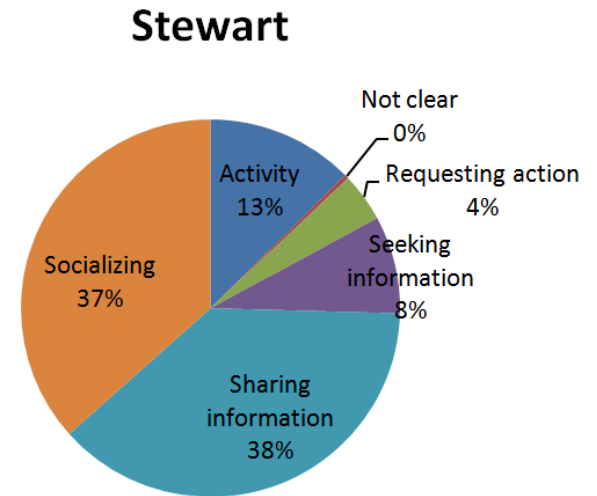
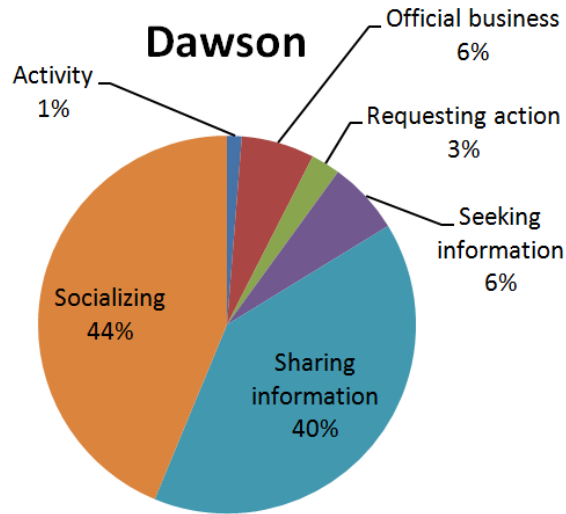
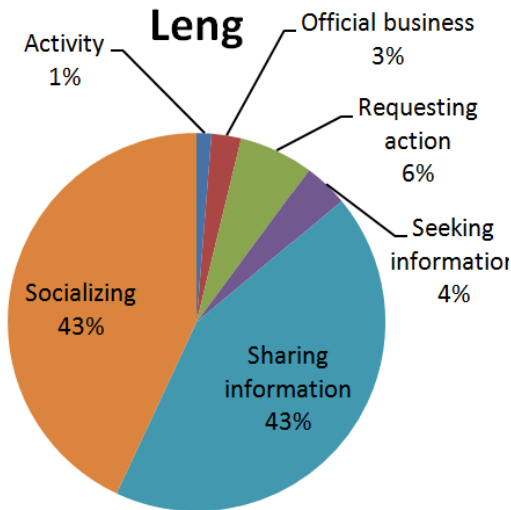


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Breakdown by Content



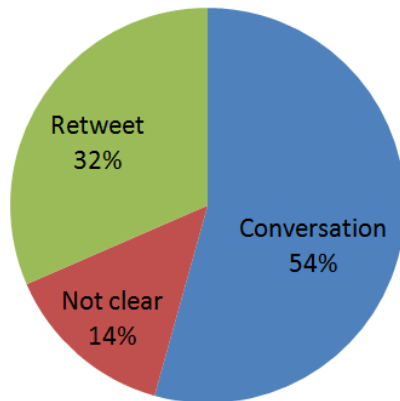
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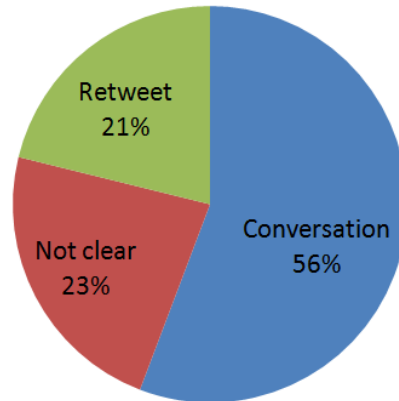


Breakdown by Function

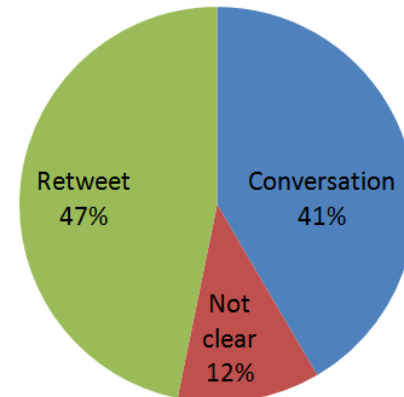
Leng



Dawson



Stewart



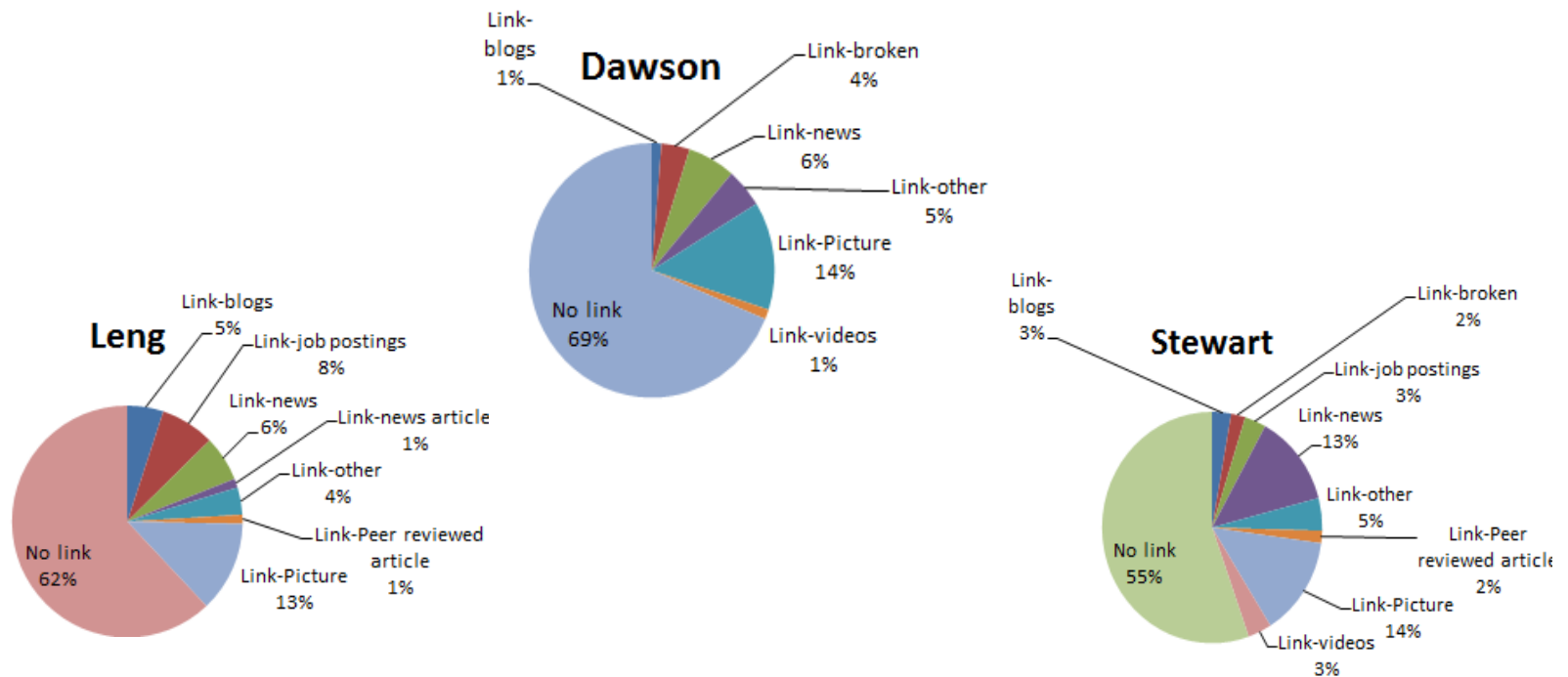
Conversation refers to tweets directed at another user,
Retweet refers to tweets appended with “RT” or “MT,”
Not clear refers to tweets that are not explicitly conversational or retweets



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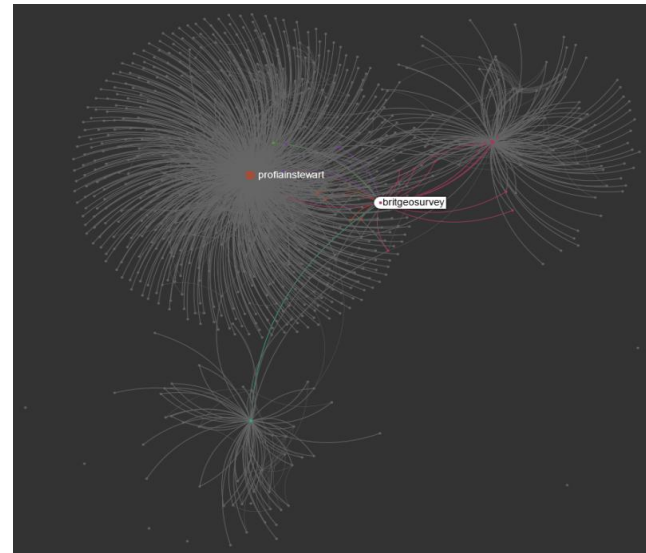
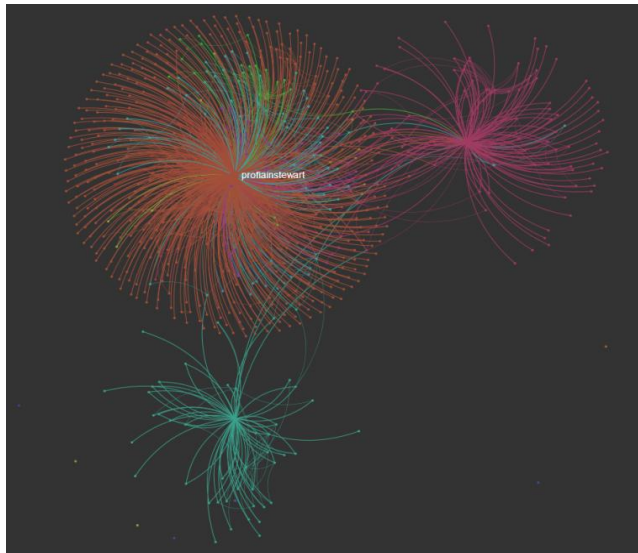


Breakdown by Link



Netlytic Visualization

Over the course of data collection, each network became connected through the official British Geological Survey account, @britgeosurvey



Combined network. Blue is Dawson, pink is Leng, orange is Stewart



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Conclusion

This study developed a method for choosing present day scientists who are comparable to historical datasets, and developed a content analysis framework for both a present day and historical dataset.



An active platform for scientific communication and collaboration



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Selected References

Golbeck, J., Grimes, J. M., & Rogers, A. (August 01, 2010). Twitter use by the U.S. Congress. *Journal of the American Society for Information Science and Technology*, 61, 8, 1612-1621.

Gruzd, A., & Goertzen, M. (2013). Wired academia: Why social science scholars are using socialmedia. The 46th Hawaii International Conference on System Sciences (HICSS): 3332-3341, doi: 10.1109/HICSS.2013.614

Secord, J. A. (2004). Knowledge in transit. *Isis*, 95, 654-672.



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