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# A world map of science communication research

**Lars Guenther**

**Marina Joubert**

Stellenbosch University, South Africa

Presented: 31 July & 1 August 2017, Rio, Brazil



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Namibia

**South Africa**

Cape Winelands









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## Mapping science communication research over more than three decades



Author: Journal of Science

Communication & Lynne Rippenaar-Moses

Published: 19/05/2017



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Over the past year, two researchers from the Faculty of Arts and Social Sciences at Stellenbosch University (SU) have generated a "world map of science communication research", based on the broadest bibliographical analysis of global science communication research outputs to date, shedding new light on current trends in the field. They have also provided very valuable recommendations for increasing diversity and representation of developing countries, which - unfortunately - are still considerably under-represented.

## NEWS

### A world map of science communication research

03/05/2017

*The broadest bibliographical analysis of science communication research outputs between 1979 and 2016 just published.*

Take the three most prominent journals dedicated to the field of science communication, then try to imagine the 1 803 peer-review articles which they have published between 1979 and 2016. This is the immense sample that Lars Guenther and Marina Joubert, from Stellenbosch University in South Africa, have addressed in their unique research.

Trends in science communication as a field of research are rarely addressed, and even less often with such a broad and systematic approach which goes back to the launch of the first journal dedicated to this field (1979). That's why the research carried out by the two authors represents "a first step towards a more comprehensive view of trends in science communication research", as in their words.

JCOM has just published the outcomes of their analysis, which are presented in the peer-reviewed and fully open access paper *Science communication as a field of research: identifying trends, challenges and gaps by analysing research papers*.

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### Latest News

13/07/2017

*Computational social science: the pros and cons of big data and digital research techniques in science communication research*

28/06/2017





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JCOM is an open access journal on science communication published by Sissa Medialab

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Journal of Science Communication May 3

A world map of science communication research. The broadest bibliographical analysis of science communication research outputs between 1979 and 2016 just published. JCOM new open-access paper by Lars Guenther and Marina Joubert @Stellenbosch University, http://bit.ly/2pEIVPI #scicomm #scicomAfrica #research



A world map of science communication research Take the three most prominent journals dedicated to the field of science communication, then try to imagine the 1 803 peer-review articles which they have published between 1979 and 2016. This is the immense sample that Lars... JCOM.SISSA.IT

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A world map of science communication research

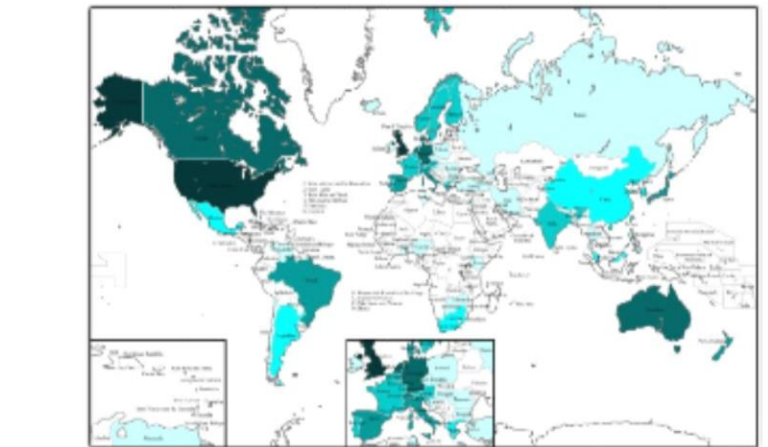


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Journal SciComm @JsciCOM · May 3 World map of science communication research: the broadest #scicomm analysis, new paper by @marinajoubert, L Guenther joom.sissa.it/world-map-scie



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Institute for PR follows Emmanuel Dabo @EmmanuelDAB · May 3

A world map of science communication research ft.tt/2pvK4JP #sciencecommunication



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1 1 1



# What we wanted to know

- At first: Content (topics, themes, methodologies)
- But then ...
  - Research output over time
  - Trends (institutionalisation & internationalisation)
  - Geographical spread of institutions
  - Gender balance of authors
  - Gaps



# Where we started

- Earlier studies and opinion

SISSA – International School for Advanced Studies  
ISSN 1824 – 2049

Journal of Science Communication  
<http://jcom.sissa.it/>

Comment

ROAD MAPS FOR THE 21<sup>ST</sup>-CENTURY RESEARCH IN SCIENCE COMMUNICATION

**Is science communication its own field?**

Toss Gascoigne, Donghong Cheng, Michel Claes  
Bernard Schiele, Shunke Shi

**Science communication research over 50 years: patterns and trends**

**Brian Trench and Massimiano Bucchi**

Over recent years, there has been much discussion of the status of science communication as a discipline, as a field of empirical research and theoretical reflection. In our own contributions to that discussion, we have tended to raise questions about the possibilities of this ‘emerging discipline’ (Trench & Bucchi 2010). We have sometimes drawn attention to the marks of immaturity—notably, the relatively underdeveloped state of theory in the field.

But when a major international academic publisher commissions an anthology of ‘major works’ in our field, we can surely say that science communication studies have come of age. From a scattering of personal stories, manuals and essays there has emerged a growing stream of publications that now constitute a ‘literature’ in public communication of science. Analytical and critical work in science communication has consolidated in the past two decades, and the rate of publication has accelerated greatly.

Comment

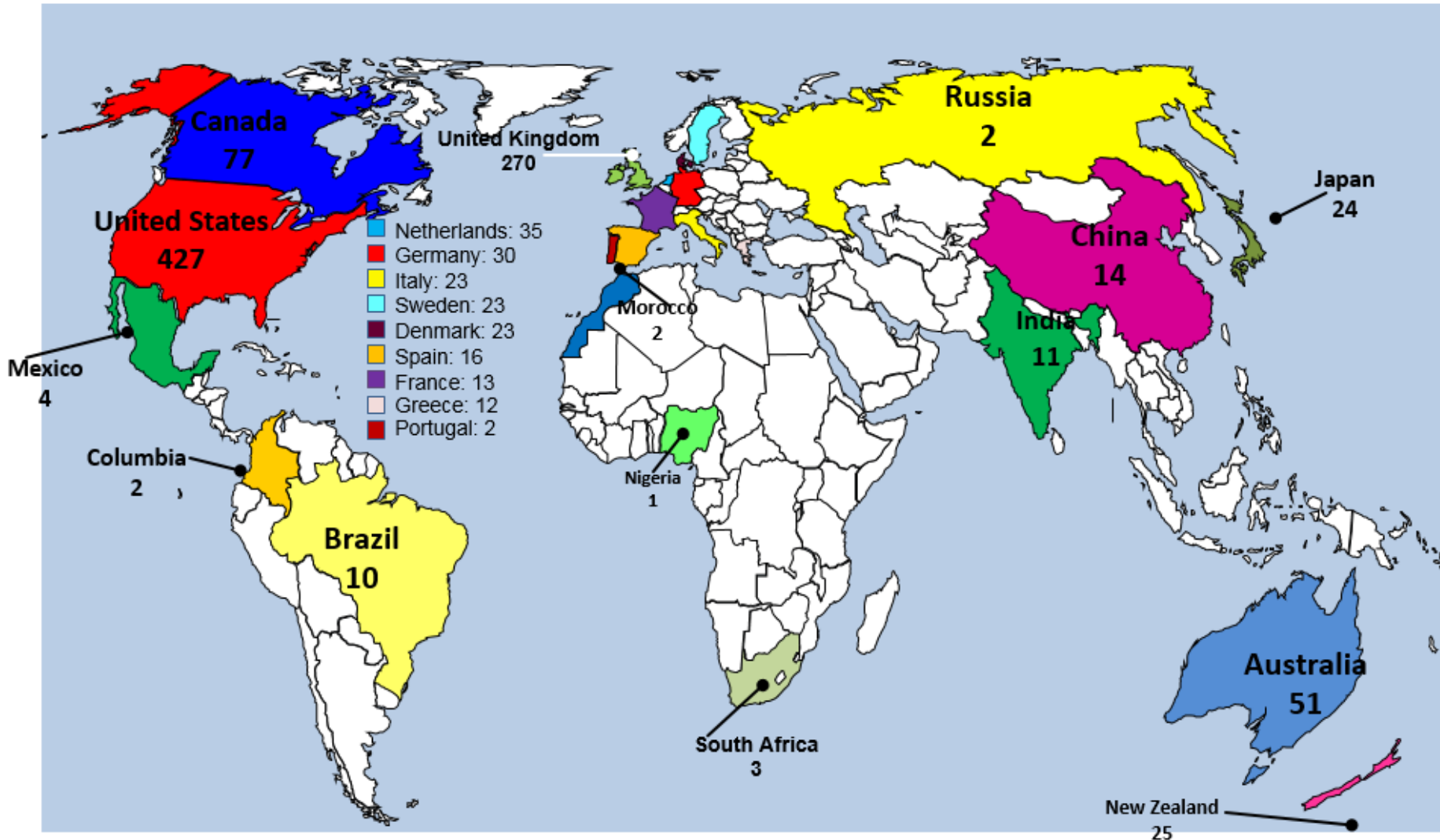
ROAD MAPS FOR THE 21<sup>ST</sup>-CENTURY RESEARCH IN SCIENCE COMMUNICATION

**Science communication, an emerging discipline**

**Brian Trench, Massimiano Bucchi**

*ABSTRACT: Several publications have sought to define the field of science communication and review current issues and recent research. But the status of science communication is uncertain in disciplinary terms. This commentary considers two dimensions of the status of discipline as they apply to science communication – the clarity with which the field is defined and the level of development of theories to guide formal studies. It argues that further theoretical development is needed to support science communication’s full emergence as a discipline.*

# NUMBER OF SCIENCE COMMUNICATION RESEARCH PUBLICATIONS BY COUNTRY, 2000-2009



Quality, Honesty and Beauty  
in Science and Technology Communication

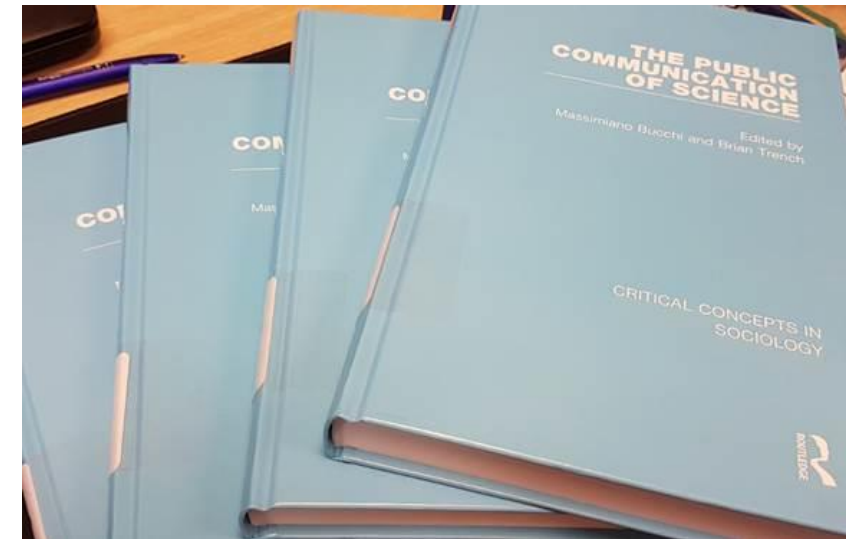
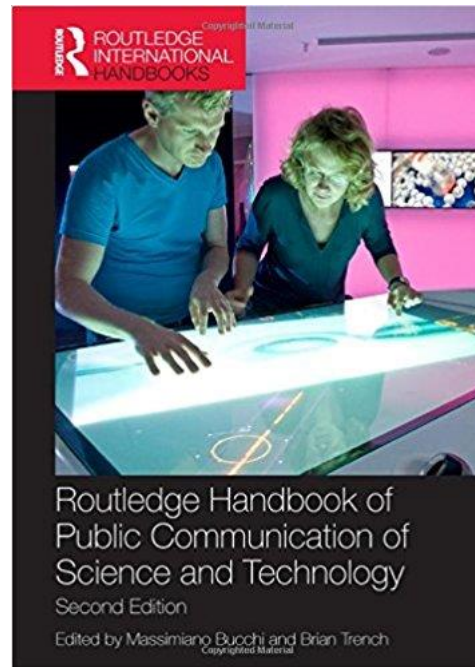
**PCST 2012**  
12th International Public Communication  
of Science and Technology Conference

Florence, Palazzo dei Congressi, Italy, 18-20 April, 2012



# Where we started

- Book chapters and monographs



# Identified trends

- Growth in scholarship over time
- Dominance of English-speaking countries in the West
- Absence of Africa
- Gaps in diversity and geographical representation
- Gender balance improving, but still male-dominated

*Introduction*

P | U | S

## Voices from other lands

Public Understanding of Science  
2015, Vol. 24(1) 2–5  
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DOI: 10.1177/0963662514563888  
pus.sagepub.com



**Luisa Massarani**

Museum of Life, House of Oswaldo Cruz, Oswaldo Cruz Foundation, Brazil

### Abstract

Since the early 1990s, research in public understanding of science has significantly increased and become more systematic and academic. However, most of papers published by the main journals in the field have as origin the English-speaking world of the United States, the United Kingdom, Canada, Australia and New Zealand: for example, in this very journal, PUS, two-thirds of the empirical material come from these countries. This paper aims both to call attention to unheard voices, and make space for new ones, from other parts of the world, aiming to open space for new voices.

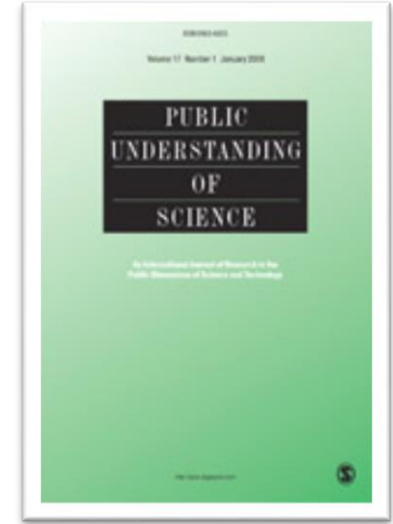
### Keywords

developing world, non English-speaking world

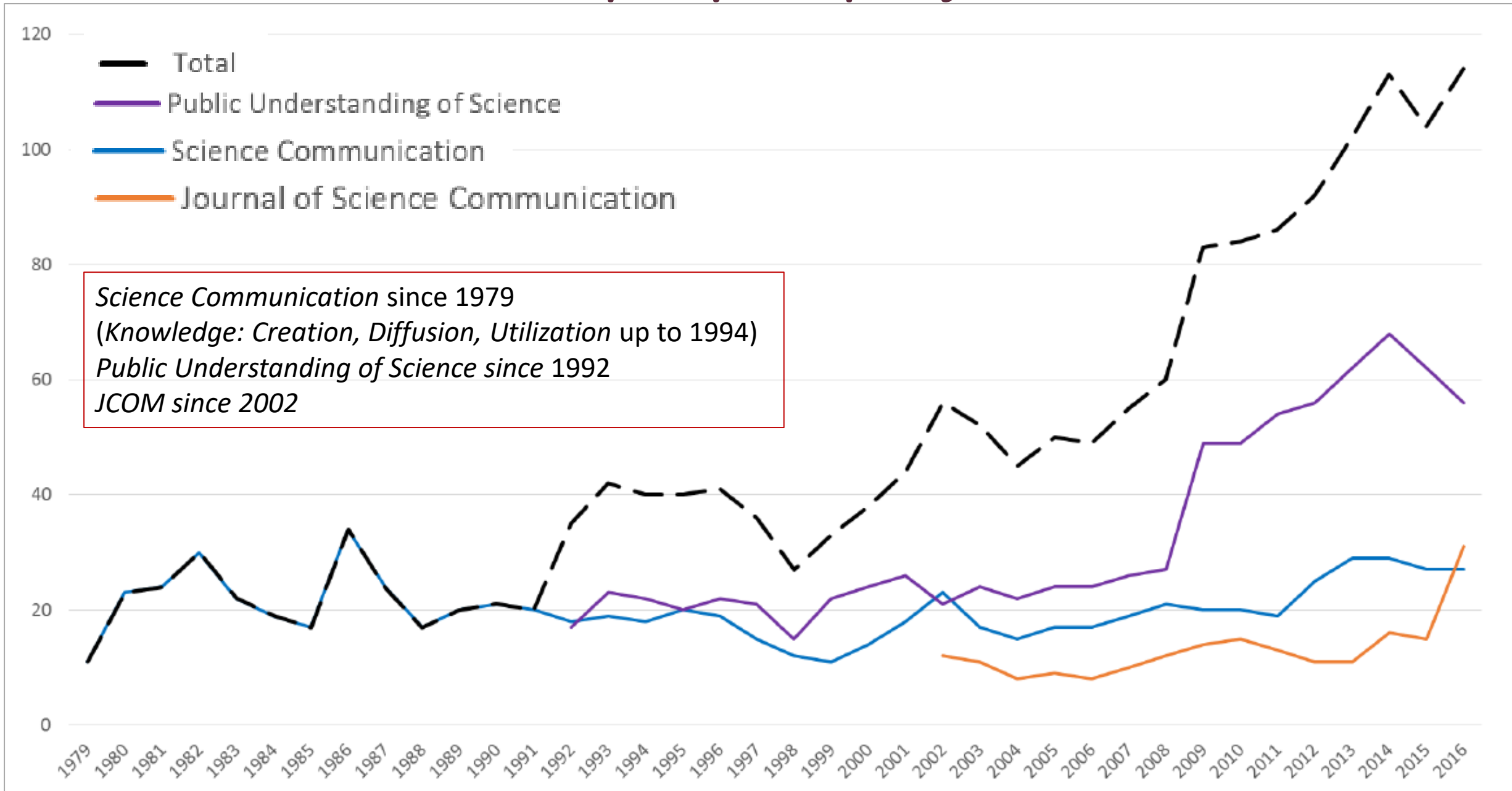


# What we did

- bibliographic analysis
- 3 journals
- 1979 – 2016
- 1 803 research papers

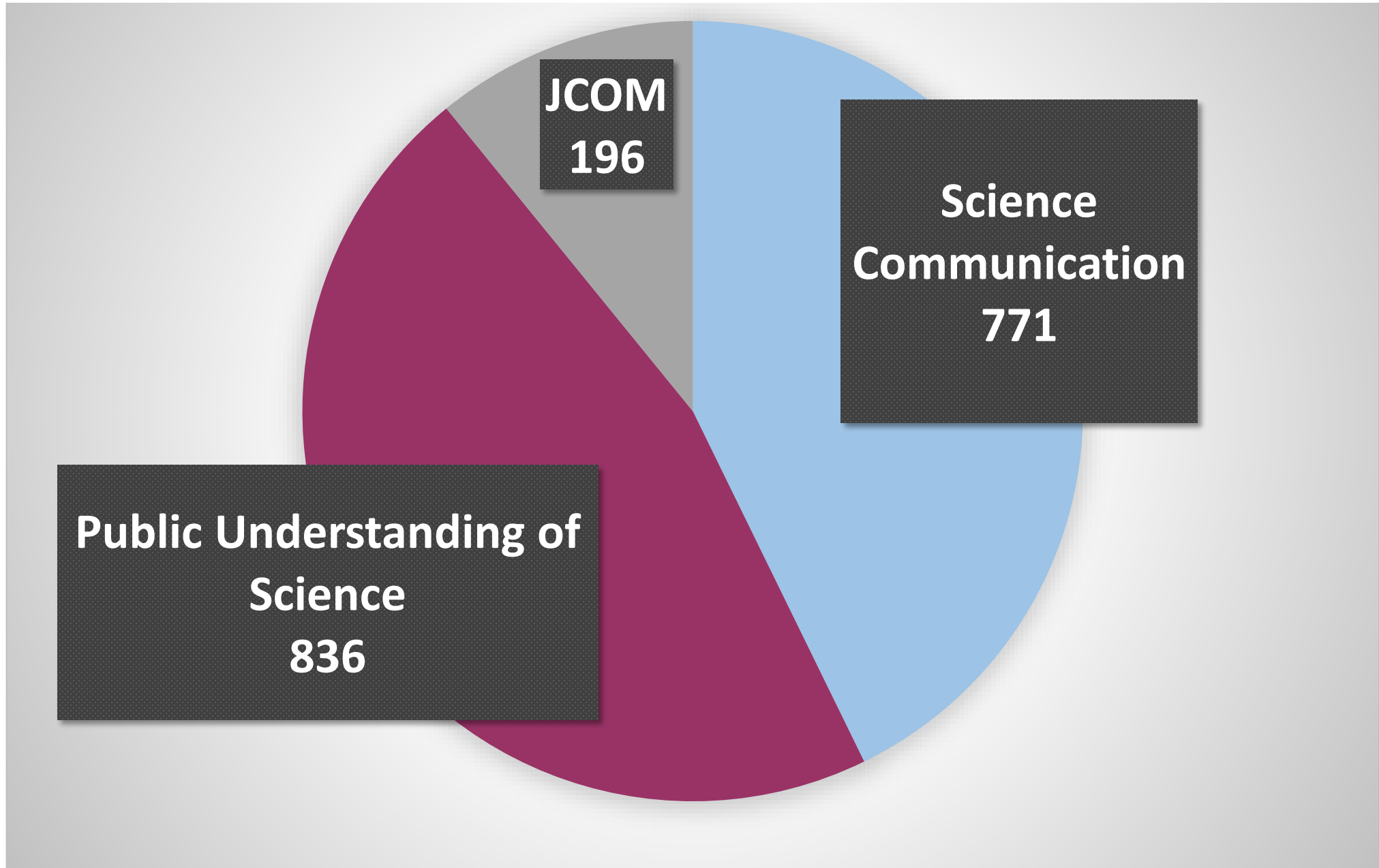


# Articles per year, per journal

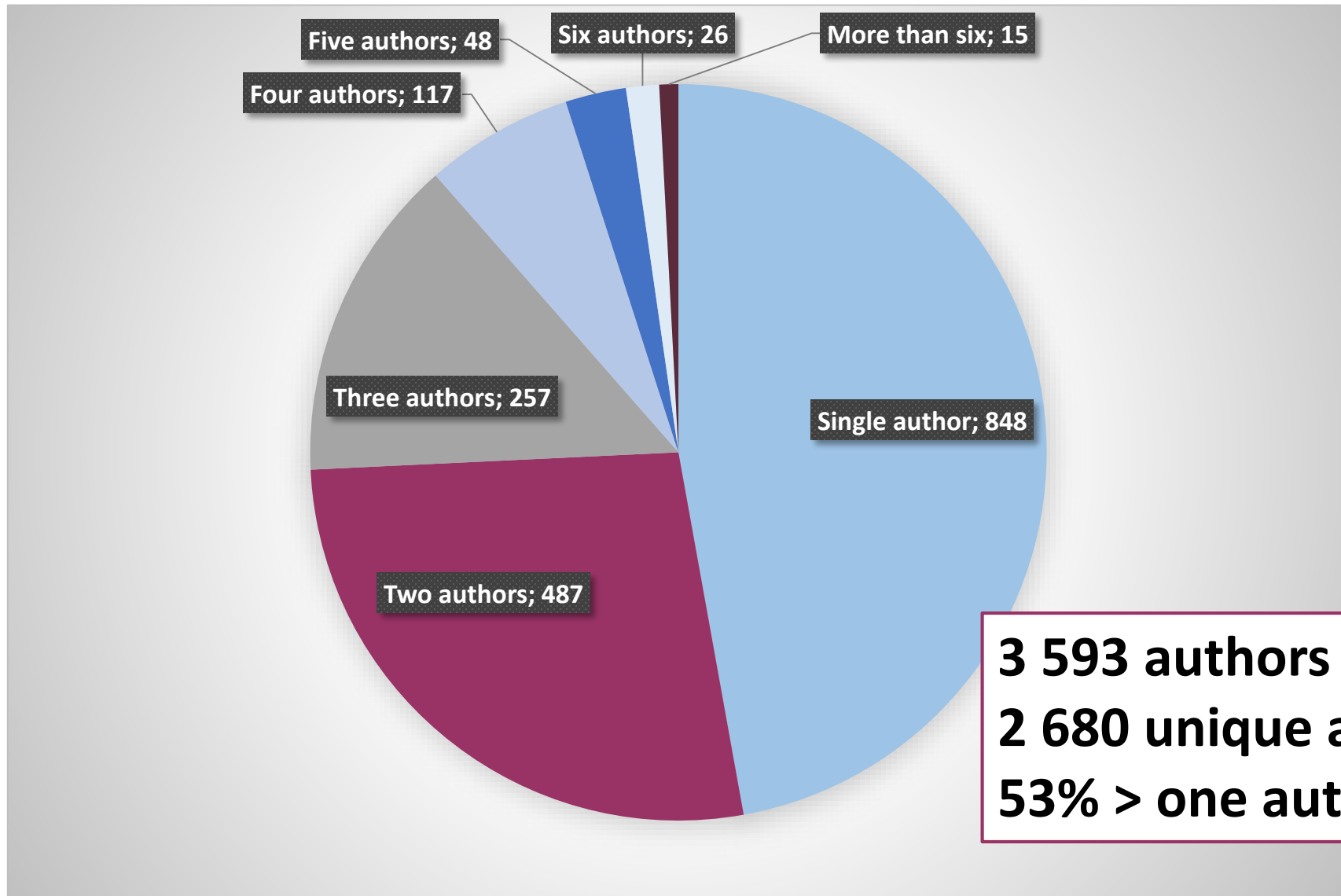




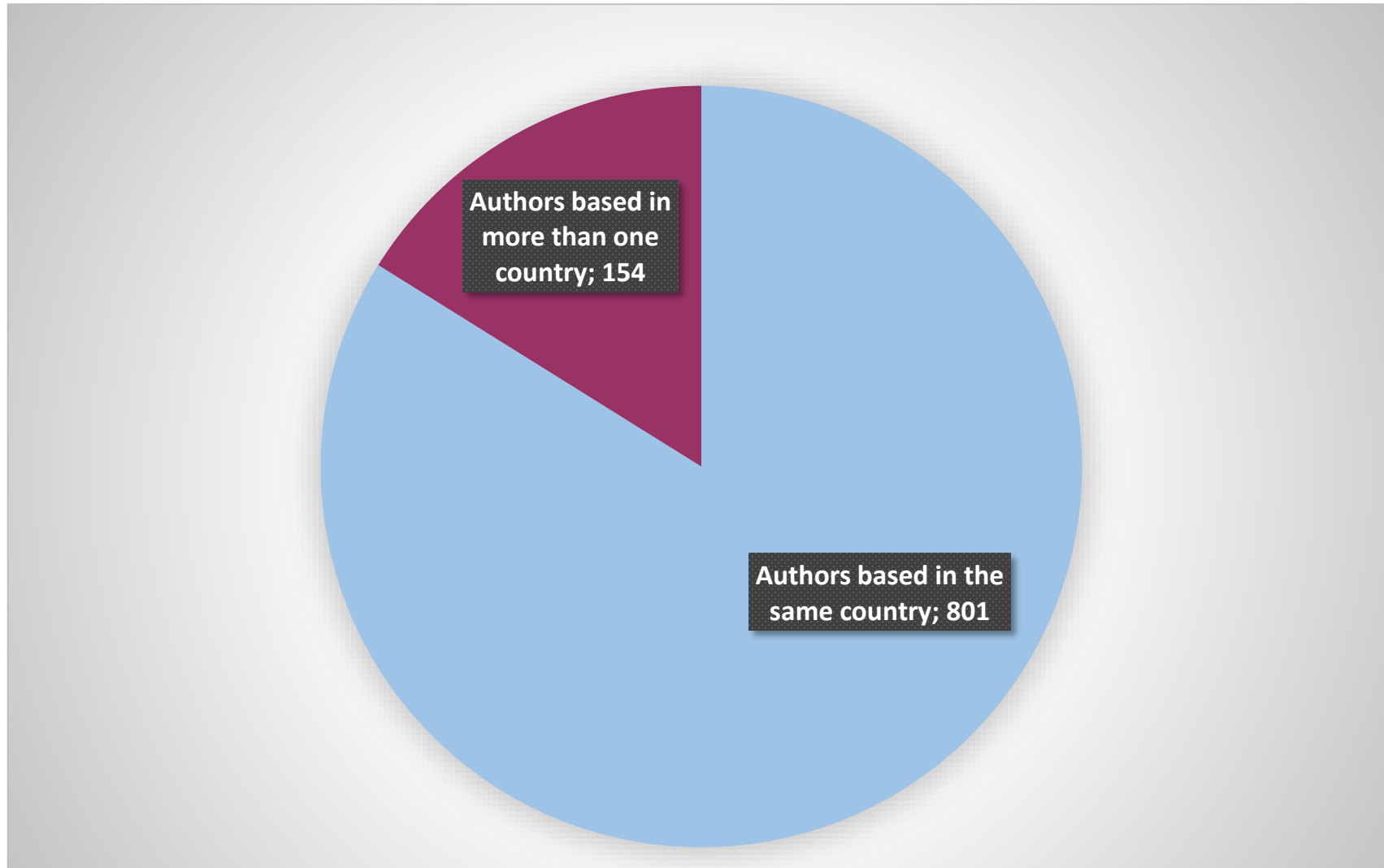
# Total output (research papers)



# Number of authors per article



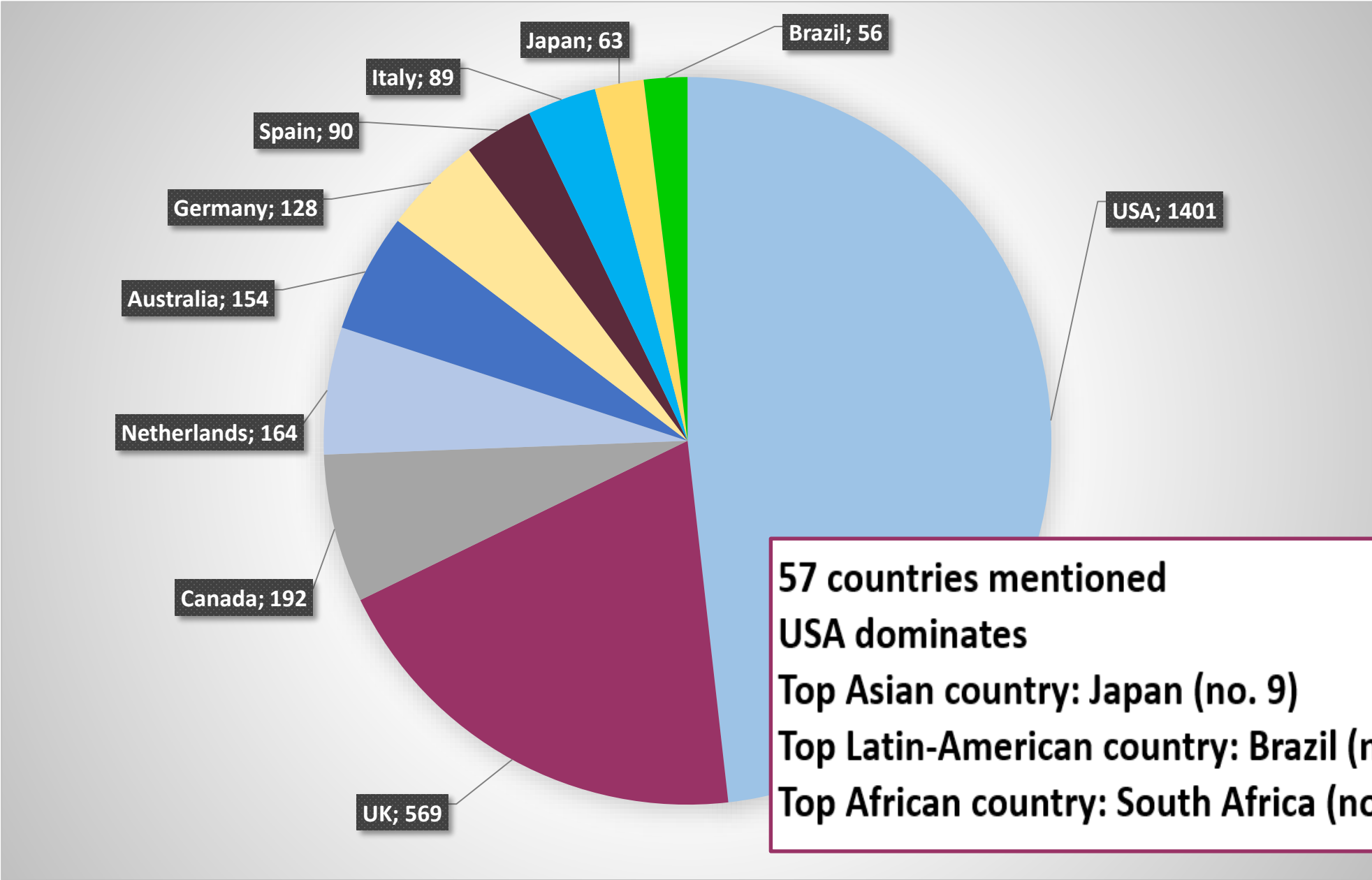
# Papers with more than one author (n = 955)

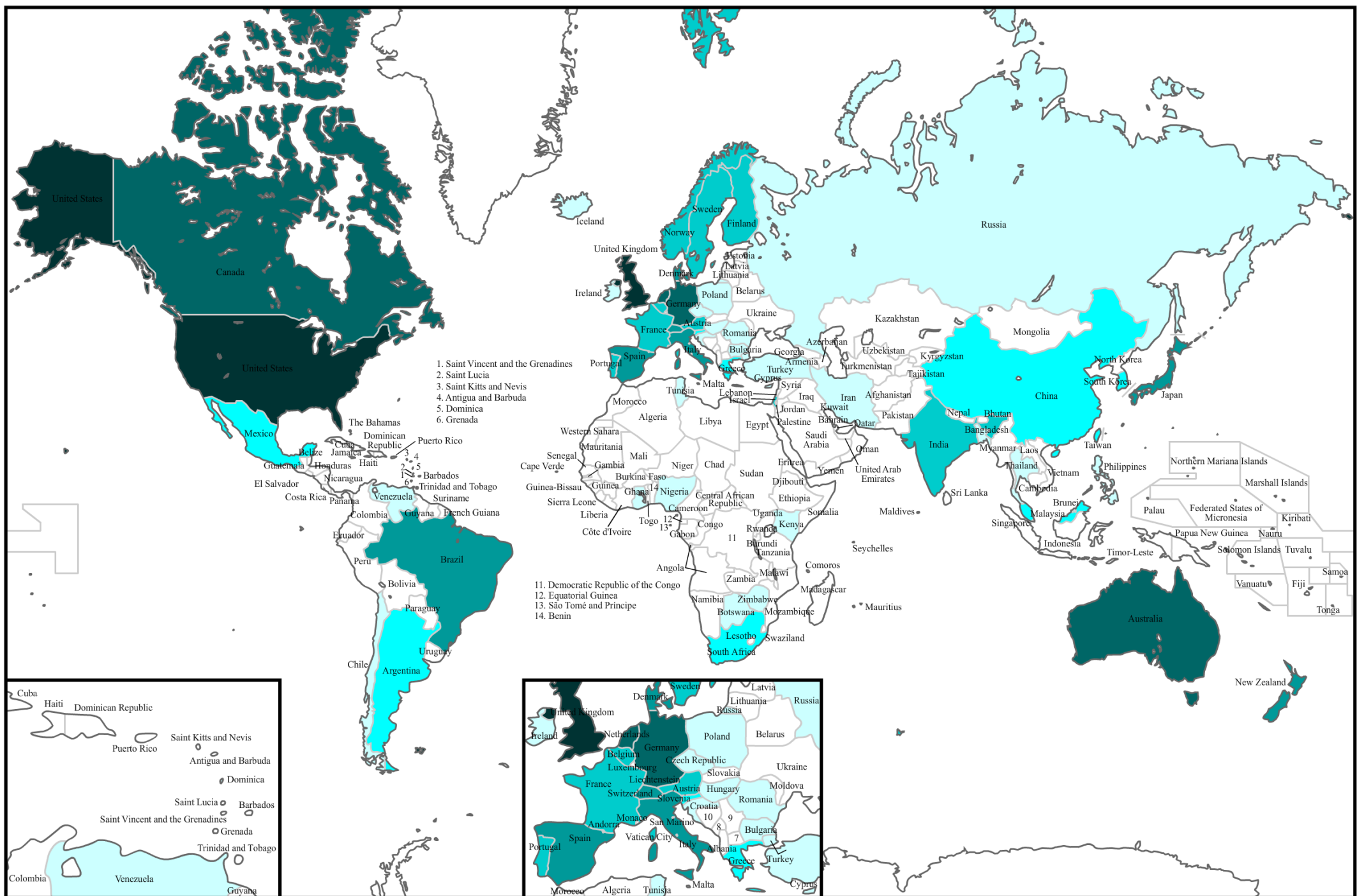


International collaboration increases over time



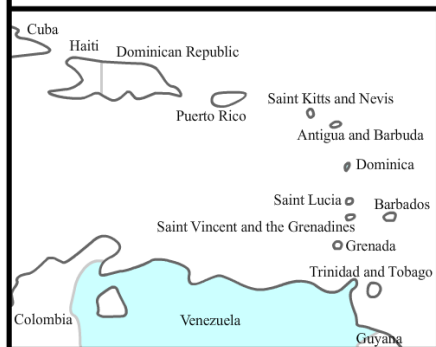
# Top 10 countries where authors were based





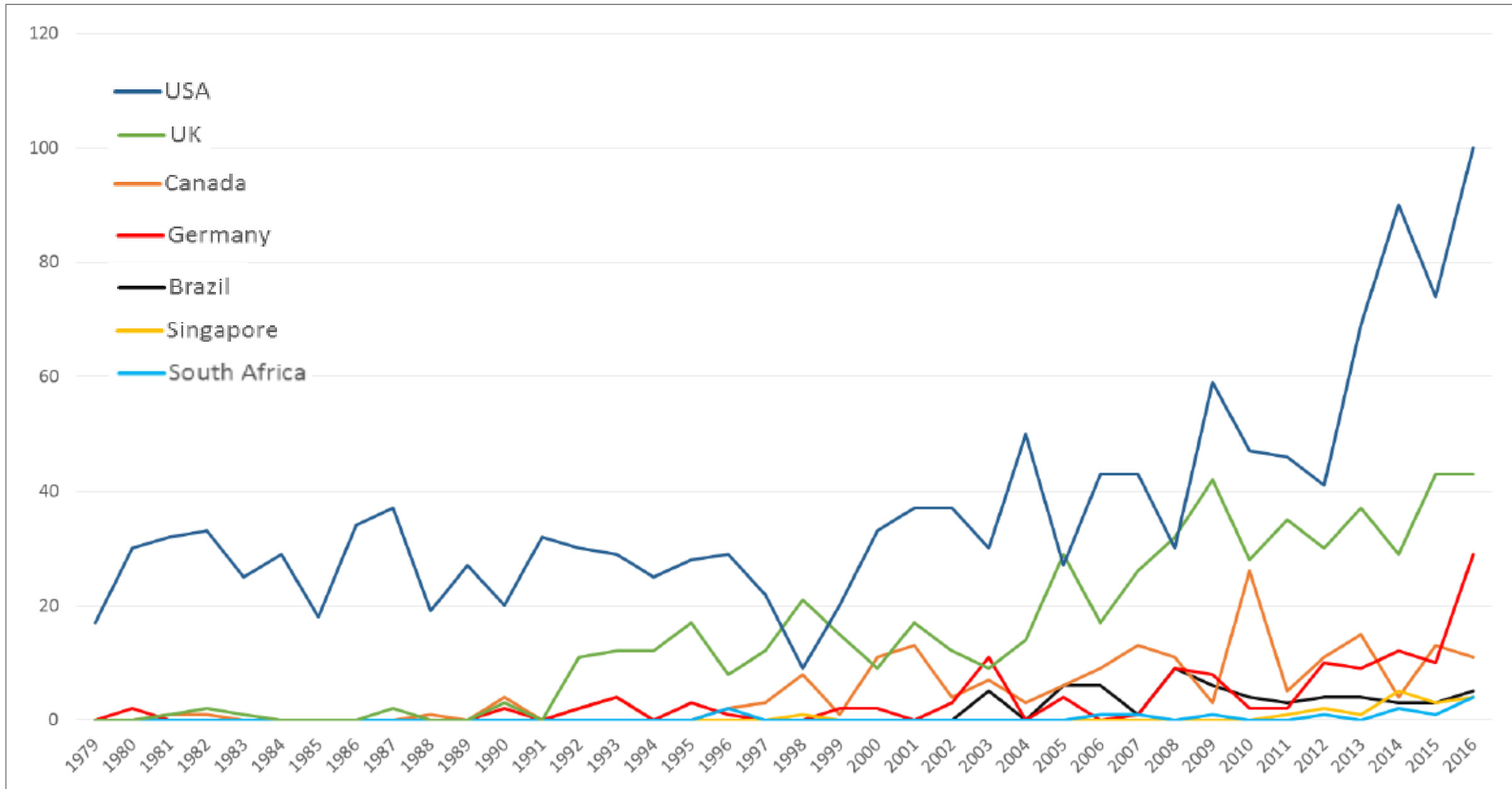
- 1. Saint Vincent and the Grenadines
- 2. Saint Lucia
- 3. Saint Kitts and Nevis
- 4. Antigua and Barbuda
- 5. Dominica
- 6. Grenada

- 11. Democratic Republic of the Congo
- 12. Equatorial Guinea
- 13. São Tomé and Príncipe
- 14. Benin



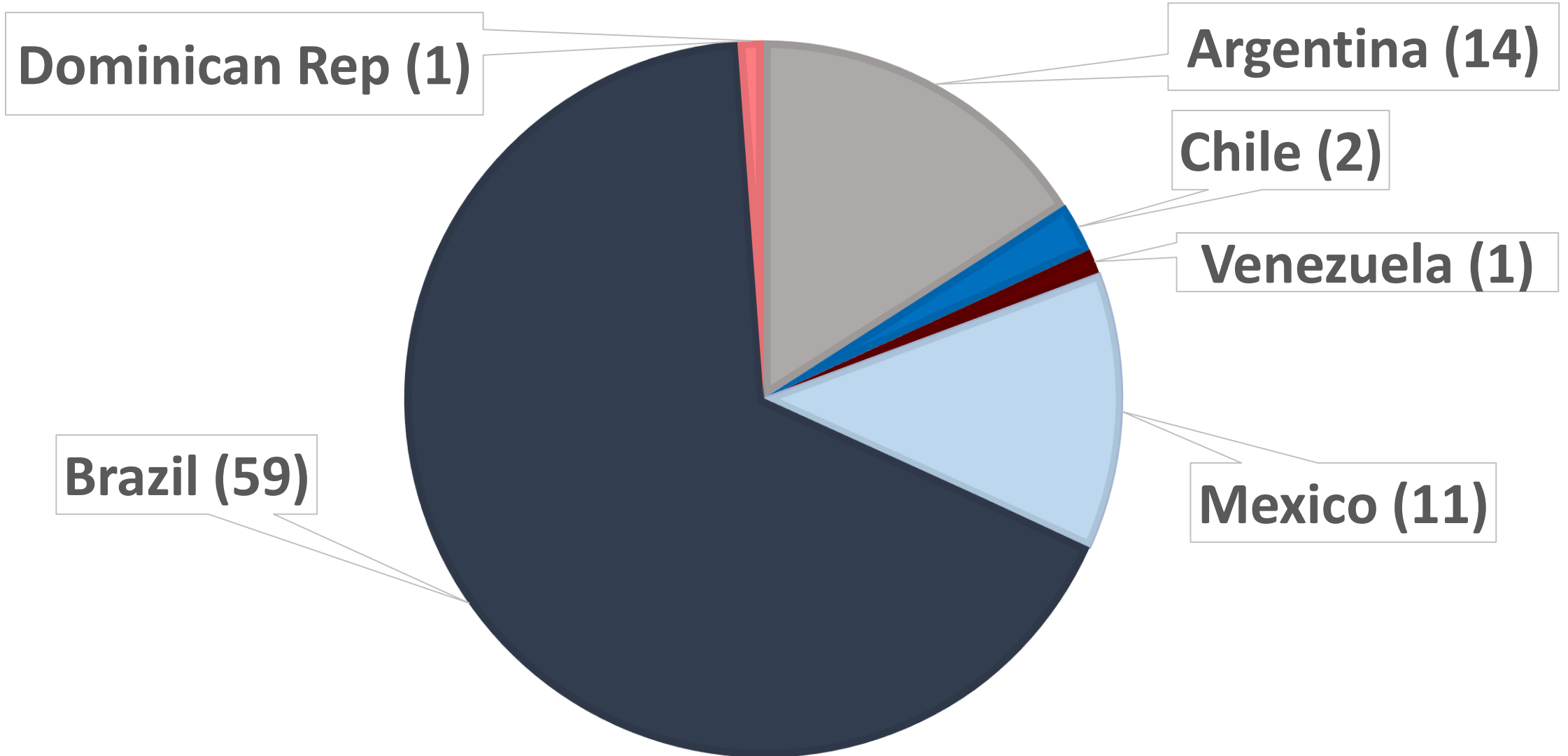
7. Macedonia 8. Montenegro 9. Serbia 10. Bosnia and Herzegovina

# Output per (selected) country over time





# Latin American authors per country (n = 88)



# 59 mentions of authors with a Brazilian affiliation

Luisa Massarani

8

Fernanda Veneu; Luis Henrique Amorim; Marcelo Knobel;  
Maria Conceição da Costa; Marina Ramalho

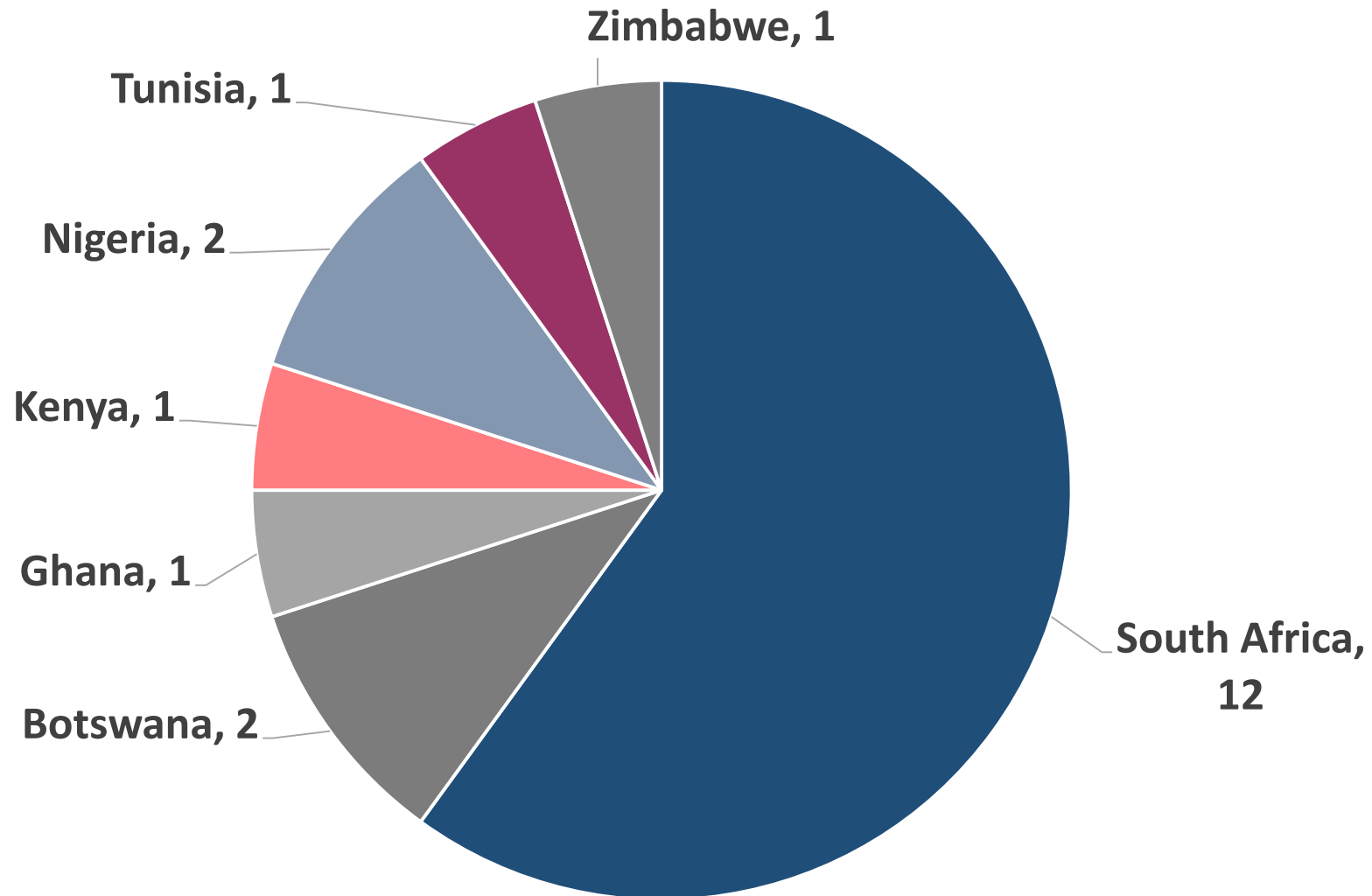
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Alessandro Luis Piolti; Antônio Domingos Padula; Bruno Buys; Carla F.M. Molento; Carlos Fioravanti; Carlos Vogt; Chrystian Carlétti; Claudia Jurberg; Daniela Franco Carvalho Jacobucci; Djana Contier; Ednalva Felix das Neves; Edson Talamini; Fabiano Nunes Vaz; Flavia Natércia da Silva Medeiros; Francisco Brasileiro; Gabriel de Oliveira Cardoso Machado; Giuliano Buzá Jacobucci; Homero Dewes; Ildeu de Castro Moreira; Isaac Epstein; Jacqueline Leta; Julia S. Guivant; Leo Velho; Ligia Terezinha Lopes Simonian; Marcelo Firer; Márcia Tait Lima; Marcio David Macedo da Silva; Maria Francisca Carneiro; Maria José Carneiro; Marina Verjovsky; Mônica Macedo-Rouet; Nazareno Andrade; Ottília R. Affonso-Mitidieri; Rafael de Almeida Evangelista; Renato Dagnino; Sandra Murriello; Silvana Santos; Silvia Cristina Pabón Escobar; Suely Rosa; Teresa da-Silva-Rosa; Yurj Castelfranchi

1

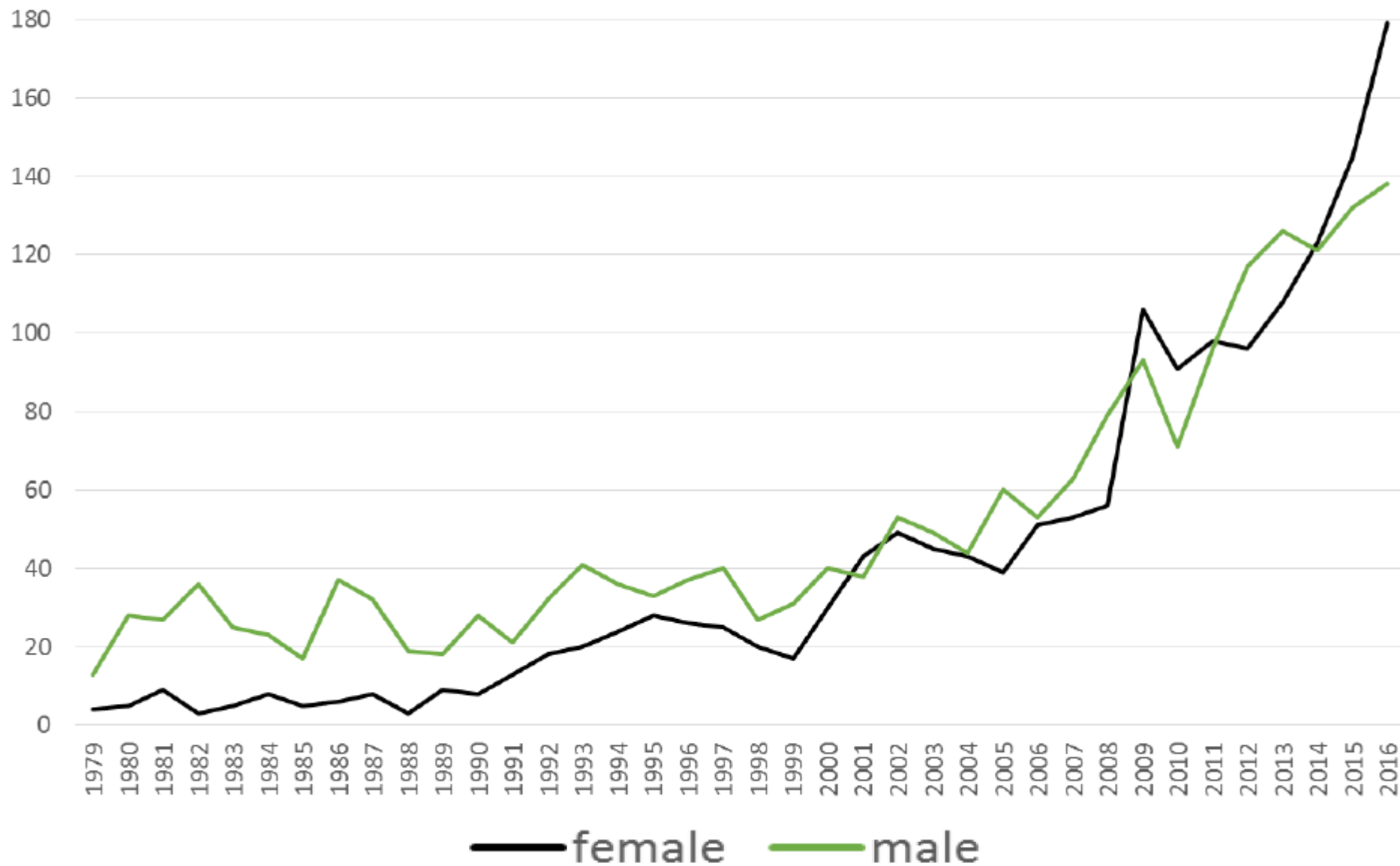
# African authors per country (n = 20)

1% of total output; 0.007% of authorship

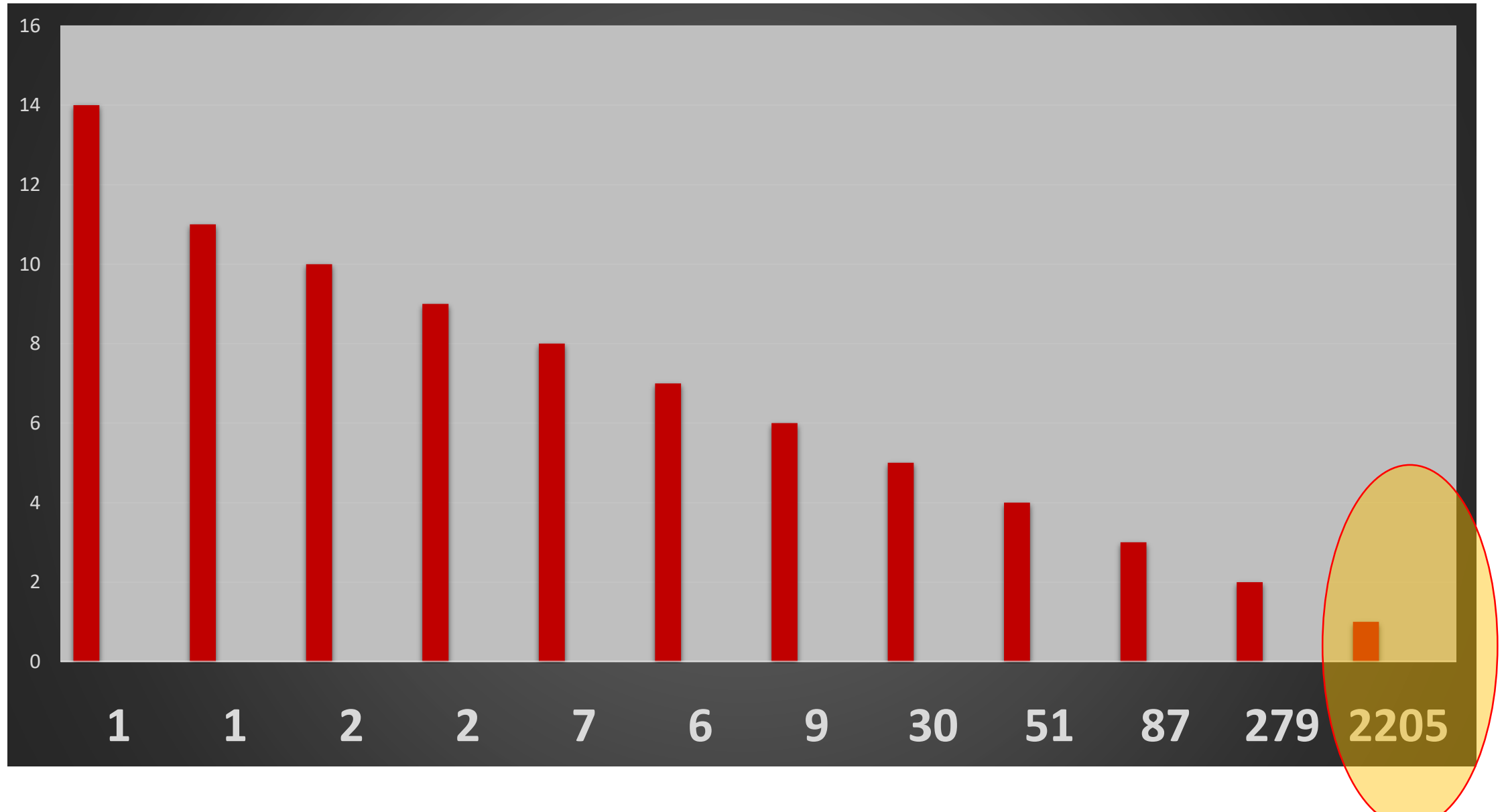




# Authors' gender balance over time



# Mentions per author (total mentions = 2 680)



# Top performing authors

<b>Sharon Dunwoody</b>	<b>14</b>
<b>John Besley</b>	<b>11</b>
<b>Jocelyn Steinke Dietram Scheufele</b>	<b>10</b>
<b>Susanna Hornig Priest Dominique Brossard</b>	<b>9</b>
<b>Robert Griffin; Luisa Massarani, Hans Peter Peters Gene Rowe; Everett Rogers; Edna Einsiedel; Brigitte <u>Nerlich</u></b>	<b>8</b>
<b>Robert Rich, Paul Brewer, Nick Allum, Lynn Frewer, Jan Gutteling, Bruce Lewenstein</b>	<b>7</b>
<b>Steve Miller, Shirley Ho, Patrick Sturgis, Marilee Long, Lee Ann <u>Kahlor</u> Kristian Hvidtfelt Nielsen, Julia Corbett, Fabienne Crettaz von <u>Roten</u>, Brian Wynne</b>	<b>6</b>

# Conclusions

- Slow, steady growth over 30+ years, but ...
  - only 28 researchers published 6 or more articles
  - 82% published only once
  - 74% by one or two authors (few large teams)
- Growth in multi-authored papers (institutional collaboration)
- Growth in internationalisation (different countries in multi-authored papers)
- Growth in female authorship



# Gaps

- Developing world
- Africa, Middle East, Asia

## Recommendations:

- Incentivise collaborative research with authors from developing countries
- Build capacity in the developing world



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South African Research Chair  
in Science Communication

# Let's do some more research, together!

## Contact details:

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[marinajoubert@sun.ac.za](mailto:marinajoubert@sun.ac.za)