Quantitative author inputs to STEM-subject research publications: results, insights and potential applications following a survey of Earth scientists

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Department of Earth Sciences, University of Hong Kong

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Disclaimer: The views/ideas expressed herein are those of Jason R. Ali. They cannot be construed as representing those of the University of Hong Kong.

Geological Magazine

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Original Article

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author weighting; bibliometrics; correspondence author; first author; H-Index; multi-author papers

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Abstract

Results are reported of what is believed to be the first survey of the quantitative contributions Earth scientists make to their research publications. Based on a return of 26 (from 45; 254 total documents), two key patterns are observed. For most articles, there is a steady decrease in the roles of the first through fifth authors. The former fall from 65 ± 14% for two-author outputs, to 52 ± 9% for five, to 46 ± 10% for ten; fifth authors are perceived as having contributed 5–6%. The term 'balanced' is used to describe such contributor lists. The second pattern, which is labelled 'imbalanced', is recognized with teams of five or more and involves the first author shouldering a disproportionately large amount of the work; consequently, the inputs of the third and lesser authors range from small to negligible (5–1%). In some cases, it is observed in a few of a researcher's publications (≤3); in others, it is more pervasive. There are two basic explanations: estimation problems and excessive numbers of authors, which can be split into two and three subcategories, respectively. The key features of the survey data are dwelt upon. The work concludes with an exploration of a proposed H-Index-type metric that is weighted by the contribution fractions a researcher makes to their publications. This, I contend, would be more reflective of their impact.

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The system we find ourselves operating in

- Academic scientists are under great pressure to be “research active”.
- Thus, our primary aim is to report regularly significant discoveries.
- If successful, it helps with securing jobs, gaining tenure, achieving promotion, obtaining post-retirement contract extensions and acquiring grants.
- Additionally, there are individuals who are driven to publish in the highest-profile journals, and/or to compete for prestigious awards.

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Background: late 1980s

- PhD 1985–1989
- Late 1980s perception of a “good junior Earth scientist” – two quality papers/year as the lead author.

Historical context

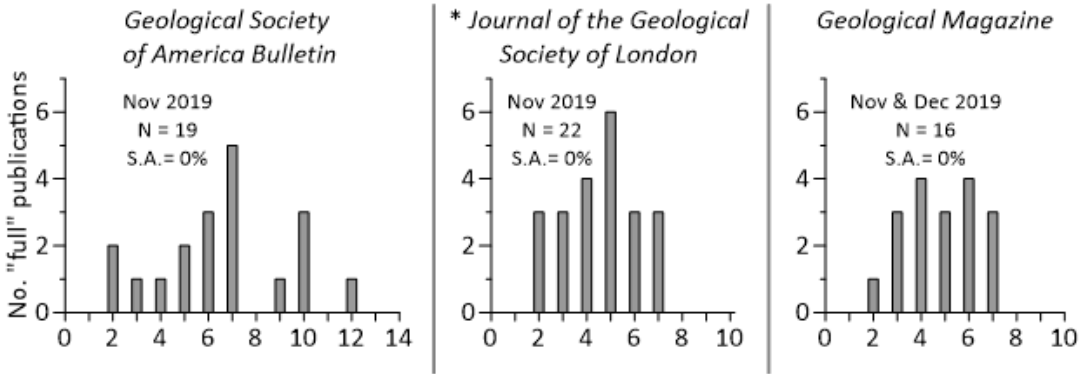
Est. 1890

Est. 1845/1971

Est. 1864

Earth science journals with long histories

2019

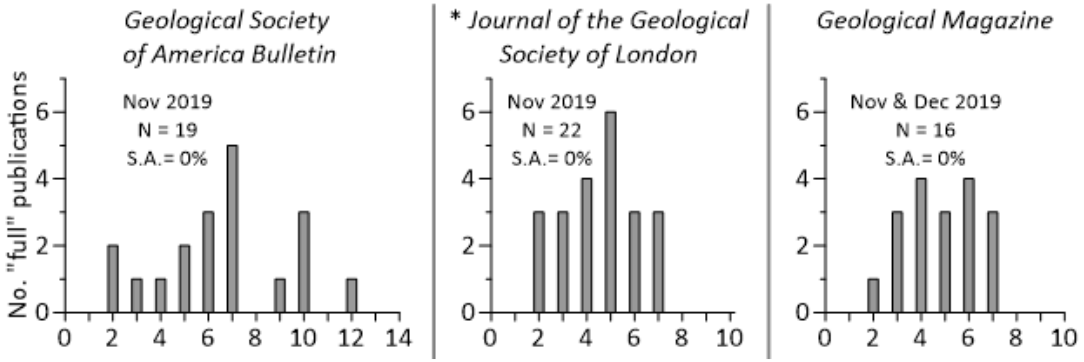

Geological Society of America Bulletin
Nov 2019
N = 19
S.A.= 0%
No. "full" publications
* Journal of the Geological Society of London
Nov 2019
N = 22
S.A.= 0%
Geological Magazine
Nov & Dec 2019
N = 16
S.A.= 0%


BULLETIN


JOURNAL OF THE
GEOLOGICAL
SOCIETY


GEOLOGICAL
MAGAZINE

2019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BULLETIN


JOURNAL OF THE
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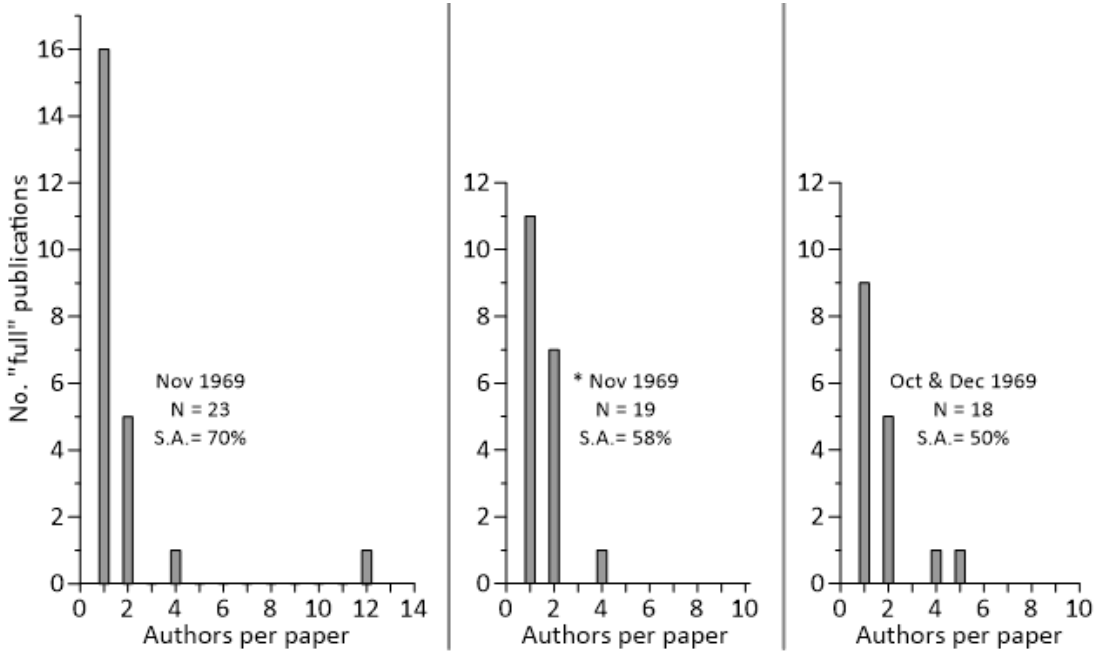
SOCIETY

1969


No. "full" publications
Nov 1969
N = 23
S.A.= 70%
Authors per paper
* Nov 1969
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S.A.= 58%
Authors per paper
Oct & Dec 1969
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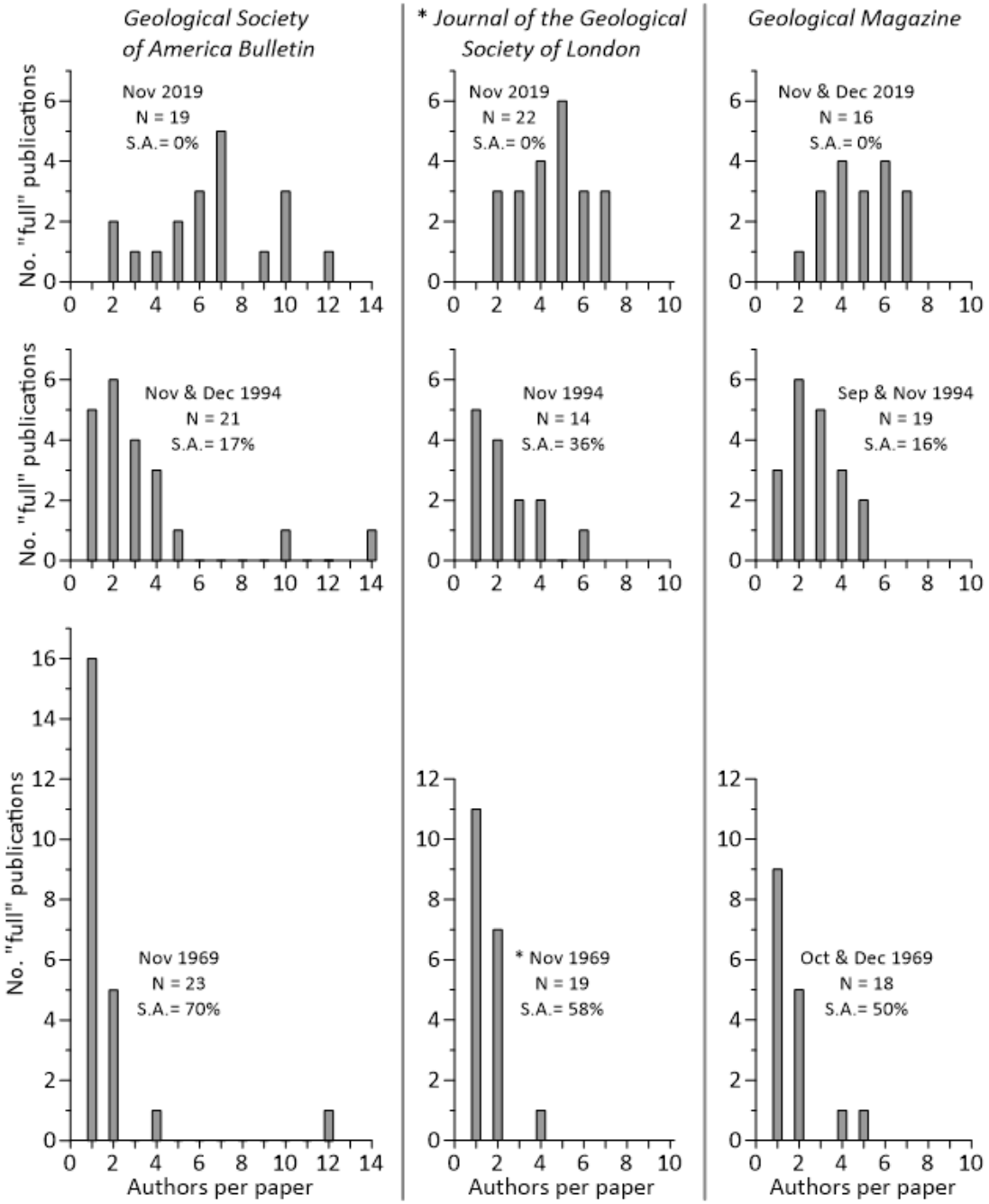
S.A.= 50%
Authors per paper


GEOLOGICAL
MAGAZINE

2019

1994

1969



Due to the enlarged author lists, both the reporters and the funders of research want researcher-input information

- Now, journals often ask us to provide qualitative statements about who did what.

> Author contributions: J.F.S., M.Q.-C., and G.D. designed research; J.F.S., M.Q.-C., and G.D. performed research; J.F.S., T.B., M.F., S.J.S., and G.D. contributed new reagents/analytic tools; J.F.S., M.Q.-C., J.C.O., and G.D. analyzed data; J.F.S. and G.D. wrote the paper; J.F.S., M.Q.-C., and G.D. performed field work; and T.B. contributed resources.

- Employers and research funders also want to know what we did.

Reviewer #1

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Australian Government
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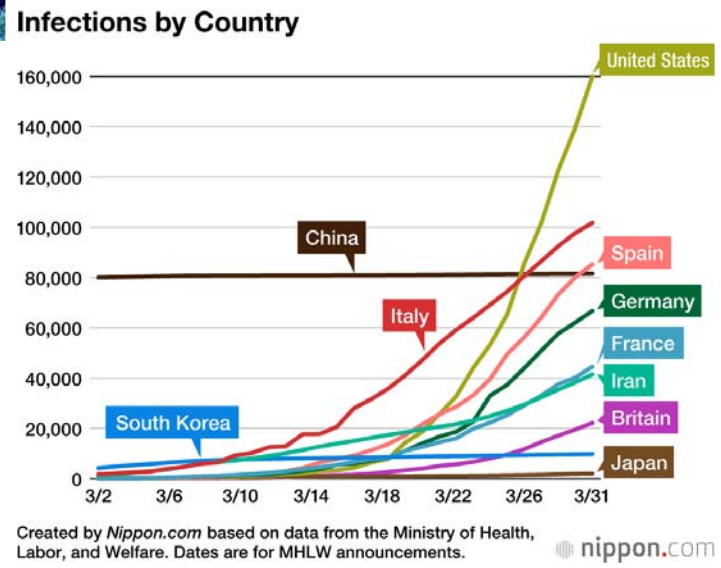
Conjunction of events in early 2020

- "What do you think about single author paper?"
- "Who is a REAL-AUTHOR in scientific article?"

"Flatten the curve"

Conjunction of events in early 2020



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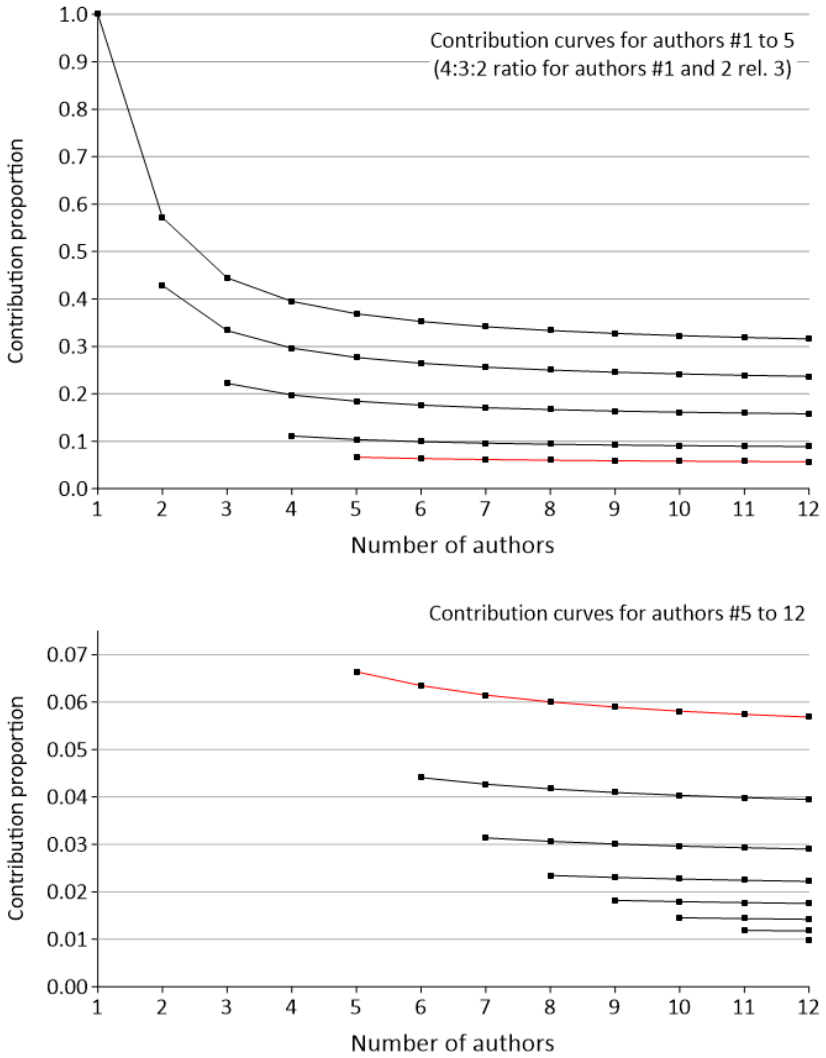
Theoretical musings about author contributions



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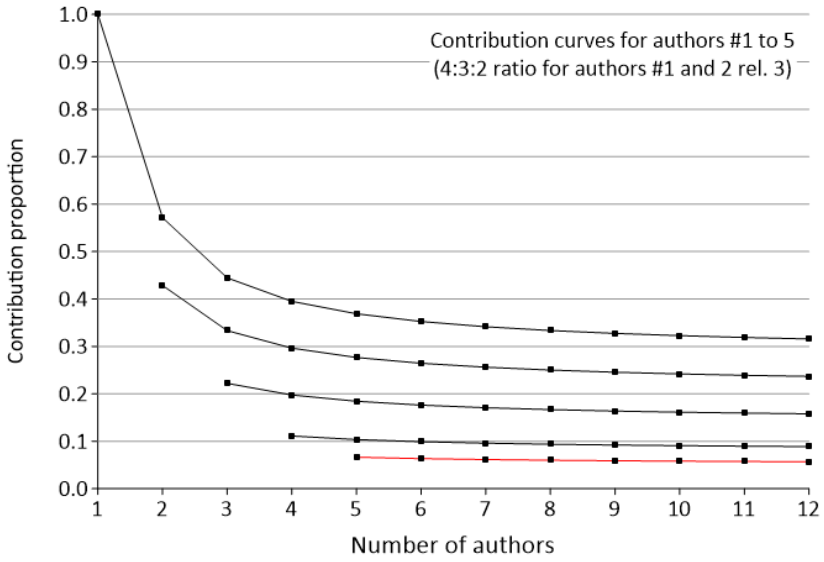

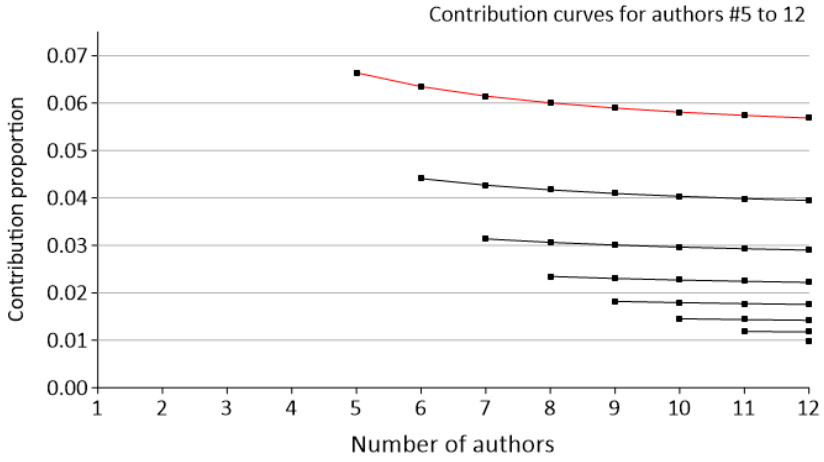

Survey - 1

- I had a degree of connection with the survey recipient pool members such that I felt comfortable in addressing them using their first names.
- Purposely avoided currently close colleagues - in the last 5 years I had published with just four of them.
- Excluded people belonging to the same research groups.
- Importantly, the request was peer-to-peer and not a top-down demand related to a career step. Thus, it was hoped that this would lead to honest estimations and would act to reduce a researcher inflating their roles in their outputs.

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Survey - 2

- Request to researchers to provide data for up to ten publications dating from 1st Jan 2015 to 31st Dec 2019 listing each authors' list position and percentage contributions.
- Researchers advised to choose works that formed a continuous chronological succession – reduce "best works" bias. Led to portfolios with a mixture of small and large author teams AND major and minor involvements.
- No dates, nor author names.
- Randomize list of records; can omit those with unusual numbers of authors.
- Each person's submission was allocated a code to mask its source.

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Survey Form

	Your publication data						
	Pub 1	Pub 2	Pub 3	.....	Pub 9	Pub 10	
Author List Position	Authors = N	Authors = N	Authors = N		Authors = N	Authors = N	Author List Position
1st							1st
2nd							2nd
3rd							3rd
4th							4th
5th							5th
6th							6th
7th							7th
8th							8th
9th							9th
10th							10th
11th							11th
12th							12th
Other authors @ X%							Other authors @ X%
Check totals are 100%							Check totals are 100%

Survey pool

45 researchers invited to participate: Asia: 13; Australasia: 10; Europe: 12; North America: 10.

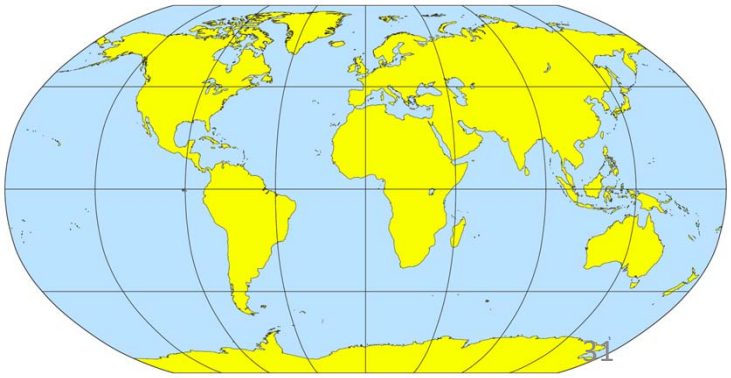
Their PhDs were awarded in interval spanning the early 1970s through to mid-2010s. Most are “mid- to late-career”.

3 replied explaining why they did not want to provide data.

26 supplied data: Asia: 9; Australasia: 8; Europe: 5; and North America: 4.

Several people voluntarily supplied contextual information.

254 data records.



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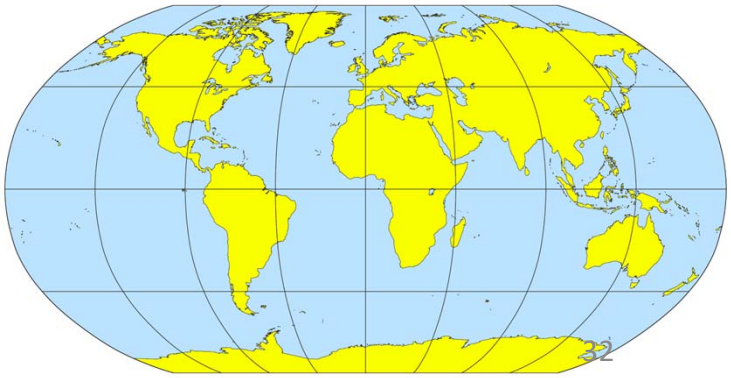

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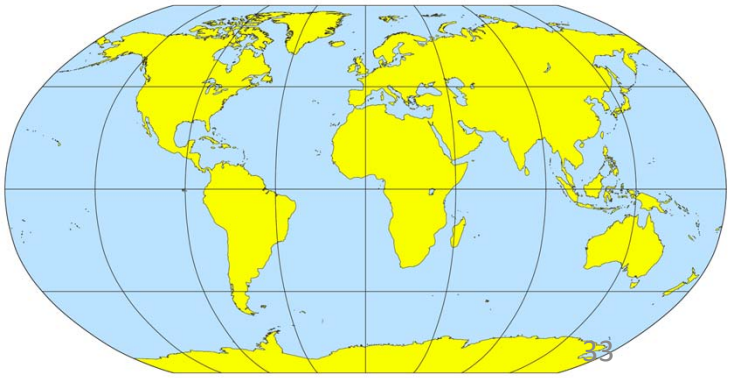

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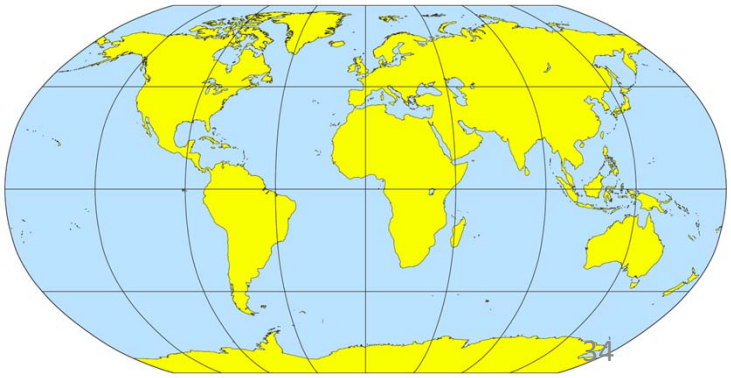

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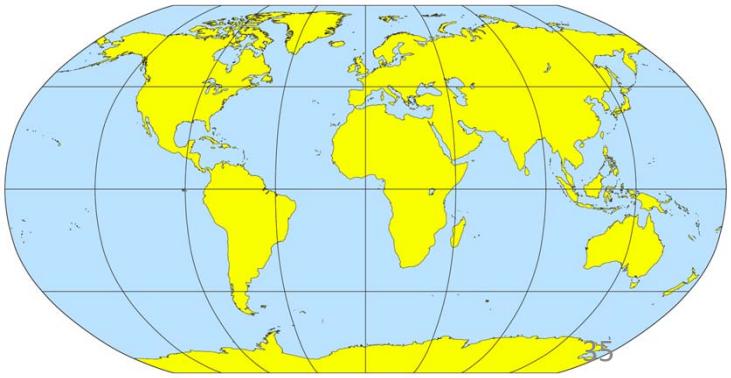

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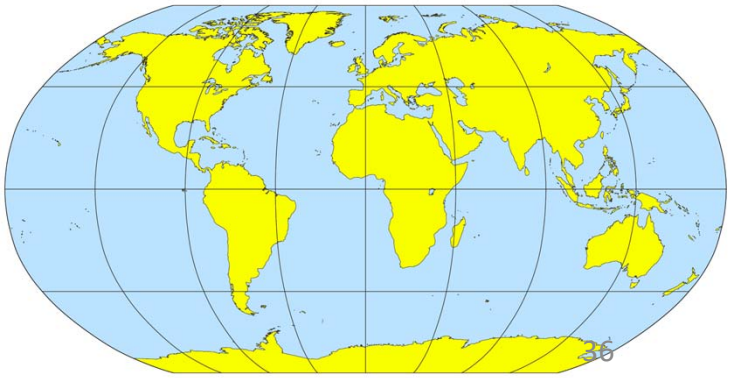


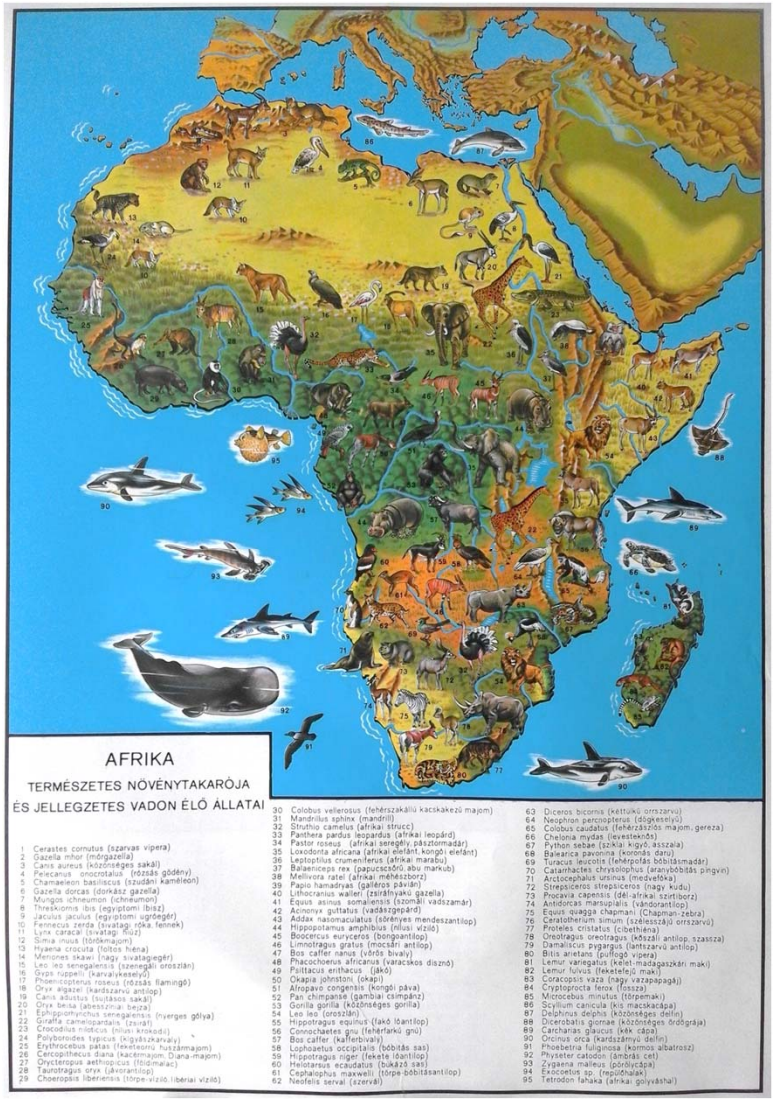
Processing the individual submissions

Two sorts of plot were used and these led to the identification of two sorts of author list.

Author portfolios

- 14 have purely “balanced” records
- 7 have 1–3 “imbalanced” records
- 5 have ≥4 “imbalanced” records

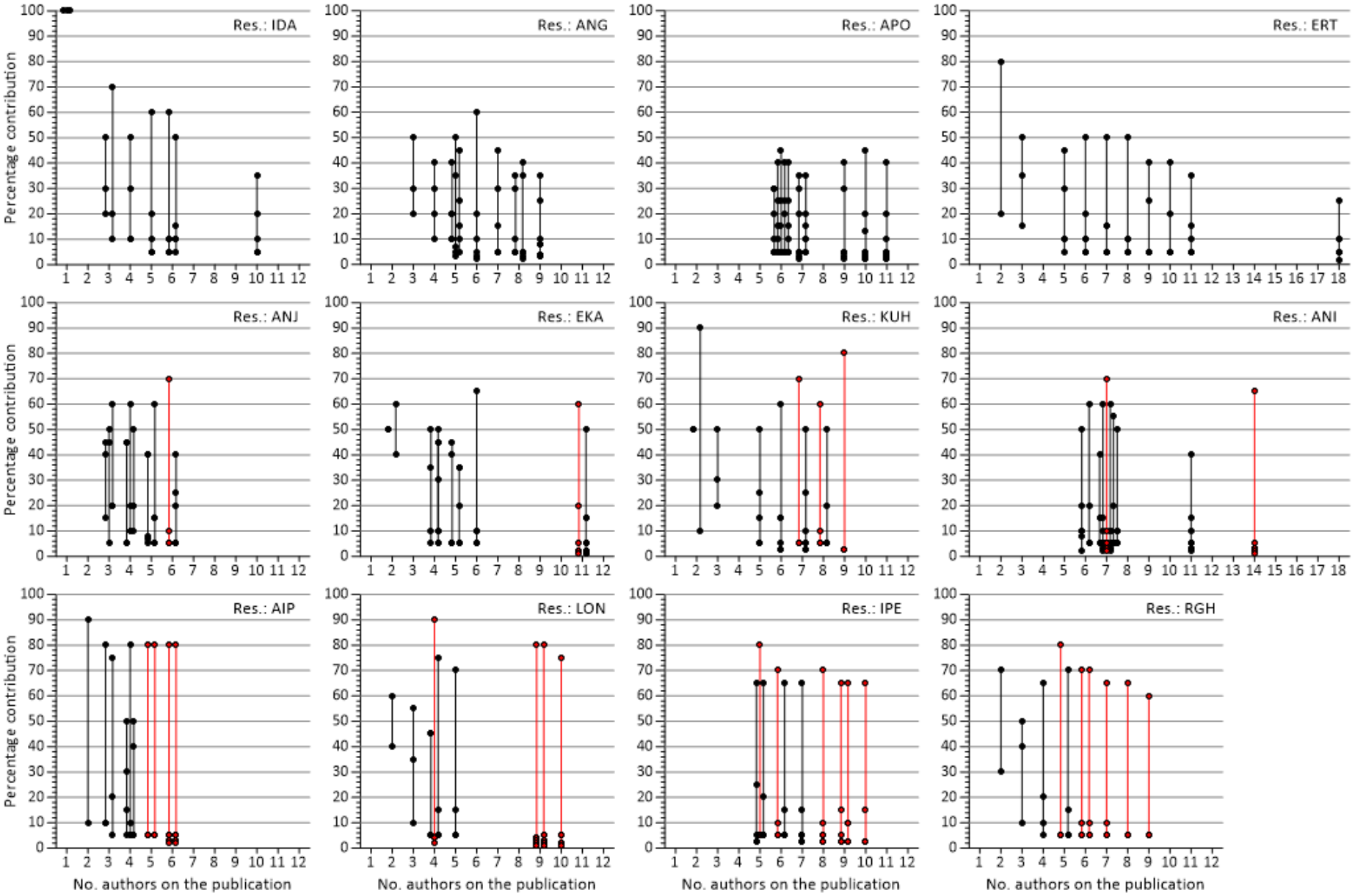
(“imbalanced”: effectively applied to publications with ≥5 authors)



JOURNAL
OF THE
WASHINGTON ACADEMY OF SCIENCES
VOL. 30 APRIL 15, 1940 No. 4

PALEONTOLOGY.—*Mammals and land bridges.*[1] GEORGE GAYLORD SIMPSON, American Museum of Natural History, New York. (Communicated by C. LEWIS GAZIN.)

Rework a term used by the biogeography community


Res.: IDA
Res.: ANG
Res.: APO
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Res.: ANJ
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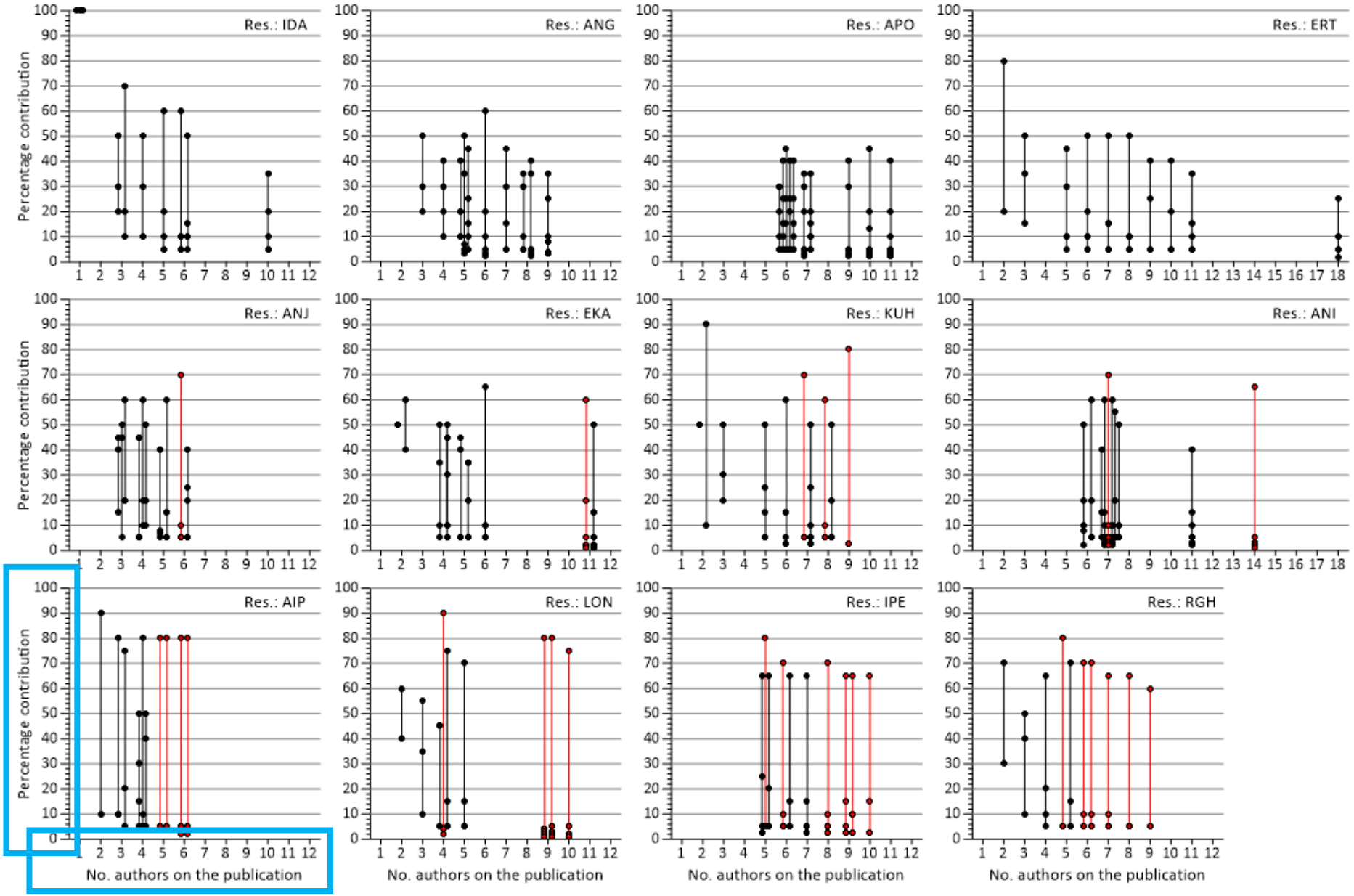
Res.: LON
Res.: IPE
Res.: RGH
Percentage contribution
No. authors on the publication

Ali Fig. 2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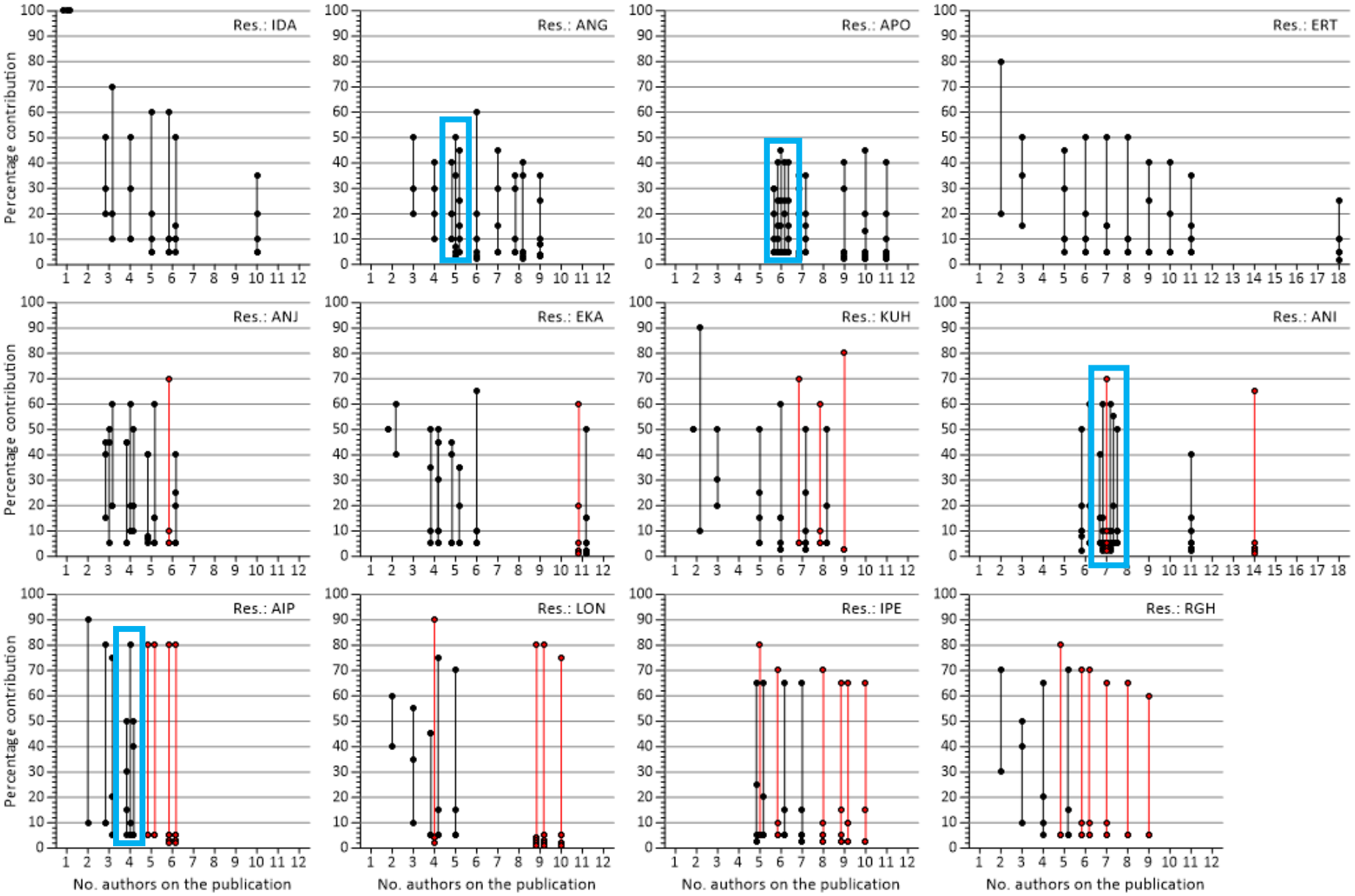
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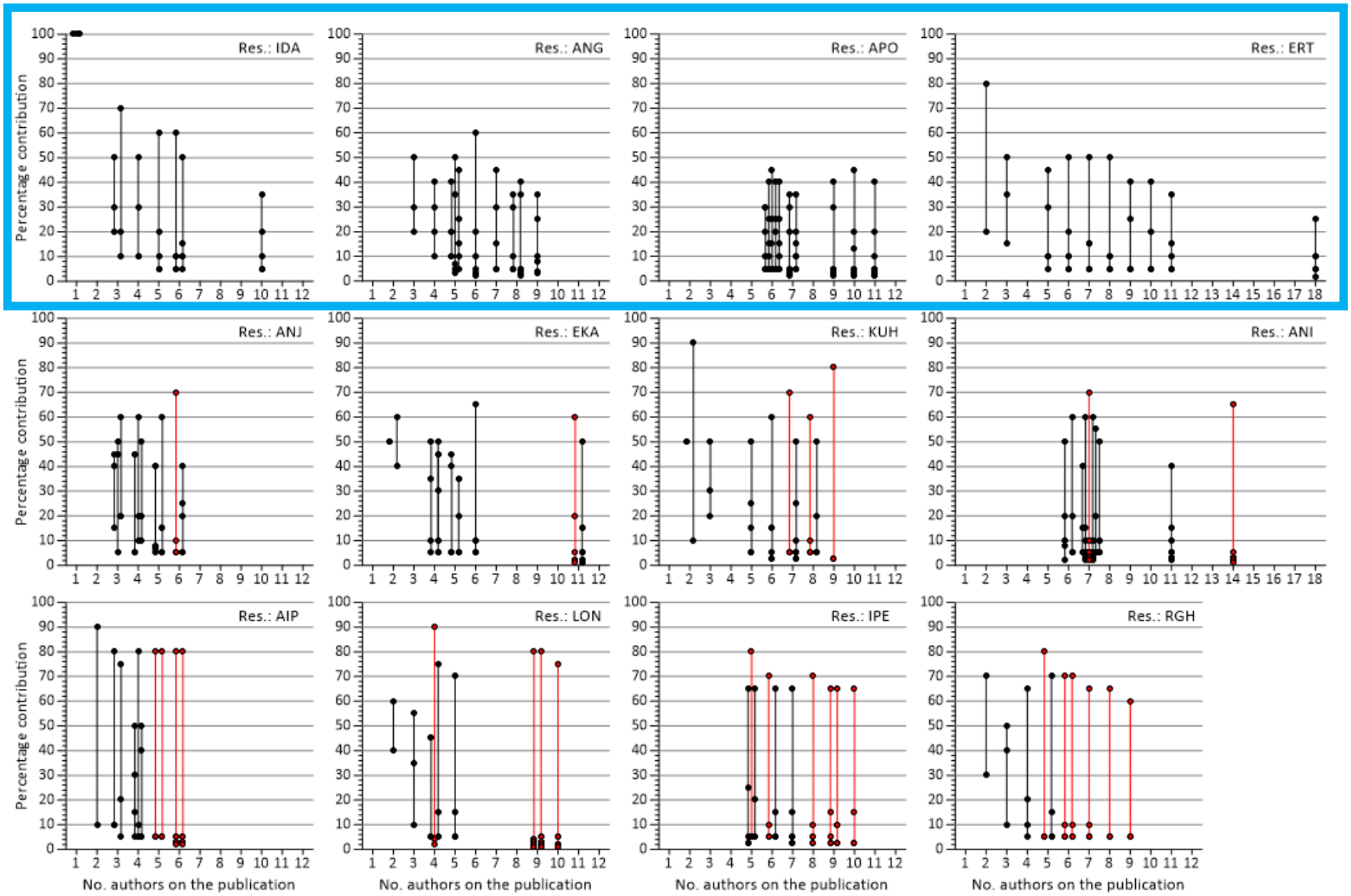
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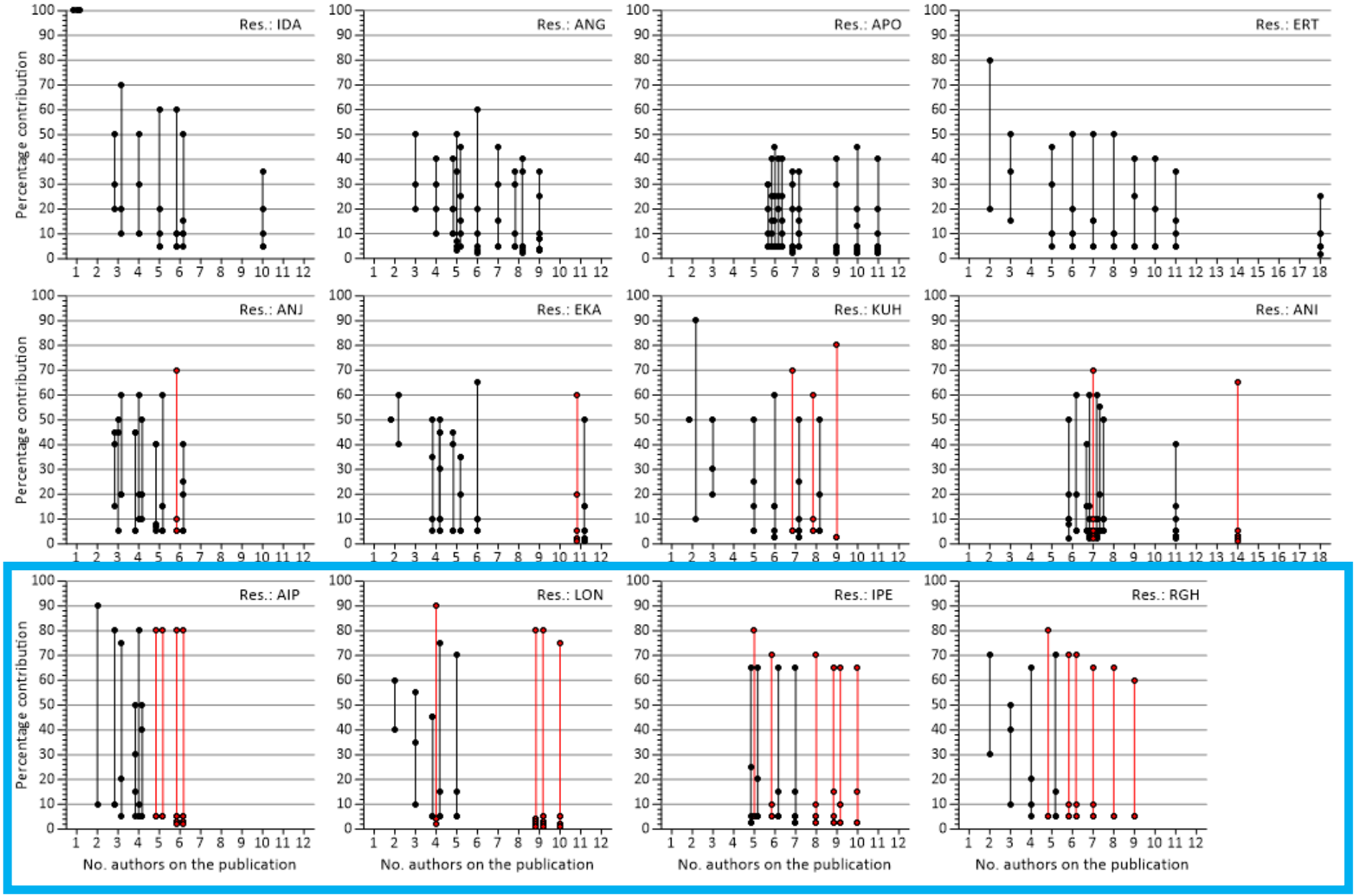
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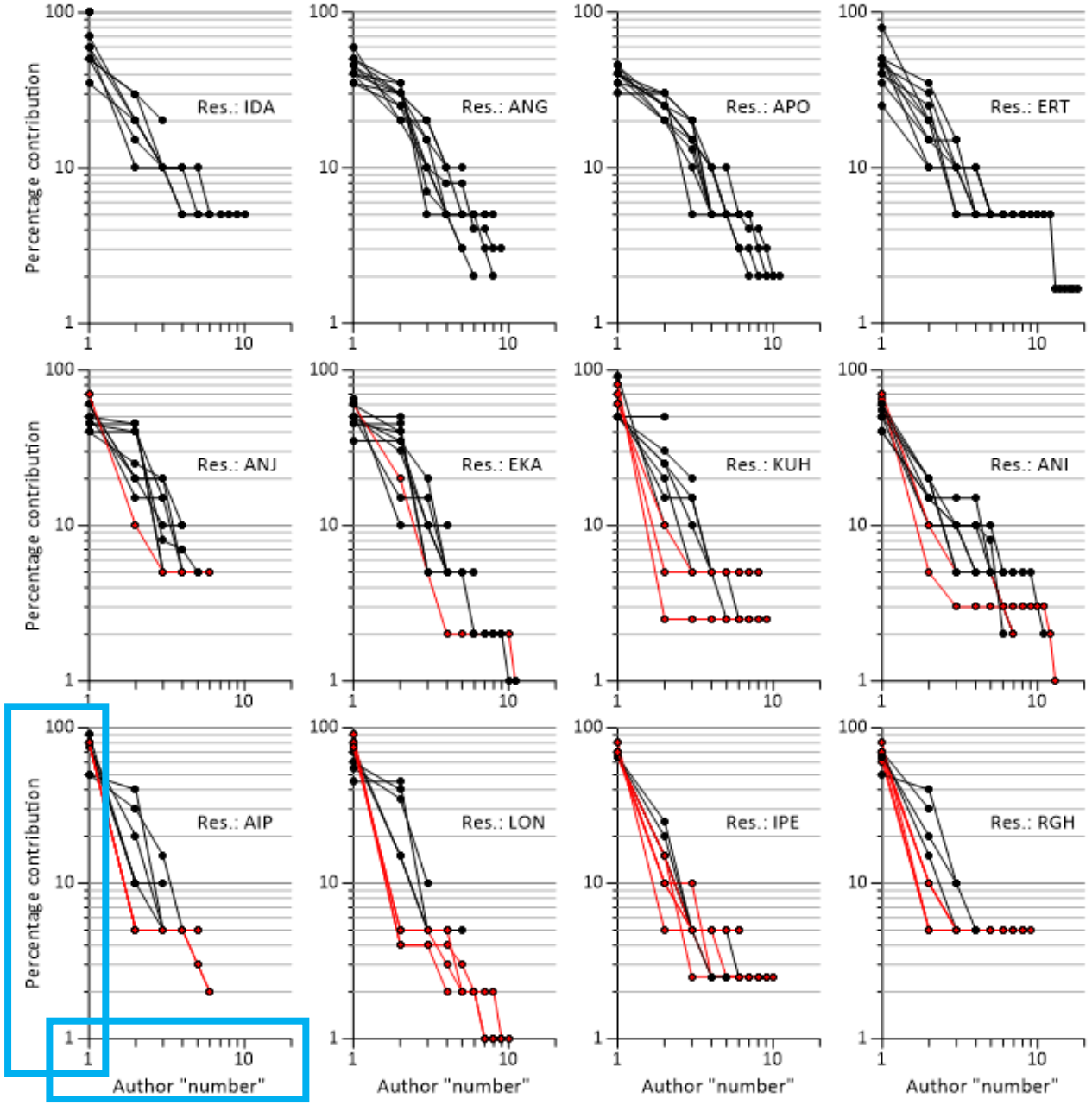
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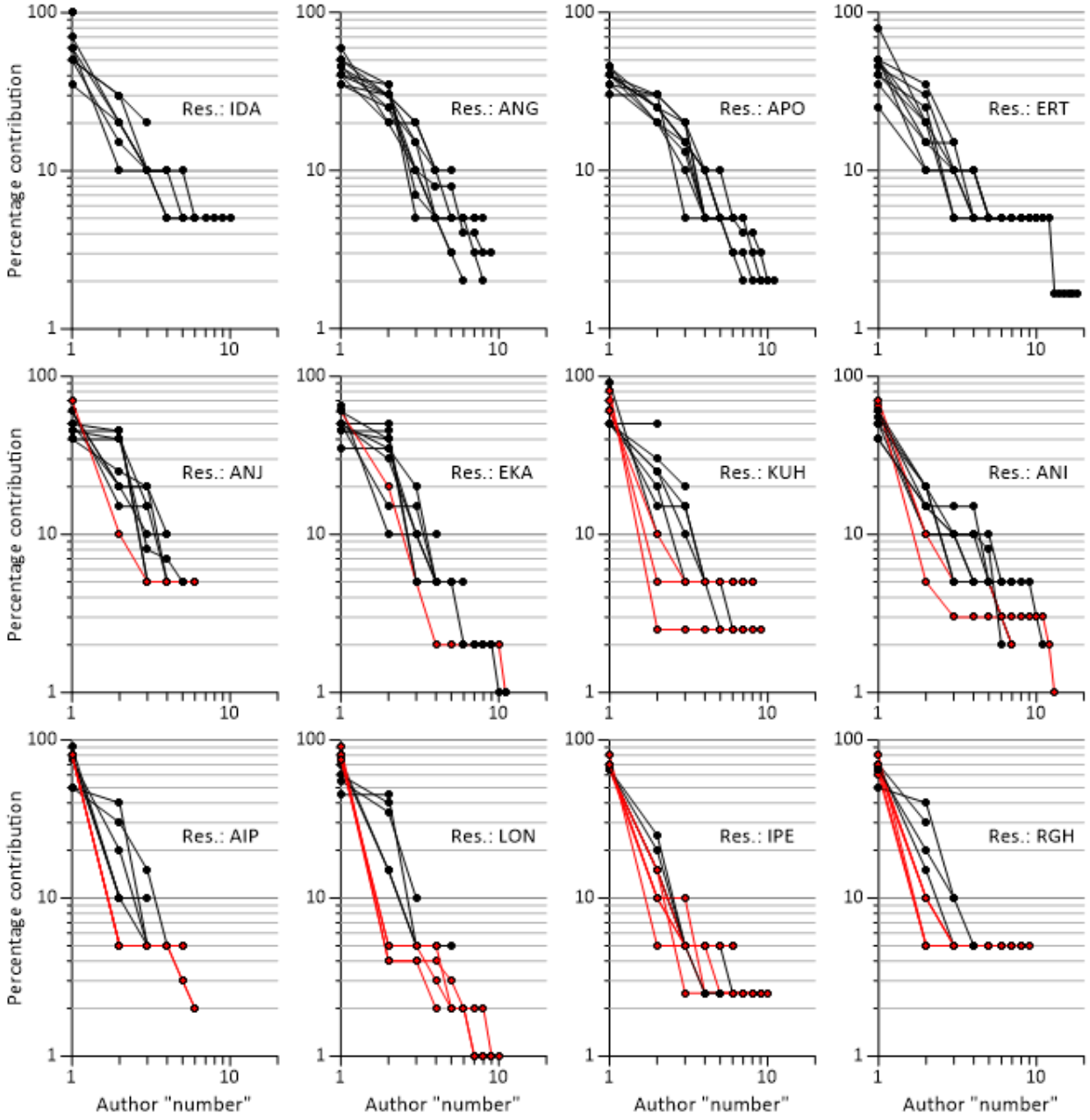
Res.: AIP
Res.: LON
Res.: IPE
Res.: RGH
Percentage contribution
Author "number"
100
10
1

Ali Fig. 3



Convex or straight

Concave

Ali Fig. 3

Imbalanced author lists

- Estimation issues

a. Bias in the valuations provided by the researcher.

b. Estimation problem highlighted by one respondent (RGH).

- Too many authors

a. Whole-group pre-arrangement.

b. Access to field areas and/or equipment.

c. Environment where there is an expectation that “mentors” and associates are included on a paper.

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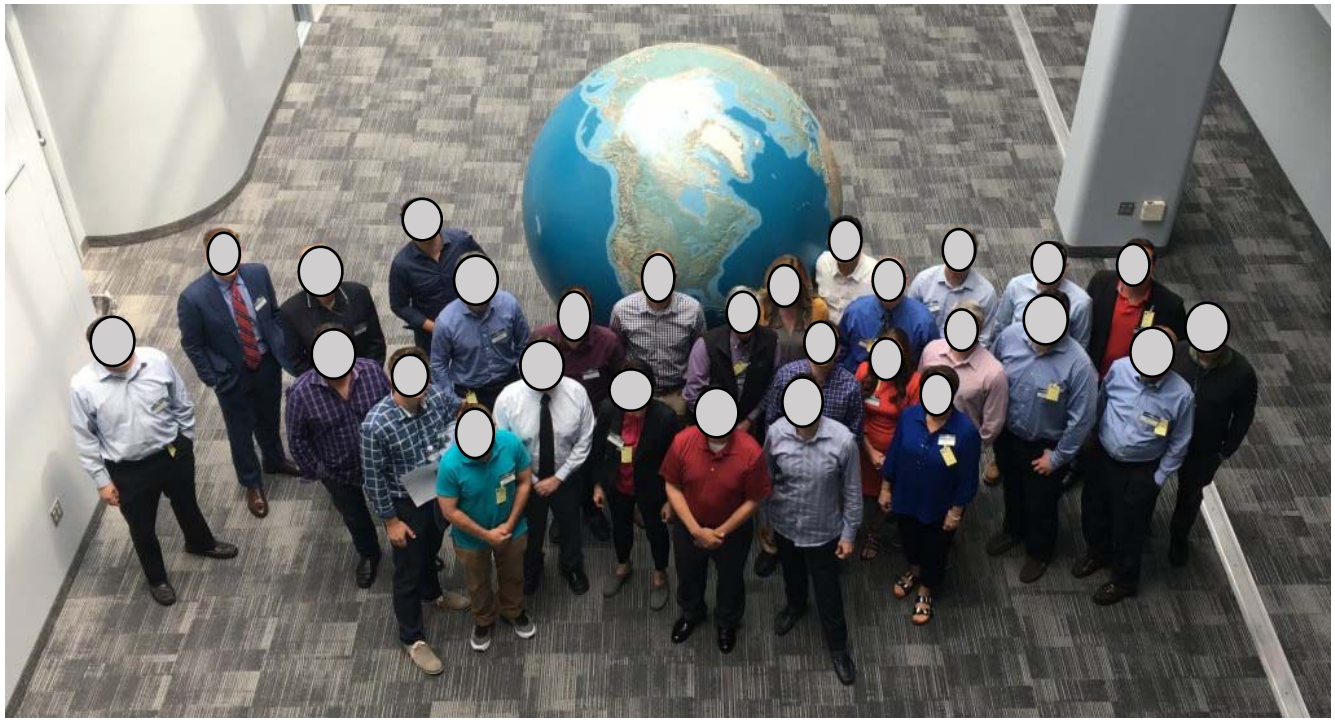
How do Earth scientists structure their lists?

- More than seven out of every eight publications (from 254) follow strictly the “first is most, last is least” tradition.
- Only 31 publications do not (12 of these were from two researchers).

1st 2nd 3rd 4th 5th

Combining the data-sets from individuals



Use data for all those publications with ≤11 authors

Author	Number of authors on the publication										
	1	2	3	4	5	6	7	8	9	10	11
"1st"	100.0	67.3	57.6	55.7	56.1	56.3	52.7	52.3	54.6	52.0	45.0
S.D.	0.0	14.6	12.9	14.9	12.4	13.8	13.3	13.0	17.4	13.4	8.3
"2nd"		32.8	29.1	26.0	21.1	18.4	17.5	17.9	14.4	13.5	15.0
S.D.		14.6	10.5	11.3	9.8	8.8	8.5	10.1	10.7	5.8	6.1
"3rd"			13.4	10.4	10.6	10.2	10.6	7.3	7.3	8.6	7.8
S.D.			7.4	5.8	5.5	5.2	5.3	4.4	3.5	4.0	3.6
"4th"				7.5	6.6	6.0	6.4	5.8	4.8	5.1	4.7
S.D.				3.6	2.6	2.2	2.9	1.9	2.3	2.1	1.0
"5th"					5.9	5.0	5.4	4.6	4.0	4.2	4.7
S.D.	All data (N = 241)				2.3	1.7	2.0	0.9	1.7	1.4	1.0
"1st"	100.0	66.0	55.9	51.5	52.5	47.8	45.5	43.6	40.0	46.4	42.5
S.D.	0.0	13.7	13.4	12.5	9.2	10.5	12.1	10.3	3.2	10.7	6.9
"2nd"		34.0	29.3	27.3	21.7	23.7	22.0	21.3	22.5	15.7	14.2
S.D.		13.7	10.0	8.8	8.0	8.1	6.3	10.3	8.2	4.5	7.4
"3rd"			15.0	11.5	11.8	12.5	14.8	9.3	9.2	10.4	6.7
S.D.			7.5	5.2	5.0	4.7	4.4	5.3	3.8	3.1	2.6
"4th"				9.2	7.7	6.8	6.5	6.7	5.8	5.5	5.0
S.D.				3.8	2.5	2.5	2.3	2.6	1.5	2.3	0.0
"5th"					6.5	5.5	6.0	4.6	5.0	4.6	5.0
S.D.	Hard-filter "balanced" list data (N = 133)				2.4	1.9	2.1	0.8	1.9	1.1	0.0
"1st"	100.0	64.7	56.8	54.1	51.7	49.8	48.1	44.4	40.0	46.4	43.1
S.D.	0.0	13.7	12.6	13.8	9.1	10.2	10.7	9.8	3.2	10.7	6.5
"2nd"		35.3	29.5	26.6	23.2	22.0	20.6	21.1	22.5	15.7	14.4
S.D.		13.7	10.2	10.6	9.0	7.5	7.5	9.6	8.2	4.5	6.2
"3rd"			13.9	10.5	11.9	12.4	12.5	8.8	9.2	10.4	8.1
S.D.			7.6	5.2	5.3	4.6	4.8	5.2	3.8	3.1	3.7
"4th"				8.4	7.1	6.5	7.1	6.4	5.8	5.5	5.0
S.D.				3.6	2.7	2.3	3.1	2.4	1.5	2.3	0.0
"5th"					6.1	5.4	5.7	4.6	5.0	4.6	5.0
S.D.	Soft-filter "balanced" list data (N = 185)				2.5	1.8	2.2	0.7	1.9	1.1	0.0
"1st"	N.A.	N.A.	N.A.	90.0	80.0	73.8	70.6	65.0	70.0	70.0	60.0
S.D.	N.A.	N.A.	N.A.	N.A.	0.0	4.4	4.7	3.5	9.6	7.1	N.A.
"2nd"		N.A.	N.A.	4.0	5.0	10.0	7.6	7.0	6.6	10.0	20.0
S.D.		N.A.	N.A.	N.A.	0.0	3.2	2.5	2.7	4.3	7.1	N.A.
"3rd"			N.A.	4.0	5.0	5.0	5.0	5.0	5.3	3.8	5.0
S.D.			N.A.	N.A.	0.0	0.0	0.0	0.0	2.5	1.8	N.A.
"4th"				2.0	5.0	4.4	4.5	5.0	3.3	3.8	2.0
S.D.				N.A.	0.0	1.3	1.0	0.0	1.0	1.8	N.A.
"5th"					5.0	4.4	4.3	4.2	2.9	2.3	2.0
S.D.	All "imbalanced" list data (N = 34)				0.0	1.3	1.5	1.4	1.1	0.4	N.A.
Fit "1st"	N.A.	63.2	58.1	54.5	51.7	49.4	47.4	45.8	44.3	43.0	41.8
Diff.	N.A.	-1.5	1.3	0.3	0.0	-0.4	-0.6	1.4	4.3	-3.5	-1.4
Fit "2nd"		34.4	30.0	27.0	24.6	22.6	21.0	19.6	18.3	17.2	16.2
Diff.		-0.9	0.6	0.4	1.4	0.6	0.4	-1.5	-4.2	1.5	1.8
Fit "3rd"			13.4	12.4	11.7	11.1	10.6	10.1	9.8	9.4	9.1
Diff.			-0.5	1.9	-0.1	-1.3	-1.9	1.4	0.6	-1.0	1.0
Fit "4th"				8.1	7.5	7.0	6.5	6.1	5.8	5.5	5.2
Diff.				-0.2	0.4	0.5	-0.6	-0.3	0.0	0.0	0.2
Fit "5th"					5.9	5.6	5.4	5.2	5.0	4.8	4.6
Diff.	Best-fit soft-filter "balanced" list data				-0.2	0.2	-0.3	0.5	0.0	0.2	-0.4

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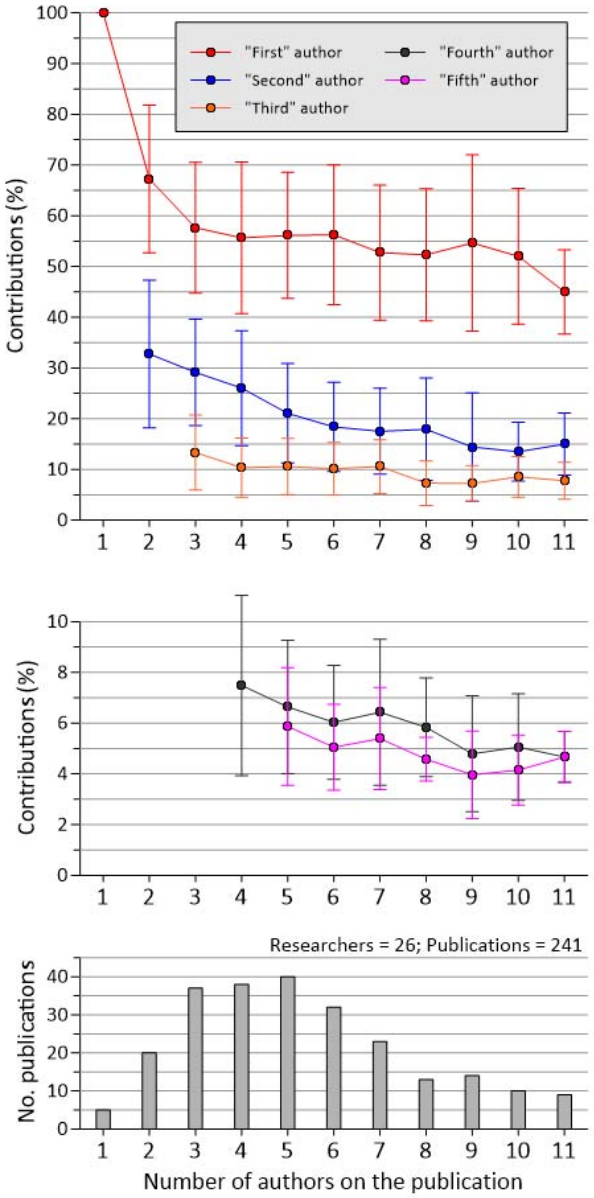
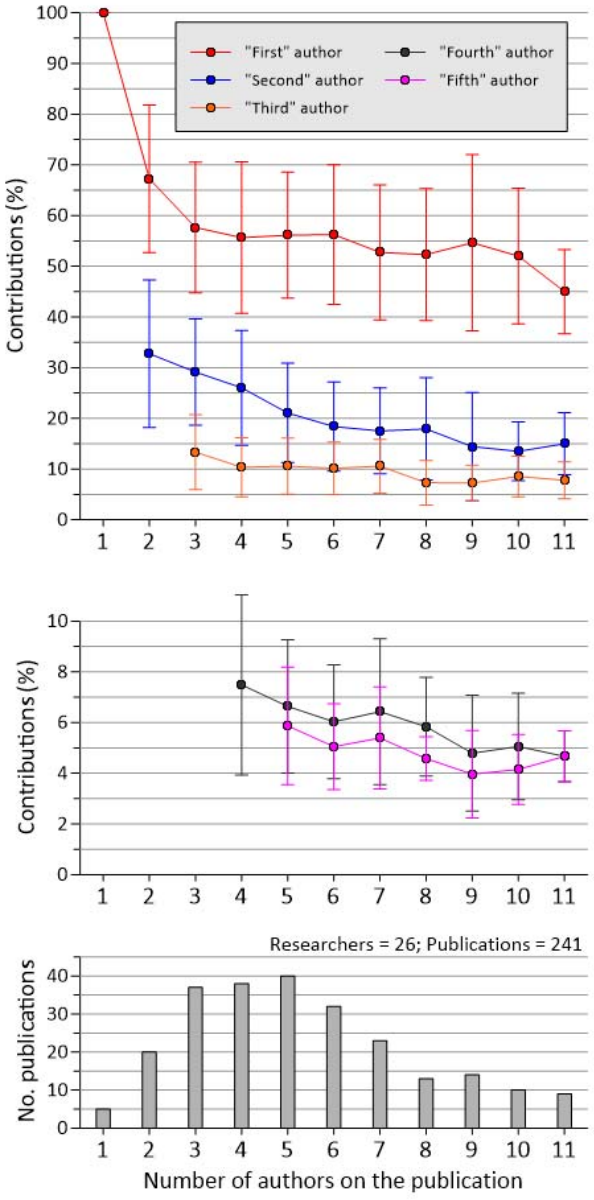
S.D.			7.4	5.8	5.5	5.2	5.3	4.4	3.5	4.0	3.6
"4th"				7.5	6.6	6.0	6.4	5.8	4.8	5.1	4.7
S.D.				3.6	2.6	2.2	2.9	1.9	2.3	2.1	1.0
"5th"					5.9	5.0	5.4	4.6	4.0	4.2	4.7
S.D.	All data (N = 241)				2.3	1.7	2.0	0.9	1.7	1.4	1.0
S.D.				3.6	2.7	2.3	3.1	2.4	1.5	2.3	0.0
"5th"					6.1	5.4	5.7	4.6	5.0	4.6	5.0
S.D.	Soft-filter "balanced" list data (N = 185)				2.5	1.8	2.2	0.7	1.9	1.1	0.0
"1st"	N.A.	N.A.	N.A.	90.0	80.0	73.8	70.6	65.0	70.0	70.0	60.0
S.D.	N.A.	N.A.	N.A.	N.A.	0.0	4.4	4.7	3.5	9.6	7.1	N.A.
"2nd"		N.A.	N.A.	4.0	5.0	10.0	7.6	7.0	6.6	10.0	20.0
S.D.		N.A.	N.A.	N.A.	0.0	3.2	2.5	2.7	4.3	7.1	N.A.

From all of the researchers, just use Those publications with ≤11 authors

Fit "2nd"	34.4	30.0	27.0	24.6	22.6	21.0	19.6	18.3	17.2	16.2
Diff.	-0.9	0.6	0.4	1.4	0.6	0.4	-1.5	-4.2	1.5	1.8
Fit "3rd"		13.4	12.4	11.7	11.1	10.6	10.1	9.8	9.4	9.1
Diff.		-0.5	1.9	-0.1	-1.3	-1.9	1.4	0.6	-1.0	1.0
Fit "4th"			8.1	7.5	7.0	6.5	6.1	5.8	5.5	5.2
Diff.			-0.2	0.4	0.5	-0.6	-0.3	0.0	0.0	0.2
Fit "5th"				5.9	5.6	5.4	5.2	5.0	4.8	4.6
Diff.	Best-fit soft-filter "balanced" list data			-0.2	0.2	-0.3	0.5	0.0	0.2	-0.4



All of the data Ali Fig. 4



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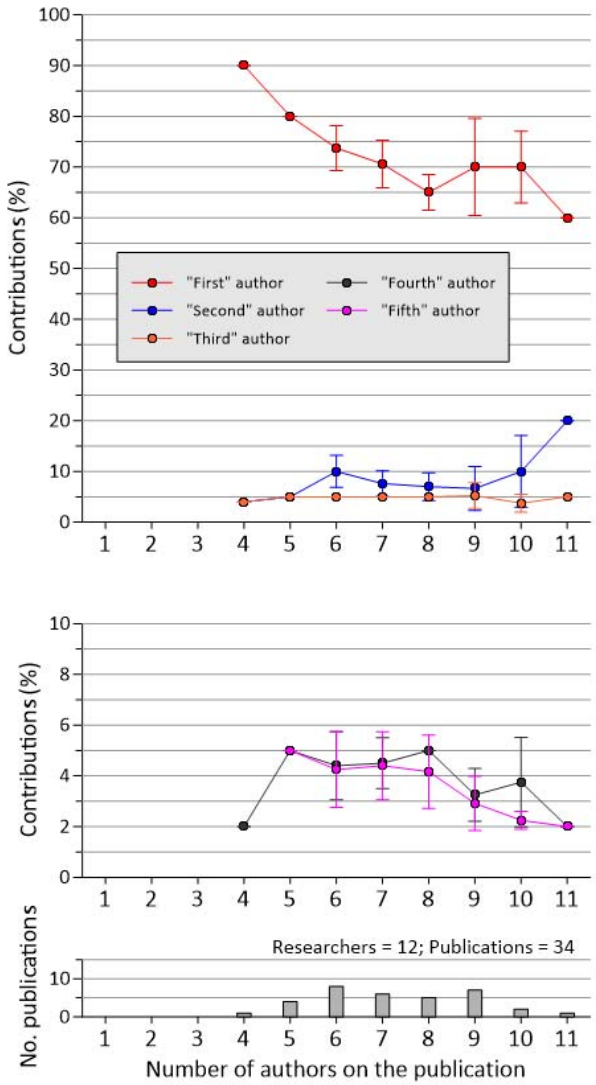
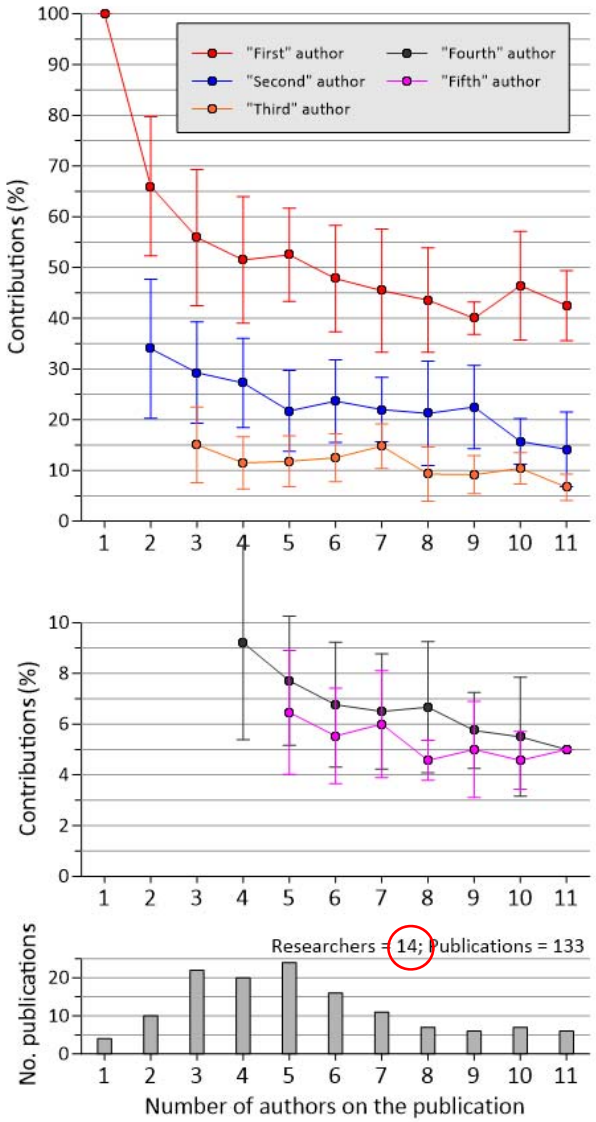
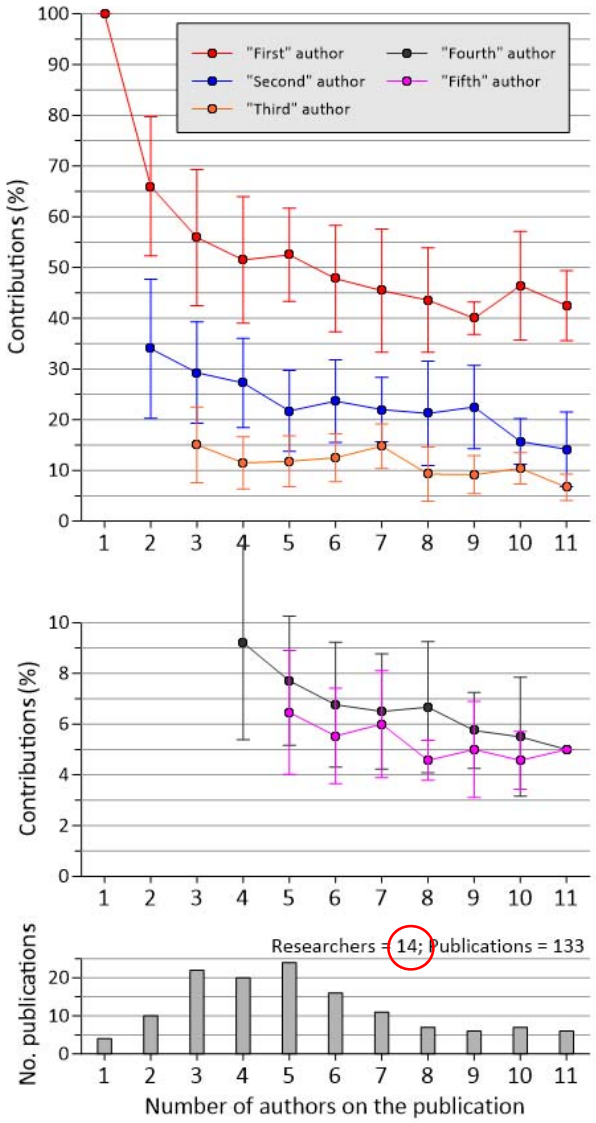


All of the "imbalanced" publications Ali Fig. 8



Hard filter

Ali Fig. 6



Hard filter

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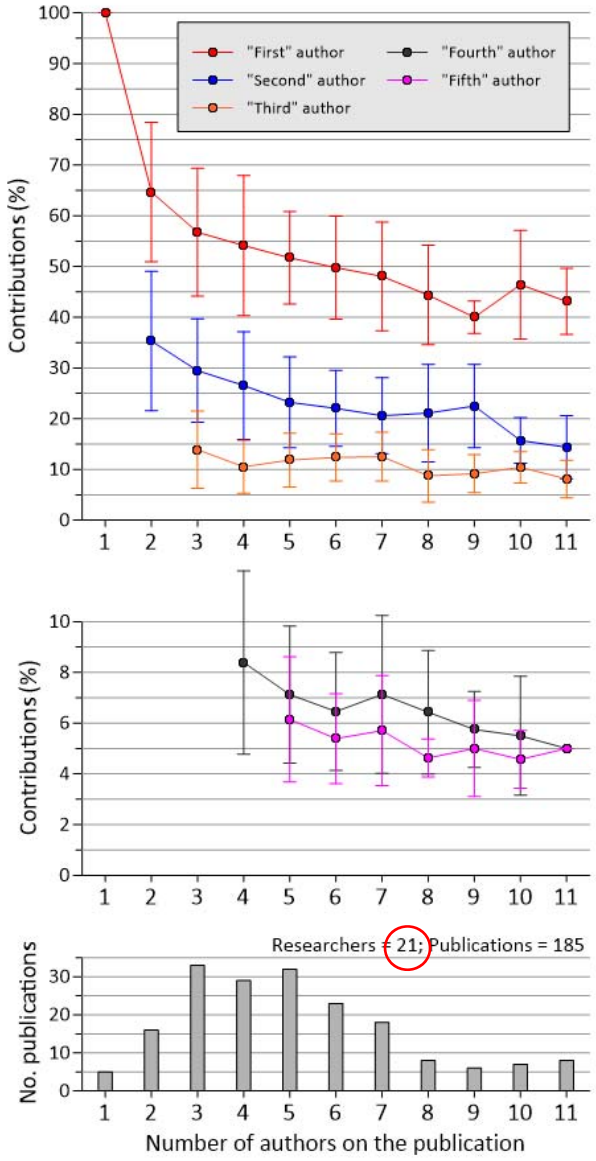
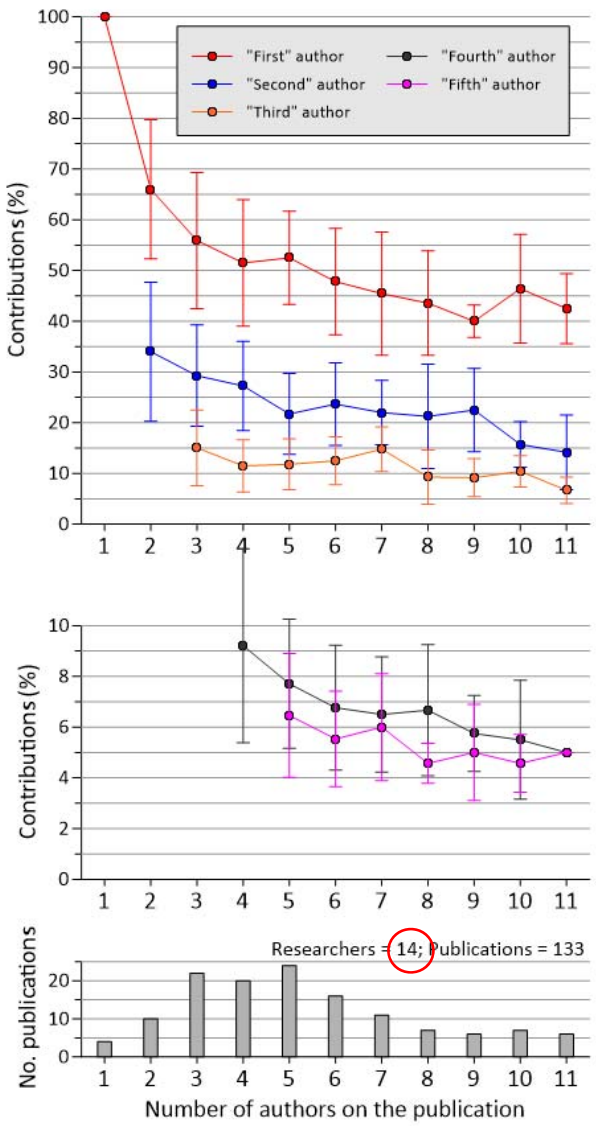


Soft filter

Ali Fig. 7



Hard filter

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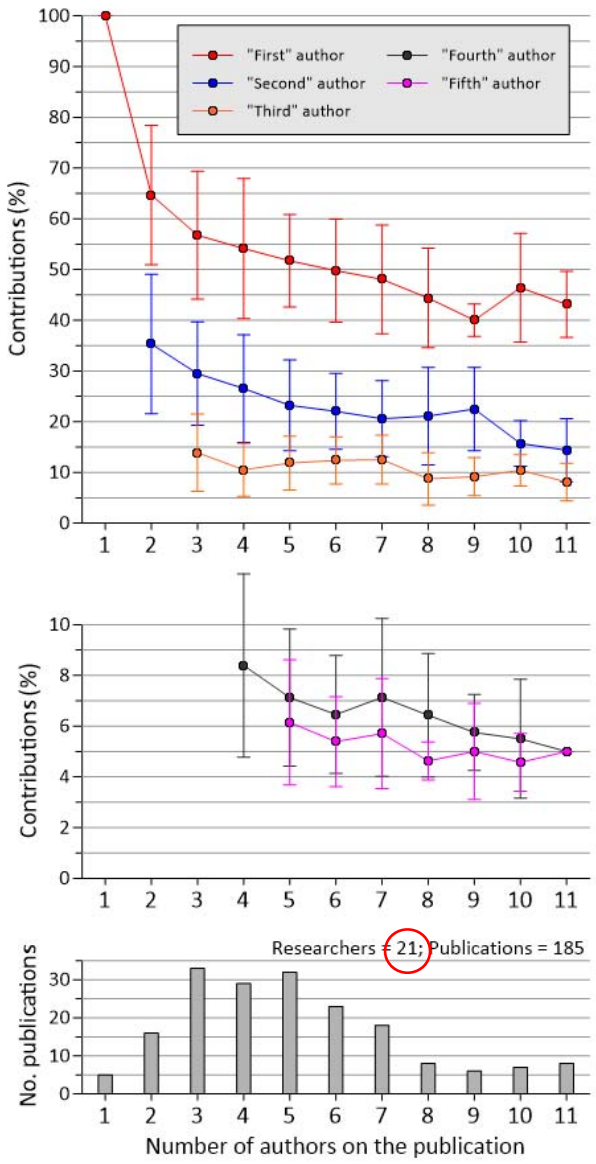

Soft filter

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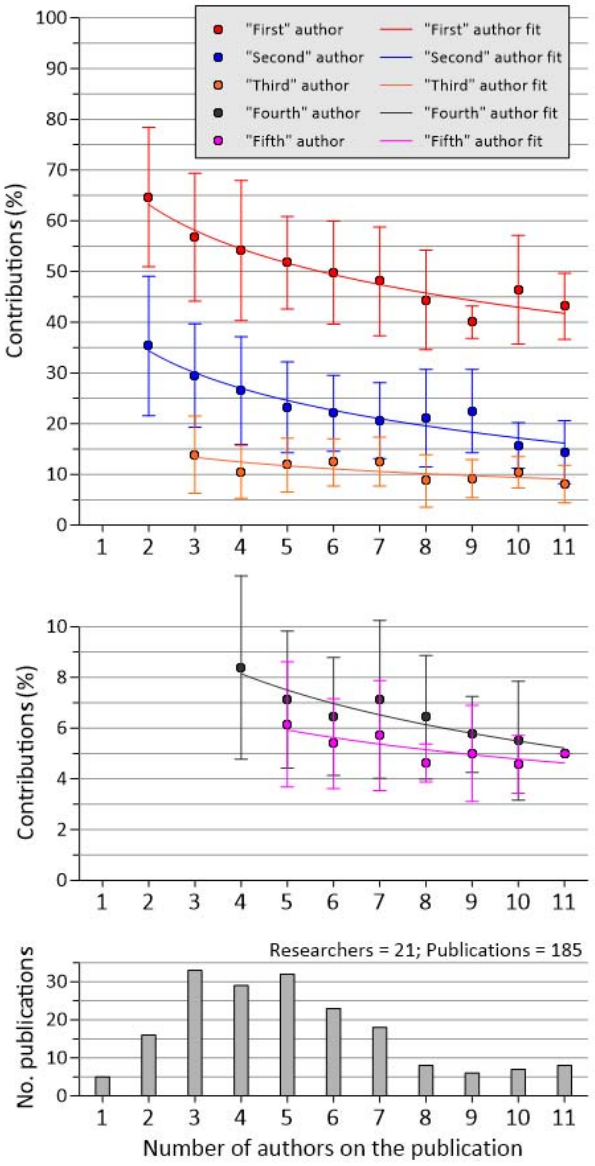


Best-fit lines

Ali Fig. 9

Good idea about who contributed how much based on list position

3-author paper

#1: 44–69%

#2: 19–40%

#3: 6–22%

6-author paper

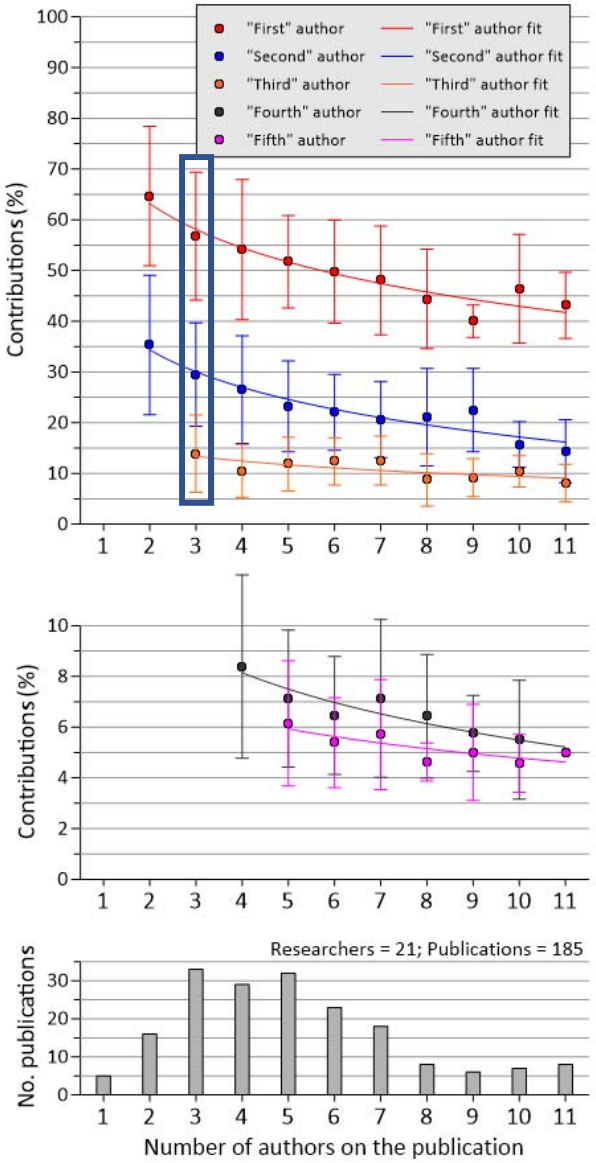
#1: 39–60%

#2: 15–30%

#3: 8–17%

#4: 4.1–8.8%

#5: 3.5–7.1%



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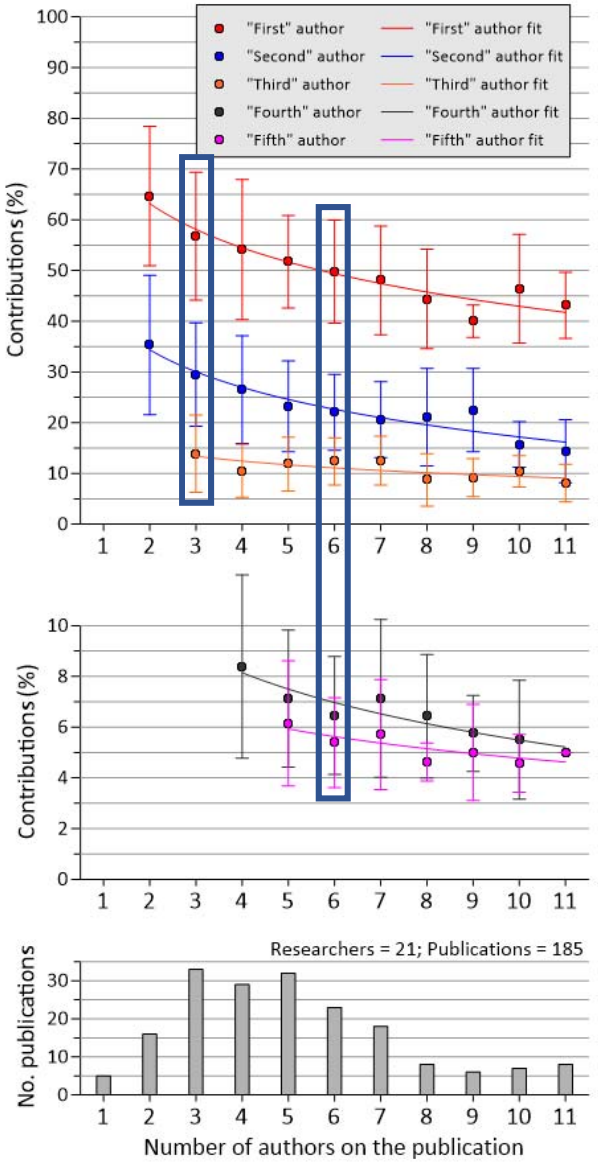


Ali Fig. 9

# "* These authors contributed equally"

nature COMMUNICATIONS

ARTICLE

Received 20 Nov 2016 | Accepted 16 Feb 2017 | Published 2 May 2017

DOI: 10.1038/ncomms14972 OPEN

Mosaic evolution in an asymmetrically feathered troodontid dinosaur with transitional features

Xing Xu[1,*], Philip Currie[2,*], Michael Pittman[3,*], Lida Xing[4], Qingjin Meng[5], Junchang Lü[6], Dongyu Hu[7] & Congyu Yu[8]

# “* These authors contributed equally”

8-author paper

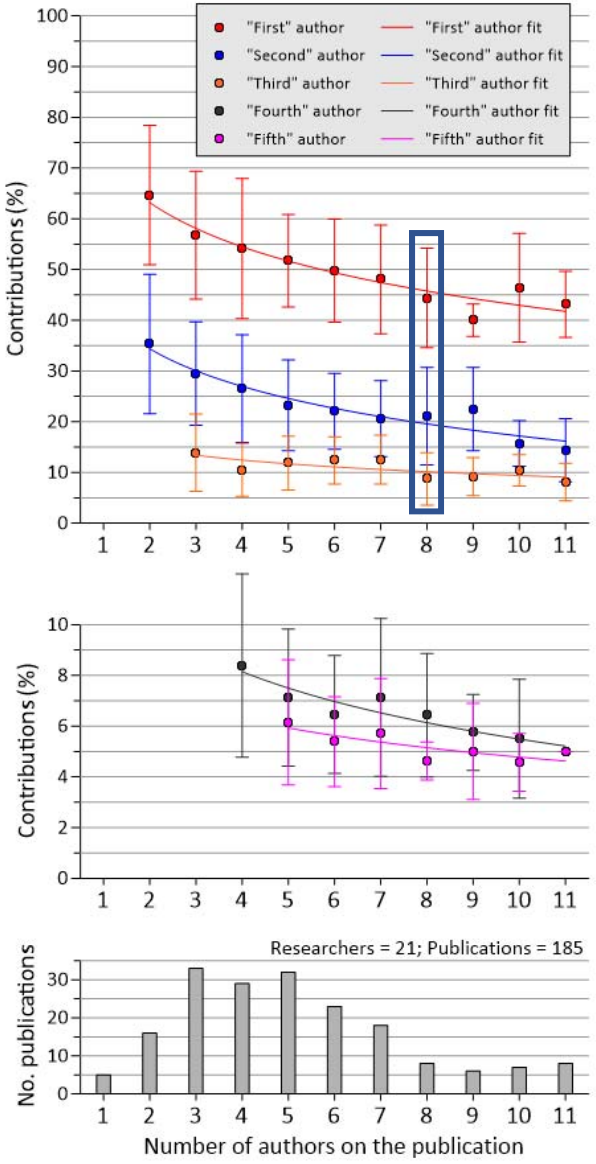
with three “equals”

#1: 46%

#2: 20%

#3: 10%

Thus, the first three get *c*. 25% each



Ali Fig. 9

More complex author contributions

REVIEW ARTICLE
https://doi.org/10.1038/s41561-018-0236-z

nature geoscience

Geological and climatic influences on mountain biodiversity

Alexandre Antonelli[1,2,3,4,21*], W. Daniel Kissling[5,21*], Suzette G. A. Flantua[5,6,21], Mauricio A. Bermúdez[7,8,21], Andreas Mulch[9,10], Alexandra N. Muellner-Riehl[11,12], Holger Kreft[13,14], H. Peter Linder[15], Catherine Badgley[16], Jon Fjeldså[17], Susanne A. Fritz[9,18], Carsten Rahbek[17,19], Frédéric Herman[20], Henry Hooghiemstra[5] and Carina Hoorn[5,21*]

More complex author contributions

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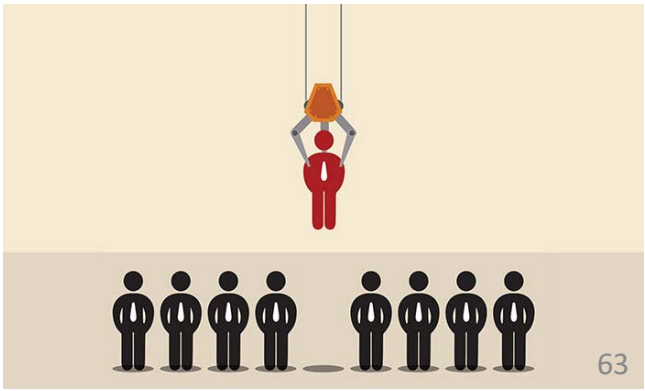
Three correspondence authors (*); Five principal authors

Suggestion for dealing with imbalanced author lists

- Lay down the headers for the key sections you plan to have in your manuscript: title, author details, abstract, keywords, introduction,……,……., figure captions, table captions.
- Once done, all people with any form of connection to the study should first be listed in the “acknowledgements”, preferably with their role stated.
- Only with evident justification should a person’s name be transferred to the author list.



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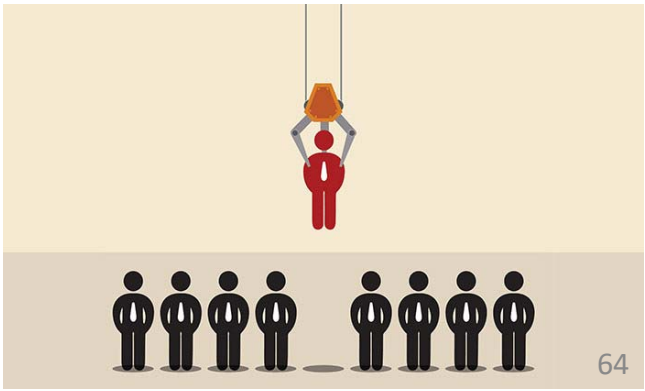

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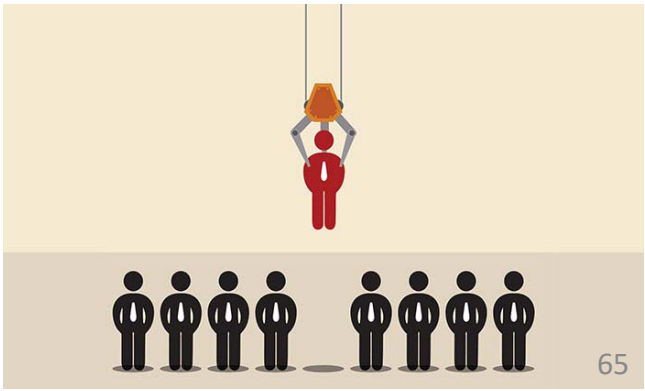

Frederick Mumpton (1990)

(former editor of *Clays and Clay Minerals*)

"I will not attempt to state what is an acceptable number of authors, but merely state that credibility decreases as the number increases beyond five or six."

Acknowledgement: S. Wright

Who should be an author? (McNutt et al. 2018, *PNAS*)

- Each author is expected to have made substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data; or the creation of new software used in the work; or have drafted the work or substantively revised it;
- AND to have approved the submitted version (and any substantially modified version that involves the author's contribution to the study);
- AND to have agreed both to be personally accountable for the author's own contributions and to ensure that questions related to the accuracy or integrity of any part of the work, even ones in which the author was not personally involved, are appropriately investigated, resolved, and the resolution documented in the literature.

Applying the idea to the other STEM disciplines

- Many of the STEM subjects have similar size author lists, so presumably the inputs would be comparable.
- However, for example, biologists structure their lists differently, with the last person often being the group leader, hence a significant contributor.
- Also, some of the projects in physics have incredibly large author lists:

Aad, G. et al. (2015) Combined measurement of the Higgs Boson mass in *pp* collisions at √s = 7 and 8 TeV with the ATLAS and CMS experiments. *Physical Review Letters* **114**, Art. No. 191803. (>5100 authors)

Abbott, B.P. et al. (2016) Observation of gravitational waves from a binary black hole merger. *Physical Review Letters* **116**, Art. No. 061102. (*c*. 1100 authors)

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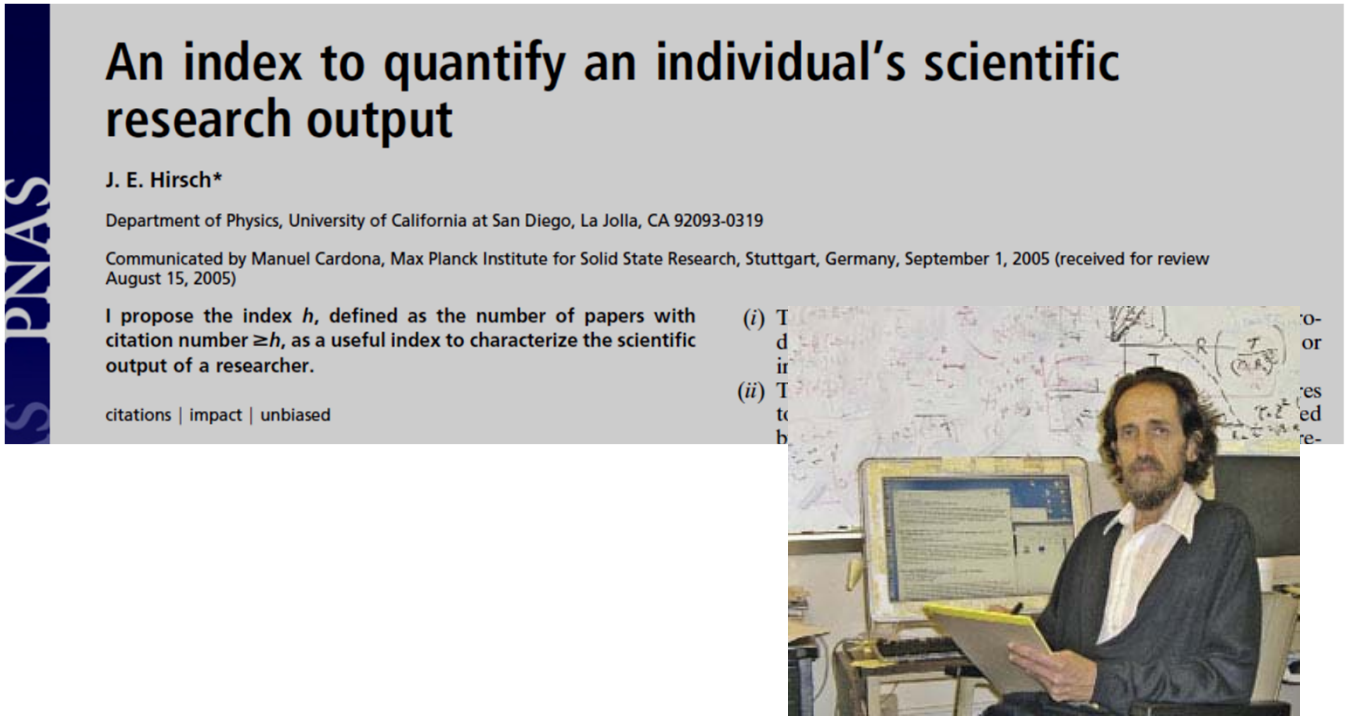
Jorge Hirsch's (2005) H-Index



PNAS

An index to quantify an individual's scientific research output

J. E. Hirsch*

Department of Physics, University of California at San Diego, La Jolla, CA 92093-0319

Communicated by Manuel Cardona, Max Planck Institute for Solid State Research, Stuttgart, Germany, September 1, 2005 (received for review August 15, 2005)

I propose the index *h*, defined as the number of papers with citation number ≥*h*, as a useful index to characterize the scientific output of a researcher.

citations | impact | unbiased

(*i*) T
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(*ii*) T
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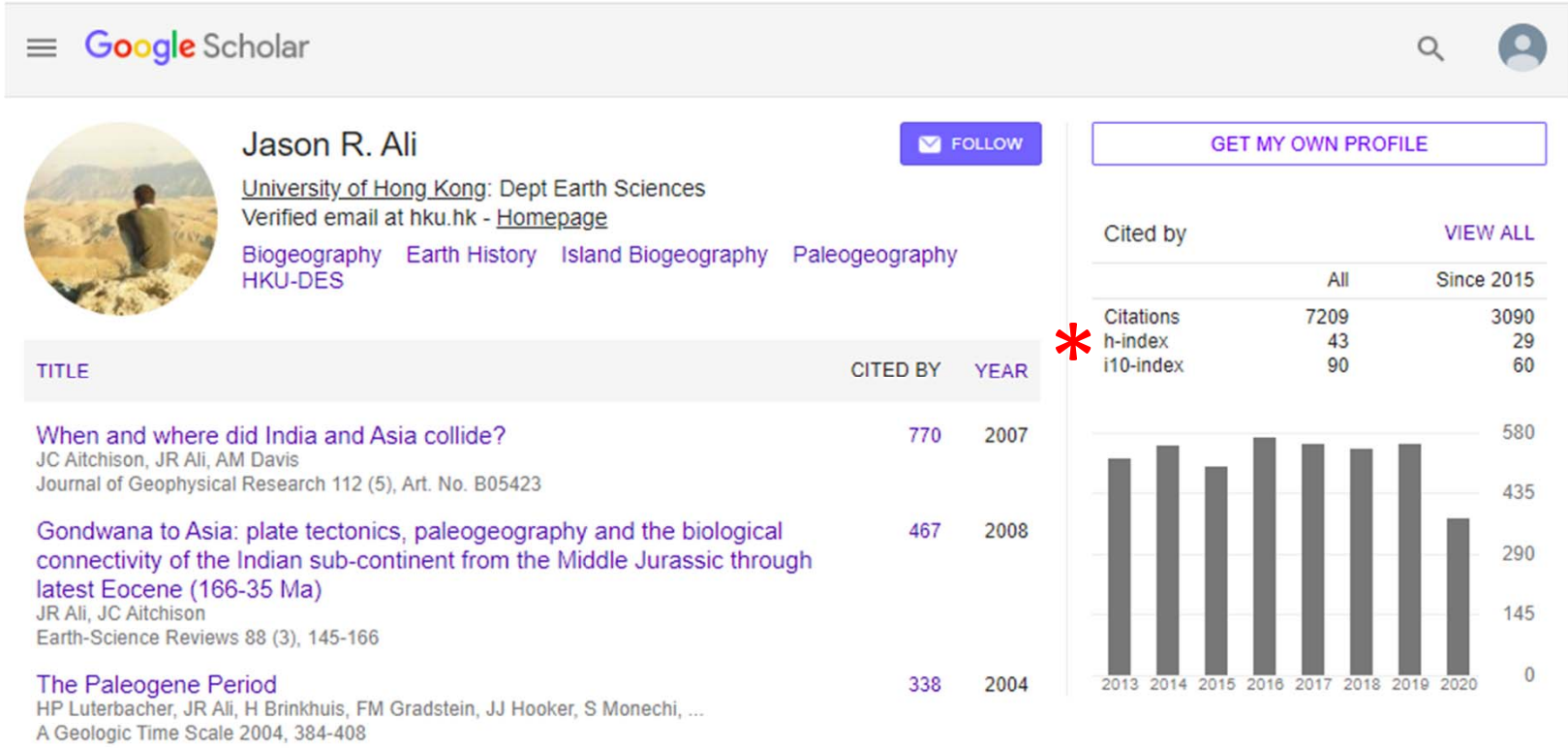
- H-Index = 30 if your 30 best-cited publications have been cited ≥30 times (your 31st best-cited paper has been cited <31 times).

Today, the H-Index is a deeply ingrained element of an academic's life



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Biogeography Earth History Island Biogeography Paleogeography HKU-DES

TITLE	CITED BY	YEAR
When and where did India and Asia collide? JC Aitchison, JR Ali, AM Davis Journal of Geophysical Research 112 (5), Art. No. B05423	770	2007
Gondwana to Asia: plate tectonics, paleogeography and the biological connectivity of the Indian sub-continent from the Middle Jurassic through latest Eocene (166-35 Ma) JR Ali, JC Aitchison Earth-Science Reviews 88 (3), 145-166	467	2008
The Paleogene Period HP Luterbacher, JR Ali, H Brinkhuis, FM Gradstein, JJ Hooker, S Monechi, ... A Geologic Time Scale 2004, 384-408	338	2004

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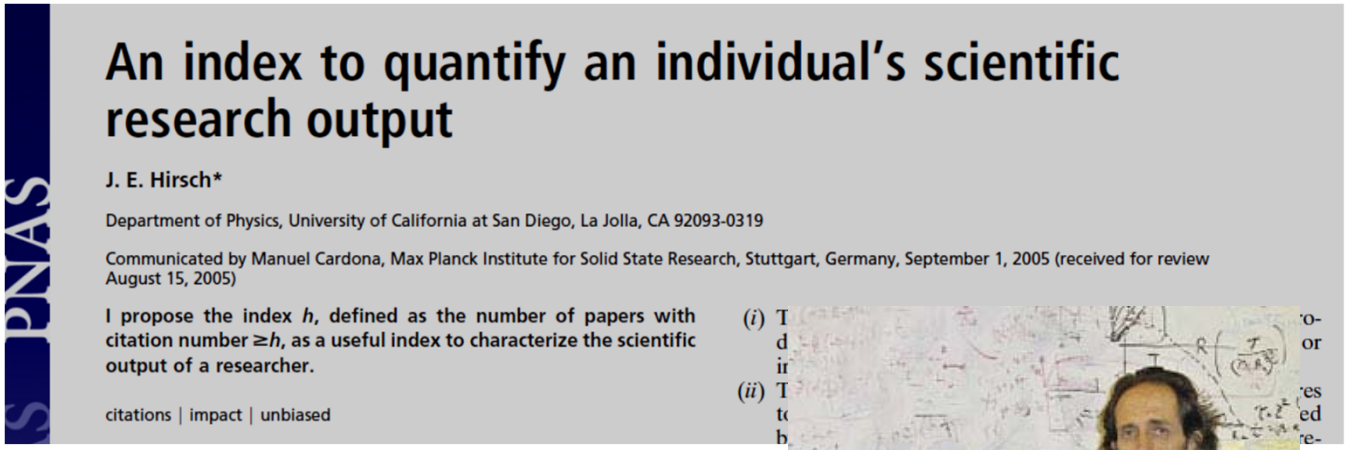
	All	Since 2015
Citations	7209	3090
h-index	43	29
i10-index	90	60

- Google Scholar page
- Scopus database
- H-Index predictor (Acuna et al., 2012)
- Job applications/promotions

Jorge Hirsch's (2005) H-Index



PNAS

An index to quantify an individual's scientific research output

J. E. Hirsch*

Department of Physics, University of California at San Diego, La Jolla, CA 92093-0319

Communicated by Manuel Cardona, Max Planck Institute for Solid State Research, Stuttgart, Germany, September 1, 2005 (received for review August 15, 2005)

I propose the index *h*, defined as the number of papers with citation number ≥*h*, as a useful index to characterize the scientific output of a researcher.

citations | impact | unbiased

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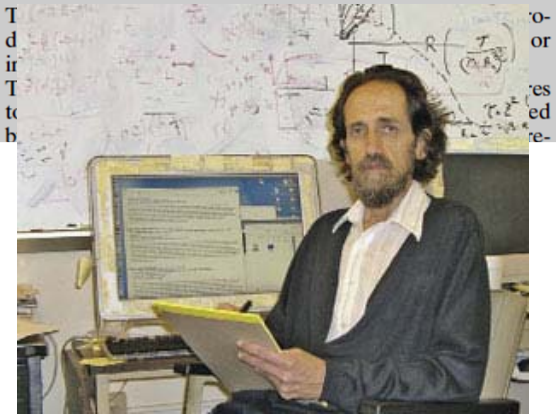

- Number of issues with the H-Index

1. Career length
2. Discipline
3. Contribution to "your" publications, especially with multi-author outputs being the norm.

Modified H-Index that accommodates a researcher's inputs to their "core" publications

- Make uses of the contribution data.
- However, it also weights the "core" articles according to their ranking.
- Example using a H-Index score of 30.
- To the highest-cited work, a value of 30 is assigned, to the second highest 29, the third highest 28, all the way down to 1.
- At this point, it is noted that the sum of 30+29+28+…..+1 is 465, which I term the *ceiling value*.

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Modified H-Index that accommodates a researcher's inputs to their "core" publications

- Take each of the 30 numbers and multiply them by their associated fractional contribution, which is the percentage contribution described above divided by 100 (i.e. 0–1).
- The sum of all 30, which is termed the *contribution total*, will thus be ≤465.
- If it is close to the *ceiling value*, then the researcher must have played a leading role in many of their publications. If, on the other hand, it is low it indicates that their involvement was not so great.
- Multiplying the *contribution total* by the H-Index number and then dividing it by the *ceiling value* creates the researcher's *weighted H-Index*.

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Example using two people with H-Index scores of 30 (the two are, therefore, of apparently similar standing)

- First researcher's fractional contributions on the ranked papers are deemed to be:

  1.0 for 30–25

  0.8 for 24–19

  0.6 for 18–13

  0.4 for 12–7

  0.2 for 6–1

  (for clarity, most cited to least cited).

- Here, the *contribution total* is 351 and the *weighted H-Index* is (351*30)/465 = 22.6.

Example using two people with H-Index scores of 30 (the two are, therefore, of apparently similar standing)

- Second researcher's fractional contributions on the ranked papers are:

  0.2 for 30–25

  0.4 for 24–19

  0.6 for 18–13

  0.8 for 12–7

  1.0 for 6–1

- Here, the *contribution total* is 207 and the *weighted H-Index* is (207*30)/465 = 13.4.
- Clearly, not nearly as impressive.

Recalibrated H-Index

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Seven million years of glaciation in Greenland HC Larsen, AD Saunders, PD Clift, J Beget, W Wei, S Spezzaferri, JR Ali, ... Science 264 (5161), 952-955	279	1994
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Origin and motion history of the Philippine Sea Plate: evidence from eastern Indonesia R Hall, JR Ali, CD Anderson, SJ Baker Tectonophysics 251 (1), 229-250	276	1995
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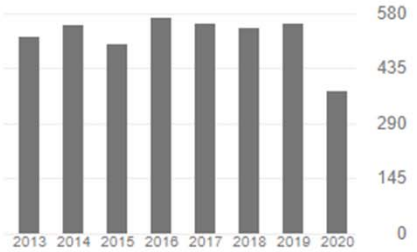

H-Index = 43

Well-cited papers where my involvement was small to minimal

Aubry, M.P., Ouda, K., Dupuis, C., Berggren, W.A., Van Couvering, J.A., **Ali, J.R.** et al. 2007. The global standard stratotype-section and point for the base of the Eocene Series in the Dababiya section (Egypt). *Episodes*, **30**, 271–286.

ODP Leg 152 Shipboard Scientific Party (inc. **Ali, J.R.**). 1994. Seven million years of glaciation on Greenland. *Science*, **264**, 952–955.

Wignall, P.B., Sun, Y.D., Bond, D.P.G., Izon, G., Newton, R.J., Védrine, S., Widdowson, M., **Ali, J.R.**, Lai, X.L., Jiang, H.S. Cope, H. & Bottrell, S.H. 2009. Volcanism, mass extinction, and carbon isotope fluctuations in the Middle Permian of China. *Science*, **324**, 1179–1182.

The eleven-publication “black hole”

TITLE	CITED BY	YEAR
Emeishan Basalt Ar–Ar overprint ages define several tectonic events that affected the western Yangtze platform in the Mesozoic and Cenozoic JR Ali, CH Lo, GM Thompson, XY Song Journal of Asian Earth Sciences 23 (2), 163-178	82	2004
Colonizing the Caribbean: is the GAARlandia land-bridge hypothesis gaining a foothold? JR Ali Journal of Biogeography 39 (3), 431-433	79	2012
Palaeoenvironmental change during the end-Guadalupian (Permian) mass extinction in Sichuan, China XL Lai, W Wang, PB Wignall, DPG Bond, HS Jiang, JR Ali, EH John, ... Palaeogeography, Palaeoclimatology, Palaeoecology 269 (1), 78-93	78	2008
Cenozoic Plate interaction of the Australia and Philippine Sea Plates: "hit-and-run" tectonics M Pubellier, JR Ali, C Monnier Tectonophysics 363 (3), 181-199	76	2003
New observations on the sedimentary and tectonic evolution of the Tertiary Kutai Basin, East Kalimantan SJ Moss, J Chambers, I Cloke, D Satria, JR Ali, SJ Baker, J Milsom, ... Geological Society of London Special Publication 126, 395-416	75	1997
Imperfect isolation: factors and filters shaping Madagascar's extant vertebrate fauna KE Samonds, LR Godfrey, JR Ali, SM Goodman, M Vences, ... PLOS ONE 8 (1), Art. No. e62086	74	2013
Neotethys and the India-Asia collision: insights from a palaeomagnetic study of the Dazhuqu ophiolite, southern Tibet AV Abrajevitch, JR Ali*, JC Aitchison, AM Davis, J Liu, SV Ziabrev Earth and Planetary Science Letters 233 (1), 87-102	74	2005
Emeishan Basalts, SW China: reappraisal of the formation's type area stratigraphy and a discussion of its significance as a large igneous province GM Thompson, JR Ali*, XY Song, DW Jolley Journal of the Geological Society of London 158 (4), 593-599	74	2001
Stratigraphic and sedimentological constraints on the age and tectonic evolution of the Neotethyan ophiolites along the Yarlung Tsangpo suture zone, Tibet JC Aitchison, AM Davis, AV Abrajevitch, JR Ali, J Liu, H Luo, ... Geological Society of London Special Publication 218, 147-164	72 *	2003
Explanatory notes HC Larsen, AD Saunders, PD Clift, JR Ali, J Beget, H Cambray, A Demant, ... Proceedings of the Ocean Drilling Program - Initial Reports 152, 17-39	71	1994
New SW Pacific tectonic model: cyclical intraoceanic magmatic arc construction and near-coeval emplacement along the Australia-Pacific margin in the Cenozoic SA Whattam, JG Malpas, JR Ali, IEM Smith Geochemistry, Geophysics, Geosystems 9, Art. No. Q03021	66	2008
Shoshonites in southern Tibet record Late Jurassic rifting of a Tethyan intraoceanic island arc JC Aitchison, IRC McDermid, JR Ali, AM Davis, SV Ziabrev The Journal of Geology 115 (2), 197-213	64	2007
North Luzon and the Philippine Sea Plate motion model: insights following paleomagnetic, structural, and age-dating investigations KL Queaño, JR Ali, J Milsom, JC Aitchison, M Pubellier Journal of Geophysical Research 112, B05101	63	2007
Kerguelen Plateau and the Late Cretaceous southern-continent bioconnection hypothesis: tales from a topographical ocean JR Ali, JC Aitchison Journal of Biogeography 36 (9), 1778-1784	60	2009

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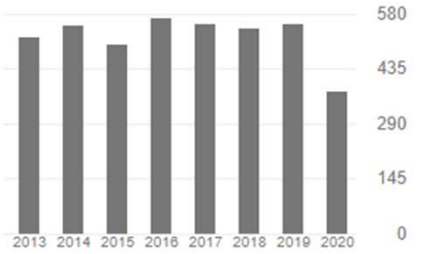

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H-Index = 43

Weighted H-Index = 13.8

Claude Herzberg (H-Index = 45) has a high fraction of single- and first-author publications

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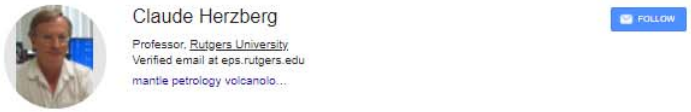

Claude Herzberg

Professor, Rutgers University
Verified email at eps.rutgers.edu
mantle petrology volcanolo...

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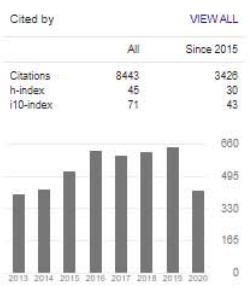
	TITLE	CITED BY	YEAR
1st	Thermal history of the Earth and its petrological expression C Herzberg, K Condie, J Korenaga Earth and Planetary Science Letters 292 (1-2), 79-88	578	2010
1st	Temperatures in ambient mantle and plumes: Constraints from basalts, picrites, and komatiites C Herzberg, PD Asimow, N Arndt, Y Niu, CM Lesher, JG Fitton, ... Geochemistry, Geophysics, Geosystems 8 (2)	567	2007
1st	Plume-associated ultramafic magmas of Phanerozoic age C Herzberg, MJ O'hara Journal of Petrology 43 (10), 1857-1883	416	2002
1st	Petrology of some oceanic island basalts: PRIMELT2. XLS software for primary magma calculation C Herzberg, PD Asimow Geochemistry, Geophysics, Geosystems 9 (9)	369	2008
1st	Melting experiments on anhydrous peridotite KLB-1: Compositions of magmas in the upper mantle and transition zone C Herzberg, J Zhang Journal of Geophysical Research: Solid Earth 101 (B4), 8271-8295	354	1996
	Melting experiments on anhydrous peridotite KLB-1 from 5.0 to 22.5 GPa J Zhang, C Herzberg Journal of Geophysical Research: Solid Earth 99 (B9), 17729-17742	330	1994
Single	Pyroxene geothermometry and geobarometry: experimental and thermodynamic evaluation of some subsolidus phase relations involving pyroxenes in the system CaO-MgO-Al2O3-SiO2 CT Herzberg Geochimica et Cosmochimica Acta 42 (7), 945-957	305	1978
Single	Identification of source lithology in the Hawaiian and Canary Islands: Implications for origins C Herzberg Journal of Petrology 52 (1), 113-146	290	2011
Single	Geodynamic information in peridotite petrology C Herzberg Journal of Petrology 45 (12), 2507-2530	278	2004
Single	Depth and degree of melting of komatiites C Herzberg Journal of Geophysical Research: Solid Earth 97 (B4), 4521-4540	268	1992
1st	Density constraints on the formation of the continental Moho and crust CT Herzberg, WS Fyfe, MJ Carr Contributions to Mineralogy and Petrology 84 (1), 1-5	242	1983
Single	Generation of plume magmas through time: an experimental perspective C Herzberg Chemical Geology 126 (1), 1-16	226	1995
Single	Petrology and thermal structure of the Hawaiian plume from Mauna Kea volcano C Herzberg Nature 444 (7119), 605-609	209	2006
1st	Phase equilibrium constraints on the origin of basalts, picrites, and komatiites C Herzberg, MJ O'hara Earth-Science Reviews 44 (1-2), 39-79	203	1998
1st	Petrological evidence for secular cooling in mantle plumes C Herzberg, E Gazel Nature 458 (7238), 619-622	196	2009
1st	PRIMELT 3 MEGA. XLSM software for primary magma calculation: peridotite primary magma MgO contents from the liquidus to the solidus C Herzberg, PD Asimow Geochemistry, Geophysics, Geosystems 16 (2), 563-578	167	2015



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	All	Since 2015
Citations	8443	3426
h-index	45	30
i10-index	71	43

660
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2013 2014 2015 2016 2017 2018 2019 2020

Co-authors VIEW ALL

- Paul D. Asimow, Professor of Geology and Geoch...
- C Michael Lesher, Laurentian University
- Godfrey Fitton, Professor of Igneous Petrology, ...
- Yaoling Niu, Professor of Earth Sciences, Dur...
- Jun Korenaga, Yale University
- Ali Polat, Professor of Earth and Environm...
- Matt Jackson, Professor, University California S...
- Roberta L. Rudnick, University of California (Santa B...
- Eiji Ohtani, Tohoku University, Professor
- Dennis Geist, Department of Geological Scienc...
- Catherine Chauvel, Institut de Physique du globe de ...
- Paul Raterron, Research Professor, now at NSF
- Tyrone O. Rooney, Associate Professor, Michigan St...
- Ian Bastow, Imperial College, London
- Jason R. Ali, University of Hong Kong *
- Maxim Gavrilenko, Postdoc, Washington University i...
- Dmitri Ionov, Professeur de géochimie, Univer...
- Richard Wendlandt, Professor, Mineralogy and Geoc...
- nicholas arndt, Emeritus Professor, ISTerre, Uni...

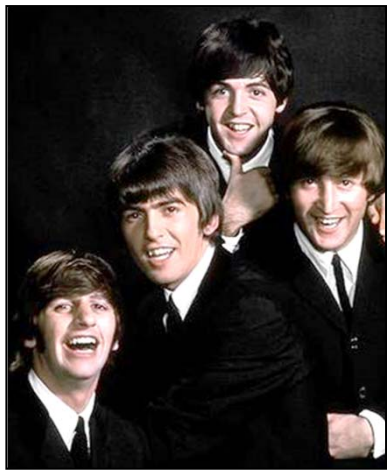
Was not asked to participate in the survey

“Quick and dirty” approximation of the re-calibrated H-Index

Hand size is used by some as a proxy for estimating the size of other, less visible, anatomical features!

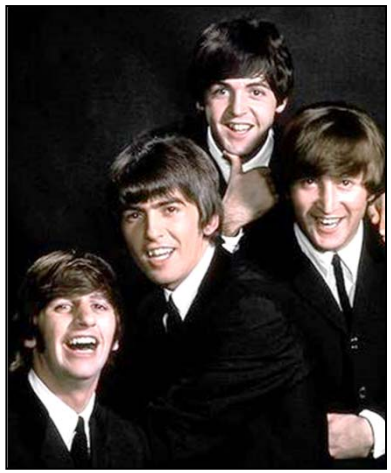
- Of the H-Index “core” publications, simply count those where the researcher is the “first” author.

The Beatles (1960–1970)



- Also known as the “Fab Four” or “John, Paul, George and Ringo”.
- Bulk of the music is credited to “Lennon and McCartney”, even though many records were effectively the creation of just one of them; in the early 2000s McCartney proposed inverting the attribution on specific songs to reflect his leading role.

The Beatles (1960–1970)



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The Beatles (1960–1970)

However, an extra twist is provided when the band's facilitators are considered.

- Long-time producer, George Martin, was known as the "Fifth Beatle".
- Recording engineer, Geoff Emerick, played a key role in developing the band's sound on its later albums: *Revolver* (Aug 1966), *Sgt. Pepper's Lonely Hearts Club Band* (May 1967), and *Abbey Road* (Sep 1969); he walked off the *White Album* (Nov 1968).

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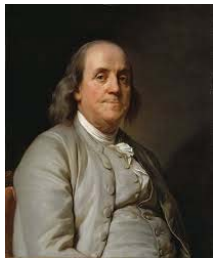
Led Zeppelin (1968–1980)

- Largely in response to the “ownership” issues associated with the *Beatles*, the founder and lead guitarist of *Led Zeppelin*, Jimmy Page, produced all of its albums (studio, live and compilation) and singles.



Benjamin Franklin

"If you would not be forgotten as soon as you are dead and rotten, either write things worth reading, or do things worth writing [about]."