Navigate…

Journals and Impact Factor?

Angelo Pio Rossi - Jacobs University Bremen – aprossi.eu

@arosp

Navigate…

Journals & metrics

Angelo Pio Rossi - Jacobs University Bremen – aprossi.eu

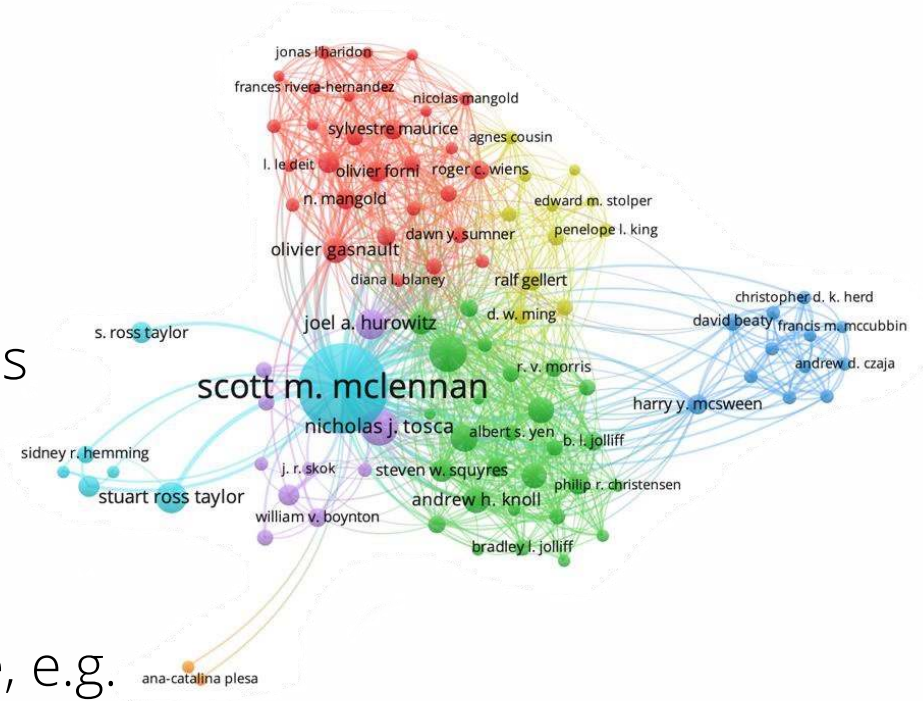
Do not take any part of this talk as "investment advice".

Impact. On What?

- On your specific scientific area?
- On science broadly?
- On society?
- On your career prospects?
- On your tenure?
- On the perspective prestige / budget of your lab / dept?
- On buildings named after you?

Source: Wolgemut (1493)

Bibliometrics



- A variety of scholarly citation metrics developed
- Closed & open databases
- For planetary science ADS is great
- Many resources around to navigate, e.g.
  - https://libguides.hanken.fi/c.php?g=677342&p=4853785
  - https://subjectguides.uwaterloo.ca/c.php?g=695397&p=4931152
  - Play with e.g. https://www.vosviewer.com (Leiden Uni) or just ADS (more later)

See also e.g. https://blogs.lse.ac.uk/impactofsocialsciences/2022/05/27/disambiguating-impact/

Altmetrics

- Measure of reach of science outputs, beyond classic citation metrics
- Recently (last decade..) they became quite popular, implemented by several major publishers.

Priem et al. (2011)

- https://www.altmetric.com
- https://ourresearch.org (formerly impactstory.org)
- https://plumanalytics.com

Altmetrics

Demographic breakdown

Readers by professional status	Count	As %
Student > Ph. D. Student	26	19%
Student > Master	22	16%
Student > Bachelor	21	15%
Researcher	16	12%
Other	6	4%
Other	20	14%
Unknown	28	20%

Readers by discipline	Count	As %
Earth and Planetary Sciences	43	31%
Physics and Astronomy	19	14%
Biochemistry, Genetics and Molecular Biology	13	9%
Agricultural and Biological Sciences	6	4%
Chemistry	6	4%
Other	19	14%
Unknown	33	24%

Source: https://altmetric.com

About this Attention Score

In the top 5% of all research outputs scored by Altmetric

MORE...

Mentioned by

- **494** news outlets
- **25** blogs
- **549** tweeters
- **6** Facebook pages
- **12** Wikipedia pages
- **2** Redditors
- **5** video uploaders

Citations

- **60** Dimensions

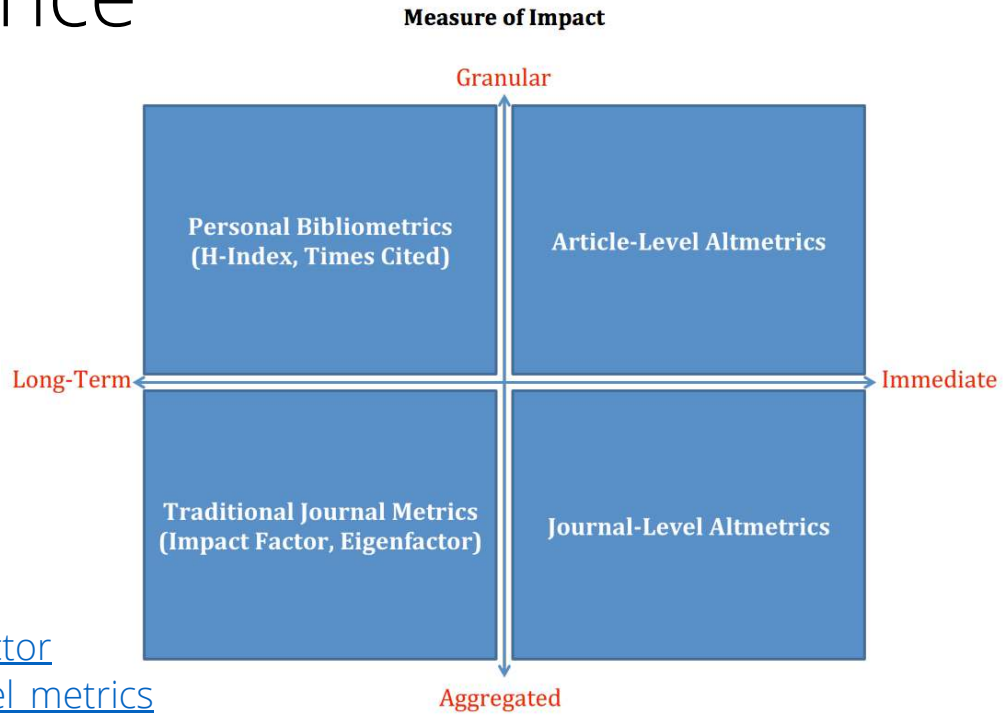
Readers on

- **139** Mendeley

Priem et al. (2011)

Research performance

- Indivdual researcher metrics
- Journal metrics
- Article-level metrics

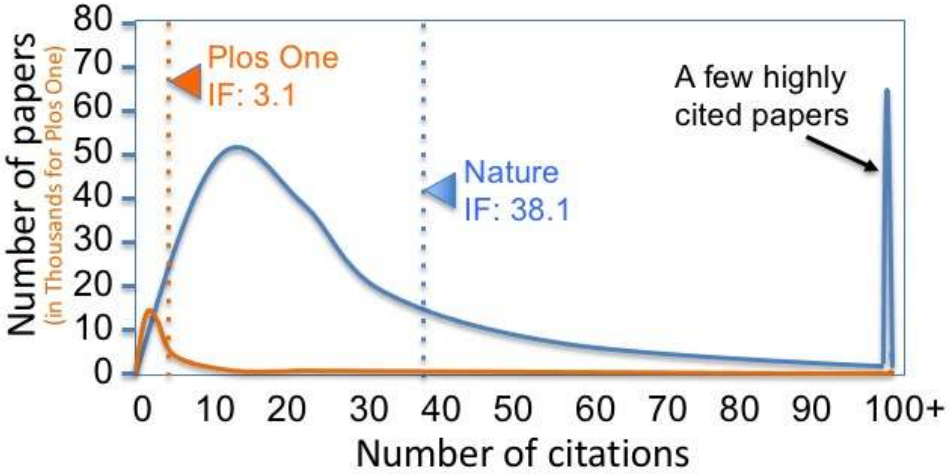


Source: https://sparcopen.org

- See also
  - https://en.wikipedia.org/wiki/Impact_factor
  - https://en.wikipedia.org/wiki/Article-level_metrics
  - https://en.wikipedia.org/wiki/Author-level_metrics

Journal impact factor

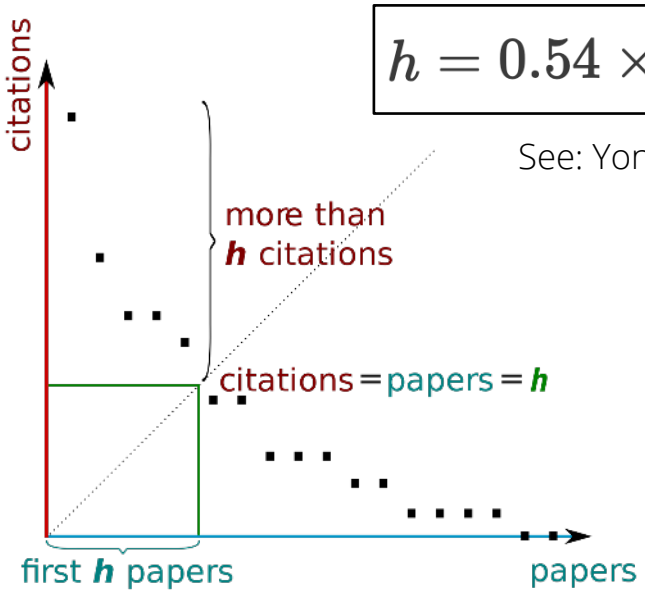
$$\mathrm{IF}_y = \frac{\mathrm{Citations}_y}{\mathrm{Publications}_{y-1} + \mathrm{Publications}_{y-2}}$$



https://en.wikipedia.org/wiki/Impact_factor (and links therein)
https://en.wikipedia.org/wiki/H-index

H-Index

$$h\text{-index } (f) = \max\{i \in \mathbb{N} : f(i) \geq i\}$$



$$h = 0.54 \times N_{\mathrm{tot}}^{1/2}$$

See: Yong (2014)

H-Index

Number of Citations	H-index	Calculated H-index
65345	97	138
59254	96	131
45230	71	115
38773	101	106
36778	93	104
35421	90	102
35200	88	101
34563	82	100
32553	90	97
31814	86	96
31724	67	96
30785	96	95
29389	86	93
28533	83	91
26791	85	88
26703	83	88
25671	88	87

Source: Google Scholar for top-cited "planetary science" individuals
https://scholar.google.com/citations?view_op=search_authors&hl=en&mauthors=label:planetary_science

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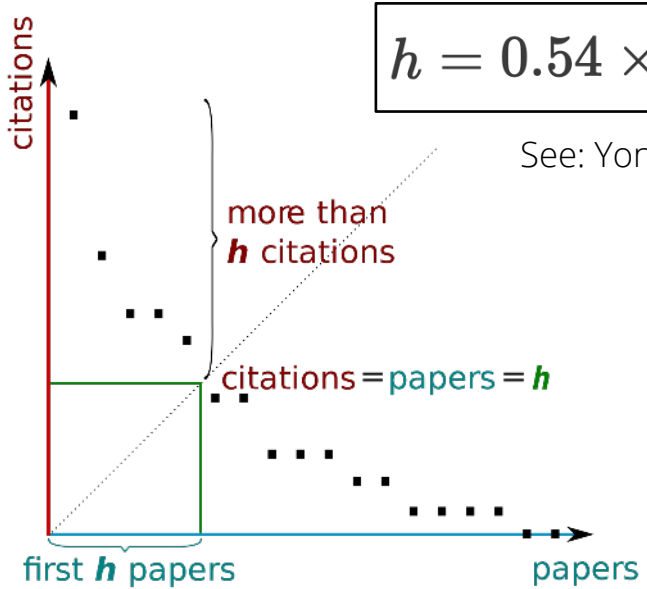
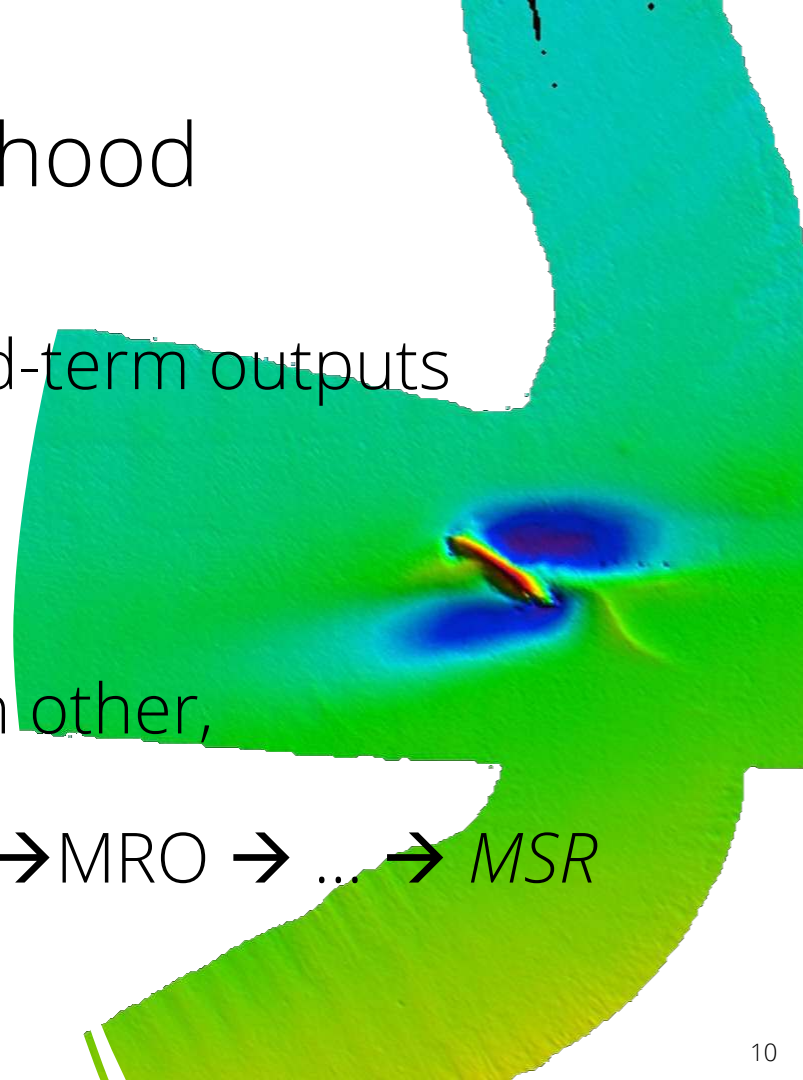
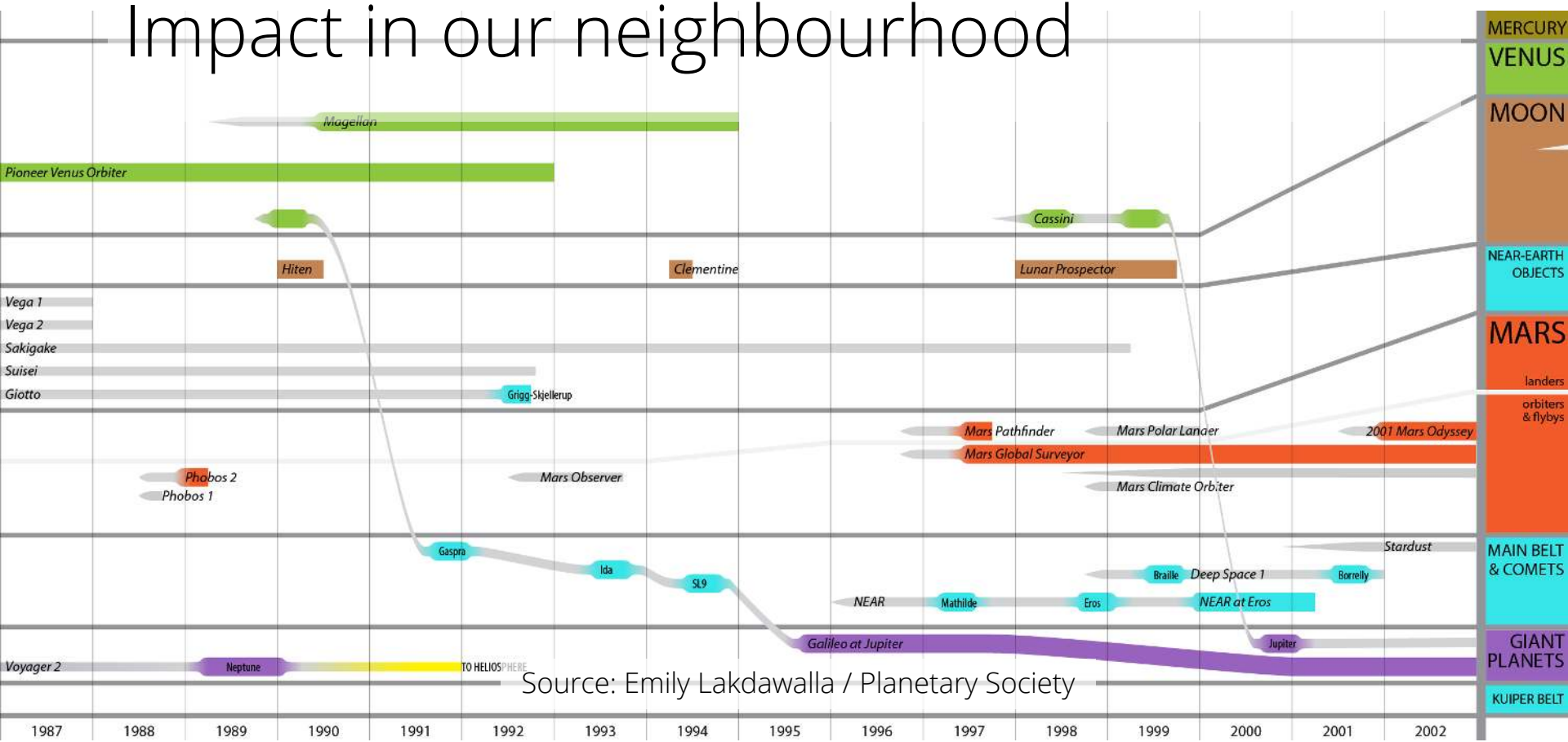


Impact in our neighbourhood

- Planetary science short- & mid-term outputs in **waves** → active missions (e.g. Magellan, Galileo)
- Each wave **fades**
- if many missions close to each other, waves **coalesce** and **sustain** e.g. @Mars MGS→ODY→MEX→MRO → … → *MSR*

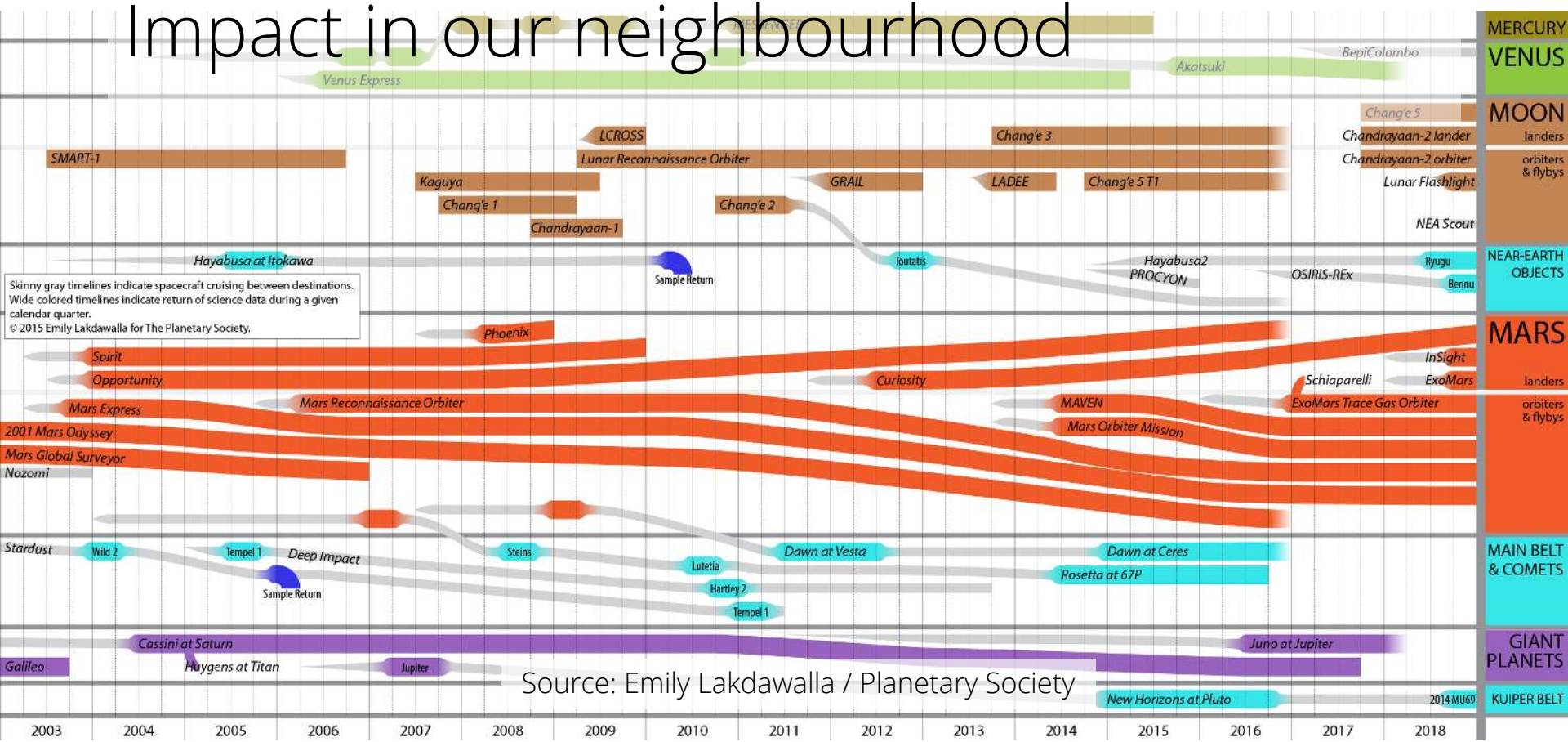


Impact in our neighbourhood



Source: Emily Lakdawalla / Planetary Society

Impact in our neighbourhood

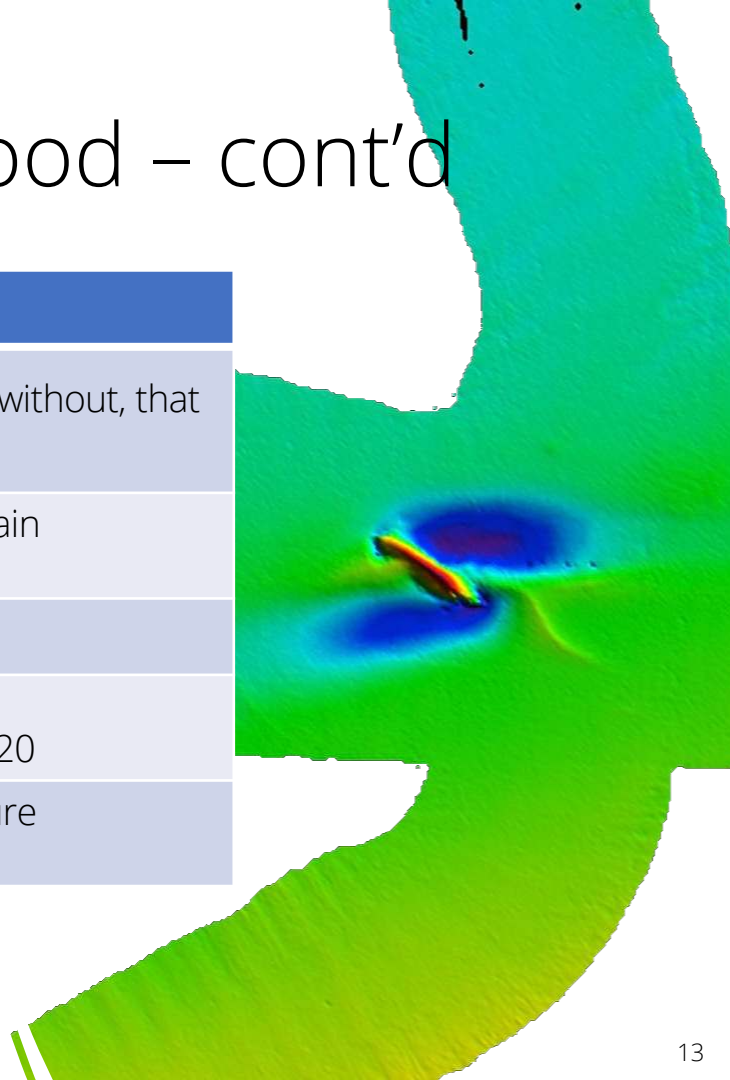


Source: Emily Lakdawalla / Planetary Society

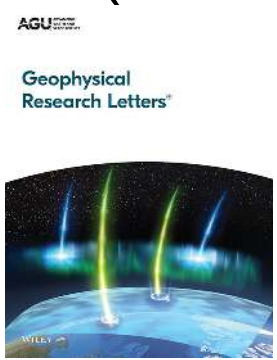
Impact in our neighbourhood – cont'd

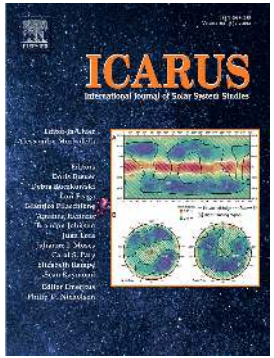
Paper	Impact	Example
Ignored for years / forever	Low / none …	A paper, with merit or without, that is just plain ignored
Impact on individual basis	Low	Idea influencing a certain work/individual
Impact on sub-community	Medium	
Impact on new missions /landing sites / objects	High / very high	e.g. MGS → MER MRO → MSL / Mars2020
Broad, long-term impact	Very high	…you cannot tell for sure what/when

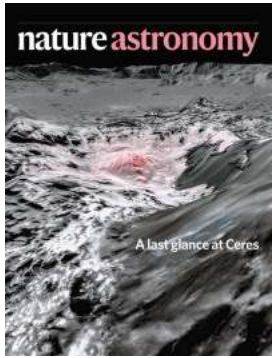
CAVEAT: not exhaustive

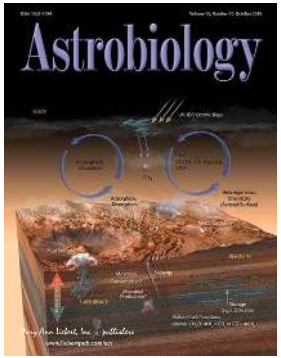


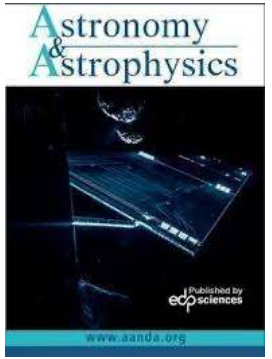
(Few of the) Journals in Planetary Science











(Just exemplary (please don't get annoyed if your favourite journal is not depicted)

Gaming metrics

Who (e.g.)	Sample trick
Editors	e.g. increase IF (e.g. suggesting to quote recent things published in their journal, or through invited reviews / serially connected special issues, etc.
Reviewers	increase their author-level metrics
Authors	self-citation (not so effective) or citation rings

CAVEAT: not exhaustive

- KPI / bibliometrics may have all legitimate reasons (“what do we get for what we pay?” / “is this research project going well or according to plan?”)
- All metrics once are in place and used, can be manipulated, to a variable extent

See also https://en.wikipedia.org/wiki/Author-level_metrics#Criticism and ref. therein
See also https://en.wikipedia.org/wiki/Goodhart%27s_law

Geeking metrics (funnier than gaming)

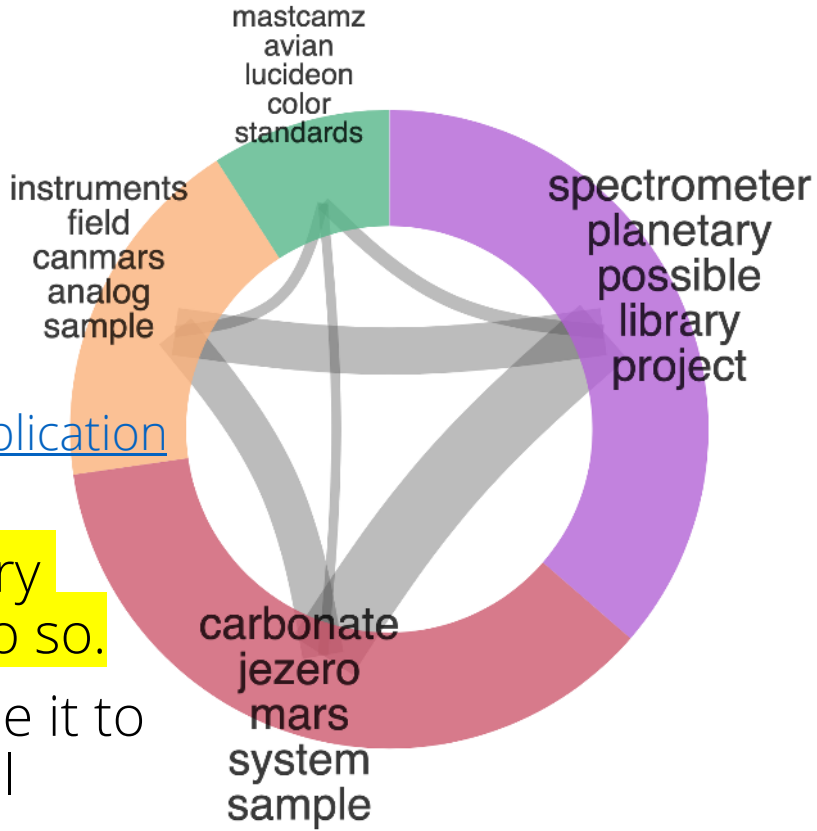
- https://snowboat.medium.com/what-is-the-h-index-explanation-with-code-e57c7a108a6d
- https://davetang.org/muse/2014/09/16/calculating-h-index/
- https://api-lab.dimensions.ai/cookbooks/7-researchers/Calculating-the-H-Index-of-a-researcher.html
- https://github.com/topics/bibliometrics
- https://github.com/topics/bibliometric-analysis
- https://github.com/napsternxg/awesome-scholarly-data-analysis
- https://www.vosviewer.com
- https://www.citnetexplorer.nl

CAVEAT: not exhaustive

ADS, et al.

- See also:
  - https://ui.adsabs.harvard.edu
  - https://app.dimensions.ai/discover/publication

- Long story short: ADS is nice and very useful → If not using it yet, please do so.
- No, you don't need necessarily to use it to measure your author- or article-level metrics…

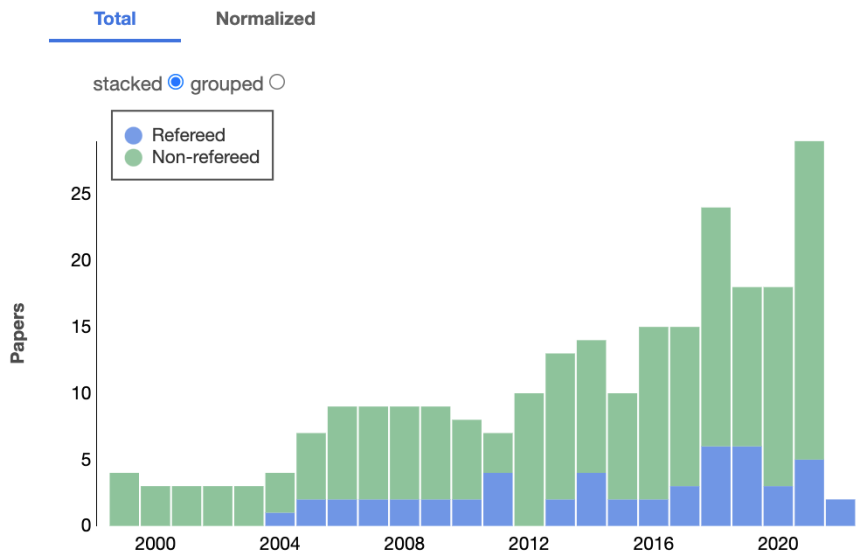


Source: ADS
https://ui.adsabs.harvard.edu/search/q=mars2020&sort=date%20desc%2C%20bibcode%20desc/paper-network

ADS, et al.

Papers

	Totals	Refereed
Number of papers	246	52
Normalized paper count	46.9	9.2

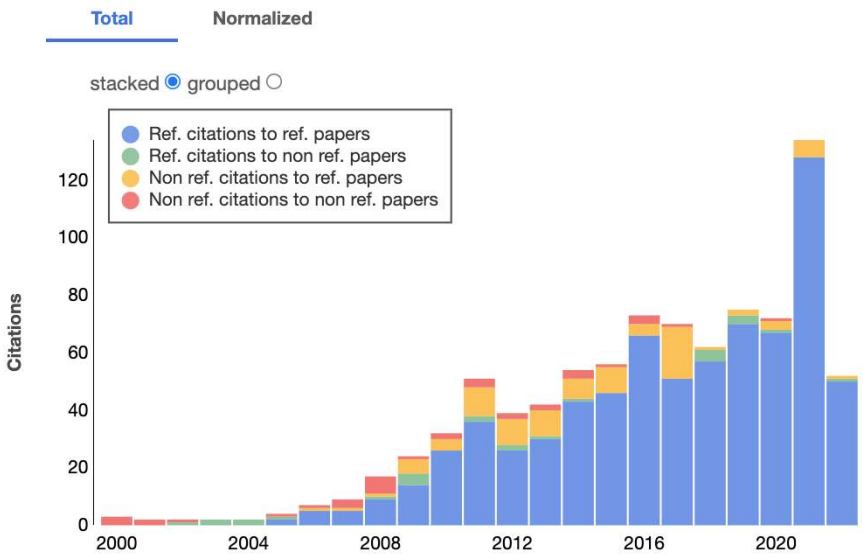


Source: Astrophysics Data System

ADS, et al.

Citations

	Totals	Refereed
Number of citing papers	686	645
Total citations	884	822
Number of self-citations	122	96
Average citations	3.6	15.8
Median citations	0	8
Normalized citations	155.1	142.0
Refereed citations	757	731
Average refereed citations	3.1	14.1
Median refereed citations	0	7
Normalized refereed citations	130.9	124.8

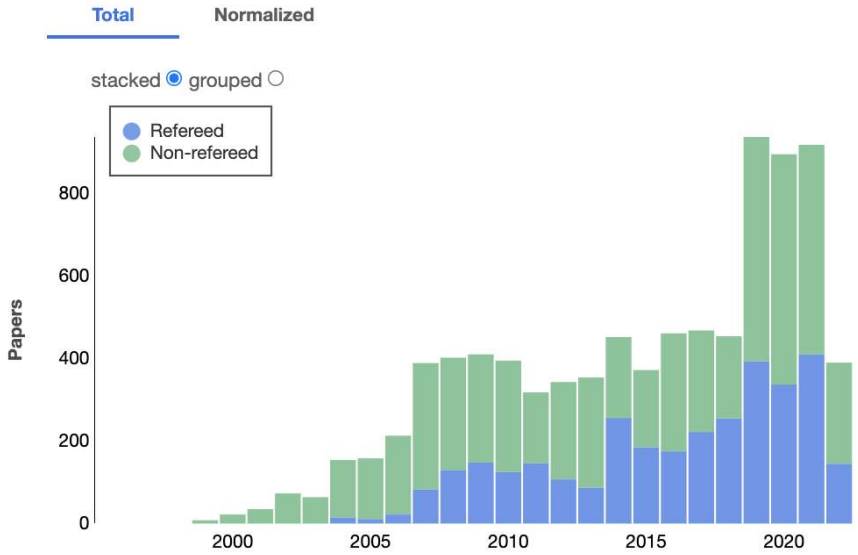


Source: Astrophysics Data System

ADS, et al.

Reads

	Totals	Refereed
Total number of reads	8685	3252
Average number of reads	35	62
Median number of reads	23	43
Total number of downloads	3502	1288
Average number of downloads	14.4	24.8
Median number of downloads	7.5	7.5

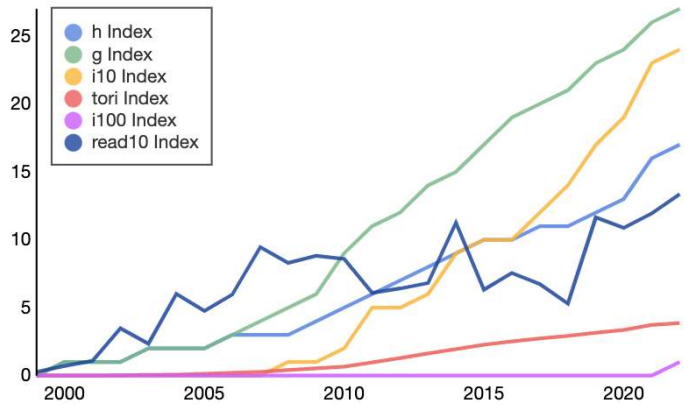


Source: Astrophysics Data System

ADS, et al.

Indices

	Totals	Refereed
h-index	17	17
m-index	0.7	0.7
g-index	27	27
i10-index	24	24
i100-index	1	1
tori index	3.9	3.4
riq index	81	77
read10-index	133.5	46.7



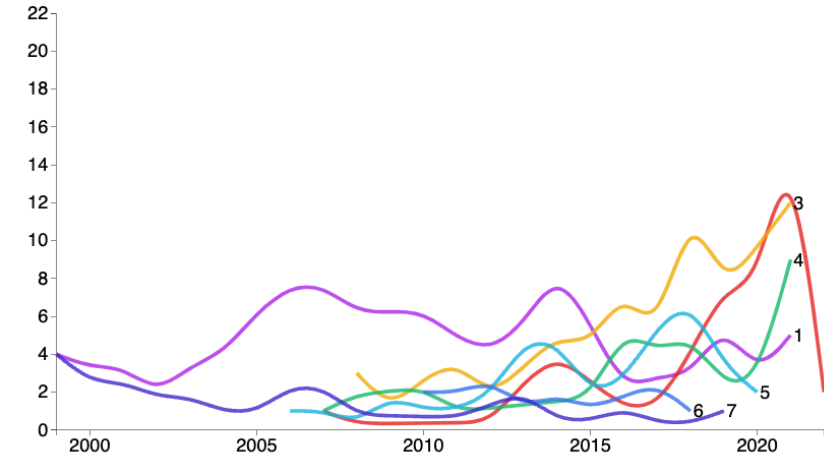
Source: Astrophysics Data System

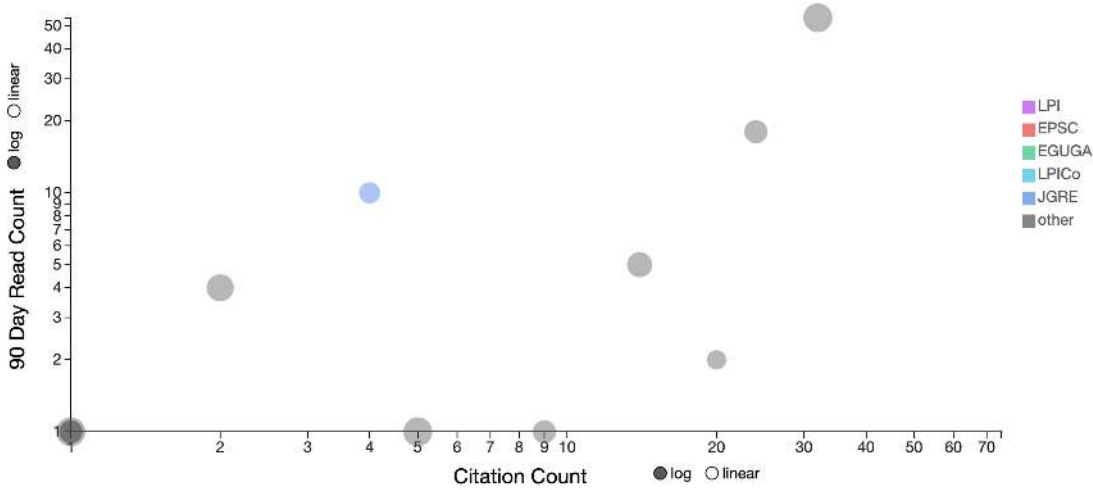
ADS, et al.

Author Network

This network visualization finds groups of authors within your search results. Yo can click on the segments to view the papers connected with a group or a particular author.

Group Activity Over Time (measured in papers published)





Source: Astrophysics Data System

A little SITG

- All such links, including altmetrics, or hastags, help in various ways **discoverability (at different timescales)**
- Whether stuff is useful or quoted is something else.
- Discoverability is **necessary but not sufficient**

Publications

Google Scholar profile - ADS author query - ResearcherID - Scopus ID - ORCID - ScienceOpen - ResearchGate - Publons - Impactstory

Books

Rossi, A. P., and van Gasselt, S. editors (2018) Planetary Geology, 441 p., ISBN: 978-3-319-65177-4, ISSN: 2366-0082, DOI: 10.1007/978-3-319-65179-8, Astronomy and Planetary Sciences series. Order - Google Books preview

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Reiss, D., Lorenz, R., Balme, M., Neakrase, L., **Rossi, A. P.**, Spiga, A., Zarnecki J. editors (2017) Dust Devils, Springer Science+Business Media B.V., 426 p., ISBN: 978-94-024-1133-1, ISSN: 1385-7525, Space Sciences Series of ISSI #59.

Altmetric 4

Journal articles and book chapters

Marco Figuera, R., Riedel, C., **Rossi, A. P.**, Unnithan, V. (2022) Depth to Diameter Analysis on Small Simple Craters at the Lunar South Pole—Possible Implications for Ice Harboring. Remote Sens., 14, 450, DOI: 10.3390/rs14030450.

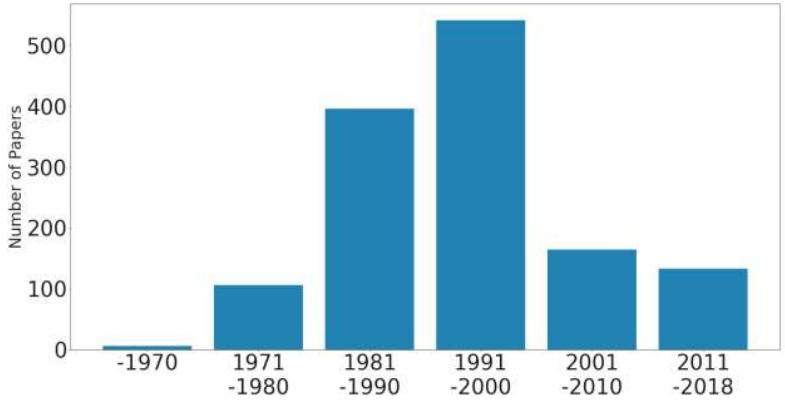
Altmetric

Wormnes, K. Carey, W., Krueger, T., Cencetti, L., den Exter, E., Ennis, S. Ferreira, E., Fortunato, A., Gerdes, L., Hann, L., Lombardi, C., Luzzi, E., Martin, S., Massironi, M., Payler, S., Pereira, A., **Rossi, A. P.**, Pozzobon, R., Sauro, F., Schoonejans, P., van der Hulst, F., Grenouilleau, J. (2022) ANALOG-1 ISS – The first part of an analogue mission to guide ESA's robotic moon exploration efforts, Open Astronomy, DOI: 10.1515/astro-2022-0002.

Altmetric 67

Source: https://aprossi.eu/publications.html

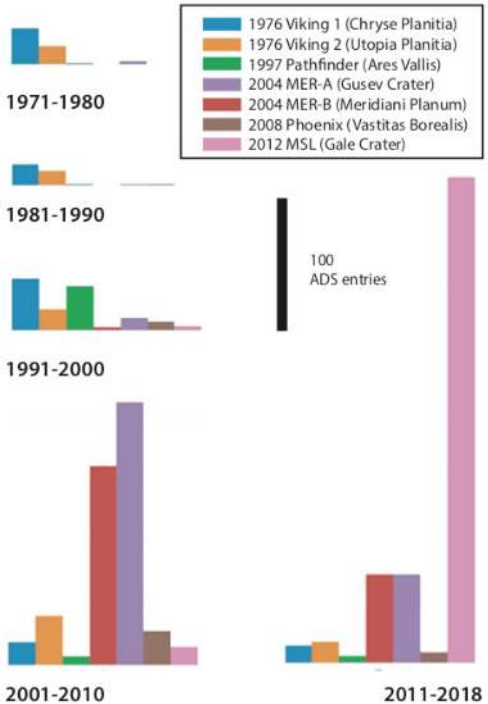
A little SITG



ADS entries on Venus surface features throught time (1860-2018): peaks linked to Venera and Magellan missions are visible

Source: Rossi et al. (2018)

Figure 2: Early prototype of geo-bibliometrics integration on a web mapping platform (Mars).



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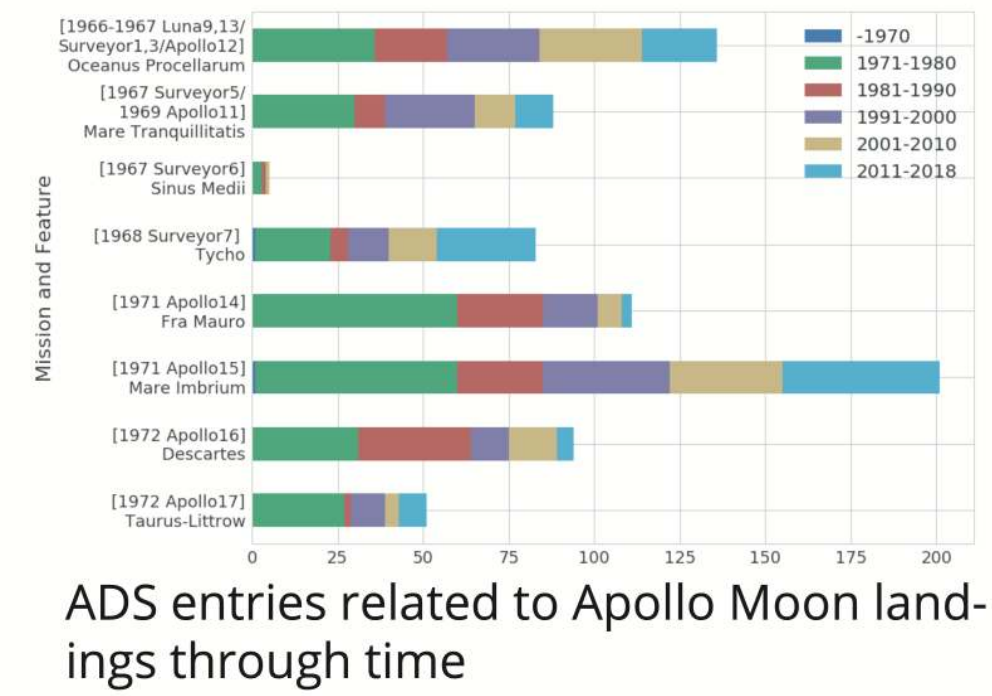

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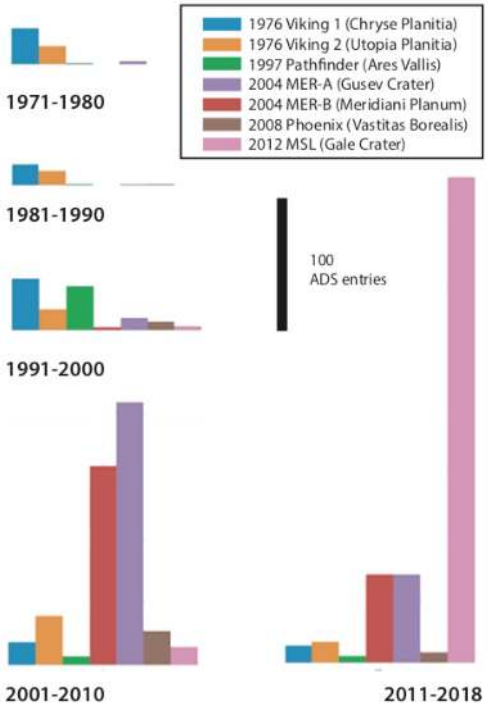

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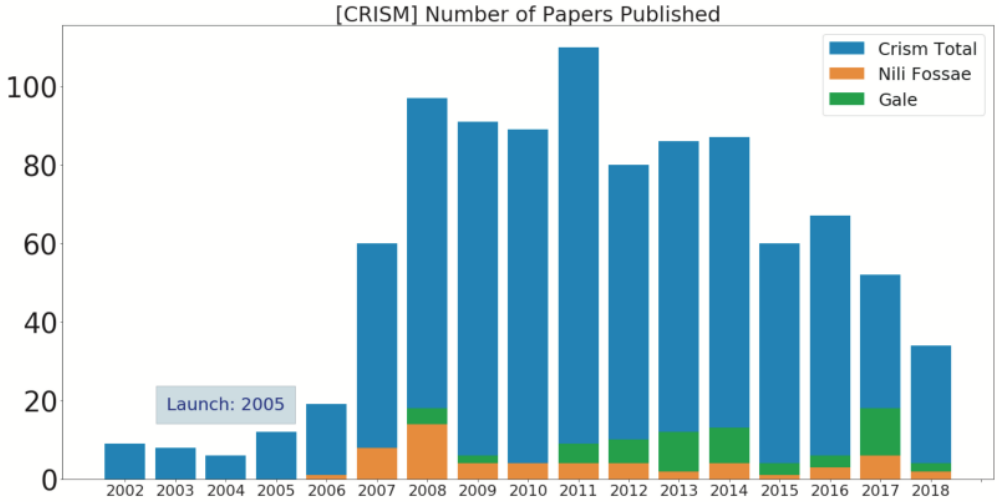

Exemplary experiment-based paper (CRISM in title) vs. years, globally on Mars and for Nili Fossae.

Source: Rossi et al. (2018)

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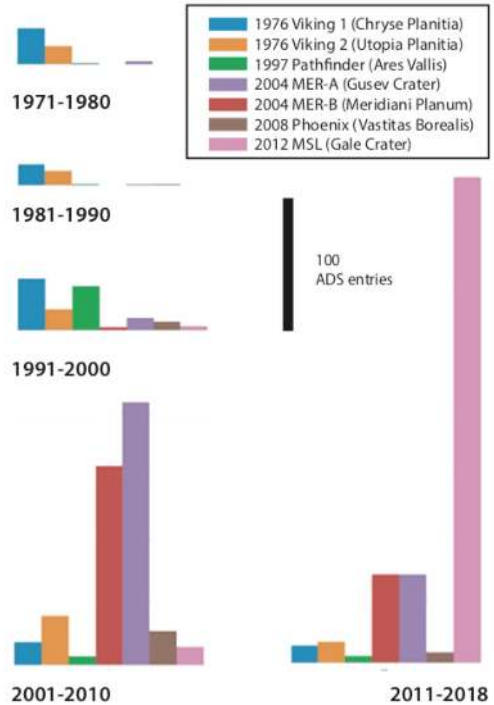


Preprints (or postprints)

- ArXiv → pioneering
- EarthArXiv
- *rXiv → several (med-, bio-)
- Essoair (AGU)
- SSRN (Elsevier)
- Preprints.org (MDPI)
- Google Scholar (does it too, somehow..)
- …

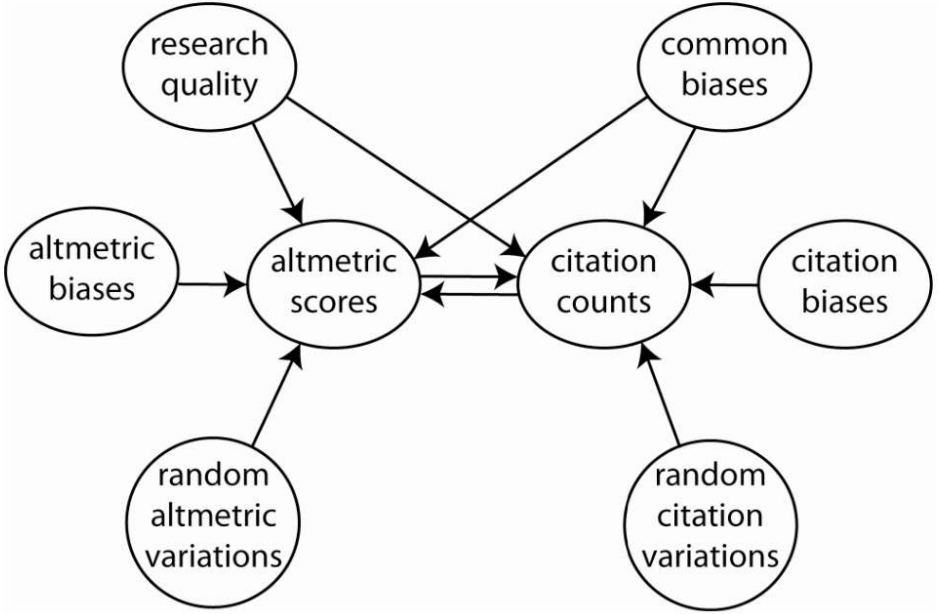
https://arxiv.org

https://eartharxiv.org

See also: https://asapbio.org/preprint-servers

What increases what?

- Altmetric (short-term, mostly)
  - Importance
  - PR effort
  - Luck / randomness
- Bibliometrics (mid- & long-ter
  - Importance
  - PR effort / privilege
  - Luck / randomness
- Long-term impact
  - Importance, largely



Sud &Thelwall (2014)

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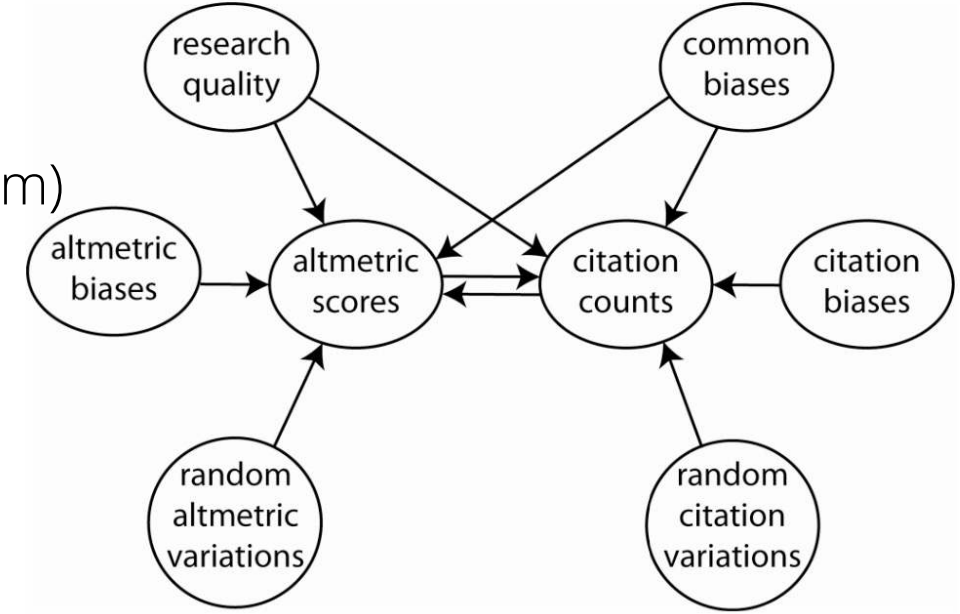
For experimentalists:
→ Being part of instrument teams = impact investment (trading some freedom with "rules of the road")

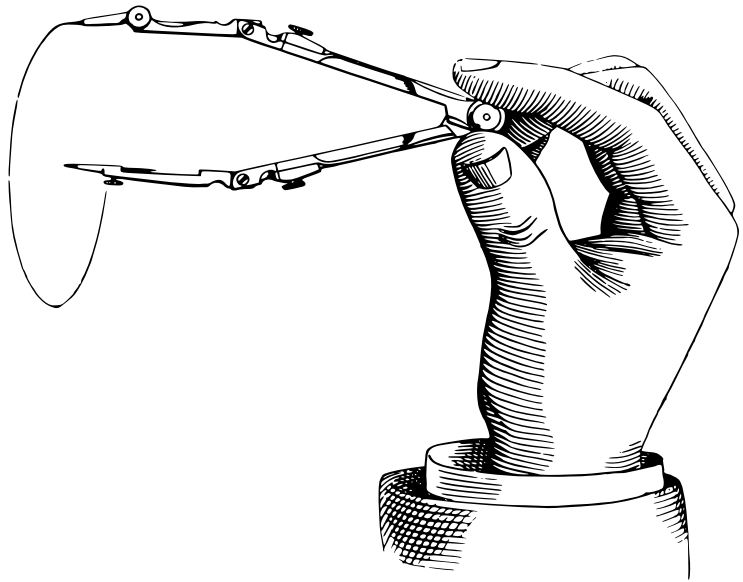


Sud &Thelwall (2014)

Take-home (if you wish)

- Conformism vs. necessity
  "*all in my sub-field publish on X*"
- Open + FAIR + discoverable
  (including preprints,
  data/code sharing)

  → easier short- and medium-term impact.
- Metrics can help discovering and provide insight (see ADS)
- Metrics can – and will - be used against you



See also: https://sfdora.org/resource/the-leiden-manifesto-for-research-metrics/

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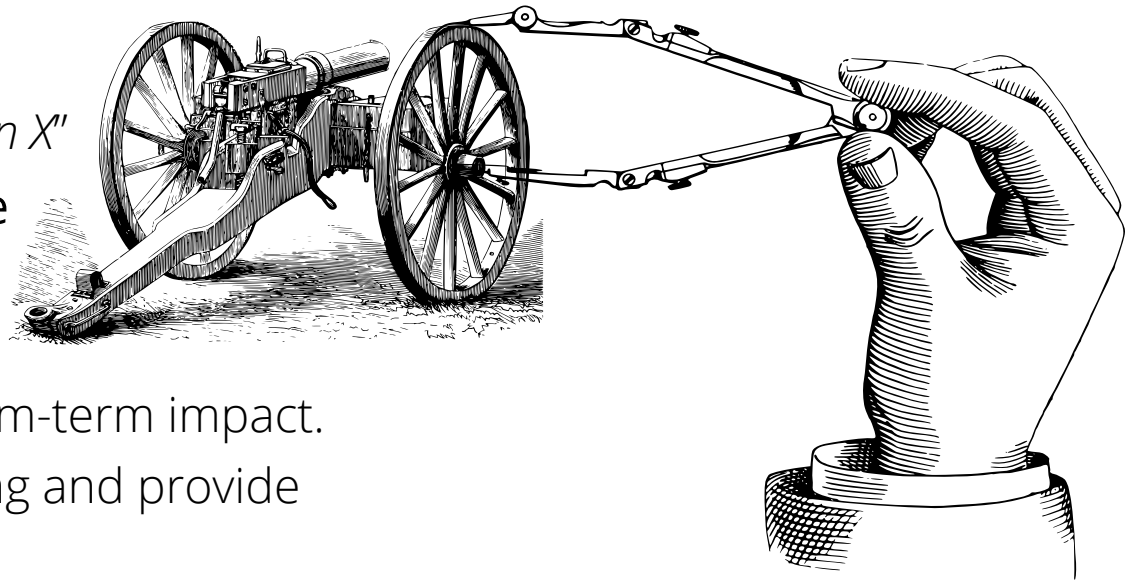

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But… Impact is also (short- / mid- / long-term)

→Supporting those you work with (and those you don't)

→Overall, trying to imagine being in someone else's shoes…

→Not being a **** + Not rewarding **** behaviour

+ Impact is also elsewhere… See also the 2022 Europlanet Society seminar:
https://www.europlanet-society.org/europlanet-society-webinar-22-february-2022-pathway-to-writing-proposals-with-impact/

Good luck with whatever you do with this.

Source: ESA/HRSC/DLR/FU Berlin