A Bibliometrics Analysis of GMD Publications, 2010-2018
S. Visser1,2 sue.visser@noaa.gov
1FedWriters, Fairfax, VA 22030; 2NOAA Earth System Research Laboratory (ESRL), Boulder, CO 80305

Introduction

Bibliometrics – the quantitative analysis of publication and citation data – is an evolving field that is gaining attention among administrators as a means of measuring scientific value and impact. When used in conjunction with qualitative measures such as peer review, bibliometrics is a useful tool for evaluating research.

Bibliometrics assumes that citation counts are a reasonable proxy for research quality. While quality is a complex notion that cannot easily be quantified, a substantial body of research has shown a weak to strong correlation between citation data and peer review(1,2).

The Boulder Labs Library analysis of 712 peer-reviewed publications authored by NOAA’s Global Monitoring Division demonstrates that GMD’s research has a significant influence not only in the scientific community, but also in many areas of human life and society.

Standard Indicators

<table>
<thead>
<tr>
<th>Summary Metrics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of publications</td>
<td>712</td>
</tr>
<tr>
<td>Average citations per publication</td>
<td>36</td>
</tr>
<tr>
<td>Group h-index</td>
<td>76</td>
</tr>
<tr>
<td>Total times cited / minus self-citations</td>
<td>25,649 / 22,941</td>
</tr>
<tr>
<td>Total number of citing publications / minus self citations</td>
<td>16,375 / 13,613</td>
</tr>
</tbody>
</table>

Standard indicators of productivity. Note that due to lag times in reporting and indexing, 2018 data are preliminary and likely not indicative of the total number of publications and citations for that year.

Citations per year includes citations to all GMD publications, published from 1972-2018.

Evaluation Indicators

Standard productivity indicators measure research output, but they lack context. Evaluative indicators help us understand how GMD’s metrics compare to other research groups in the same discipline. Baseline metrics are derived from the average citation performance of all papers in the same research category, for the same time period. In nearly all categories and metrics, GMD’s performance significantly exceeds the baseline.

Evaluative Indicators

Interdisciplinary Impact

Citations to GMD research are plentiful in the expected scientific categories, but also appear in a wide range of disciplines such as:

- **public health** (Environmental variables associated with vacationers’ sun protection ... , 2016)
- **hospitality & tourism** (Communicating sustainability priorities in the museum sector, 2015)
- **law** (Remedying regulatory diseconomies of scale, 2014)
- **food industry** (Monitoring gas-phase CO2 in the headspace of champagne glasses..., 2018)
- **political science** (Climate science and slow violence: A view from geopolitical..., 2016).

Since publication, this paper has been cited:

- more than 98 times per year
- by authors in 85 countries
- in over 400 journals.

It has been mentioned in reports and policy documents by organizations such as the National Research Council, the IPCC, and the European Union, as well as textbooks, dissertations, and encyclopedias.

References


About the Boulder Labs Library

The Boulder Labs Library supports the scientific research missions of NIST, NOAA, and NTIA in Boulder, by providing a robust collection of electronic and print resources as well as expert research services. Learn more at https://library.bldrdoc.gov/.

Snapshot