A Bibliometric Analysis of GMD Publications, 2010–2018

S. Visser[1,2]

[1]FedWriters, Fairfax, VA 22030; 303-497-5750, E-mail: sue.visser@noaa.gov
[2]NOAA Earth System Research Laboratory (ESRL), Boulder, CO 80305

Bibliometrics – the quantitative analysis of publication and citation data – is an evolving field that is gaining attention among administrators and stakeholders as a tool for measuring scientific value and impact. Traditionally, peer review has been the gold standard for assessment, but because peer review is time-consuming and may be subject to bias, bibliometrics is increasingly seen as an alternative, or companion, method of evaluation.

The study of bibliometrics assumes that citation counts represent a reasonable proxy for research quality. While quality is a complex notion that cannot be easily quantified, a substantial body of research into the validity of bibliometric indicators has shown a weak to strong correlation between citation data and peer review.

The Boulder Labs Library conducted bibliometrics analyses to measure the performance of 712 GMD peer-reviewed publications from 2010–2018. This set of publications has been cited over 25,600 times, by authors in 148 countries. Citations to GMD's work are found in subject areas as wide ranging as law, public health, and the hospitality industry, as well as the expected scientific categories. Furthermore, the results of the analyses indicate that GMD consistently ranks above all baseline bibliometric indicators. These results demonstrate that GMD's research has a significant global impact both in the science of global monitoring and the many aspects of human life that depend on this science.
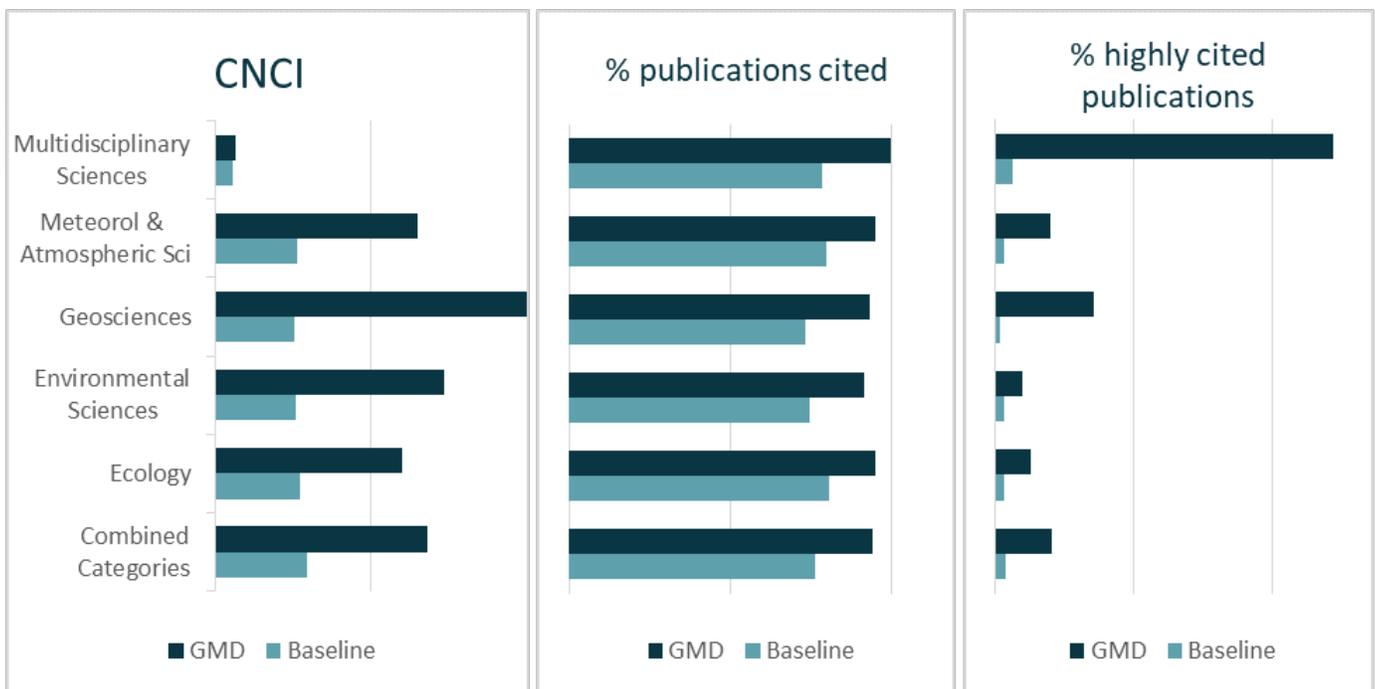
Figure 1. GMD metrics compared to baseline. Baseline metrics are derived from the average citation performance of all papers in the same research category, for the same time period. CNCI (Category Normalized Citation Index) is a normalized indicator where an average performance equals 1; a value above 1 indicates performance above average. In nearly all categories and metrics, GMD's performance significantly exceeds the baseline.