

Community Multiscale Air Quality Modeling System

A 2023 Research Impact Metrics Analysis

CMAQ TEAM

U.S. ENVIRONMENTAL PROTECTION AGENCY



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ABOUT THIS REPORT

This report presents a summary-level bibliometric analysis of the 2023 publications which referred to the Community Multiscale Air Quality Modelling System, or CMAQ. The dataset was generated by a search in the Web of Science Core Collection and All Databases records using the following strategy:

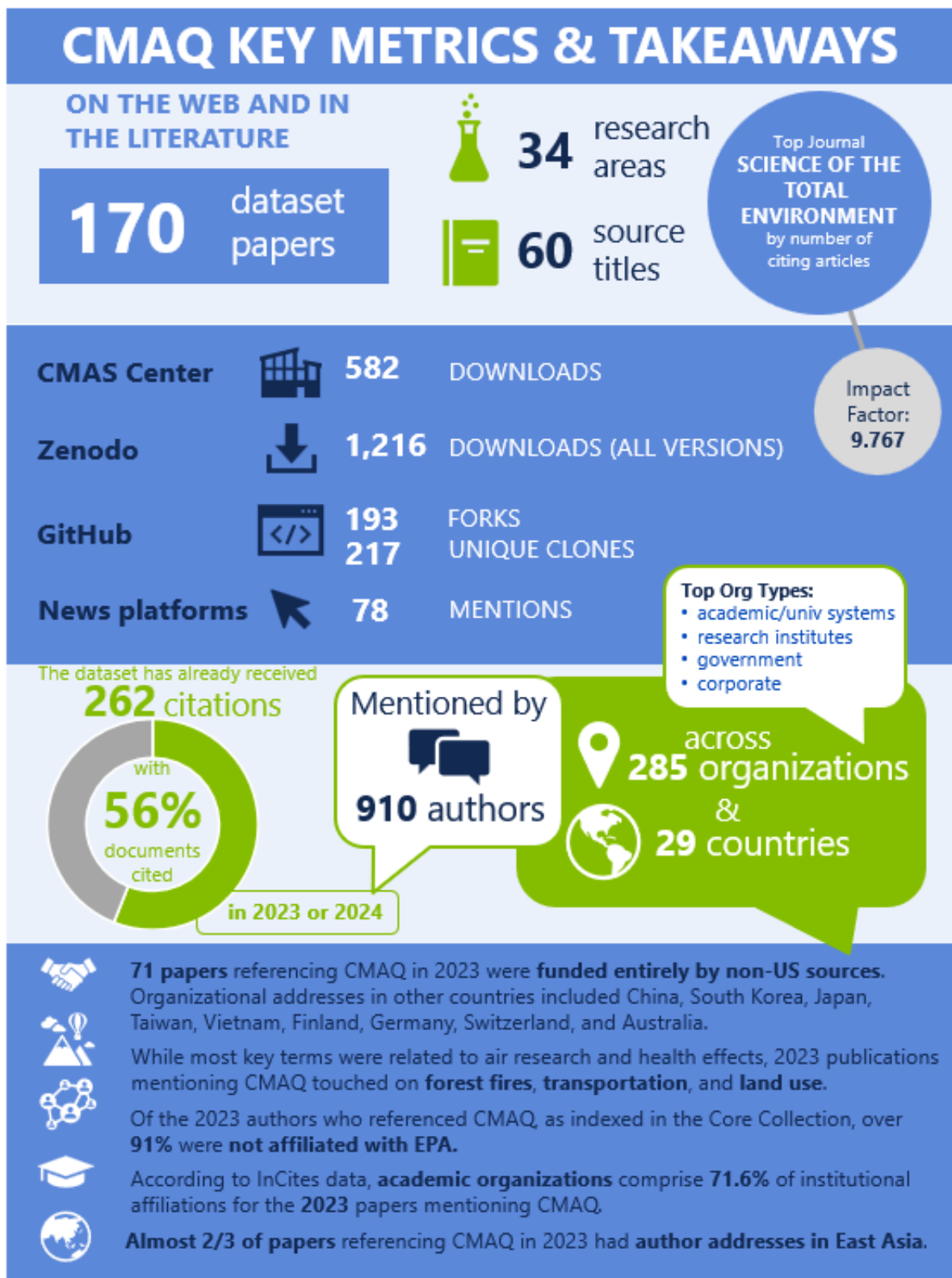
TOPIC=(CMAQ OR "community multiscale air quality" OR "community multi-scale air quality")

where the "TOPIC" field (TS) searches the Web of Science Core Collection records in the title, abstract, keywords, and Keywords Plus® fields.¹

The results (n=170) were collected on 25 January 2024. Analysis was completed using Web of Science Analyze and Citation Report features and InCites. More information about the methodology used and a full listing of the publications evaluated in this report are available upon request to johnson.taylor@epa.gov.

¹ Web of Science Core Collection Help: Advanced Search Field Tags. Accessed from <http://webofscience.help.clarivate.com/Content/wos-core-collection/woscc-search-field-tags.htm>

KEY METRICS & TAKEAWAYS



PUBLICATION ANALYSIS

The following section assesses the 2023 publications comprising the dataset resulting from the CMAQ search detailed on page 2. For clarity, the figures showing the number of publications per research area, journal, institution, and funding agency only list the top 10 results in each category or next tie-breaking threshold.

Journals and Research Areas

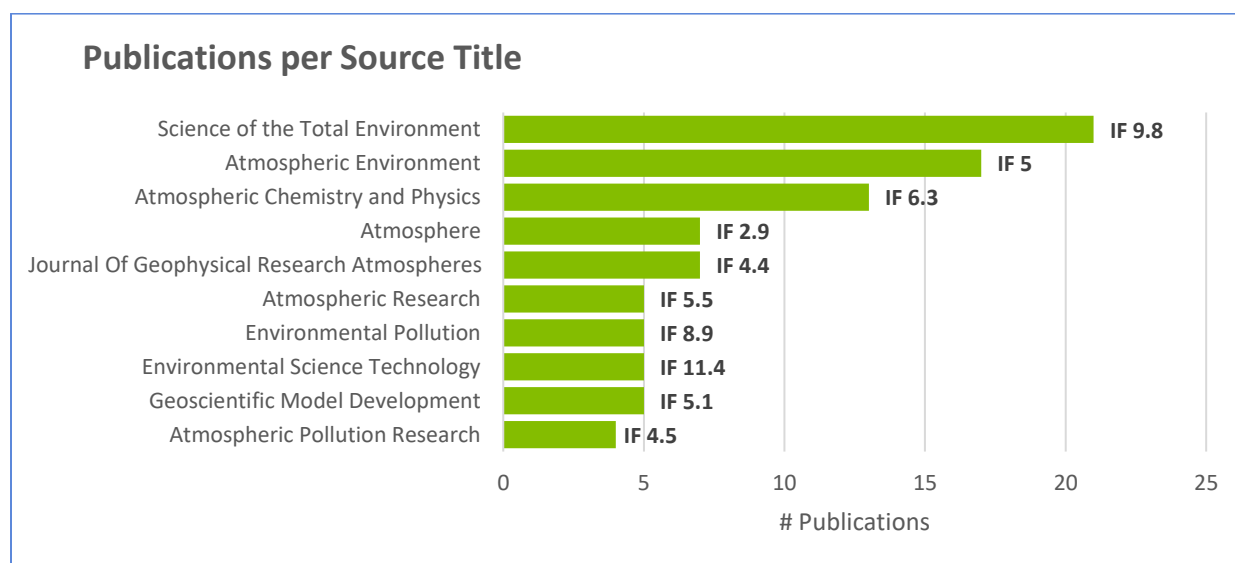


Figure 1: Number of CMAQ publications per journal in Web of Science All Databases with the Journal Impact Factor from JCR.

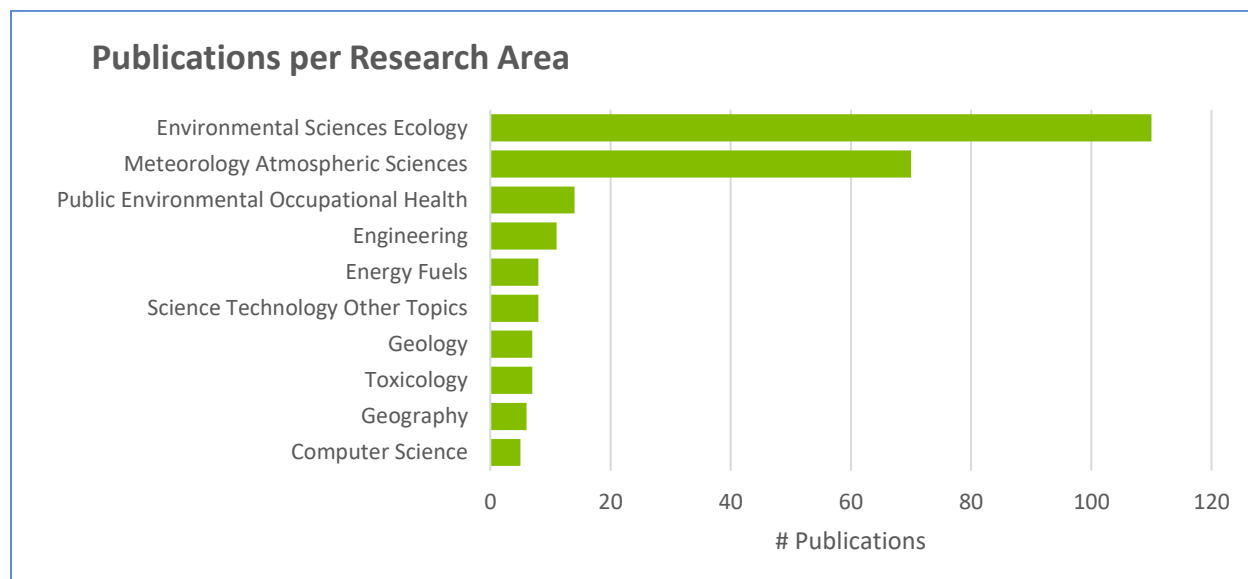


Figure 2: Number of CMAQ publications by the research area assigned by Web of Science Core Collection data to the journals in which the articles were published. These categories are not mutually exclusive.

Funding and Collaborating Organizations

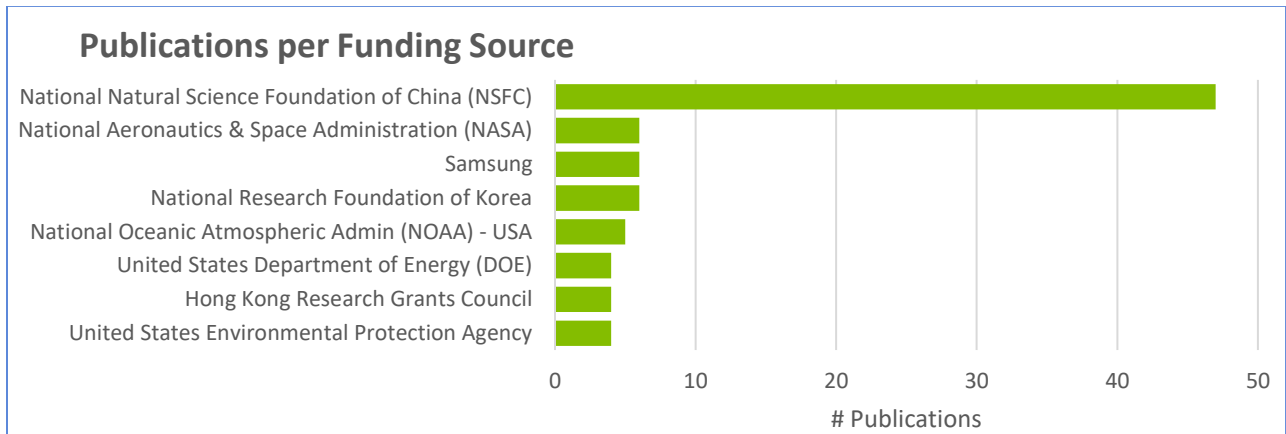


Figure 3: Number of publications per InCites-indexed funding source.

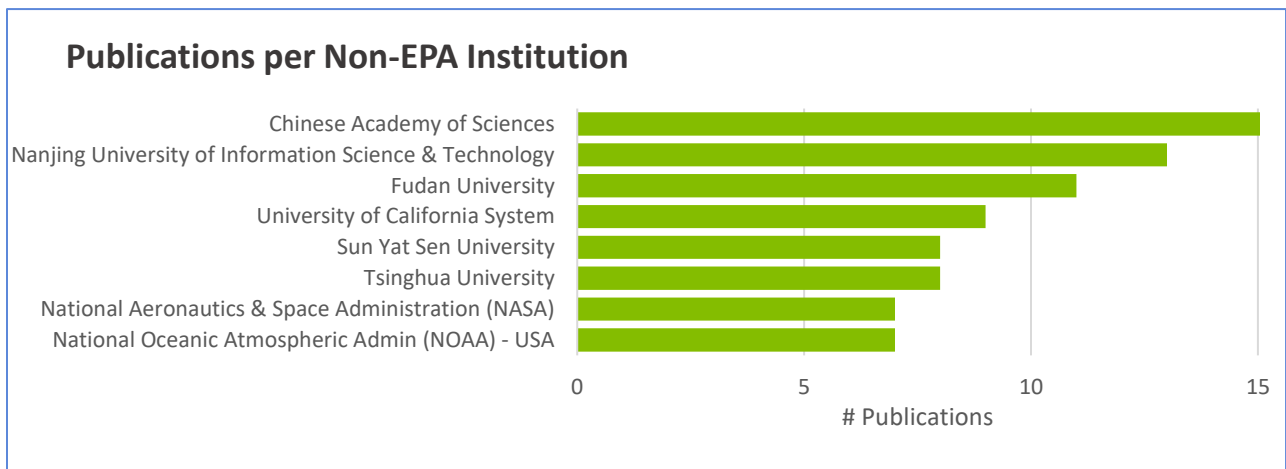


Figure 4: Number of CMAQ publications per non-EPA author-affiliated organization. Articles are counted for an institution if at least one of the article’s authors lists that institution as their affiliation. Compiled from Web of Science Core Collection data.

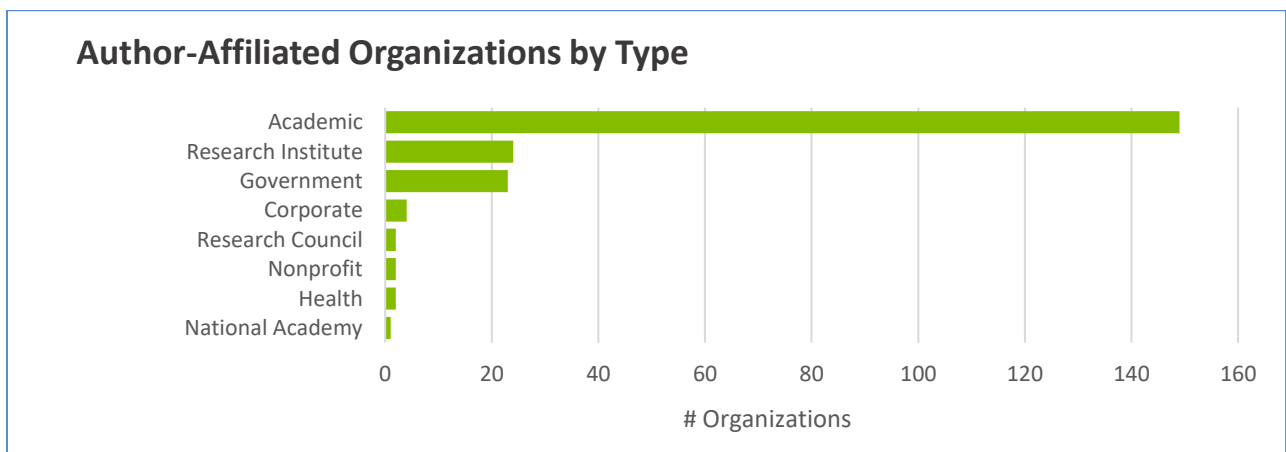


Figure 5: Number of author-affiliated organizations by type of organization. Each institution has been listed by at least one author in the set as an affiliation. Compiled from InCites data.

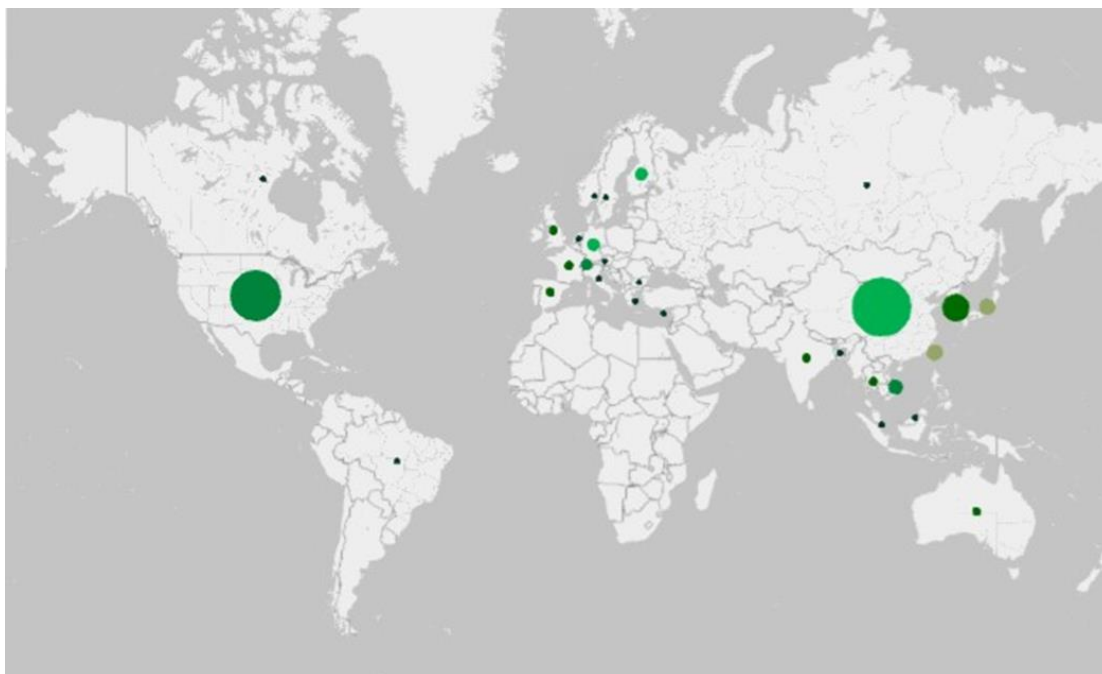


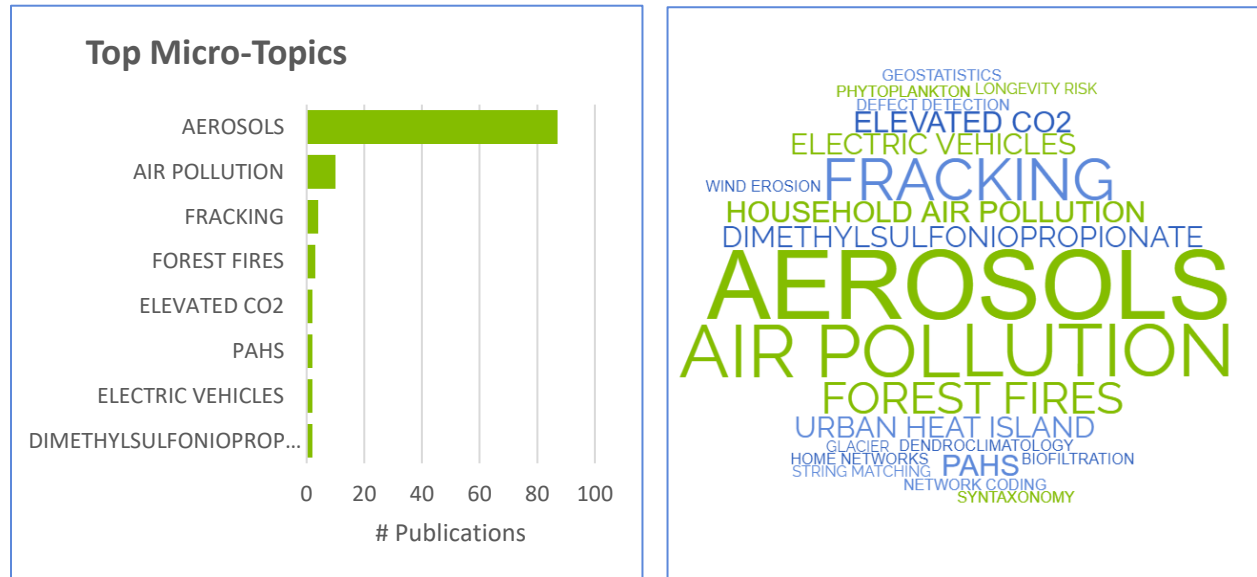
Figure 6: Distribution of CMAQ publications per co-authoring country. Publications are counted for an institution if at least one of the article’s authors lists that country as their affiliated institution’s address. Compiled from Web of Science data.

Country	Papers	Country	Papers
CHINA	79	AUSTRIA	1
USA	57	BANGLADESH	1
SOUTH KOREA	17	BRAZIL	1
JAPAN	6	BULGARIA	1
TAIWAN	6	CANADA	1
VIETNAM	5	CYPRUS	1
FINLAND	4	GREECE	1
GERMANY	4	ITALY	1
SWITZERLAND	3	MALAYSIA	1
AUSTRALIA	2	NETHERLANDS	1
UNITED KINGDOM	2	NORWAY	1
FRANCE	2	RUSSIA	1
INDIA	2	SINGAPORE	1
SPAIN	2	SWEDEN	1
THAILAND	2		

Table 1: Number of publications by country according to author affiliations. Compiled from Web of Science All Databases data.

Citation Topics

Citations Topics² is a new schema available in InCites that algorithmically analyzes articles to create clusters based on cited and citing relationships between documents. The schema is a three-level hierarchical classification system consisting of macro-, meso-, and micro-topics.



Figures 11 and 12: Top 8 Micro Citation Topics from Incites with all micro-topics displayed in a cloud powered by Wordclouds.com.

Macro-Topics	Meso-Topics	Micro-Topics	# Pubs	
1 Clinical & Life Sciences	1.264 Longevity	1.264.2378 Longevity Risk	1	
	3.2 Marine Biology	3.2.154 Phytoplankton	3.2.154 Phytoplankton	1
		3.40.1396 Elevated Co2	3.40.1396 Elevated Co2	2
		3.40.1598 Forest Fires	3.40.1598 Forest Fires	3
		3.40 Forestry	3.40.2303 Syntaxonomy	1
		3.45 Soil Science	3.45.1109 Geostatistics	1
	3 Agriculture, Environment & Ecology	3.60 Herbicides, Pesticides & Ground Poisoning	3.60.993 PAHs	2
		3.83 Bioengineering	3.83.1777 Biofiltration	1
	3 Agriculture, Environment & Ecology	4.13 Telecommunications	4.13.230 Network Coding	1
			4.17 Computer Vision & Graphics	4.17.1950 Defect Detection
4.18 Power Systems & Electric Vehicles			4.18.788 Electric Vehicles	2
4.182 Data Structures, Algorithms & Complexity			4.182.1103 String Matching	1
4 Electrical Engineering, Electronics & Computer Science	4.47 Software Engineering	4.47.2324 Home Networks	1	
		8.124.10 Aerosols	87	
8 Earth Sciences	8.124 Environmental Sciences	8.124.1775 Fracking	4	
		8.124.2044 Dimethylsulfoniopropionate	2	
		8.124.2192 Household Air Pollution	2	
		8.124.552 Air Pollution	10	
		8.19.2171 Dendroclimatology	1	
	8.19 Oceanography, Meteorology & Atmospheric Sciences	8.19.668 Glacier	8.19.668 Glacier	1
			8.19.743 Urban Heat Island	2
			8.205 Ocean Dynamics	8.205.2041 Wind Erosion

Table 2. A table mapping macro-topics to their respective meso-topics and micro-topics as indexed in InCites.

² For more information about Citation Topics, visit:

<https://incites.help.clarivate.com/Content/Research-Areas/citation-topics.htm>