

Essential Science Indicators

User guide

August 2022



Essential Science Indicators Guide

- Presenting Essential Science Indicators (ESI)
- Understanding citation performance indicators
- What are a Highly Cited Paper and a Hot Paper?
- Using Essential Science Indicators
- What is a Research Front?
- What it means to be a Highly Cited Researcher

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Why Essential Science Indicators?

Is your institution producing breakthrough research?



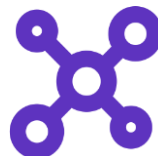
Highly Cited papers

Papers from the most recent ten years, which have reached the top 1% citation threshold for their designated publication year and subject category.



Hot Papers

Papers from the most recent two years, which have reached the top 0.1% citation threshold. This indicates an exceptionally high number of citations soon after publication.



Research Fronts

Highly Cited Papers that have been co-cited, forming the leading edge of current research in 22 subject areas.

Assess your institution's research, and connect funding to research impact to support grant renewals and new applications.

Why Essential Science Indicators (ESI)?

From Sputnik to the World Wide Web A Retrospective View of Citation Indexing

by

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at

Created in 2001

ACRL Science & Technology Program Titled

Quantum Leaps by Decade: Future "Caching" the Past - Forty Years of Creating New Communities for Science Librarianship Through Collaboration

ALA Annual Meeting, San Francisco

June 18, 2001

In the meantime, a variety of countries introduced the notion that salaries of researchers should be tied to citation frequency, that is citation impact. The impact factor of journals, having been widely adopted for journal selection in libraries, became a sine qua non of evaluation. But later this number was being used as a convenient surrogate to estimate the citation impact of individual current papers, that did not yet have time to be cited. This stirred up new controversy about citation studies and a great deal of resentment, since careful and informed observers knew that journal impact factors average the skewed citation frequency distributions of papers published in leading journals.²³ Seglen, in particular, provided detailed data on this skewness. Nevertheless, this has not deterred the use of the journal impact as a surrogate for author impact.²⁴ The worldwide preoccupation with impact factors is reflected in the large literature on this topic. No less than 100 articles in the past year discuss the pros and cons of these data. And there is great pressure on ISI to modify its method of calculating impact to better reflect long-term vs. short-term impact.²⁵ This is reflected in their new *Essential Science Indicators*.[®]

Essential Science Indicators (ESI) is an analytical tool that helps you identify top-performing research in Web of Science Core Collection. ESI surveys more than 11,000 journals from around the world to rank authors, institutions, countries, and journals in 22 broad fields based on publication and citation performance.

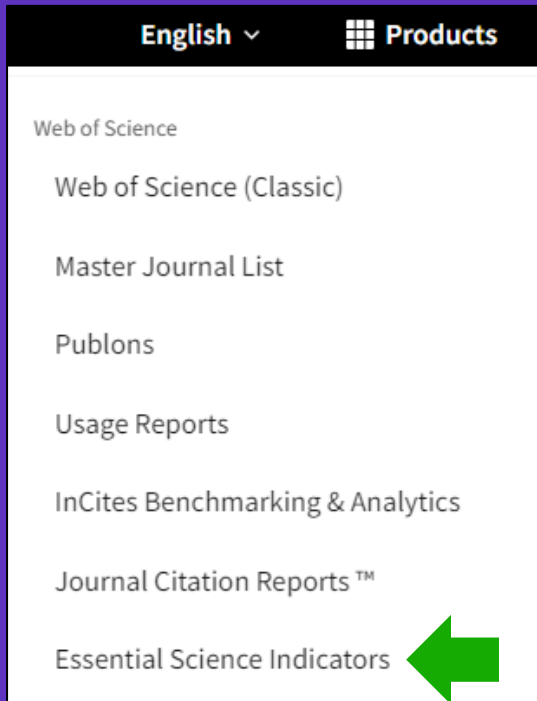
ESI data

Agricultural Sciences
Biology & Biochemistry
Chemistry
Clinical Medicine
Computer Science
Ecology/Environment
Economics & Business
Engineering
Geosciences
Immunology
Material Sciences
Mathematics
Microbiology
Molecular Biology & Genetics
Multidisciplinary ★
Neuroscience & Behavior
Pharmacology & Toxicology
Physics
Plant & Animal Science
Psychology/Psychiatry
Social Sciences, general
Space Science



- **Source:** Science Citation Index-Expanded (SCIE) and the Social Sciences Citation Index (SSCI) in Web of Science Core Collection.
- **Document Types:** ESI analyzes articles and reviews from SCIE and SSCI journals to determine how well a paper, organization, etc. is performing.
- **Depth of Data:** ESI data consists of a 10-year rolling file, which increases with each bimonthly update.
- **Fields:** ESI uses 22 broad disciplines to rank entities and identify top-performing papers. Each journal is assigned to only one field, and the research published in that journal will take on that field assignment (In the case of Multidisciplinary journals, reclassification is done at the paper level, based on an analysis of the cited references. This means that papers published in journals like *Science* and *Nature* could belong to fields that are more specific than Multidisciplinary)
- **Citation Counts:** Only citations from indexed journals in the Science Citation Index Expanded, Social Science Citation Index and Arts & Humanities Citation Index, are taken into account for ESI purposes.

Direct links

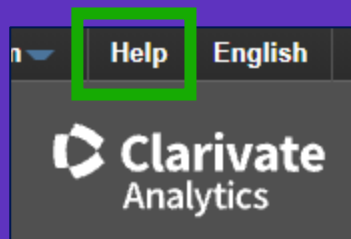


**ONE SHARED ACCOUNT FOR
ALL CLARIVATE SOLUTIONS**

- Web of Science - <http://www.webofscience.com/>
- Journal Citation Reports - <https://jcr.clarivate.com>
- Essential Science Indicators - <https://esi.clarivate.com>

- On site access (IP range) – No credentials required
- Remote access – with VPN OR via your institution's proxy authentication page OR with your personal account (6 months roaming)

ESI data is updated every 2 months



A screenshot of the Clarivate Essential Science Indicators Help page. The page has a grey header with the Clarivate logo and 'Essential Science Indicators Help'. A search bar is in the top right. A left sidebar contains a list of links: 'What's New', 'Dataset Updates' (highlighted with a green box), 'Getting Started', 'Registration', 'Scope and Coverage', 'Exporting Data', 'Indicators', 'Field Baselines', and 'Citation Thresholds'. The main content area shows the breadcrumb 'You are now viewing: What's New > Dataset Updates', followed by 'Dataset Updates' in purple, and the text 'Data is updated bi-monthly (six times a year)'. Below this is a section 'Current ESI Dataset' with two bullet points: 'Third Bi-monthly of 2021' and 'Data covers over a 10-year and 6-month period: January 1, 2011 - June 30, 2021'. At the bottom, there is a link '+ ESI Data Update Schedule for the year 2021 and Beyond'.

A screenshot of the Clarivate Journal List page. The left sidebar shows a list of links: 'What's New', 'Getting Started', 'Registration', 'Scope and Coverage', 'Exporting Data', 'Indicators', 'Field Baselines', 'Citation Thresholds', 'Product Support', 'Glossary', and 'Journal List' (highlighted with a green box). The main content area has a purple banner that reads 'In ESI, a journal can be assigned to only one of 22 research fields.' Below this is the section 'Journal List' in purple, followed by a paragraph: 'The [ESI journal list](#), which comprises all active journal titles eligible for inclusion in Essential Science Indicators, has been updated as of September 9, 2021 to cover a 10-year plus 6-month period, January 1, 2011 – June 30, 2021. Data is updated bi-monthly (six times a year). This is the third bi-monthly period of 2021. This ESI journal list will be updated regularly. The current extraction month is June 2021.' A green callout box with white text is overlaid on the page, stating: 'Download the list in Excel format' and 'You can also download the file from Master Journal list'. The Clarivate logo is in the bottom right corner.

Essential Science Indicators Guide

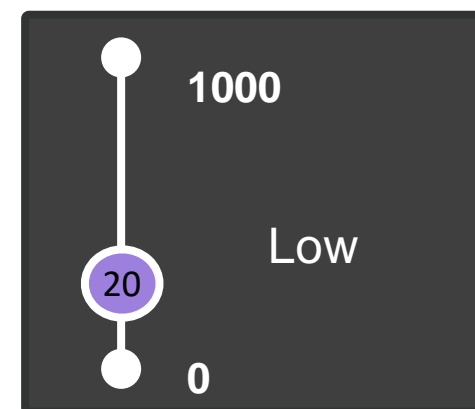
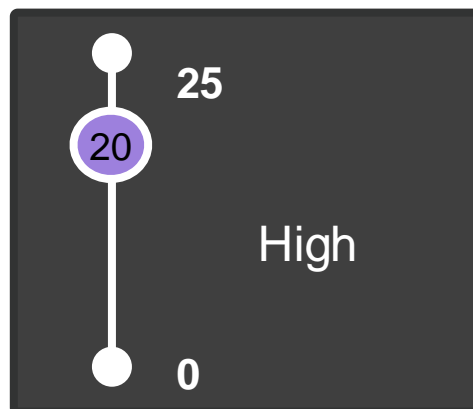
- Presenting Essential Science Indicators (ESI)
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Context is everything

Is the number of citations of this journal/paper high or low?



high or low?



It depends on the context (research area, publication year, document type)

ESI Field Baselines

Citation Rates per year and field, allow the comparison of the number of citations for specific papers published the same year and indexed in the same field

Field Baselines

Baselines are annualized expected citation rates for papers in a research field.

Citation Rates are yearly averages of citations per paper.

	RESEARCH FIELDS ▲	2011	2012	2013	2014	2015	2016	2017	2018
Citation Rates	ALL FIELDS	26.54	24.47	22.40	20.52	18.32	15.55	13.07	10.02
Percentiles	AGRICULTURAL SCIENCES	20.67	19.10	17.82	16.63	15.04	13.00	10.61	8.59
	BIOLOGY & BIOCHEMISTRY	35.16	33.02	29.43	26.36	22.48	18.81	15.79	12.23
Field Rankings	CHEMISTRY	28.59	27.56	25.09	23.80	21.69	18.38	15.75	12.28
	CLINICAL MEDICINE	26.78	24.60	22.38	20.36	18.29	15.35	12.79	9.48
Context is everything: - Research Fields - Publication Year	COMPUTER SCIENCE	17.45	14.53	14.16	13.90	13.19	11.47	10.62	8.27
	ECONOMICS & BUSINESS	22.65	19.52	17.76	15.76	13.65	11.40	9.15	6.74
	ENGINEERING	18.56	17.26	16.74	15.76	14.90	13.33	11.82	9.51
	ENVIRONMENT/E COLOGY	34.54	31.80	27.81	25.09	21.94	18.27	14.99	11.35
	GEOSCIENCES	30.45	27.40	24.81	21.80	19.05	15.62	12.78	9.32
	IMMUNOLOGY	38.61	33.86	32.20	28.92	24.71	20.96	17.30	13.19
	MATERIALS SCIENCE	30.90	29.91	27.81	27.12	24.78	22.02	19.20	14.85
	MATHEMATICS	9.74	8.43	7.50	6.68	6.15	5.23	4.45	3.56

ESI Thresholds

Inclusion in ESI is dependent upon meeting certain citation thresholds. Only the most highly cited individuals, institutions, journals, countries and papers are included in ESI. This chart shows the citation thresholds that must be met in order to appear in ESI.

Researchers' names are not disambiguated in ESI

Entity	Citation Percentile	Data years examined
Researchers	1%	10
Institutions	1%	10
Countries	50%	10
Journals	50%	10
Highly Cited Papers	1%	10
Hot Papers	0.1%	2

How to Read This Table: This table shows you the citation performance threshold that an entity's research needs to meet in order for it to qualify as Highly Cited in a field. Data Years refers to the years examined - 10 means that the full ESI data file is considered. Percentiles are inverted, so 1% means that an entity is performing in the top 1% when compared to peers.

Citation Thresholds

The table reveals the minimum number of citations received by the top 1% of authors and institutions and the top 50% of countries and journals in a 10-year period.

ESI Thresholds	RESEARCH FIELDS ▲	AUTHOR	INSTITUTION	JOURNAL	COUNTRY
Highly Cited Thresholds	AGRICULTURAL SCIENCES	605	2,805	1,571	2,245
	BIOLOGY & BIOCHEMISTRY	1,126	6,694	351	1,623
Hot Paper Thresholds	CHEMISTRY	2,195	8,641	1,969	2,962
	CLINICAL MEDICINE	2,688	3,908	3,320	24,592
	COMPUTER SCIENCE	590	4,308	1,952	796
	ECONOMICS & BUSINESS	492	5,258	1,844	480
	ENGINEERING	927	3,088	3,947	2,115
	ENVIRONMENT/ECOLOGY	1,079	4,633	2,630	4,393
	GEOSCIENCES	1,472	6,518	2,718	2,147
	IMMUNOLOGY	1,073	5,462	561	3,830
	MATERIALS SCIENCE	2,337	7,523	3,853	2,012
	MATHEMATICS	388	4,737	933	551
	MICROBIOLOGY	794	5,621	520	1,901
	MOLECULAR BIOLOGY & GENETICS	3,300	14,615	554	2,768
	MULTIDISCIPLINARY	510	2,918	70	238
	NEUROSCIENCE & BEHAVIOR	1,458	6,650	2,362	1,383
	PHARMACOLOGY & TOXICOLOGY	653	3,716	6,005	1,279
	PHYSICS	16,753	22,785	2,874	5,612
	PLANT & ANIMAL SCIENCE	741	3,092	2,223	2,826
	PSYCHIATRY/PSYCHOLOGY	862	4,229	2,178	637
	SOCIAL SCIENCES, GENERAL	462	1,692	1,260	2,536
	SPACE SCIENCE	7,428	43,068	1,639	885

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ESI Thresholds

All authors, institutions and countries on a paper are credited equally

Inclusion in ESI is dependent upon meeting certain citation thresholds. Only the most highly cited individuals, institutions, journals, countries and papers are included in ESI. This chart shows the citation thresholds that must be met in order to appear in ESI.

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How to Read This Table: This table shows you the citation performance threshold that an entity's research needs to meet in order for it to qualify as Highly Cited in a field. Data Years refers to the years examined - 10 means that the full ESI data file is considered. Percentiles are inverted, so 1% means that an entity is performing in the top 1% when compared to peers.

Highly Cited Paper Hot Paper

- **Highly Cited Papers** are papers that have received enough citations to place them in the top 1% when compared to all other papers published in the same year in the same field, i.e. 2008 Physics papers are only compared to other 2008 Physics papers to determine whether they have been cited enough to rank in the top 1%.
- For **Hot Papers**, only papers published in the last 2 years are considered. Hot Papers are receiving citations quickly after publication. These papers have been cited enough times in the most recent bimonthly period to place them in the top 0.1% when compared to peer papers. Peer papers are papers that were added to WoS Core Collection during the same bimonthly update and belong to the same field.

Recycling lithium-ion batteries from electric vehicles

By: Harper, G (Harper, Gavin) ^{1, 2, 3}; Sommerville, R (Sommerville, Roberto) ^{1, 2, 4}; Kendrick, E (Kendrick, Emma) ^{1, 2, 3}; Driscoll, L (Driscoll, Laura) ^{1, 2, 5}; Slater, P (Slater, Peter) ^{1, 2, 5}; Stolkin, R (Stolkin, Rustam) ^{1, 2, 3, 6}; Walton, A (Walton, Allan) ^{1, 2, 3}; Christensen, P (Christensen, Paul) ^{1, 7}; Heidrich, O (Heidrich, Oliver) ^{1, 7, 8}; Lambert, S (Lambert, Simon) ^{1, 7}; ...More

[View Web of Science ResearcherID and ORCID \(provided by Clarivate\)](#)

NATURE

Volume: 575 Issue: 7781 Page: 75-86

DOI: 10.1038/s41586-019-1682-5

Published: NOV 7 2019

Document Type: Review

Citation Network

In Web of Science Core Collection

332

Citations

 Highly Cited

 Hot Paper

 Create citation alert

All Citations

335 In All Databases

[+ See more citations](#)

Highly Cited Paper Hot Paper

ESI filters and icons are only visible in the Web of Science if your institution subscribes to JCR/ESI

Recycling lithium-ion batteries from electric vehicles

By: Harper, G (Harper, Gavin) ^{1, 2, 3}; Sommerville, R (Sommerville, Roberto) ^{1, 2, 4}; Kendrick, E (Kendrick, Emma) ^{1, 2, 3}; Driscoll, L (Driscoll, Laura) ^{1, 2, 5}; Slater, P (Slater, Peter) ^{1, 2, 5}; Stolkin, R (Stolkin, Rustam) ^{1, 2, 3, 6}; Walton, A (Walton, Allan) ^{1, 2, 3}; Christensen, P (Christensen, Paul) ^{1, 7}; Heidrich, O (Heidrich, Oliver) ^{1, 7, 8}; Lambert, S (Lambert, Simon) ^{1, 7}; ...More

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Citation Network

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332



Citations

[Create citation alert](#)

All Citations






335 In All Databases


[+ See more citations](#)

 Highly Cited
 Hot Paper




Quick Filters

- ☐  Highly Cited Papers
- ☐  Hot Papers
- ☐  Review Articles
- ☐  Early Access
- ☐  Open Access

 As of May/June 2021, this **Highly cited** received enough citations to place it in the top 1% of the academic field of **Engineering** based on a highly cited threshold for the field and publication year.

Data from [Essential Science Indicators](#)

 This **hot paper** was published in the past two years and received enough citations in May/June 2021 to place it in the top 0.1% of papers in the academic field of **Engineering**.

Data from [Essential Science Indicators](#)

Highly Cited Thresholds

The table reveals the minimum number of citations received by the top 1% of papers from each of 10 database years.

ESI Thresholds	RESEARCH FIELDS ▲	2011	2012	2013	2014	2015	2016	2017	2018	2019
Highly Cited Thresholds	AGRICULTURAL SCIENCES	145	133	123	110	100	83	69	55	
	BIOLOGY & BIOCHEMISTRY	261	245	220	194	164	139	113	85	
Hot Paper Thresholds	CHEMISTRY	249	229	206	191	174	142	122	92	
	CLINICAL MEDICINE	218	197	177	159	146	123	102	74	
	COMPUTER SCIENCE	152	134	134	129	111	103	96	76	
	ECONOMICS & BUSINESS	211	175	153	132	107	87	74	52	
	ENGINEERING	151	135	127	119	110	98	88	71	
	ENVIRONMENT/ECOLOGY	286	268	222	204	175	138	113	83	
	GEOSCIENCES	222	208	181	153	126	105	84	60	
	IMMUNOLOGY	308	273	259	247	197	160	128	96	
	MATERIALS SCIENCE	286	289	259	250	218	192	162	124	
	MATHEMATICS	82	73	62	55	52	43	37	33	
	MICROBIOLOGY	227	225	199	178	148	151	115	81	
	MOLECULAR BIOLOGY & GENETICS	488	414	362	316	261	215	161	141	
	MULTIDISCIPLINARY	493	343	395	222	295	203	149	122	
	NEUROSCIENCE & BEHAVIOR	274	252	220	191	159	135	110	81	
	PHARMACOLOGY & TOXICOLOGY	188	170	155	138	119	100	85	65	
	PHYSICS	179	174	158	148	131	111	91	71	
	PLANT & ANIMAL SCIENCE	155	139	127	110	96	78	62	45	
	PSYCHIATRY/PSYCHOLOGY	239	197	170	151	123	98	82	55	
	SOCIAL SCIENCES, GENERAL	139	123	110	99	83	68	56	42	
	SPACE SCIENCE	262	240	244	185	170	138	109	90	

Hot Paper Thresholds

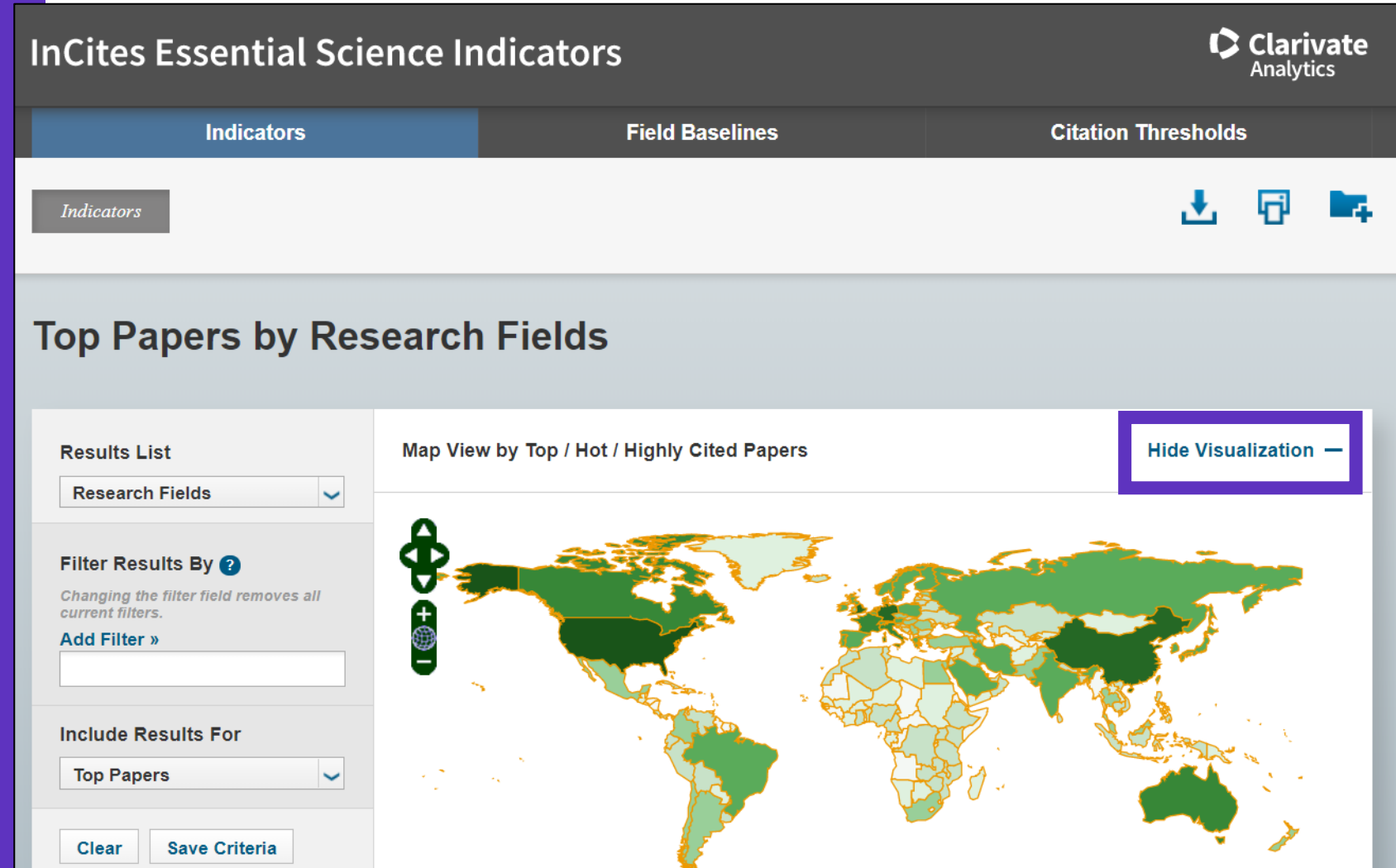
The table reveals the minimum number of citations received during the most recent two-month period by the top 0.1% of papers from the past two years.

ESI Thresholds	RESEARCH FIELDS ▲	2019-4	2019-5	2019-6	2020-1	2020-2	2020-3	20
Highly Cited Thresholds	AGRICULTURAL SCIENCES	11	12	10	10	11	13	
	BIOLOGY & BIOCHEMISTRY	35	16	20	27	21	20	
	CHEMISTRY	16	15	15	17	18	16	
Hot Paper Thresholds	CLINICAL MEDICINE	18	19	18	22	31	44	
	COMPUTER SCIENCE	20	13	12	14	18	15	
	ECONOMICS & BUSINESS	11	10	11	10	9	13	
	ENGINEERING	13	12	11	12	14	13	
	ENVIRONMENT/ECOLOGY	15	18	13	14	15	17	
	GEOSCIENCES	15	11	11	12	12	11	
	IMMUNOLOGY	25	14	19	25	57	89	
	MATERIALS SCIENCE	21	16	16	20	19	17	
	MATHEMATICS	6	7	6	7	7	7	
	MICROBIOLOGY	16	22	13	67	136	74	
	MOLECULAR BIOLOGY & GENETICS	25	29	28	28	67	75	
	MULTIDISCIPLINARY	17	27	30	30	23	113	
	NEUROSCIENCE & BEHAVIOR	16	16	16	13	13	17	
	PHARMACOLOGY & TOXICOLOGY	11	11	21	12	19	24	
	PHYSICS	15	15	14	16	14	14	
	PLANT & ANIMAL SCIENCE	10	9	8	10	10	8	
	PSYCHIATRY/PSYCHOLOGY	11	9	9	10	22	34	
	SOCIAL SCIENCES, GENERAL	9	9	8	9	11	14	
	SPACE SCIENCE	18	22	36	19	30	11	

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The landing page



Countries in ESI

Example 1

Analyze the top papers of a country to observe in which research fields the publications are having a higher citation performance (number of top papers vs. cites per paper)

Results List		Map View by Top / Hot / Highly Cited Papers					Show Visualization +
Research Fields		Report View by Selection					Customize
Filter Results By ? <small>Changing the filter field removes all current filters.</small> Add Filter »		Total: 23	Research Fields	Web of Science Documents	Cites	Cites/Paper	Top Papers ▼
✕ PORTUGAL			1 CLINICAL MEDICINE	21,748	422,197	19.41	54
			2 PHYSICS	10,787	232,953	21.60	27
			3 ENGINEERING	15,894	211,331	13.30	19
			4 ENVIRONMENT/E COLOGY	11,750	201,049	17.11	18
			5 PLANT & ANIMAL SCIENCE	10,282	133,259	12.96	17
Include Results For							
Top Papers							

Top Papers = Highly Cited Papers + Hot Papers

Example 2

Analyze the top papers within a research field to observe which countries are having a higher citation performance (number of top papers vs. cites per paper)

Results List		Map View by Top / Hot / Highly Cited Papers					Show Visualization +
Countries/Regions		Report View by Selection					Customize
Filter Results By ? <small>Changing the filter field removes all current filters.</small> Add Filter »		Total: 101	Countries/Regions	Web of Science Documents	Cites ▼	Cites/Paper	Top Papers
✕ Agricultural Sciences			1 USA	77,508	1,085,391	14.00	1,14
			2 CHINA MAINLAND	89,434	1,055,463	11.80	1,17
			3 SPAIN	29,777	454,373	15.26	44
			4 BRAZIL	48,589	369,595	7.61	26
			5 ITALY	23,545	346,881	14.73	42
Include Results For							
Top Papers							

Institutions in ESI

Example 3

Analyze the top papers of an institution to observe in which research fields the publications are having a higher citation performance (number of top papers vs. cites per paper)

Results List

Research Fields

Filter Results By ?

Changing the filter field removes all current filters.

Add Filter »

✕ UNIVERSIDADE DE COIMBRA

Include Results For

Top Papers

Map View by Top / Hot / Highly Cited Papers

Report View by Selection

Total: 17	Research Fields	Web of Science Documents	Cites	Cites/Paper ▾
1	MOLECULAR BIOLOGY & GENETICS	593	29,869	50.37
2	IMMUNOLOGY	229	9,639	42.09
3	PHYSICS	1,962	64,667	32.96
4	NEUROSCIENCE & BEHAVIOR	954	21,360	22.39
5	BIOLOGY & BIOCHEMISTRY	957	20,586	21.51
6	CLINICAL MEDICINE	3,561	73,242	20.57

Open list of Top Papers

Top Papers

1

1

9

1

1

6

Example 4

Analyze the top papers in a research field to observe which institutions are having a higher citation performance (number of top papers vs. cites per paper)

Results List Institutions Filter Results By ? <small>Changing the filter field removes all current filters.</small> Add Filter » <div>✕ Molecular Biology & Genetics</div> Include Results For Top Papers Clear Save Criteria	Map View by Top / Hot / Highly Cited Papers					Show Visualization +
	Report View by Selection					Customize
	Total: 932	Institutions	Countries/Regions	Web of Science Documents	Cites	Cites/Paper ▾
	408	UNIVERSIDADE DE COIMBRA	PORTUGAL	593	29,869	50.37
	455	INSTITUTO GULBENKIAN DE CIENCIA	PORTUGAL	354	17,016	48.07
	736	UNIVERSIDADE DE LISBOA	PORTUGAL	986	35,017	35.51
	800	UNIVERSIDADE NOVA DE LISBOA	PORTUGAL	495	15,280	30.87
	832	UNIVERSIDADE DO PORTO	PORTUGAL	1,542	43,948	28.50

Journals in ESI

Example 5

In the case of Multidisciplinary journals, reclassification is done at the paper level, based on an analysis of the cited references. This means that papers published in journals like Science and Nature could belong to fields that are more specific than Multidisciplinary

Results List		Map View by Top / Hot / Highly Cited Papers					Open list of Top Papers	
Research Fields		Report View by Selection						
Filter Results By ?		Total: 19	Research Fields	Web of Science Documents	Cites	Cites/Paper	Top Papers	
Changing the filter field removes all current filters.								
Add Filter »								
* NATURE								
Include Results For								
Top Papers								
Clear Save Criteria								
		1	MOLECULAR BIOLOGY & GENETICS	2,560	579,993	226.56	689	
		2	BIOLOGY & BIOCHEMISTRY	1,096	206,628	188.53	418	
		3	PHYSICS	1,047	192,102	183.48	546	
		4	CLINICAL MEDICINE	413	152,050	368.16	294	
		5	NEUROSCIENCE & BEHAVIOR	674	124,423	184.60	286	
		6	GEOSCIENCES	804	100,263	124.71	253	
		7	CHEMISTRY	407	96,669	237.52	206	
		8	IMMUNOLOGY	355	92,713	261.16	168	

Example 6

Analyze the top papers in a research field to observe which journals are having a higher citation performance (number of top papers vs. cites per paper)

Results List		Map View by Top / Hot / Highly Cited Papers					Show Visualization +
Journals		Report View by Selection					
Filter Results By ?		Total: 274	Journals	Web of Science Documents	Cites	Cites/Paper	Top Papers
Changing the filter field removes all current filters.							
Add Filter »							
* Agricultural Sciences							
Include Results For							
Top Papers							
		1	FOOD CHEMISTRY	18,605	444,612	23.90	55
		2	JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY	14,828	288,541	19.46	16
		3	NUTRIENTS	14,392	159,225	11.06	36
		4	JOURNAL OF DAIRY SCIENCE	9,225	136,033	14.75	5

Export reports and lists of documents

Top Papers by Institutions

Results List: Institutions

Filter Results By: Add Filter » * Physics

Include Results For: Top Papers

Map View by Top / Hot / Highly Cited Papers

Report View by Selection

Total: 752	Institutions	Countries/Regions	Web of Science Documents	Cites	Cites/Paper
1	UNITED STATES DEPARTMENT OF ENERGY (DOE)	USA	46,045	1,077,059	23.39
2	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE (CNRS)	FRANCE	58,604	1,073,437	18.32
3	UNIVERSITY OF CALIFORNIA	USA	31,268	859,600	27.49

Papers by Research Field

Citation Trends

Documents

Filter Results By: Add Filter » * UNIVERSITY OF BARCELONA

Include Results For: Top Papers

Clear Save Criteria

Sort By: Citations

Customize Documents

1 - 10 of 634

1	DISABILITY-ADJUSTED LIFE YEARS (DALYS) FOR 291 DISEASES AND INJURIES IN 21 REGIONS, 1990-2010: A SYSTEMATIC ANALYSIS FOR THE GLOBAL BURDEN OF DISEASE STUDY 2010	Times Cited: 4,131
By: MURRAY, C.J.L.; VOS, T.; LOZANO, R.; et.al Source: LANCET 380 (9859): 2197-2223 DEC 15 2012 Research Fields: CLINICAL MEDICINE		
2	YEARS LIVED WITH DISABILITY (YLDs) FOR 1160 SEQUELAE OF 289 DISEASES AND INJURIES 1990-2010: A SYSTEMATIC ANALYSIS FOR THE GLOBAL BURDEN OF DISEASE STUDY 2010	Times Cited: 3,301
By: VOS, T.; FLAXMAN, A.D.; NAGHAVI, M.; et.al Source: LANCET 380 (9859): 2163-2196 DEC 15 2012 Research Fields: CLINICAL MEDICINE		

Link to the document record in the Web of Science

Save Reports

Top Papers by Institutions

Results List
Institutions

Filter Results By ?
Changing the filter field removes all current filters.
Add Filter »
* Physics

Include Results For
Top Papers

Clear Save Criteria

Map View by Top / Hot / High
Report View by Selection

Total: 752

Institutions

1	UNITED STATES DEPARTMENT OF ENERGY (DOE)			1,077,059	23.39
2	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE (CNRS)	FRANCE	58,604	1,073,437	18.32
3	UNIVERSITY OF CALIFORNIA SYSTEM	USA	31,268	859,600	27.49
4	CHINESE ACADEMY OF SCIENCES	CHINA MAINLAND	63,563	827,750	13.02
5	MAX PLANCK SOCIETY	GERMANY (FED REP GER)	24,239	613,621	25.32
6	HELMHOLTZ ASSOCIATION	GERMANY (FED REP GER)	26,549	537,036	20.23
7	UNIV PARIS SACLAY COMUE	N/A	24,775	527,511	21.29

Show Visualization +
Customize
Cites/Paper

Save Selection

Please specify a name for your selections:

Save Cancel

More resources

Research Integrity: Understanding our shared responsibility for a sustainable scholarly ecosystem.

Broaden your view of what it means to conduct research with integrity.

Without a trusted record of research, it's impossible to replicate results, use research outcomes effectively, or build upon prior ideas, and in today's era of "fake news" and public mistrust of science, maintaining the validity of the scholarly record is more important than ever.

All stakeholders across the research community– from individual authors, editors and reviewers, to publishers, institutions and funders– have an important role to play to uphold research integrity.

In this new report from the Institute for Scientific Information (ISI)[™], learn about the different types of behavior beyond "fabrication, falsification and plagiarism" (FFP) that undermine research integrity across the system, where these practices typically occur in the research lifecycle, and what you can do to combat them.



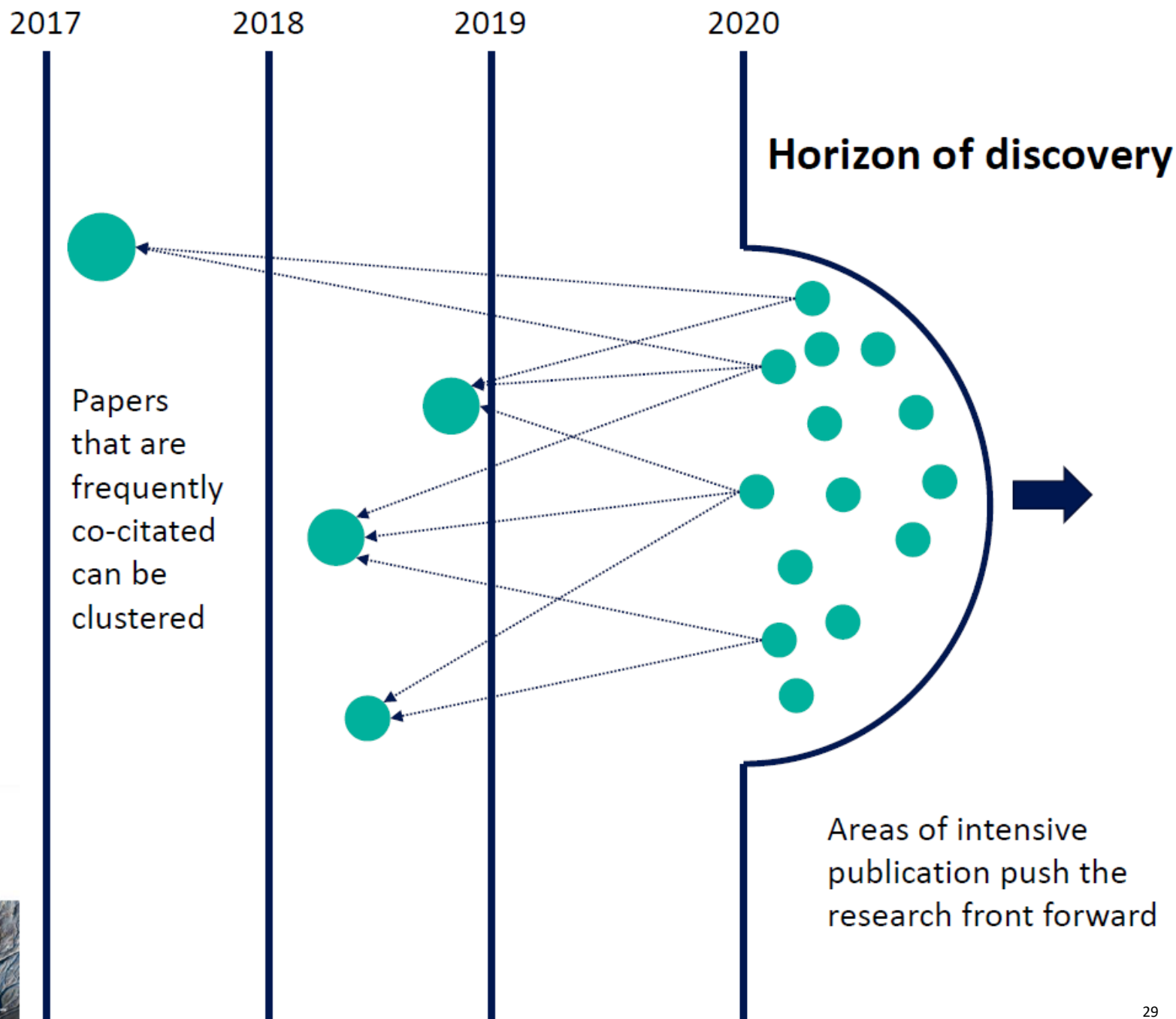
Essential Science Indicators Guide

- Presenting Essential Science Indicators (ESI)
- Understanding citation performance indicators
- What are a Highly Cited Paper and a Hot Paper?
- Using Essential Science Indicators
- What is a Research Front?
- What it means to be a Highly Cited Researcher

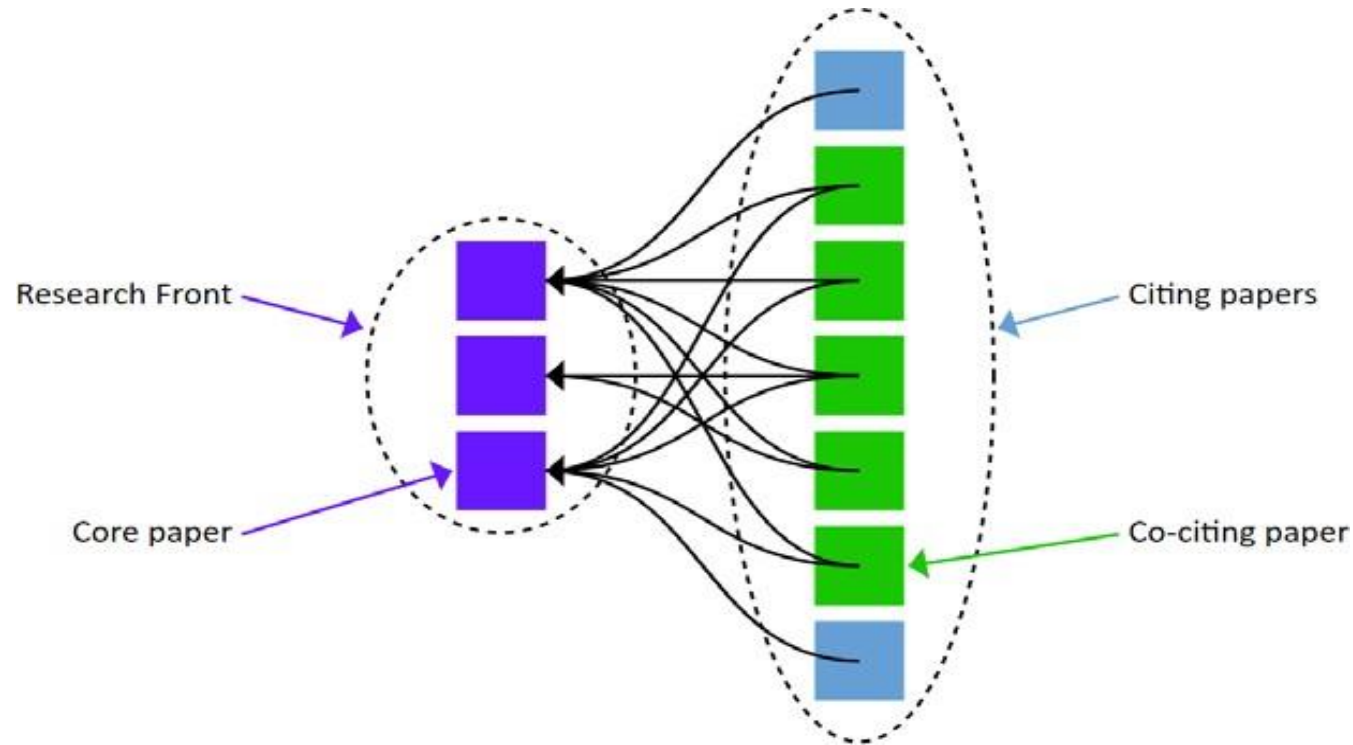
Research Fronts

At the horizon, intensive publication activity can be detected and grouped according to the previous research that was cited (aka co-citation)

The most highly cited papers serve as landmarks, allowing us to cluster related research into Research Fronts – areas of intensive publication on the leading edge of scientific discovery



What is a Research Front?



- A subset of recent literature (the current year and prior five years – 2014-2019) from Essential Science Indicators (ESI) is selected for analysis.
- With clusters of highly cited papers in place, we form a set of core papers for each Research Front and attach the set of co-citing papers, those that are more recent and at the leading edge.
- Field Classification: Research fronts are assigned to the 22 broad fields based on the field of the most frequently occurring journal in the front.

Research Fronts in Essential Science Indicators

Results List
Research Fronts

Filter Results By ?
Changing the filter field removes all current filters.
Add Filter »
* Immunology

Include Results For
Top Papers

Clear Save Criteria

Map View by Top / Hot / Highly Cited Papers Show Visualization +

Report View by Selection Customize

Total: 303

	Research Fronts	Top Papers	Mean Year
1	SARS-COV-2 RNA DETECTION; EARLY SARS-COV-2 OUTBREAK DETECTION; WASTEWATER ANTICIPATED COVID-19 OCCURRENCE; SARS-COV-2 DETECTION; SARS-COV-2 RNA	50	2
2	RELAPSED/REFRACTORY CLASSIC HODGKIN LYMPHOMA; RELAPSED HODGKIN LYMPHOMA; REFRACTORY CLASSICAL HODGKIN LYMPHOMA (ORIENT-1); RELAPSED/REFRACTORY PRIMARY MEDIASTINAL LARGE B-CELL LYMPHOMA; ADVANCED STAGE CLASSIC HODGKIN LYMPHOMA	4	2
3	COVID-19 VACCINE HESITANCY WORLDWIDE; COVID-19 VACCINE HESITANCY; COVID-19 VACCINE ACCEPTANCE; FUTURE COVID-19 VACCINE; ACCEPT COVID-19 VACCINE	41	2
4	SEVERE COVID-19 INFECTION; DYNAMIC COVID-19 IMMUNE SIGNATURE INCLUDES ASSOCIATIONS; COVID-19 PATIENT COVID-19 CONVALESCENT INDIVIDUALS; CROSS-REACTION SARS-COV-2 T CELL EPITOPES		
5	NATIONAL PROSPECTIVE OBSERVATIONAL SWISS COVID-19 SURVIVORS THREE MONTHS; POST-ACUTE COVID-19 SYNDROME; NONCRITICAL COVID-19 TWO MONTHS; CONVALESCENT COVID-19 PATIENTS		

The clusters are named using a semi-automatic process based on frequently occurring title words and phrases.

Results List
Research Fronts

Filter Results By ?
Changing the filter field removes all current filters.
Add Filter »
* Psychiatry/Psychology

Include Results For
Top Papers

Clear Save Criteria

Map View by Top / Hot / Highly Cited Papers

Report View by Selection

Research Fronts

1	COVID-19 PANDEMIC; DISGUST SENSITIVITY; PATHOGEN-AVOIDANCE PSYCHOLOGY; PANDEMICS; ROLE
1	COVID-19-INDUCED THREATS; DEFEAT COVID-19; COPING; LEADERSHIP; SELF
1	COVID-19 PANDEMIC-HEALTHCARE WORKERS; COVID-19 PANDEMIC; CROSS-SECTIONAL SURVEY; ADULT POPULATION; SELF-MEDICATION PRACTICES
1	COVID-19 PANDEMIC; MUSIC LISTENING; COVID-19; MUSIC; SPANISH POPULATION SURVEY

Documents

Sort By: Citations Customize Documents 1 - 10 of 41

Filter Results By ?
Add Filter »
* COVID-19 VACCINE HESITANCY WORLDWIDE; COVID-19 VACCINE HESITANCY; COVID-19 VACCINE ACCEPTANCE; FUTURE COVID-19 VACCINE; ACCEPT COVID-19 VACCINE

Include Results For
Top Papers

Clear Save Criteria

1	A GLOBAL SURVEY OF POTENTIAL ACCEPTANCE OF A COVID-19 VACCINE	Times Cited: 184	ESI Hot	Research Front
By: LAZARUS, JV; RATZAN, SC; PALAYEW, A; et al Source: NATURE MEDICINE 27 (2): 225-+ FEB 2021 Research Fields: MOLECULAR BIOLOGY & GENETICS				
2	VACCINE HESITANCY: THE NEXT CHALLENGE IN THE FIGHT AGAINST COVID-19	Times Cited: 113	ESI Hot	Research Front
By: DROR, AA; EISENBACH, N; TAIBER, S; et al Source: EUROPEAN JOURNAL OF EPIDEMIOLOGY 35 (8): 775-779 AUG 2020 Research Fields: SOCIAL SCIENCES, GENERAL				
3	ATTITUDES TOWARD A POTENTIAL SARS-COV-2 VACCINE A SURVEY OF US ADULTS	Times Cited: 110	ESI Hot	Research Front
By: FISHER, KA; BLOOMSTONE, SJ; WALDER, J; et al Source: ANNALS OF INTERNAL MEDICINE 173 (12): 964-+ DEC 15 2020 Research Fields: CLINICAL MEDICINE				

More resources

- [Clarivate and the Chinese Academy of Sciences Release Annual Joint Report to Identify 171 Research Fronts](#)
- [Find the report “Research Fronts 2021” here](#)

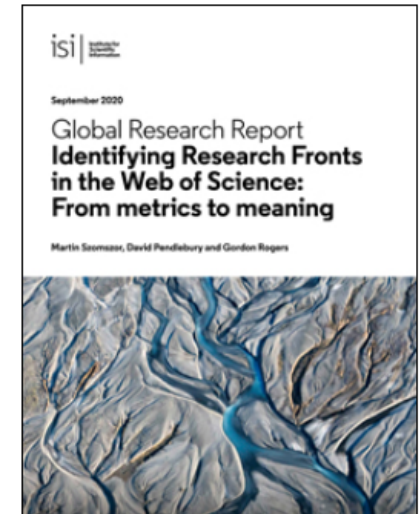
Identifying Research Fronts in the Web of Science: From Metrics to Meaning

Discover hot and emerging research areas to shape your institution's strategic direction

Research evaluators and policymakers frequently use quantitative measures based on publication and citation data as a complement to expert peer review to inform assessment and strategic decision-making. While ranks and scores have their uses, they are limited in revealing many aspects of research activity and different dimensions of contributions.

Thanks to advances in the handling and visualization of very large datasets, it is possible to see – and visit – the leading edge of scientific and scholarly research through science mapping and data visualization. This includes locating individuals, institutions, funders, and journals within this landscape and evaluating organizational participation in different areas, as well as changes over time.

Due to the volume of research published worldwide, and complexity of organizational and researcher networks, it can be challenging to identify early breakthroughs and understand the extent to which your organization is participating in the leading edge of science. In this report, we explore how you can easily track emerging research areas to help shape your institution’s strategic direction. Stay ahead of the curve by using Research Front data derived from the Web of Science™ to inform and improve your research assessment.



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Highly Cited Researchers 2021

November 16, 2021

Approximately 6,600 scientists
are named
Highly Cited Researchers in 2021.

They have demonstrated
significant influence through the
publication of multiple highly
cited papers within 2010-2020.

Highly Cited Researchers 2021: How nations and institutions foster exceptional performance



DAVID PENDLEBURY

Head of Research Analysis at the Institute for Scientific Information
Clarivate

Share this article



Today we unveil our annual list of Highly Cited Researchers™. We congratulate some 6,600 scientists and social scientists for demonstrating significant influence among their peers in their chosen field (or fields) through the publication of multiple highly cited papers during the last decade. These highly cited papers rank in the top 1% by citations for field and year from 2010 – 2020.

What it means to be a Highly Cited Researcher

Highly Cited Researchers

[2021 recipients](#) [Methodology](#) [FAQs](#) <https://recognition.webofscience.com/awards/highly-cited/2021/>

Recognizing the true pioneers in their fields over the last decade, demonstrated by the production of multiple highly-cited papers that rank in the top 1% by citations for field and year in the Web of Science™. Of the world's scientists and social scientists, Highly Cited Researchers truly are one in 1,000.

Resources

- [Executive summary](#)
- [Download archived lists of Highly Cited Researchers](#)
- [Download media press kit](#). For other media enquires email isi@clarivate.com

[Clear all](#)

Executive summary

Experts from the Institute for Scientific Information™ provide exclusive insight into the list of Highly Cited Researchers 2021, including the methodology, country, and institutional breakdowns, and much more.

[Download the report](#)

What it means to be a Highly Cited Researcher

2021 recipients

Methodology

FAQs

Overview

Total of Highly Cited Papers over the past 10 years

- The Highly Cited Researchers™ list from Clarivate™ identifies scientists and social scientists who have demonstrated significant influence through publication of multiple highly cited papers during the last decade.
- Researchers are selected for their exceptional performance in one or more of 21 fields (those used in the **Essential Science Indicators™**, or ESI) or across several fields.
- All Highly Cited Researcher records are reviewed. Factors such as research quality, potential for bias, or of which would detract from true community-wide research influence—may lead to an author being excluded from the list. Approximately 6,600 researchers are named Highly Cited Researchers in 2021—some 3,800 in specific fields and about 2,800 for cross-field performance. This is the fourth year that researchers with cross-field impact are identified. The recognition of researchers with substantial influence in several fields keeps the list of Highly Cited Researchers contemporary and relevant.
- The number of researchers selected in each field is based on the square root of the population of authors listed on the field's highly cited papers. The number of those with cross-field influence is determined by finding those who have influence equivalent to those identified in the 21 fields.

Context = 21 fields from Essential Science Indicators

- For the 2021 Highly Cited Researchers analysis, the papers surveyed were the most recent papers available to us—those published and cited during 2010-2020 and which then ranked in the top 1% by citations for their ESI field and year (the definition of a highly cited paper).
- The threshold number of highly cited papers for selection differs by field, with Clinical Medicine requiring the most and Pharmacology/Toxicology the least.




Highly Cited Researchers 2021

Clear all

108 Researchers from Spain


Powered by Essential Science Indicators


1 2 3 ... 10 11



	FULL NAME	CATEGORY	PRIMARY AFFILIATION	SECONDARY AFFILIATIONS	
AR	Aguilera, Ruth	Economics and Business	Universitat Ramon Llull	-	Claim profile
PA	Alonso-Coello, Pablo	Social Sciences	Sant Pau Institute for Biome...	CIBERESP, Spain	View Profile
JA	Alonso, Jordi	Psychiatry and Psychology	Institut Hospital del Mar d'I...	Pompeu Fabra University, ...	View Profile
JA	Alonso, Jordi	Social Sciences	Institut Hospital del Mar d'I...	Pompeu Fabra University, ...	View Profile
	Andres-Lacueva, Cristina	Agricultural Sciences	University of Barcelona	CIBERFES, Spain	View Profile
	Araújo, Miguel Bastos	Environment and Ecology	Consejo Superior de Invest...	University of Evora, Portugal	View Profile
AM	Armand, Michel	Cross-Field	CIC Energigune	Picardie Universites, Franc...	Claim profile
	Barba, Francisco J.	Agricultural Sciences	Universidade de Vigo	-	View Profile
SB	Beguería, Santiago	Cross-Field	CSIC - Estacion Experime...	-	View Profile
JB	Bellmunt, Joaquim	Clinical Medicine	IMIM-Hospital del Mar Me...	Beth Israel Deaconess Med...	View Profile

Highly Cited Researchers 2021


Clarivate adds automatically the awards in each researcher profile in the Web of Science



Maestre, Fernando T. 

 Highly cited  Top peer reviewer


University of Alicante

Web of Science ResearcherID: [A-6825-2008](#) 


[View public profile](#)

See a complete view of this researcher's scholarly contributions, including peer review and editorial work.

About

Published names 

Maestre, Fernando T. Maestre, FT Maestre, F. T. Torices, Ruben Maestre, FernandoT.
[Show more](#)

Organizations 

2001-2021 Universitat d'Alacant


2005-2020 Universidad Rey Juan Carlos


2012-2014 Universidade de Coimbra


2013-2013 Super Ciencias Expt & Tecnol Univ Rey Juan Carlos


2012-2012 Universidad de Valladolid [Show more](#)


Awards


 Highly Cited Researcher in the field of Environment and Ecology - 2021


 Highly Cited Researcher in the field of Environment and Ecology - 2020

 Highly Cited Researcher in the field of Environment and Ecology - 2019

 Highly Cited Researcher in the field of Cross-Field - 2018

 Top reviewers for Agricultural and Biological Sciences - September 2016 [Show less](#)

Other Identifiers 

 <https://orcid.org/0000-0002-7434-4856>

**Every
trailblazer**



**Needs
to chart a
new course**