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DE ESPAÑA

MINISTERIO  
DE CIENCIA, INNOVACIÓN  
Y UNIVERSIDADES

FECYT  
INNOVACIÓN



RECURSOS  
CIENTÍFICOS

# Jornadas de formación Web of Science 2025-2026

Sesión C3 - Identificar áreas de excelencia  
con Essential Science Indicators

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17/06/2026

 Clarivate



## Sesión C3 - Identificar áreas de excelencia con Essential Science Indicators

- Presentación de «Essential Science Indicators»
- Identificar los centros y/o áreas con mayor impacto académico
- Consideraciones importantes sobre los indicadores impacto
- Descubrir temas emergentes con los «Research Fronts»

## Sesión C3 - Identificar áreas de excelencia con Essential Science Indicators

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- Identificar los centros y/o áreas con mayor impacto académico
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# Why Essential Science Indicators?



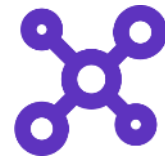
## Highly Cited papers

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.

Essential Science Indicators (ESI) was created in 2001 to help you identify top-performing research in Web of Science Core Collection.

ESI surveys more than 11,000 journals from around the world to rank institutions, countries and journals in 22 broad fields based on publication and citation performance.

# Enlaces de acceso

The screenshot shows a navigation menu with the following items: English (dropdown), Products (grid icon), Web of Science, Master Journal List, InCites Benchmarking & Analytics, Journal Citation Reports™, Research Horizon Navigator, Essential Science Indicators (highlighted with a purple arrow), Reference Manager, EndNote, and EndNote Click.

UNA CUENTA COMPARTIDA  
PARA TODAS LAS SOLUCIONES  
DE CLARIVATE

<https://www.recursoscientificos.fecyt.es/servicios/acceso-bases-datos>

The screenshot shows the 'ACCESO A BASES DE DATOS' page. On the left is a navigation menu with items: ACCESO A BASES DE DATOS (highlighted), FORMACIÓN, ATENCIÓN AL USUARIO, ACCESO A ADMINISTRADORES, ACCESO A METADATOS, INFORMACIÓN PARA INVESTIGADORES, and INDICES DE IMPACTO. The main content area has two tabs: ACCESO DIRECTO and ACCESO REMOTO (selected). The text under ACCESO REMOTO explains that users need to identify themselves with a user and password. Below this is a section titled 'Enlaces de FECYT' with a list of links: Acceso directo a cada una de las bases de datos de Web of Science: [wos.fecyt.es](https://wos.fecyt.es), Essential Science Indicators: [esi.fecyt.es](https://esi.fecyt.es), Journal Citation Reports: [jcr.fecyt.es](https://jcr.fecyt.es), and Web of Science: [woscc.fecyt.es](https://woscc.fecyt.es).

## ¿Estoy dentro o fuera de su institución?

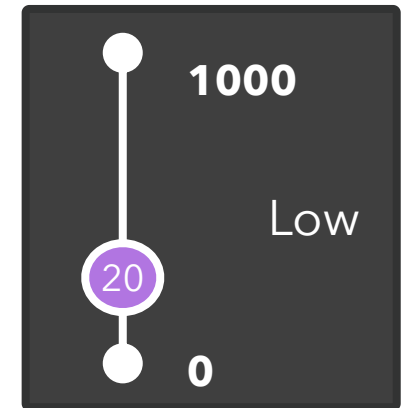
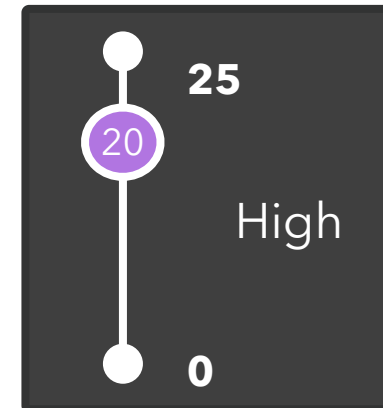
- Dentro de la institución (rango IP sin necesidad de identificarme)
- Fuera de la institución (acceso remoto por Shibboleth - o bien - identificarme con mi cuenta de usuario de la Web of Science)

# El comportamiento de citas varía según el contexto

¿El total de citas es alto o bajo?





High or low?



Depende del contexto  
(año de publicación, área de investigación)

# Identificar las publicaciones más influyentes

Quick Filters	
<input type="checkbox"/>  Highly Cited Papers	127
<input type="checkbox"/>  Hot Papers	11



## Towards Climate-Smart Agriculture: Strategies for Sustainable Agricultural Production, Food Security, and Greenhouse Gas Reduction

 [View This Highly Cited Paper Details](#)  Hot Paper

- Los HIGHLY CITED PAPERS se definen como artículos de los últimos 10 años que se clasifican por citas en el 1% superior para su campo y año de publicación
- Los HOT PAPERS se definen como artículos de los últimos 2 años que se clasifican por citas en el 0,1% superior para su campo y mes de publicación.
- Esta información proviene de Essential Science Indicators y se actualiza cada dos meses.

- Los indicadores Highly Cited Papers y Hot Papers ponen en contexto el número de citas. Tienen en cuenta el campo de investigación, la fecha de publicación y el tipo de documento, comparando "lo similar con lo similar".
- Dentro del registro del documento, se puede hacer clic en los iconos, por lo que se ve la definición que hay detrás.

# FAQ - ¿Por qué no veo estos iconos?

Quick Filters		
<input type="checkbox"/>	 Highly Cited Papers	127
<input type="checkbox"/>	 Hot Papers	11

- **Verás estos iconos en los filtros y registros:**

1. Tu institución está suscrita a Journal Citation Reports (and Essential Science Indicators, aka ESI)
2. Inicias sesión en Web of Science con tu cuenta personal
3. Tu cuenta de ESI está vinculada a tu cuenta de Web of Science ([Follow the instructions](#))



- Alternativamente, si tu institución no está suscrita a ESI, puedes ordenar cualquier lista de registros por "Citas: Más Alto Primero."
  - En este caso, puedes detectar artículos con un total muy alto de citas que no son Highly Cited Papers
  - Esto ocurre porque la metodología de Highly Cited Papers implica poner en contexto el número de citas y porque solo incluye publicaciones de los últimos 10 años.

# Los datos de ESI

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



- **Fuentes de datos:** Los índices Science Citation Index-Expanded (SCIE) y Social Sciences Citation Index (SSCI) de la Web of Science Colección Principal.
- **Tipos de documentos:** ESI analiza artículos y revisiones de revistas en SCIE y SSCI para determinar el rendimiento una publicación, una organización, etc.
- **Cobertura de años:** Los datos ESI consisten en un archivo dinámico de 10 años, que aumenta con cada actualización bimensual.
- **Áreas de investigación:** ESI utiliza 22 disciplinas generales para clasificar entidades e identificar documentos de alto rendimiento. Cada revista se asigna a una sola disciplina, y la investigación publicada en esa revista tendrá esta misma asignación (En el caso de revistas multidisciplinares, la reclasificación se realiza al nivel de documento, basándose en un análisis de las referencias citadas. Esto significa que los artículos publicados en revistas como *Science* y *Nature* podrían pertenecer a disciplinas más específicas que Multidisciplinary)
- **Recuentos de citas :** Sólo las citas de revistas indexadas en los índices SCIE, SSCI y AHCI se tienen en cuenta para el análisis de ESI.

Los datos de ESI  
se actualizan  
cada 2 meses

What can we help you with?

Type your topic here... Search

Knowledge base

What's New Scope and Coverage Getting Started Using Essential Science Indicators

2

1 Help English

Clarivate Analytics

Essential Science Indicators > What's New > Dataset Updates

Home What's New Dataset Updates Dataset Updates Scope and Coverage Getting Started Using Essential Science Indicators Training

3

### Dataset Updates

Updated 14 days ago Follow

Data is updated bi-monthly (six times a year).

#### Current ESI Dataset

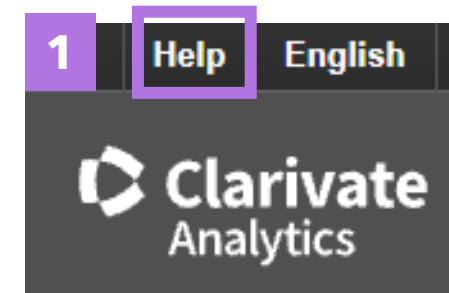
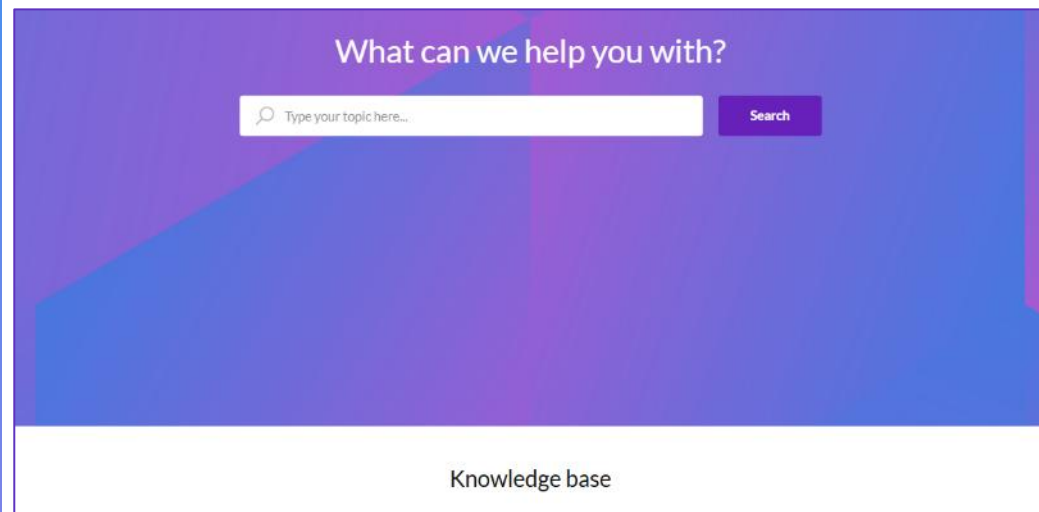
- Sixth Bi-monthly of 2024
- Data covers a 10-year and 12-month period: January 1, 2014 - December 31, 2024

#### ESI Data Update Schedule for the year 2025 and Beyond

The following schedule is an overview of upcoming ESI data releases through March 2025:

Release date and time are in USA EST time zone.

# FAQ - ¿Dónde puedo encontrar la lista de revistas en cada campo de ESI?



Knowledge base

What's New Scope and Coverage

2

Essential Science Indicators > Scope and Coverage > Scope and Coverage

Home  
What's New  
Scope and Coverage  
Scope and Coverage  
Scope and Coverage  
Getting Started  
Using Essential Science Indicators  
Training

## Scope and Coverage

Updated 7 days ago

Follow

### Journal Coverage

Article counts for Essential Science Indicators are derived from journals indexed in Web of Science Core Collection (Science Citation Index Expanded and Social Sciences Citation Index only) over a 10-year and 12-month period. Citation counts for these articles are derived from journals indexed in Web of Science Core Collection (Science Citation Index Expanded, Social Sciences Citation Index and Arts & Humanities Citation Index)

Each journal is assigned to one of 22 research fields. In ESI a journal can be assigned to only one field. Journals such as *Science and Nature* are categorized as multidisciplinary since they publish research in many different fields. As a result, papers published in these multidisciplinary journals are assigned to a field based on the representation of the cited journals. For example, if the majority of cited references in the paper are to neuroscience journals, the paper is then categorized as neuroscience. If a paper receives the same number of citations from journals in two or more fields, the paper will be categorized as multidisciplinary.

### Journal List

The ESI journal list, which comprises all active journal titles eligible for inclusion in Essential Science Indicators™, was last updated as of March 13, 2025 to cover a 10-year plus 12-month period, January 1, 2014 – December 31, 2024. Data is updated bi-monthly (six times a year). This is the sixth bi-monthly period of 2024.

This ESI journal list will be updated regularly. The current extraction date for the journal list is March 13, 2025.

3

En ESI, una revista solo puede asignarse a uno de los 22 campos de investigación.

Descarga la lista en formato Excel. También puedes descargar el archivo desde Master Journal list

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# The landing page

InCites Essential Science Indicators Clarivate™

Indicators Field Baselines Citation Thresholds

Indicators Download Print Share

## Top Papers by Research Fields

Results List: Research Fields

Filter Results By ?  
*Changing the filter field removes all current filters.*  
[Add Filter »](#)

Include Results For: Top Papers

[Clear](#) [Save Criteria](#)

Report View by Selection Customize

Total: 22	Research Fields	Web of Science Documents	Cites	Cites/Paper	Top Papers
1	CLINICAL MEDICINE	3,655,084	56,657,611	15.50	35,911
2	CHEMISTRY	2,184,454	42,867,266	19.62	21,501
3	ENGINEERING	2,522,172	39,781,854	15.77	24,511
4	MATERIALS SCIENCE	1,509,624	35,558,606	23.55	14,841
5	ENVIRONMENT/ECOLOGY	958,105	18,947,023	19.78	9,451
6	BIOLOGY & BIOCHEMISTRY	882,003	18,746,713	21.25	8,631
7	PHYSICS	1,158,034	16,734,183	14.45	11,451
8	MOLECULAR BIOLOGY & GENETICS	528,675	14,929,459	28.24	5,261
9	SOCIAL SCIENCES, GENERAL	1,345,189	14,205,953	10.56	13,461
10	NEUROSCIENCE & BEHAVIOR	586,380	11,693,699	19.94	5,851
11	SCIENCE	270,000	11,000,000	10.00	6,001

InCites Essential Science Indicators dataset updated May 14, 2026.  
For more information [Click Here](#)

# Institutions in ESI

## Example 1

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** ?

Changing the filter field removes all current filters.

Add Filter »

× Psychiatry/Psychology

---

**Include Results For**

Top Papers

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

---

Report View by Selection Customize

Total: 7	Institutions	Countries/Regions	Web of Science Documents	Cites	Cites/Paper
		Filter = Portugal			
65	UNIVERSIDADE NOVA DE LISBOA	PORTUGAL	414	14,302	34.55
869	INSTITUTO UNIVERSITARIO DE LISBOA	PORTUGAL	851	13,122	15.42
1046	UNIVERSIDADE DE COIMBRA	PORTUGAL	1,250	15,718	12.57
1053	UNIVERSIDADE DO MINHO	PORTUGAL	1,102	13,756	12.48
1076	UNIVERSIDADE DE LISBOA	PORTUGAL	1,442	16,953	11.76

**Top Papers = Highly Cited Papers + Hot Papers**

## Example 2

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 NOVA DE LISBOA

---

**Include Results For**

Top Papers

Map View by Top / Hot / Highly Cited Papers

---

Report View by Selection Customize

Total: 19	Research Fields	Web of Science Documents	Cites	Cites/Paper	Top Papers
1	MOLECULAR BIOLOGY & GENETICS	510	20,699	40.59	<div style="width: 40%;"></div>
2	PHYSICS	1,197	46,534	38.88	<div style="width: 39%;"></div>
3	PSYCHIATRY/PSYCHOLOGY	414	14,302	34.55	<div style="width: 35%;"></div>
4	ECONOMICS & BUSINESS	847	28,865	34.08	<div style="width: 34%;"></div>
5	GEOSCIENCES	396	11,045	27.89	<div style="width: 28%;"></div>
6	MATERIALS SCIENCE	1,136	30,347	26.71	<div style="width: 27%;"></div>

Open list of Top Papers

Clarivate

# Journals in ESI

## Example 3

Analyze the top papers in a research field to observe which journals are having a higher citation performance

In ESI, a journal can be assigned to only one of 22 research fields.

Results List		Map View by Top / Hot / Highly Cited Papers				Show Visualization +	
Journals		Report View by Selection				Customize	
Filter Results By ? <i>Changing the filter field removes all current filters.</i> Add Filter » x Psychiatry/Psychology		Total: 426	Journals	Web of Science Documents	Cites	Cites/Paper	Top Papers ▾
Include Results For Top Papers		1	JOURNAL OF AFFECTIVE DISORDERS	11,716	234,412	20.01	21
Clear Save Criteria		2	JAMA PSYCHIATRY	1,268	108,148	85.29	20
		3	FRONTIERS IN PSYCHOLOGY	37,808	423,699	11.21	20
		4	COMPUTERS IN HUMAN BEHAVIOR	5,657	193,529	34.21	17
		5	LANCET PSYCHIATRY	753	80,247	106.57	16

## Example 4

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				Customize	
Filter Results By ? <i>Changing the filter field removes all current filters.</i> Add Filter » x NATURE		Total: 19	Research Fields	Web of Science Documents	Cites ▾	Cites/Paper	Top Papers
Include Results For Top Papers		1	MOLECULAR BIOLOGY & GENETICS	2,560	579,993	226.56	68
Clear Save Criteria		2	BIOLOGY & BIOCHEMISTRY	1,096	206,628	188.53	41
		3	PHYSICS	1,047	192,102	183.48	54
		4	CLINICAL MEDICINE	413	152,050	368.16	29
		5	NEUROSCIENCE & BEHAVIOR	674	124,423	184.60	28
		6	GEOSCIENCES	804	100,263	124.71	25
		7	CHEMISTRY	407	96,669	237.52	20
		8	IMMUNOLOGY	355	92,713	261.16	16

# Export reports and lists of documents

This screenshot shows the 'Indicators' section of a report titled 'Top Papers by Institutions'. The report is filtered by 'Physics' and shows a total of 752 papers. A download menu is open, showing options for PDF, CSV, and XLS. The table below lists the top institutions.

Total:	Institutions	Countries/Regions	Web of Science Documents	Cites	Cites/Paper
752	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

This screenshot shows the 'Citation Trends' section of a report titled 'Papers by Research Field'. The report is filtered by 'UNIVERSITY OF BARCELONA' and shows a total of 634 papers. A document record is highlighted, showing the title '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' and its citation count of 3,301. A callout box points to the document record.

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, CJL; 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; ESTERHUYSN, F; MACHUCA, M; et.al  
Source: LANCET 380 (9859): 2163-2196 DEC 15 2012  
Research

Link to the document record in the Web of Science

# Save Reports

## Top Papers by Institutions

Results List: Institutions

Filter Results By: **Physics**

Include Results For: Top Papers

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

Save Selection dialog: Please specify a name for your selections:

Buttons: Save, Cancel

Buttons: Clear, Save Criteria

Show Visualization +

Customize

## Sesión C3 - Identificar áreas de excelencia con Essential Science Indicators

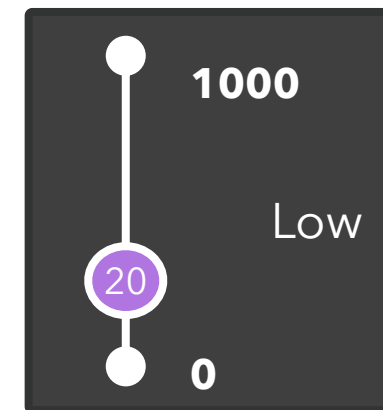
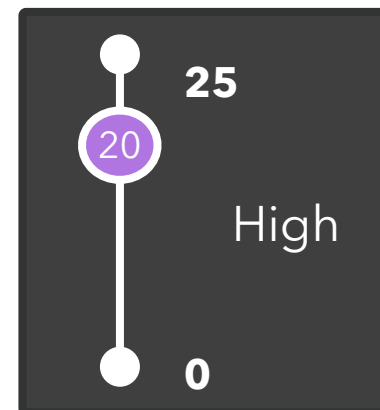
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# El comportamiento de citas varía según el contexto

¿El total de citas es alto o bajo?



High or low?



Depende del contexto  
(año de publicación, área de investigación)

# 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.

Citation Rates	RESEARCH FIELDS ▲	2011	2012	2013	2014	2015	2016	2017	2018
Percentiles	ALL FIELDS	26.54	24.47	22.40	20.52	18.32	15.55	13.07	10.02
	AGRICULTURAL SCIENCES	20.67	19.10	17.82	16.63	15.04	13.00	10.61	8.59
Field Rankings	BIOLOGY & BIOCHEMISTRY	35.16	33.02	29.43	26.36	22.48	18.81	15.79	12.23
	CHEMISTRY	28.59	27.56	25.09	23.80	21.69	18.38	15.75	12.28
Citation rates depend on: - Research Fields - Publication Year	CLINICAL MEDICINE	26.78	24.60	22.38	20.36	18.29	15.35	12.79	9.48
	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
<del>Researchers</del>	<del>1%</del>	<del>10</del>
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.

NOTE - ESI uses the Early Access date for calculations (where an article has an Early Access date and a Final Publication date) because this is when the papers start accumulating citations.

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

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- Descubrir temas emergentes con los «Research Fronts»

# Why Essential Science Indicators?



## 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.

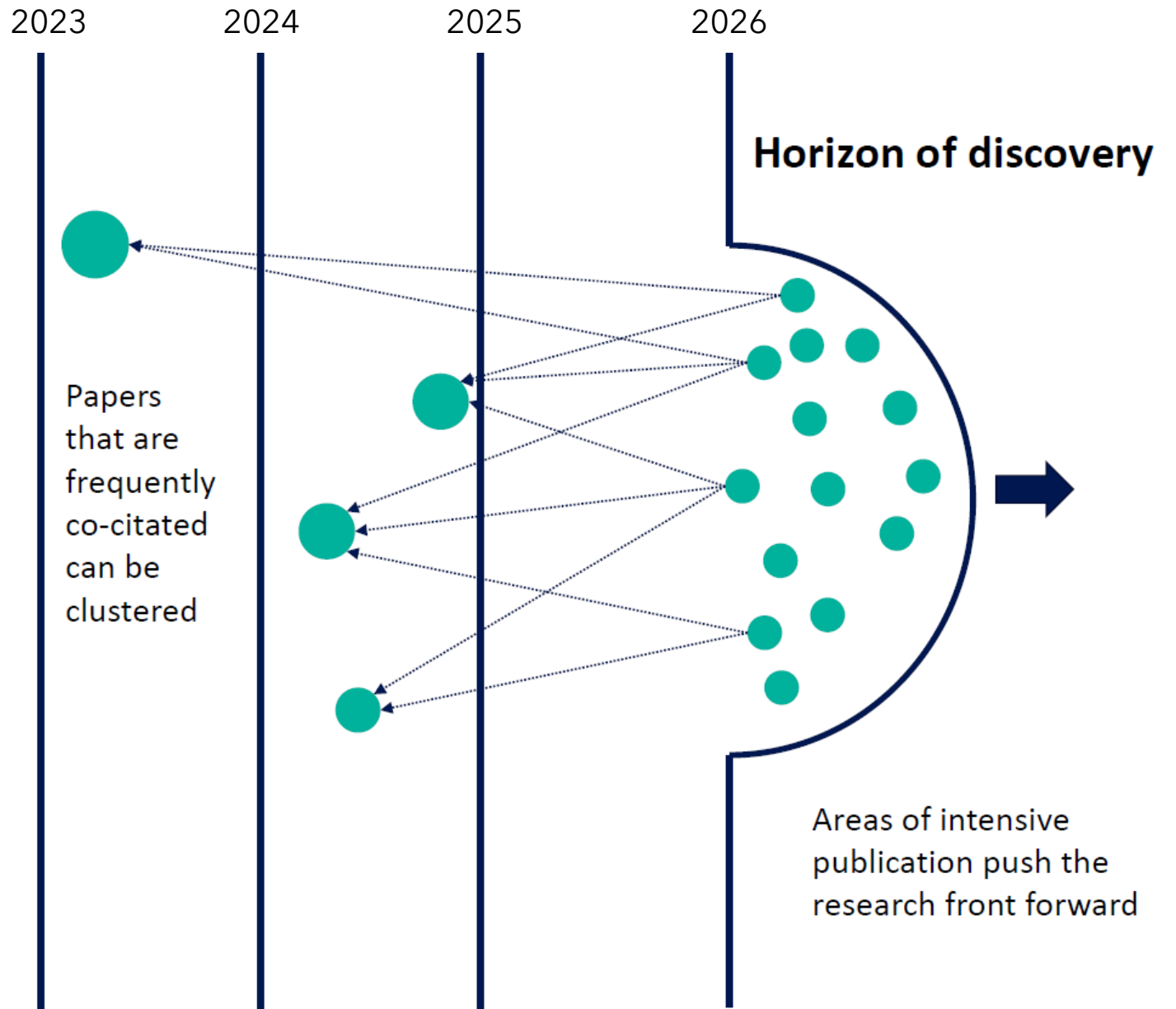
Essential Science Indicators (ESI) was created in 2001 to help you identify top-performing research in Web of Science Core Collection.

ESI surveys more than 11,000 journals from around the world to rank institutions, countries and journals in 22 broad fields based on publication and citation performance.

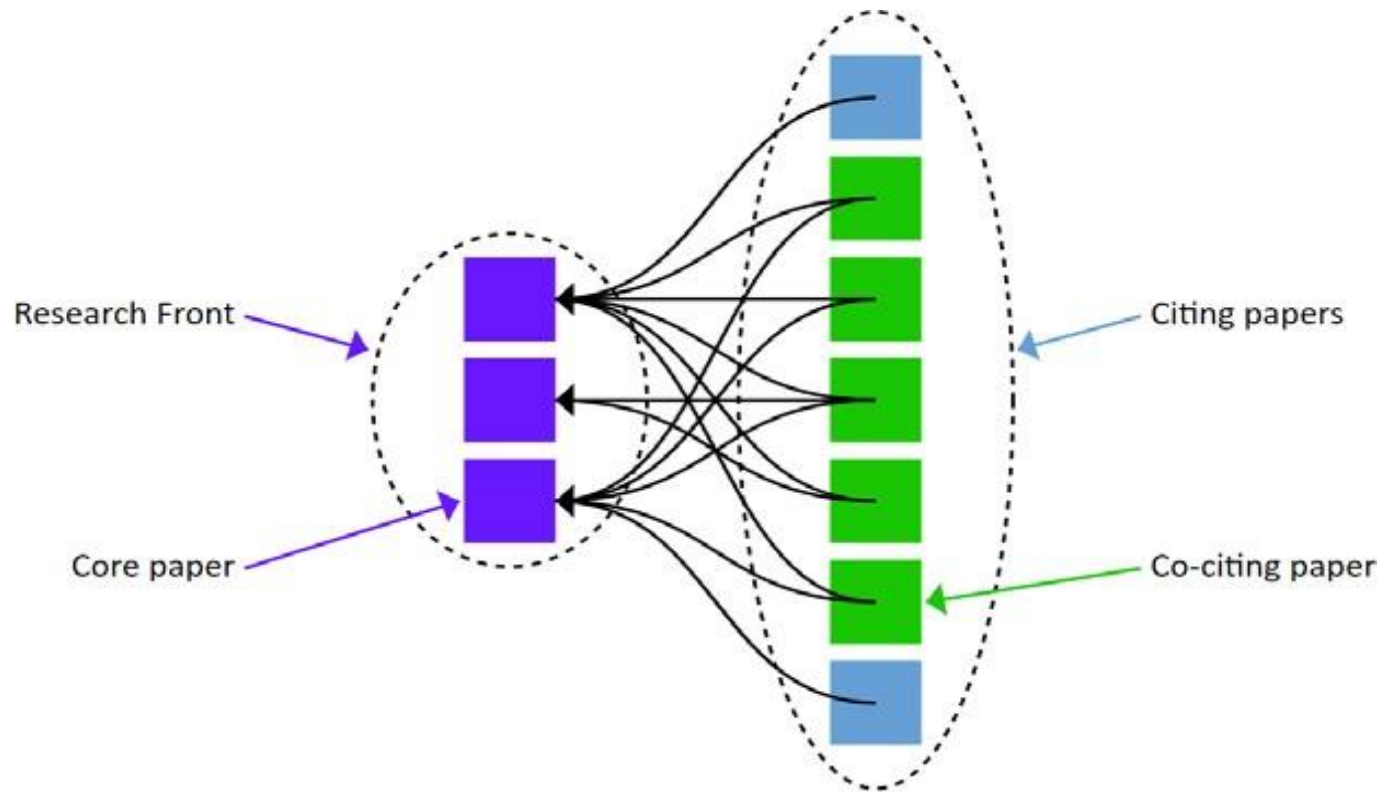
# Research Fronts

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 -2021-2026) 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 »

\* Plant & Animal Science

Include Results For

Top Papers

Clear Save Criteria

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

Report View by Selection Customize

	Research Fronts	Top Papers	Mean Year
1	FUNGAL SPECIES; FUNGAL DIVERSITY NOTES 1387-1511; FUNGAL DIVERSITY NOTES 1512-1610; FUNGAL DIVERSITY NOTES 1611-1716	46	2021.2
2	HIGHLY PATHOGENIC AVIAN INFLUENZA H5N1 VIRUS INFECTIONS; H5N1 HIGHLY PATHOGENIC AVIAN INFLUENZA CLADE 2; HIGHLY PATHOGENIC AVIAN INFLUENZA H5N1 VIRUS; HIGHLY PATHOGENIC AVIAN INFLUENZA A(H5N1) VIRUS OUTBREAK; 4B H5 HIGHLY PATHOGENIC AVIAN INFLUENZA VIRUS	46	2023.1
2	LIGHTWEIGHT SAR IMAGE SHIP DETECTION METHOD BASED; SAR SHIP DETECTION BASED; HIGH-PRECISION SAR SHIP DETECTION METHOD; SAR SHIP DETECTION DATASET (SSDD); SAR SHIP DETECTION	46	2022.1
2	ADVANCED DEEP LEARNING MODELS-BASED PLANT DISEASE DETECTION; DEEP NEURAL NETWORK BASED PLANT CLASSIFICATION MODELS; PLANT LEAF DISEASE DETECTION; DEEP FEATURE BASED RICE LEAF DISEASE IDENTIFICATION; LEAF IMAGE BASED PLANT DISEASE IDENTIFICATION		
5	PLANT HELPER IMMUNE RECEPTORS; PLANT NLR RESISTOSOME CONFERRING IMMUNITY; CALCIUM-PERMEABLE CHANNEL TRIGGERING PLANT IMMUNE SIGNALING; PLANT IMMUNE RECEPTORS; PLANT TIR-BASED IMMUNITY SIGNALING		

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

Research Fronts are updated every 2 month in ESI.

Citation Trends

Sort By Citations Customize Documents

1 - 10 of 46

Rank	Document Title	Times Cited
1	TRANSATLANTIC SPREAD OF HIGHLY PATHOGENIC AVIAN INFLUENZA H5N1 BY WILD BIRDS FROM EUROPE TO NORTH AMERICA IN 2021 By: CALIENDO, V.; LEWIS, NS; POHLMANN, A.; et al Source: SCIENTIFIC REPORTS 12 (1): - JUL 11 2022 Research Fields: MICROBIOLOGY	159
2	EMERGENCE AND SPREAD OF NOVEL H5N8, H5N5 AND H5N1 CLADE 2.3.4.4 HIGHLY PATHOGENIC AVIAN INFLUENZA IN 2020 By: LEWIS, NS; BANYARD, AC; WHITTARD, E.; et al Source: EMERGING MICROBES & INFECTIONS 10 (1): 148-151 JAN 1 2021 Research Fields: MICROBIOLOGY	136
3	HIGHLY PATHOGENIC AVIAN INFLUENZA VIRUSES AT THE WILD-DOMESTIC BIRD INTERFACE IN EUROPE: FUTURE DIRECTIONS FOR RESEARCH AND SURVEILLANCE By: VERHAGEN, JH; FOUCHIER, RAM; LEWIS, N; Source: VIRUSES-BASEL 13 (2): - FEB 2021 Research Fields: MICROBIOLOGY	127
4	INTERCONTINENTAL MOVEMENT OF HIGHLY PATHOGENIC AVIAN INFLUENZA A(H5N1) CLADE 2.3.4.4 VIRUS TO THE UNITED STATES, 2021 By: BEVINS, SN; SHRINER, SA; CUMBEE, JC; et al Source: EMERGING INFECTIOUS DISEASES 28 (5): 1006-1011 MAY 2022 Research Fields: IMMUNOLOGY	109

# Research Fronts Annual Reports

- [Find the “2025 Research Fronts Report” here](#)
- [Engineering Fronts 2025](#)

DECEMBER 4, 2025

## Twelfth Annual “Research Fronts Report” Highlights Hot and Emerging Fields

RESEARCH FRONTS THOUGHT LEADERSHIP



**Steven Wang**  
Vice President, Academia and Government, Greater China



### An “organic” view of research

#### A range of research

To highlight fast-moving and emerging specialty areas of science, Clarivate has once again partnered with the Chinese Academy of Sciences (CAS) in a yearly report on the hottest fields in research, including data on the countries and institutions producing the work. The latest annual edition, [Research Fronts 2025](#), marks the twelfth collaboration between Clarivate and the CAS. The new report was released on December 3.

This new report, like its predecessors, bases its findings on Research Fronts, which are self-organizing clusters of related research identified by citation analysis. Research Fronts form when clusters of Highly Cited Papers are frequently cited together. This pattern, known as “co-citation,” indicates that the papers share a cognitive link or point of commonality, such as a concept, hypothesis, method, or experimental data. With the co-cited papers serving as a foundational “core,” the other component of a Research Front consists of the subsequent papers that cite the core. These citing papers offer insights into how a given specialty area is progressing and evolving.

Para cualquier pregunta relacionada con la formación o el acceso a las herramientas, por favor contacte con [recursoscientificos@fecyt.es](mailto:recursoscientificos@fecyt.es)

Para cualquier pregunta relacionada con el funcionamiento de las herramientas, por favor contacte con los servicios de su biblioteca o bien con [wosg.support@clarivate.com](mailto:wosg.support@clarivate.com)

