



# How Web of Knowledge Can Help Azerbaijani Research, It's Visibility and Influence

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# Agenda

- Thomson Reuters
- Effective Research Evaluation
- Editorial Policy and Content
- Web of Science
- Journal Citation Reports with Impact Factors
- Few Examples From Azerbaijan

# Thomson Reuters

- 17<sup>th</sup> April, 2008: The Thomson Corporation and Reuters Group PLC combine to form Thomson Reuters
- Thomson Reuters is the world's leading source of intelligent information for businesses and professionals
- More than 50,000 employees
- Offices in 93 countries worldwide
- [www.thomsonreuters.com](http://www.thomsonreuters.com)

# How is Research Evaluation done?

- Combination of various methodologies and approaches, e.g.:
  - Overall number of received grants
  - Number of awards (e.g. Nobel Price)
  - Peer-review
  - **Publication activity**
  - **Citation count**
- Peer review – expensive, results are subjective
- Not a single one of the indicators above works well by themselves. Independent expert interpretation of the results is necessary

# Increasing Interest in Bibliometric Methods

- Countries with large research potential actively pursue bibliometric indicators when evaluating results of scientific activity
- These days whole teams of analytics operate in many countries of the world. They prepare bibliometric analyses.
- Practically in 100% cases the bibliometric analyses is based on Thomson Reuters data.



## Web of Science<sup>®</sup>

The world's most used database for research evaluation

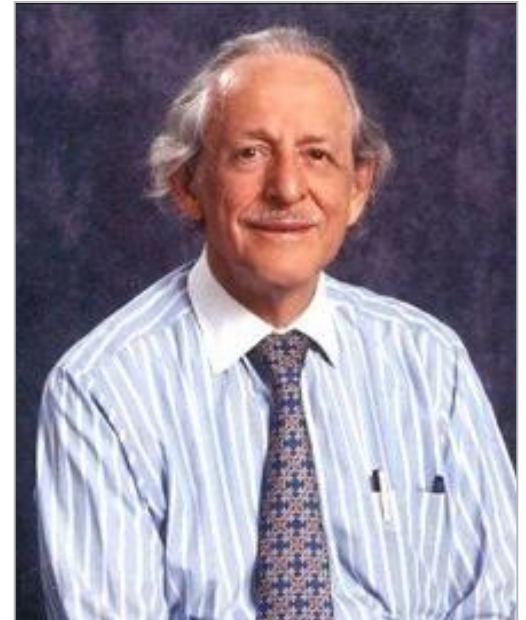


THOMSON REUTERS



# A BRIEF HISTORY OF THE CITATION INDEX

- Concept first developed by Dr Eugene Garfield
  - *Science*, 1955
- The *Science Citation Index* (1963)
  - SCI print (1960's)
  - On-line with SciSearch in the 1970's
  - CD-ROM in the 1980's
  - Web interface (1997) *Web of Science*
- Content enhanced:
  - Social Sciences Citation Index (SSCI)
  - Arts & Humanities Citation Index (AHCI)
- The Citation Index
  - Primarily developed for purposes of information retrieval
  - Development of electronic media and powerful searching tools have increased its use and popularity for purposes of Research Evaluation



# USE OF WEB OF SCIENCE DATA IN MAJOR RESEARCH EVALUATIONS

- World Academic Rankings:

- ✓ Times Higher Education Ranking  
[www.timeshighereducation.co.uk](http://www.timeshighereducation.co.uk)

- ✓ ARWU (Shanghai) ranking [www.arwu.org](http://www.arwu.org)



- Major Country and EU-wide research evaluations:

- ✓ US National Science Foundation

- ✓ EU – Research Council

- ✓ And many others





# GOVERNMENTS AND INSTITUTIONS USING TR DATA FOR EVALUATION

- France: Min. de la Recherche, OST - Paris, CNRS
- Germany: Max Planck Society, several gov't labs, DKFZ, MDCUS: National Institutes of Health
- United Kingdom: King's College London; HEFCE
- European Union: EC's DGXII(Research Directorate)
- US: NSF: biennial Science & Engineering Indicators report (since 1974)
- Canada: NSERC, FRSQ (Quebec), Alberta Research Council
- Australian Academy of Science, gov't lab CSIRO
- Japan: Ministry of Education, Ministry of Economy, Trade & Industry
- People's Republic of China: Chinese Academy of Science
- Czech Republic: Czech Academy of Sciences; Government
- Etc.

# ISI WEB OF SCIENCE GLOBAL REACH TODAY: >5,000 CUSTOMERS IN 91 COUNTRIES

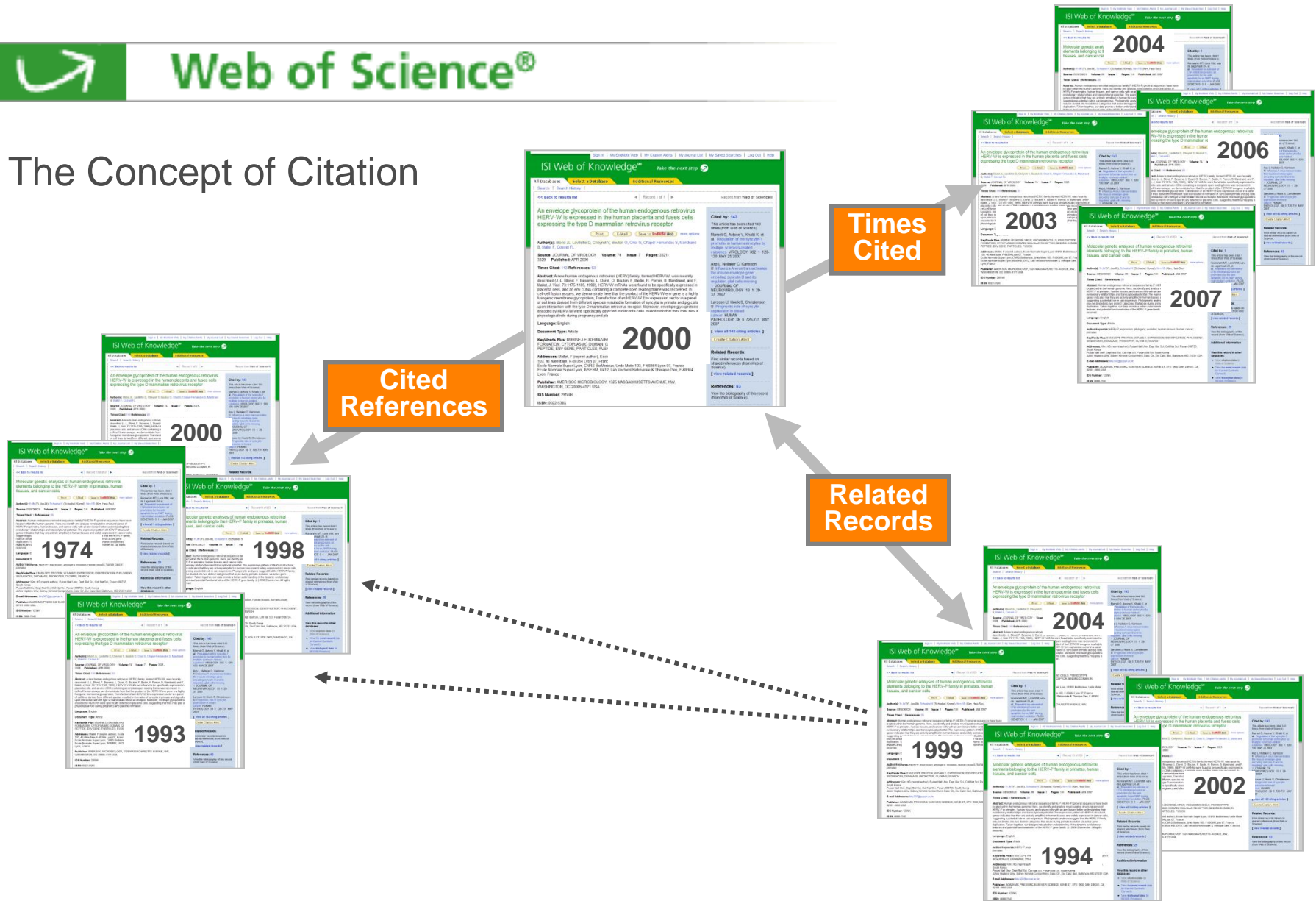


## *ISI Web of Science*

- 20 million individual users
- 150,000 users every day
- > 5,000 institutional users
- > 11,900 journals, > 47 million records, > 750 million cited references



## The Concept of Citation



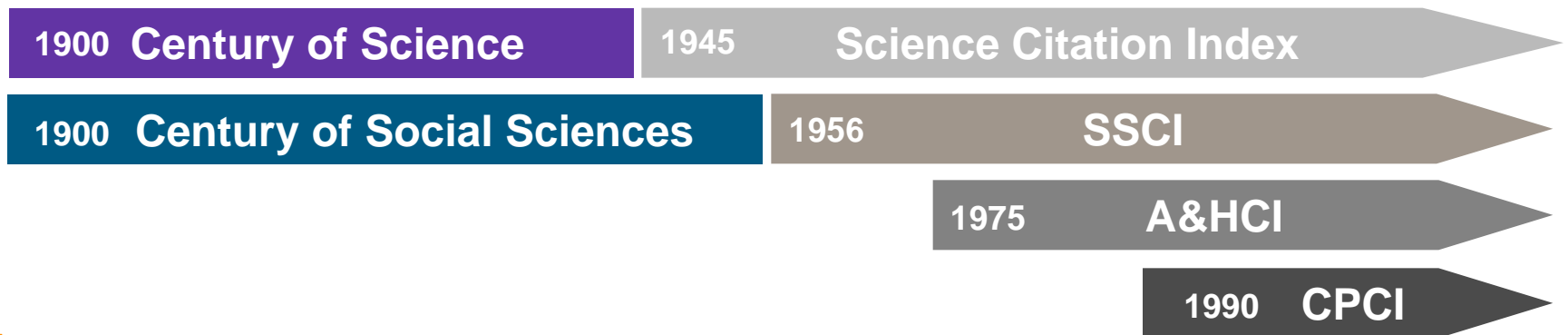
**Cited References**

**Times Cited**

**Related Records**

# Web of Science® overview

- Multidisciplinary- Science, Social Science, Arts & Humanities
- Largest citation index: >44 million records (1.9M in 2008)
- More than 11,000 unique journal titles
- More than 12,000 conferences covered annually
- Data is updated weekly with short indexing lag
- More than 100 years of uninterrupted coverage



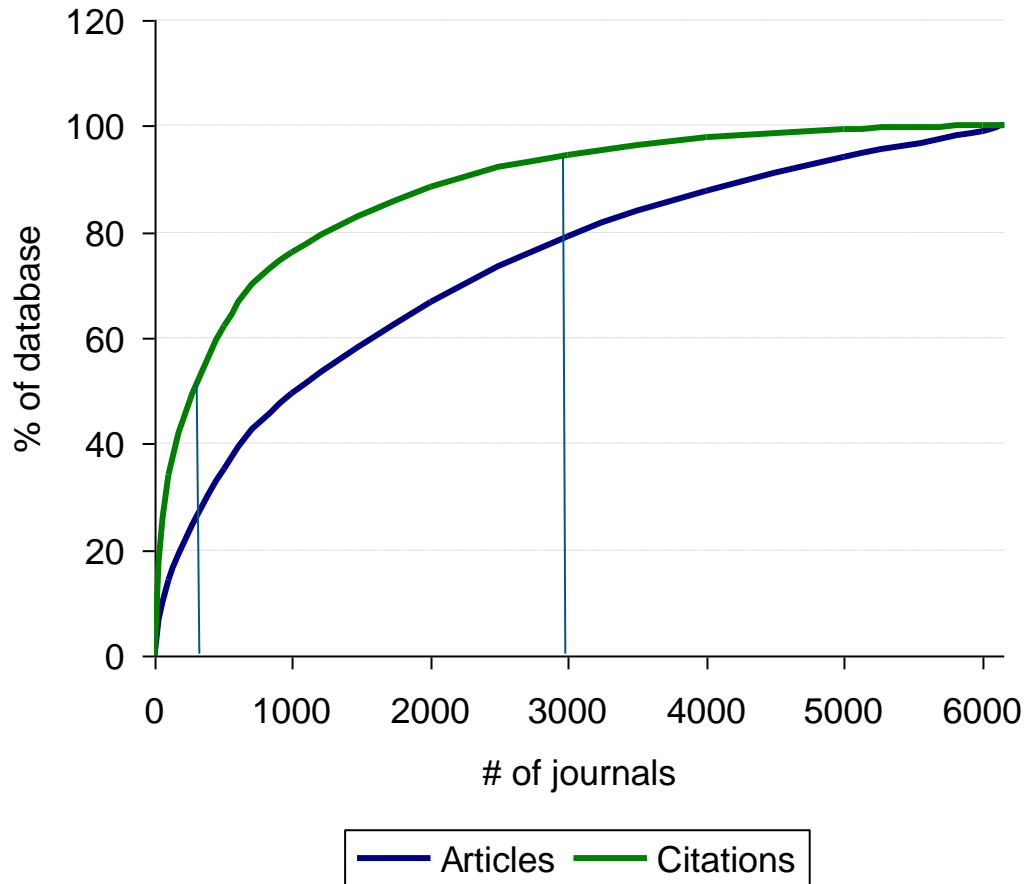


## Evaluated authoritative content

- Team of specialists evaluate journals to ensure that the content is trustworthy
- Third party evaluation of all journals regardless of source:
  - Commercial publishers
  - Academic societies
  - Open Access journals



## WHY BE SELECTIVE?



40% of the journals:

- 80% of the publications
- 92% of cited papers

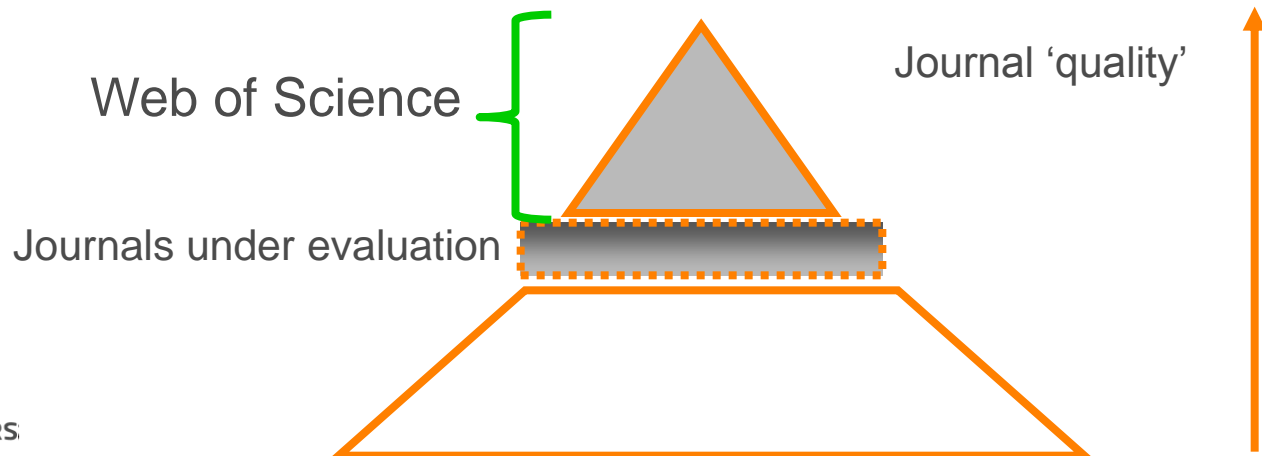
4% of the journals:

- 30% of the publications
- 51% of cited papers



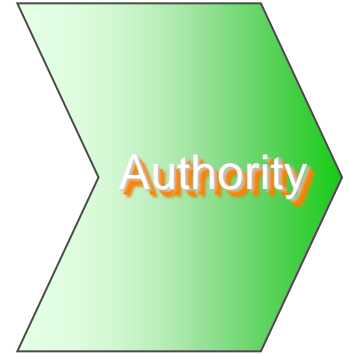
# WEB OF SCIENCE JOURNAL SELECTION POLICY

- Approx. 2000 journals evaluated annually
  - 10-12% accepted
- Thomson Reuters editors
  - Information professionals
  - Librarians
  - Experts in the literature of their subject area



# WHY EVALUATE JOURNALS?

Thomson Reuters' editorial staff review around 2,000 new journals annually. 10-12% of these journals are added



- **Basic publishing standards**
  - Timeliness, Follows publishing conventions, Peer Review
  - English language bibliographic information
- **Editorial content, International Diversity**
  - Will it enrich the database? Is it a hot topic?
- **Citation analysis**
  - Impact Factor, Immediacy index
  - How the journal compares to other journals in its field
  - Citation analysis of editorial board
- **More information:** [science.thomsonreuters.com/mjl](http://science.thomsonreuters.com/mjl)



REUTERS/Marcos Brindicci

# JOURNAL CITATION REPORTS AND IMPACT FACTOR



# JOURNAL CITATION REPORTS:

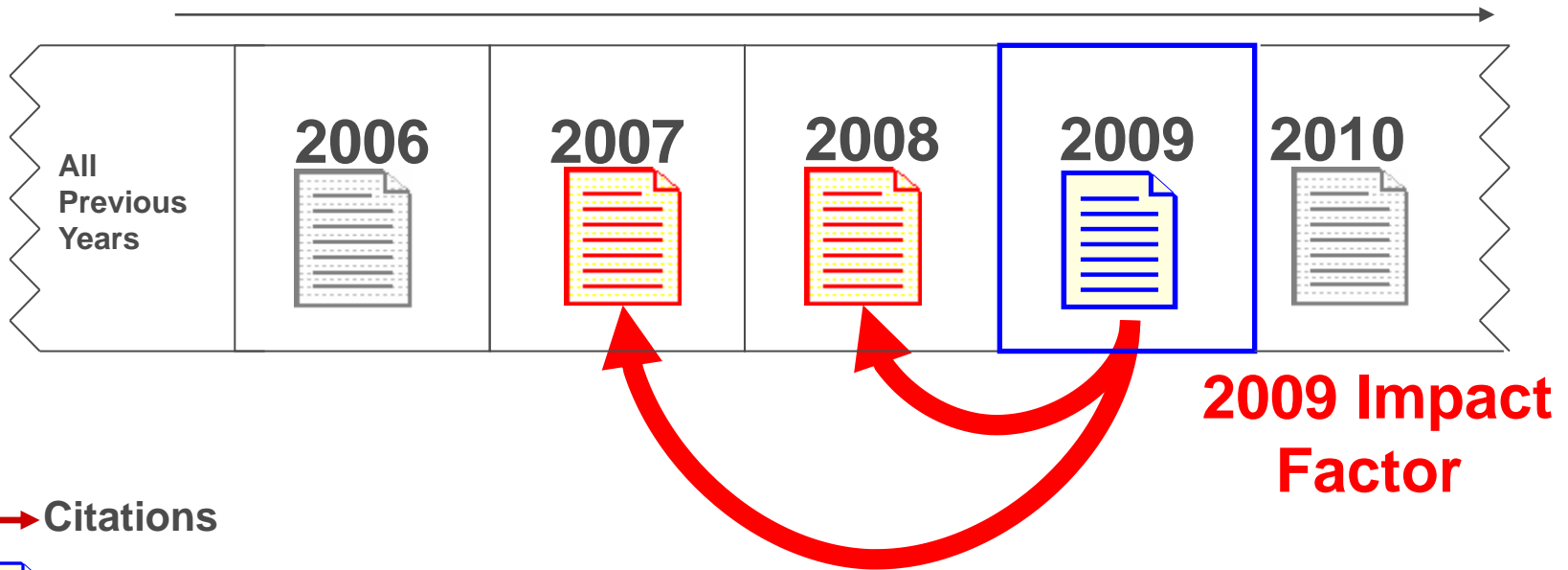
- A UNIQUE RESOURCE TOOL TO COMPARE AND EVALUATE JOURNALS
  - Coverage of the most influential science and social sciences journals
  - Delivers citation-based, objective evaluation through quantifiable, statistical data
  - Versatile data refinement, sorting and analysis tools
  - Valuable metrics such as **Impact Factor** and *Eigenfactor*<sup>TM</sup>
- Full integration with *ISI Web of Knowledge*<sup>SM</sup> data and tools



# WHY IS JCR USEFUL? WHO USES IT?


- You can:
  - Measure research influence and impact at the journal and category levels
  - Support academic curriculum and your library's collection development
  - Evaluate and document your institution's research investment
- Identify the most appropriate, influential journals in which to publish

# EFFICIENCY JOURNAL IMPACT FACTOR



**2009 Impact  
Factor**

→ Citations

 Source paper – published in 2009

 Cited reference – published in 2007 or 2008



# 2009 JCR IMPACT FACTOR CALCULATION

2009 CITES TO 2008 + 2007 CONTENT

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TOTAL # ARTICLES PUBLISHED IN 2008 + 2007

**An Impact Factor IS:** A journal level metric, normalizes citation count by the amount of scholarly citable content

**An Impact Factor is NOT:** An article level metric. Individual article citation counts vary greatly even within a single volume and year.

# CALCULATING 2008 IMPACT FACTOR PHYSICS-USPEKHI

## Citations in 2008

To items published in 2007 = 110

To items published in 2006 = 189

Sum = 299

299

= 2,471

## Number of items

Published in 2007 = 59

Published in 2006 = 62

Sum = 121

121



# Journal Citation Reports

- Impact Factor – indicator shown exclusively in Journal Citation Reports
  - Measure research influence and impact at the journal and category levels
  - Support academic curriculum and your library’s collection development
  - Evaluate and document your institution’s research investment
- Identify the most appropriate, influential journals in which to publish

Mark	Rank	Abbreviated Journal Title <i>(linked to journal information)</i>	ISSN		
				Total Cites	Impact Factor
<input type="checkbox"/>	1	<a href="#">NAT PHOTONICS</a>	1749-4885	1745	24.982
<input type="checkbox"/>	2	<a href="#">NAT MATER</a>	1476-1122	18902	23.132
<input type="checkbox"/>	3	<a href="#">MAT SCI ENG R</a>	0927-796X	3435	12.619
<input type="checkbox"/>	4	<a href="#">ADV FUNCT MATER</a>	1616-301X	12257	6.808
<input type="checkbox"/>	5	<a href="#">SMALL</a>	1613-6810	5016	6.525
<input type="checkbox"/>	6	<a href="#">MRS BULL</a>	0883-7694	4295	5.290
<input type="checkbox"/>	7	<a href="#">PROG ELECTROMAGN RES</a>	1559-8985	3346	4.735
<input type="checkbox"/>	8	<a href="#">LASER PART BEAMS</a>	0263-0346	1352	4.420
<input type="checkbox"/>	9	<a href="#">LASER PHOTONICS REV</a>	1863-8880	87	4.357
<input type="checkbox"/>	10	<a href="#">APPL PHYS LETT</a>	0003-6951	179925	3.726

Category: Physics, applied



# Research Evaluation based on Web of Science

## Few Examples From Azerbaijan



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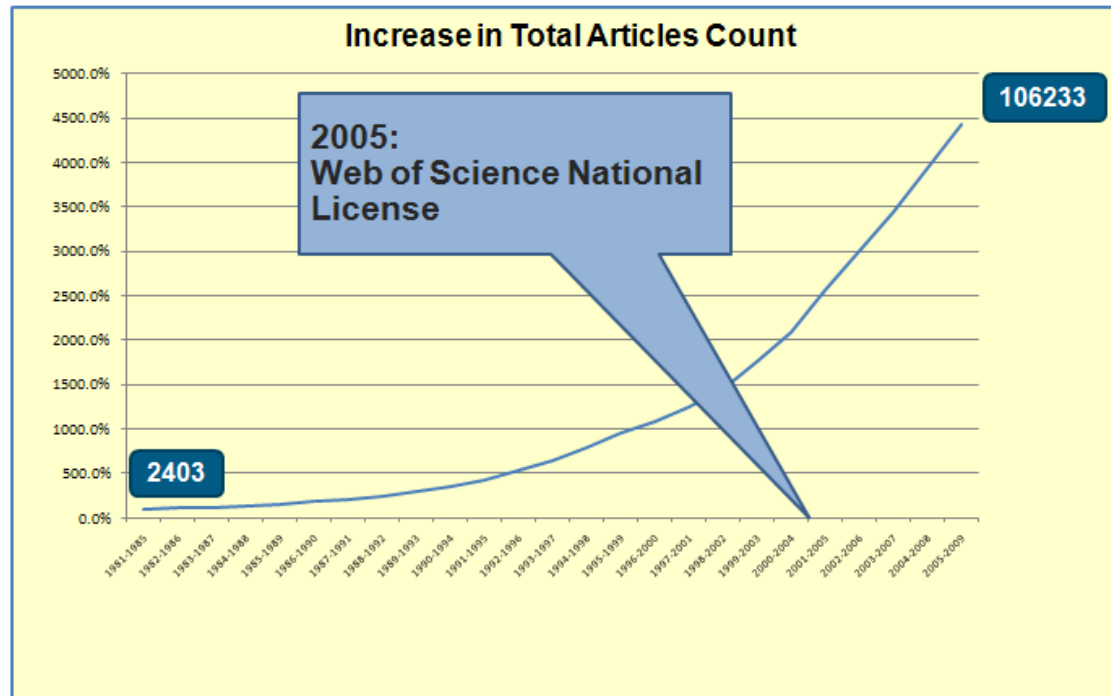
# RESEARCH EVALUATION

- Citation analysis based on world's standard.....
- Although the main objective of the Web of Science is intended to aid researchers to retrieve information, it is also commonly used as a research evaluation tool:
  - Count Papers → measure productivity
  - Count Citations → measure utility and influence
- Based on the concept that if an article is cited it is an influential paper, or has had an impact upon the research community.
- This concept can be extended beyond individual articles and used to evaluate:
  - Authors
  - Journals
  - Topics
  - Counties and geographic regions
  - Institutions

# HELPING BOOST VISIBILITY AND INFLUENCE OF AZERBAIJAN'S RESEARCH

Web of Science subscription helps increase the number of articles published  
in world's most influential journals

## Turkey Performance in the Web of Science Total Number of Articles 1981-2009





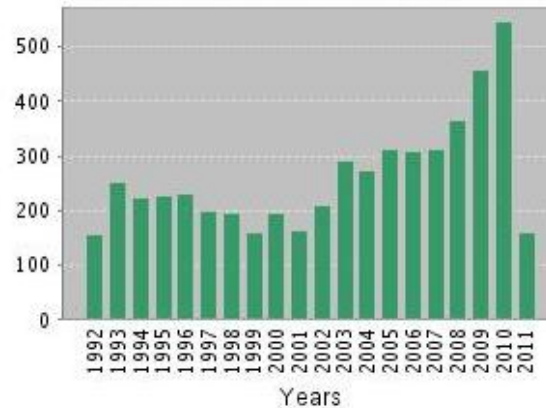


# A SIMPLE ANALYSIS OF RESEARCH IN AZERBAIJAN

## DATA FROM 05/2011

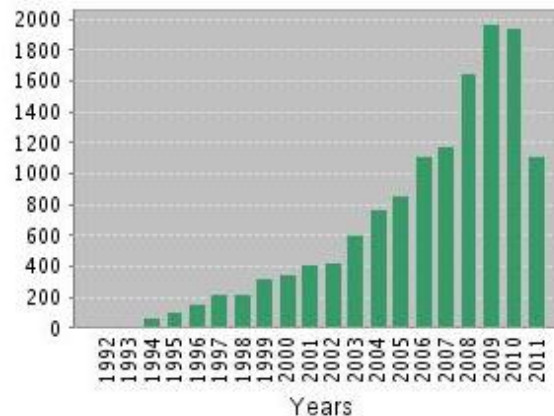
More than 5,000 journal articles and conference proceedings

**Published Items in Each Year**



These works have been cited more than 13,500 times

**Citations in Each Year**



# Which Azerbaijani institutions have the highest number of articles in the Web of Science?

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Azerbaijan Academy of Sciences

Baku State University

Azerbaijan State Oil Academy

Azerbaijan Technical University

Azerbaijan Medical University



# Azerbaijan: In which subject areas most articles were published? (top 10)

Field: Subject Area	Record Count	% of 5393	Bar Chart
MATERIALS SCIENCE, MULTIDISCIPLINARY	495	9.1786 %	
PHYSICS, CONDENSED MATTER	447	8.2885 %	
CHEMISTRY, PHYSICAL	418	7.7508 %	
PHYSICS, APPLIED	386	7.1574 %	
CHEMISTRY, ORGANIC	352	6.5270 %	
MATHEMATICS	342	6.3416 %	
ENGINEERING, CHEMICAL	278	5.1548 %	
ENERGY & FUELS	236	4.3760 %	
CHEMISTRY, APPLIED	217	4.0237 %	
OPTICS	211	3.9125 %	

# The most highly cited articles of Azerbaijani researchers

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1. Title: [Elucidating the molecular mechanism of the permeability transition pore and its role in reperfusion injury of the heart](#)  
Author(s): Halestrap AP, Kerr PM, Javadov S, et al.  
Source: **BIOCHIMICA ET BIOPHYSICA ACTA-BIOENERGETICS** Volume: 1366 Issue: 1-2 Pages: 79-94 Published: **AUG 10 1998**  
Times Cited: **289**

 [Full Text](#)
2. Title: [Update on Avian Influenza A \(H5N1\) virus infection in humans](#)  
Author(s): Abdel-Ghafar AN, Chotpitayasunondh T, Gao ZC, et al.  
Source: **NEW ENGLAND JOURNAL OF MEDICINE** Volume: 358 Issue: 3 Pages: 261-273 Published: **JAN 17 2008**  
Times Cited: **263**

 [Full Text](#)
3. Title: [Ischaemic preconditioning inhibits opening of mitochondrial permeability transition pores in the reperfused rat heart](#)  
Author(s): Javadov SA, Clarke S, Das M, et al.  
Source: **JOURNAL OF PHYSIOLOGY-LONDON** Volume: 549 Issue: 2 Pages: 513-524 Published: **JUN 1 2003**  
Times Cited: **149**

 [Full Text](#)
4. Title: [The ATLAS Experiment at the CERN Large Hadron Collider](#)  
Author(s): Aad G, Abat E, Abdallah J, et al.  
Source: **JOURNAL OF INSTRUMENTATION** Volume: 3 Article Number: S08003 Published: **AUG 2008**  
Times Cited: **146**

 [Full Text](#)
5. Title: [The effects of ischaemic preconditioning, diazoxide and 5-hydroxydecanoate on rat heart mitochondrial volume and respiration](#)  
Author(s): Lim KHH, Javadov SA, Das M, et al.  
Source: **JOURNAL OF PHYSIOLOGY-LONDON** Volume: 545 Issue: 3 Pages: 961-974 Published: **DEC 15 2002**  
Times Cited: **137**

 [Full Text](#)



# Web of Science Record – Article Abstract

## Terrestrial methane seeps and mud volcanoes: A global perspective of gas origin

Full Text



Print

E-mail

Add to Marked List

Save to EndNote Web

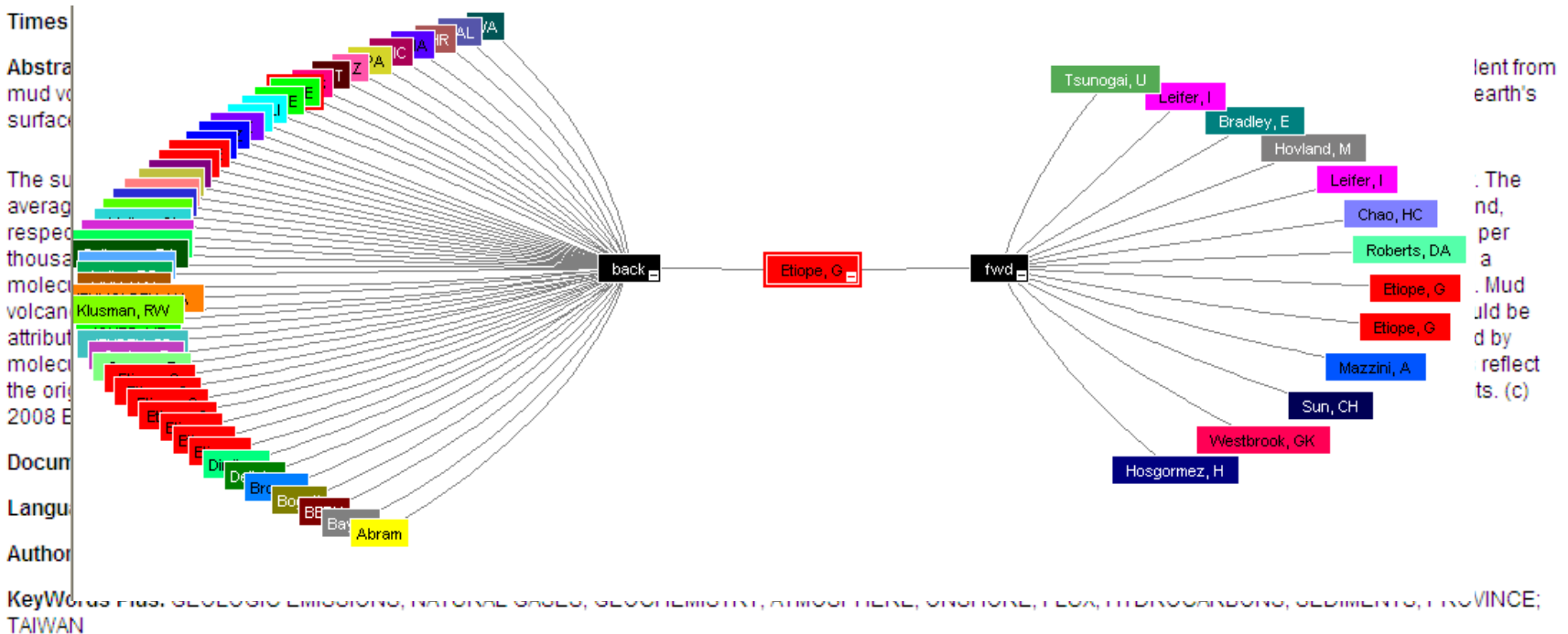
Save to EndNote, RefMan, ProCite

Save to RefWorks

more options

Author(s): Etiope G (Etiope, Giuseppe)<sup>1</sup>, Feyzullayev A (Feyzullayev, Akper)<sup>2</sup>, Baciu CL (Baciu, Calin L.)<sup>3</sup>

Source: MARINE AND PETROLEUM GEOLOGY Volume: 26 Issue: 3 Pages: 333-344 Published: MAR 2009



Reprint Address: Etiope, G (reprint author), Ist Nazl Geofis & Vulcanol, Sez Roma 2, Via V Murata 605, I-00143 Rome, Italy

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Thank you!

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