European Commission

Excellence Mapping: Bibliometric study of the productivity and the impact of scientific publications of the JRC

Mapping of scientific areas and application areas
Volume 1: General analysis and benchmarking
Additional Document: Normalised benchmarking results by scientific sub-area

Mihaela Bobeica, Guy Bordin, Grazia Federico, Mayya Hristova and Vera Calenbuhr

Joint Research Centre

Excellence Mapping: Bibliometric study of the productivity and the impact of scientific publications of the JRC

Mapping of scientific areas and application areas

Volume 1: General analysis and benchmarking

Additional document: Normalised benchmarking results by scientific sub-area

This publication is a Technical report by the Joint Research Centre, the European Commission's in-house science service. It aims to provide evidence-based scientific support to the European policy-making process. The scientific output expressed does not imply a policy position of the European Commission. Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of this publication.

Table of contents

Environmental Science

Important note: In the following graphs, the Top-15 institutions are those in term of absolute number of citations.

For each criterion, the best of the Top-15 institutions (that with the highest value) is given the reference value 100.

General Environmental Science

General Environmental Science

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

JRC   World

Top 15 institutions by N of citations (lowest value)   Top 15 institutions by N of citations (highest value)

Waste Management and Disposal

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license.

Environmental Chemistry

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license.

Management, Monitoring, Policy and Law

Management, Monitoring, Policy & Law

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license.

Pollution

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the
most-cited publications (%)

Publications in the top 10% of the
most-cited journals (%)

Pollution

JRC

World

Top 15 institutions by N of citations (lowest value)

Top 15 institutions by N of citations (highest value)

Health, Toxicology and Mutagenesis

Health, Toxicology & Mutagenesis

Citations per publication · Cited publications (%) · Field-weighted citation impact · Publications in the top 10% of the most-cited publications (%) · Publications in the top 10% of the most-cited journals (%)

Legend: JRC — World — Top 15 institutions by N of citations (lowest value) — Top 15 institutions by N of citations (highest value)

Ecology

Water Science and Technology

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license.

Ecological Modelling

Earth and Planetary Sciences

Important note: In the following graphs, the Top-15 institutions are those in term of absolute number of citations.

For each criterion, the best of the Top-15 institutions (that with the highest value) is given the reference value 100.

Atmospheric Science

General Earth and Planetary Sciences

General Earth & Planetary Sciences

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

JRC

World

Top 15 institutions by N of citations (lowest value)

Top 15 institutions by N of citations (highest value)

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license.

Computers in Earth Sciences
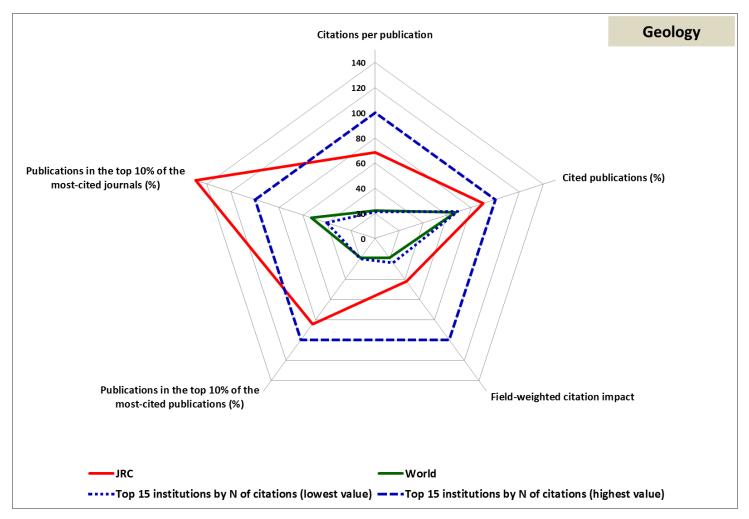
Oceanography

Geophysics

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license.
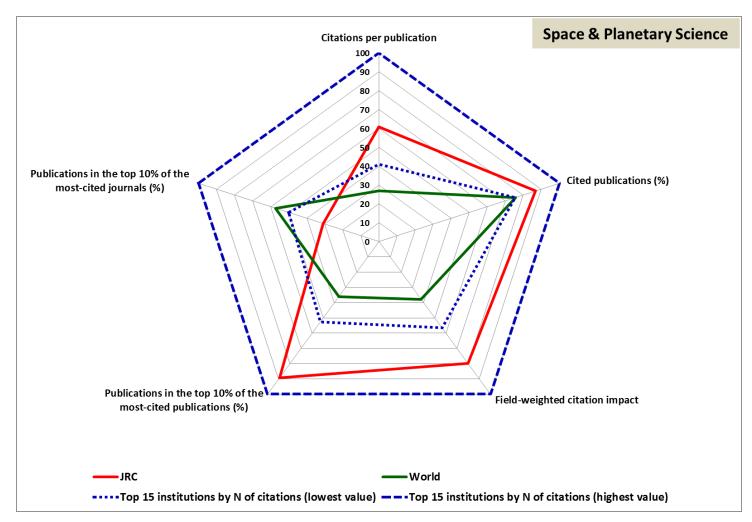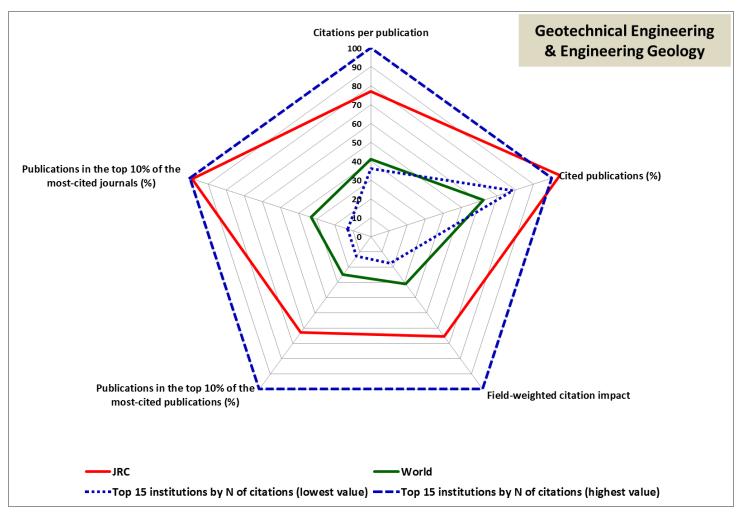
Geology

Space and Planetary Science

Space & Planetary Science

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

JRC

World

Top 15 institutions by N of citations (lowest value)

Top 15 institutions by N of citations (highest value)

Geotechnical Engineering and Engineering Geology

Geotechnical Engineering & Engineering Geology

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

JRC — World — Top 15 institutions by N of citations (lowest value) — Top 15 institutions by N of citations (highest value)
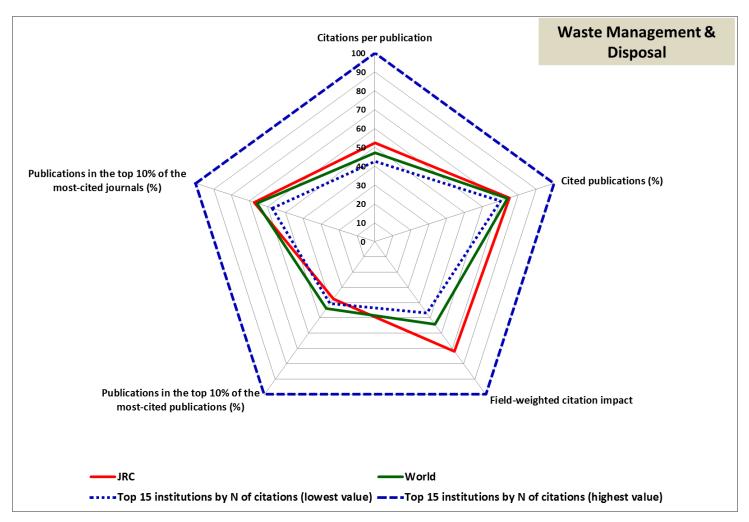
Physics and Astronomy

Important note: In the following graphs, the Top-15 institutions are those in term of absolute number of citations.

For each criterion, the best of the Top-15 institutions (that with the highest value) is given the reference value 100.
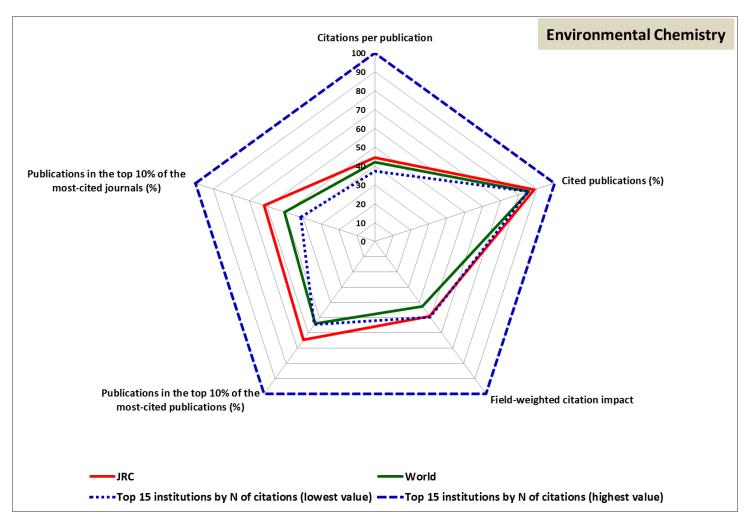
Atomic, Molecular Physics and Optics
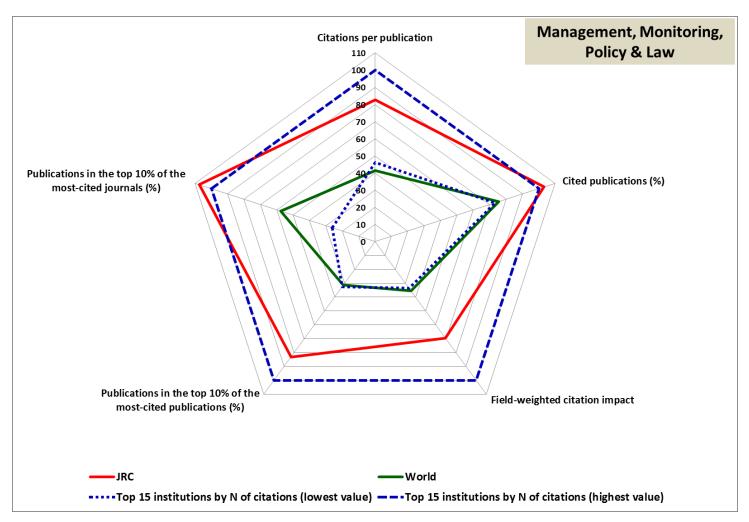

Atomic, Molecular Physics & Optics

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

JRC

World

Top 15 institutions by N of citations (lowest value)

Top 15 institutions by N of citations (highest value)

Radiation

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license

Instrumentation

Instrumentation

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

— JRC
— World
······ Top 15 institutions by N of citations (lowest value)   - - - Top 15 institutions by N of citations (highest value)

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license

Condensed Matter Physics

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license

Nuclear and High Energy Physics

Nuclear & High Energy Physics radar chart with axes: Citations per publication (scale 0–100), Cited publications (%), Field-weighted citation impact, Publications in the top 10% of the most-cited publications (%), Publications in the top 10% of the most-cited journals (%). Legend: JRC (red), World (green), Top 15 institutions by N of citations (lowest value) (blue dotted), Top 15 institutions by N of citations (highest value) (blue dashed).

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license
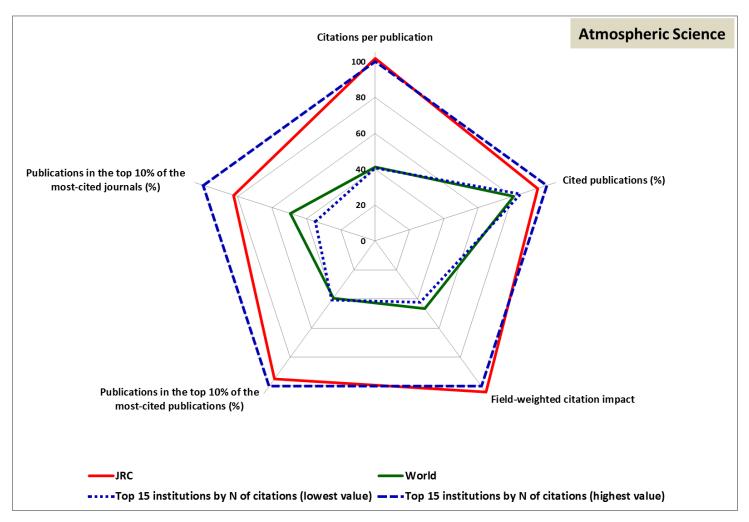
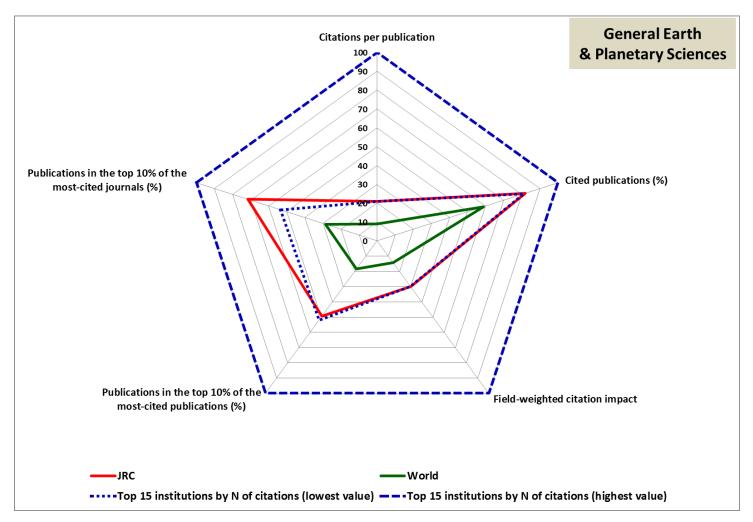# Agricultural and Biological Sciences

Important note: In the following graphs, the Top-15 institutions are those in term of absolute number of citations.
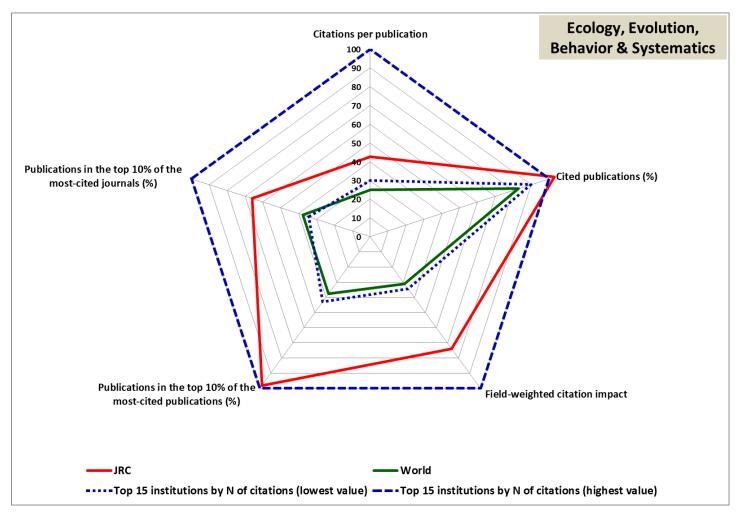
For each criterion, the best of the Top-15 institutions (that with the highest value) is given the reference value 100.
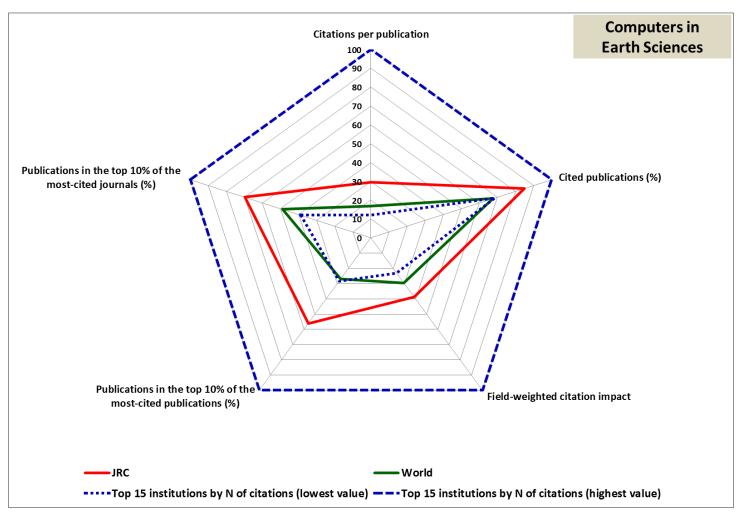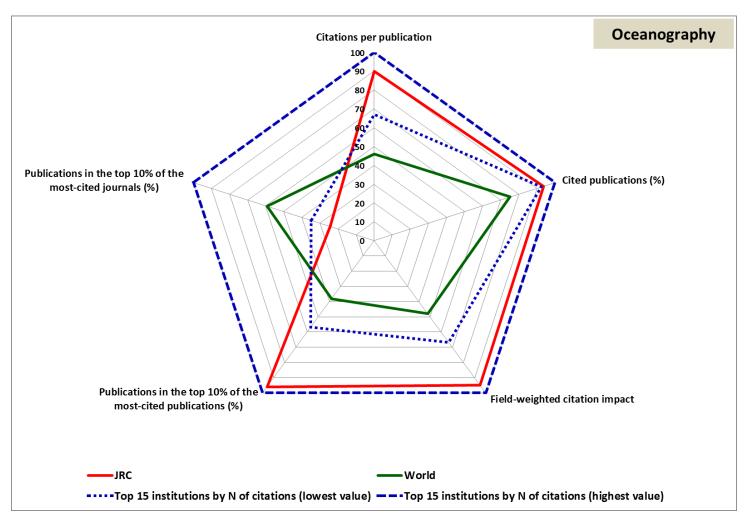
Aquatic Science

Aquatic Science

Citations per publication

100
90
80
70
60
50
40
30
20
10
0

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

JRC
World
Top 15 institutions by N of citations (lowest value)
Top 15 institutions by N of citations (highest value)
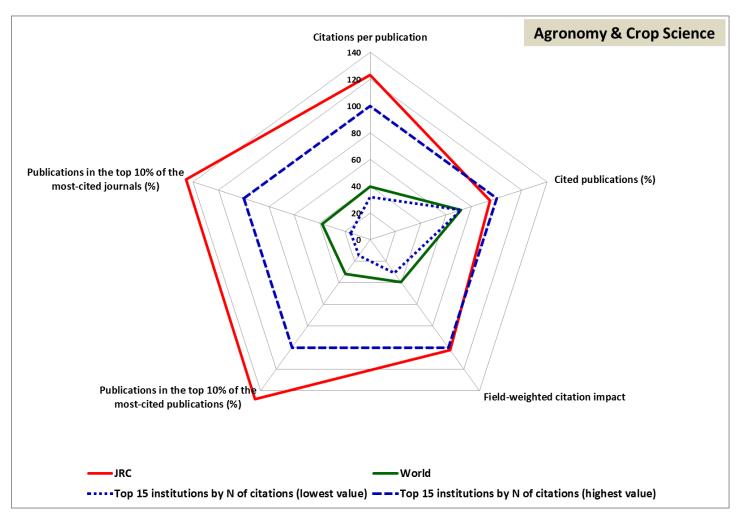
Ecology, Evolution, Behavior and Systematics

Food Science
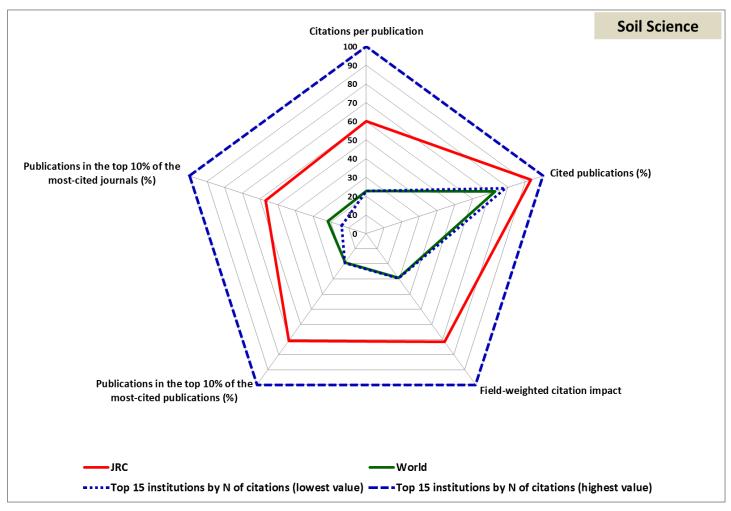
Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license
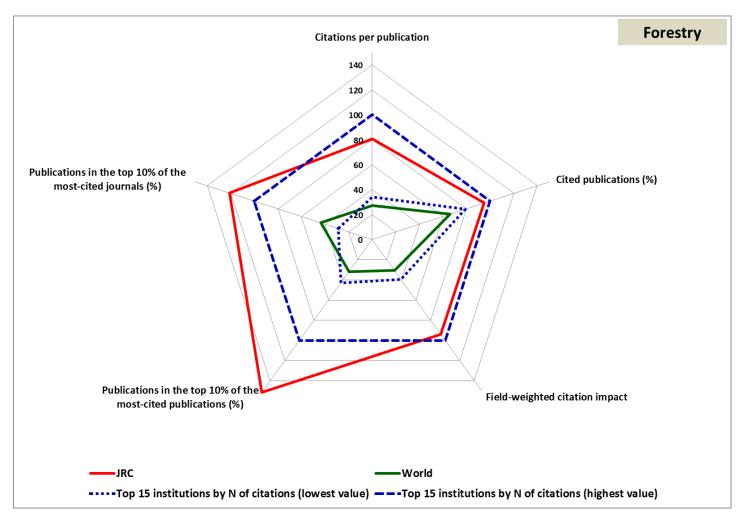
Agronomy and Crop Science

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license
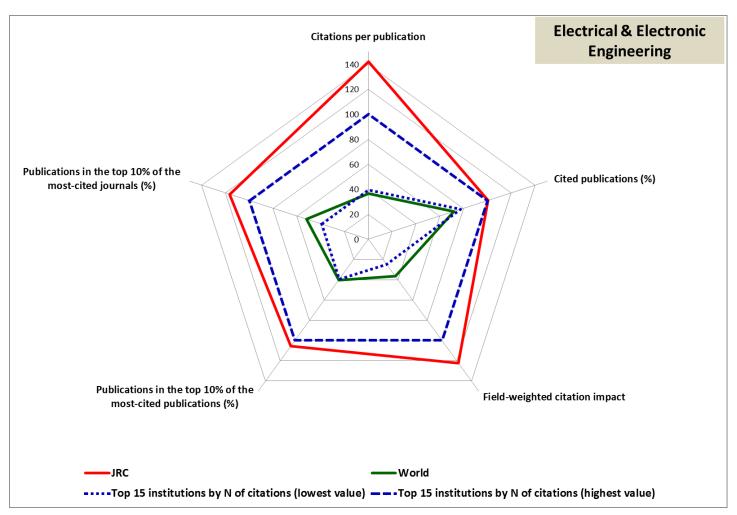
Soil Science

Forestry

Engineering
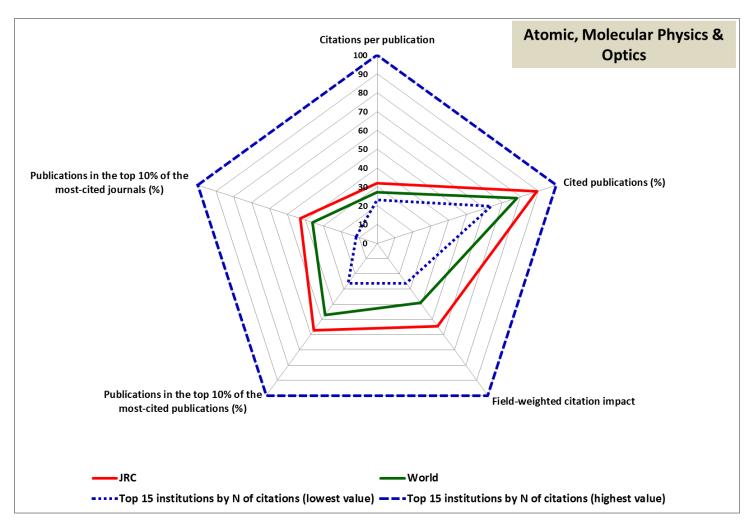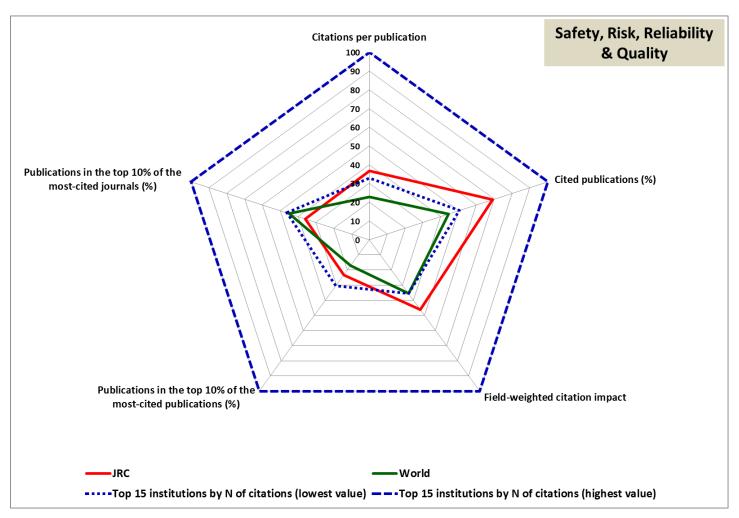
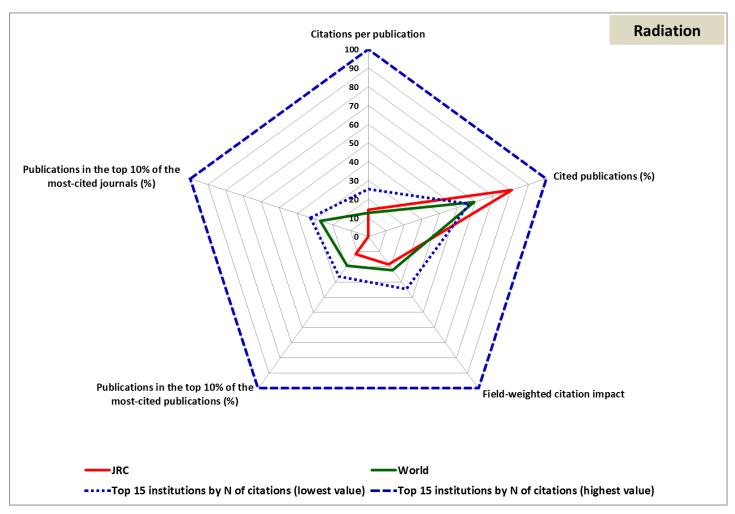**Important note: In the following graphs, the Top-15 institutions are those in term of absolute number of citations.**

For each criterion, the best of the Top-15 institutions (that with the highest value) is given the reference value 100.
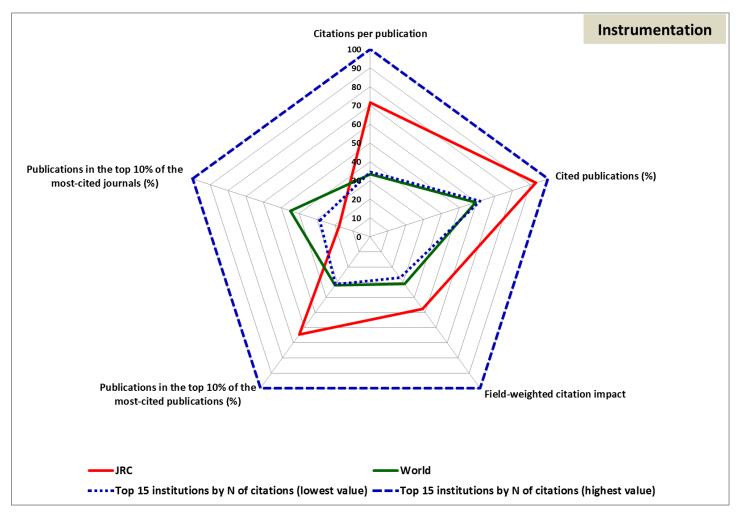
Electrical and Electronic Engineering

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license

Safety, Risk, Reliability and Quality

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license

Mechanical Engineering

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license
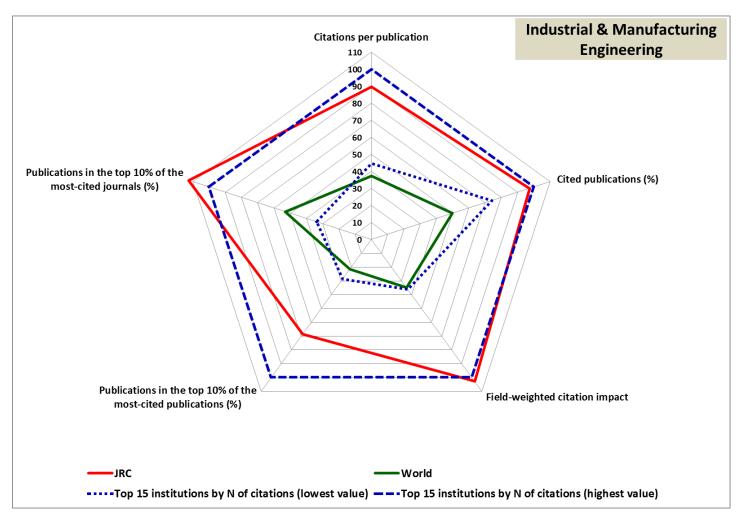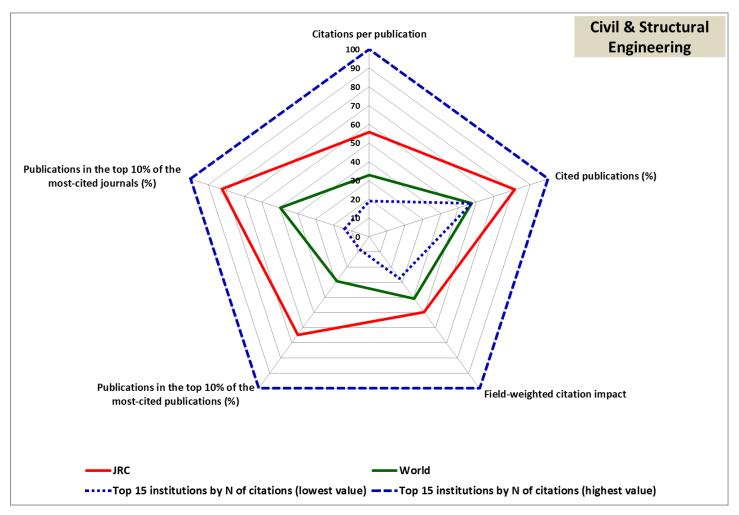
Mechanics of Materials
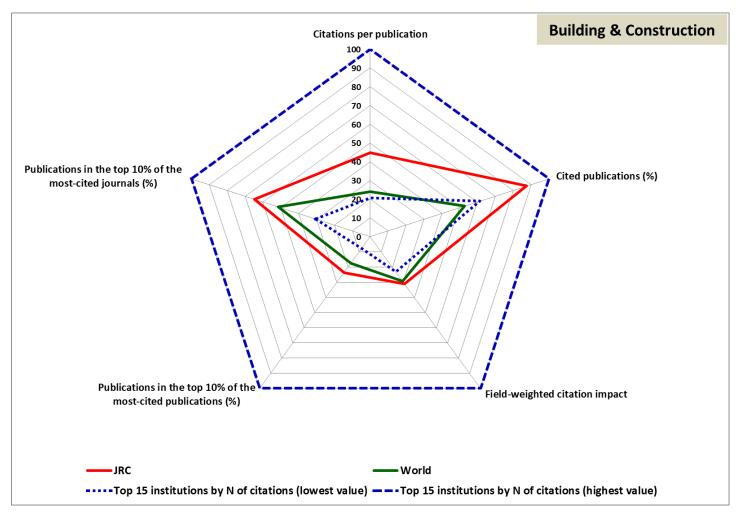
Industrial and Manufacturing Engineering

Industrial & Manufacturing Engineering

Citations per publication

110
100
90
80
70
60
50
40
30
20
10
0

Publications in the top 10% of the most-cited journals (%)

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

— JRC
— World
····· Top 15 institutions by N of citations (lowest value)
--- Top 15 institutions by N of citations (highest value)

Civil and Structural Engineering

Civil & Structural Engineering

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

JRC

World

Top 15 institutions by N of citations (lowest value)

Top 15 institutions by N of citations (highest value)

Building and Construction

Building & Construction

Citations per publication

100
90
80
70
60
50
40
30
20
10
0

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

JRC

World

Top 15 institutions by N of citations (lowest value)   Top 15 institutions by N of citations (highest value)

Chemistry

Important note: In the following graphs, the Top-15 institutions are those in term of absolute number of citations.

For each criterion, the best of the Top-15 institutions (that with the highest value) is given the reference value 100.
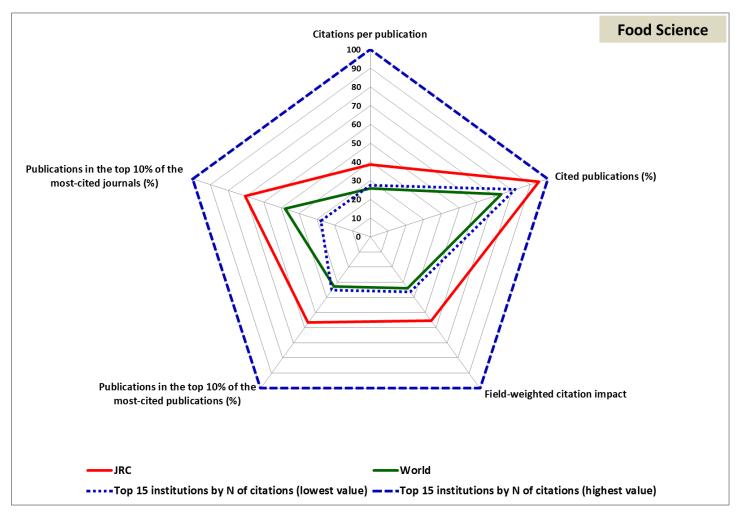
General Chemistry

General Chemistry

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

JRC
World
Top 15 institutions by N of citations (lowest value)
Top 15 institutions by N of citations (highest value)
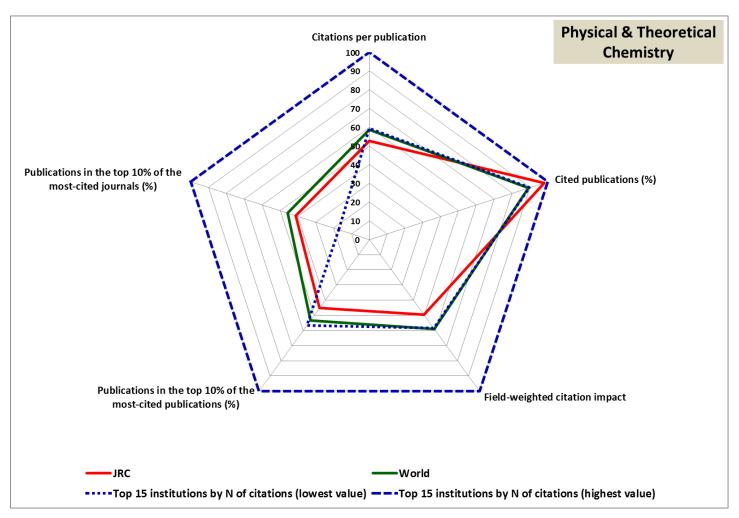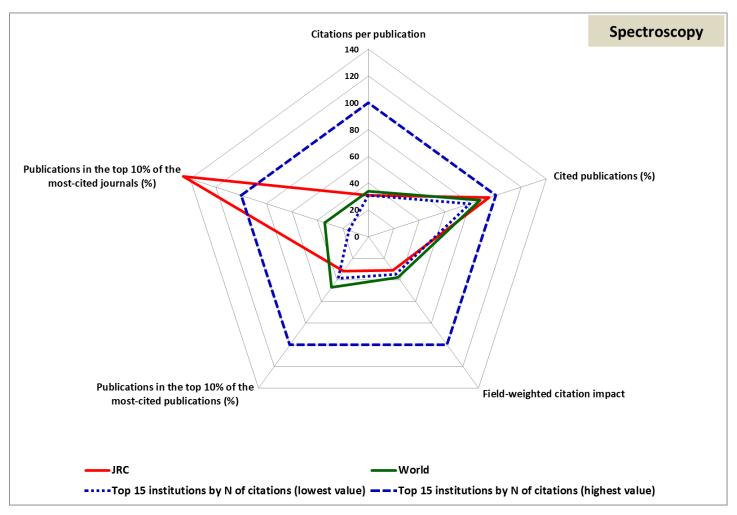
Analytical Chemistry
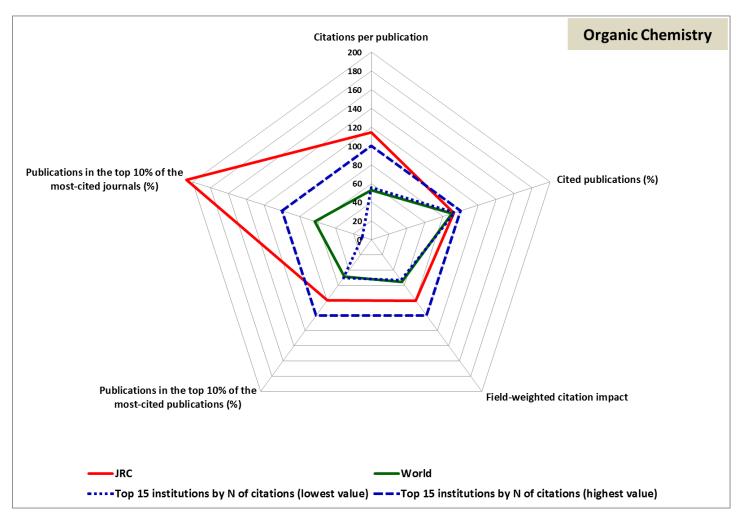
Physical and Theoretical Chemistry

Spectroscopy
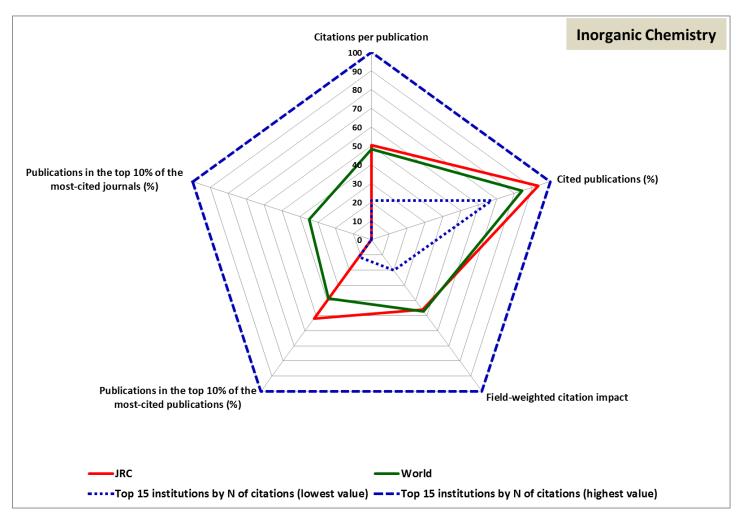
Spectroscopy

Organic Chemistry

Organic Chemistry

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

JRC
World
Top 15 institutions by N of citations (lowest value)
Top 15 institutions by N of citations (highest value)

Inorganic Chemistry

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license

Energy

Important note: In the following graphs, the Top-15 institutions are those in term of absolute number of citations.

For each criterion, the best of the Top-15 institutions (that with the highest value) is given the reference value 100.
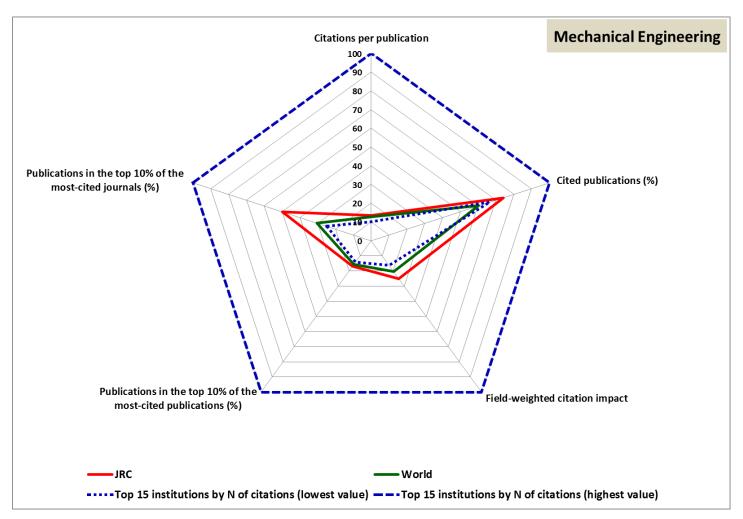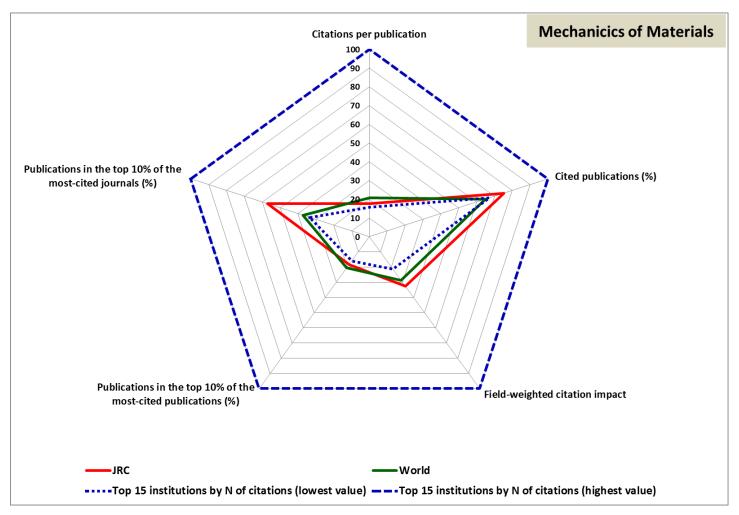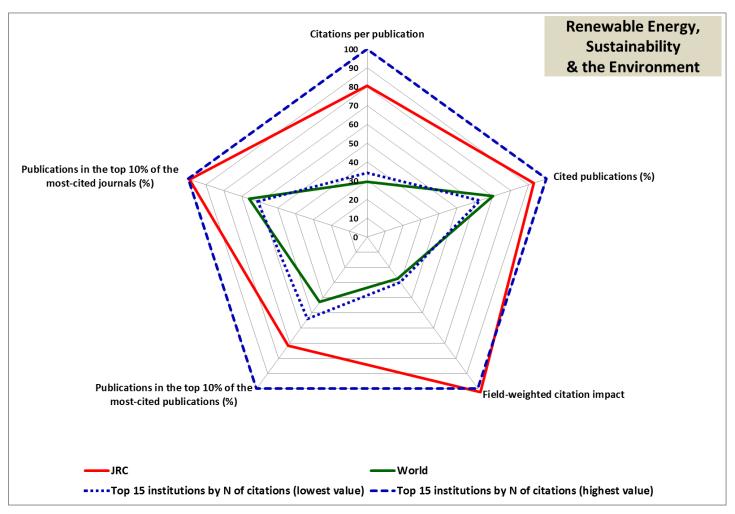
Nuclear Energy and Engineering
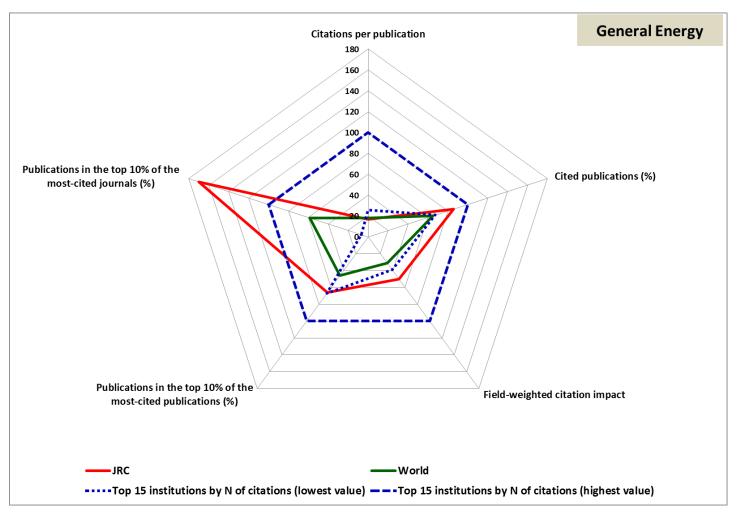
Energy Engineering and Power Technology
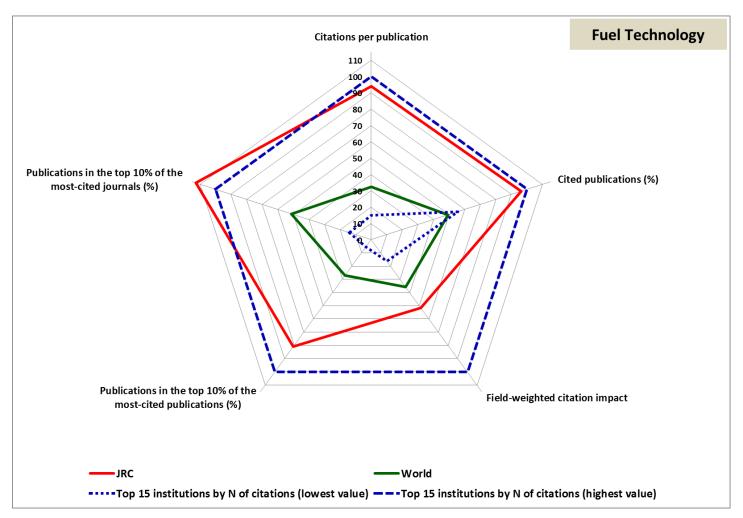
Renewable Energy, Sustainability and the Environment

General Energy

Fuel Technology
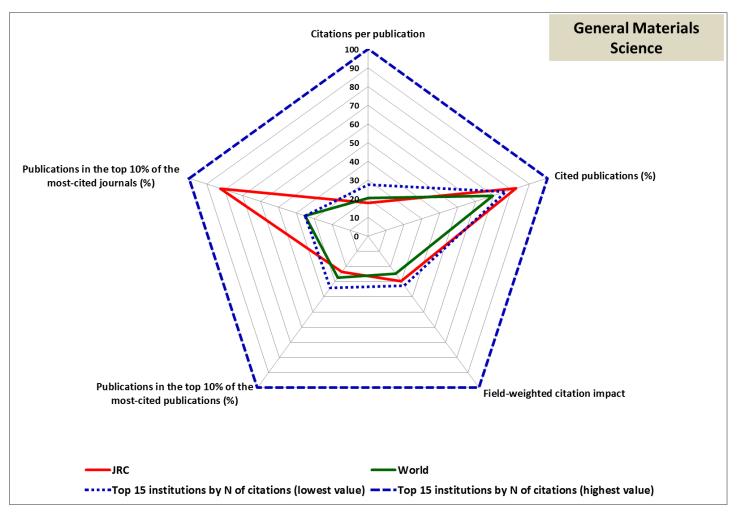
Materials Science
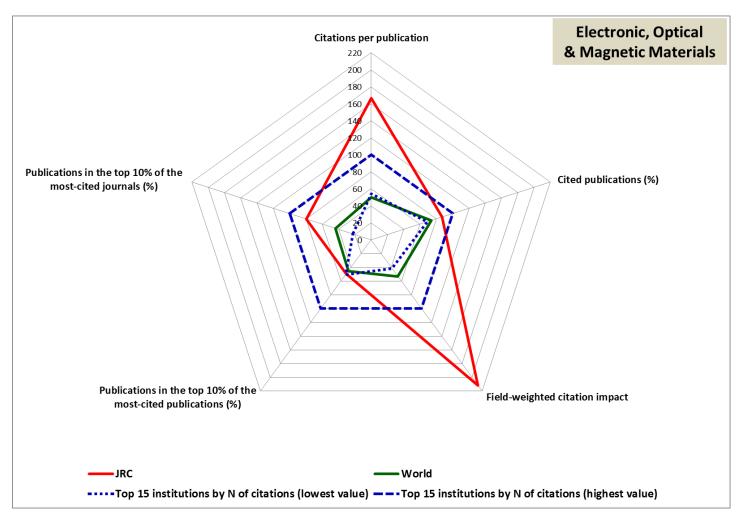
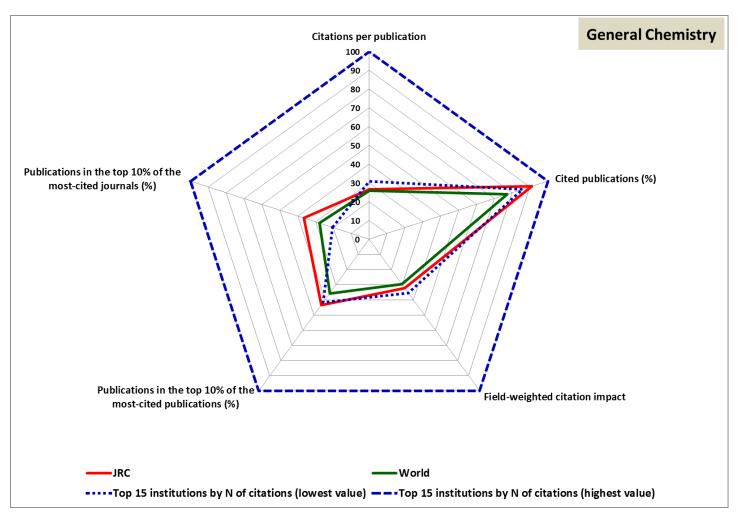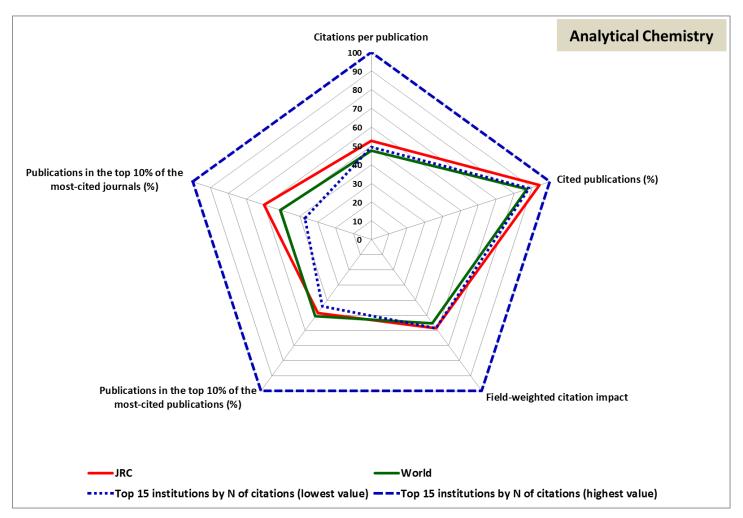**Important note: In the following graphs, the Top-15 institutions are those in term of absolute number of citations.**

For each criterion, the best of the Top-15 institutions (that with the highest value) is given the reference value 100.

General Materials Science

General Materials Science

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

JRC
World
Top 15 institutions by N of citations (lowest value)
Top 15 institutions by N of citations (highest value)
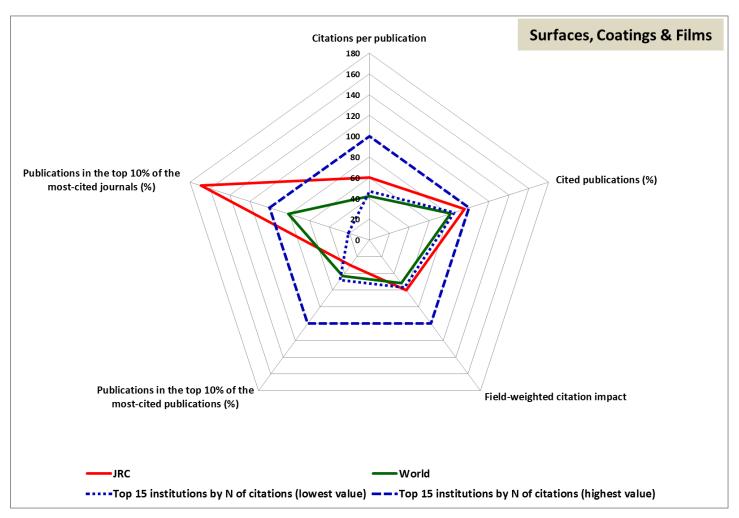
Electronic, Optical and Magnetic Materials

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

Electronic, Optical & Magnetic Materials

JRC
World
Top 15 institutions by N of citations (lowest value)
Top 15 institutions by N of citations (highest value)

Materials Chemistry

Materials Chemistry

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license

Surfaces, Coatings and Films

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license

Pharmacology, Toxicology and Pharmaceutics

Important note: In the following graphs, the Top-15 institutions are those in term of absolute number of citations.

For each criterion, the best of the Top-15 institutions (that with the highest value) is given the reference value 100.

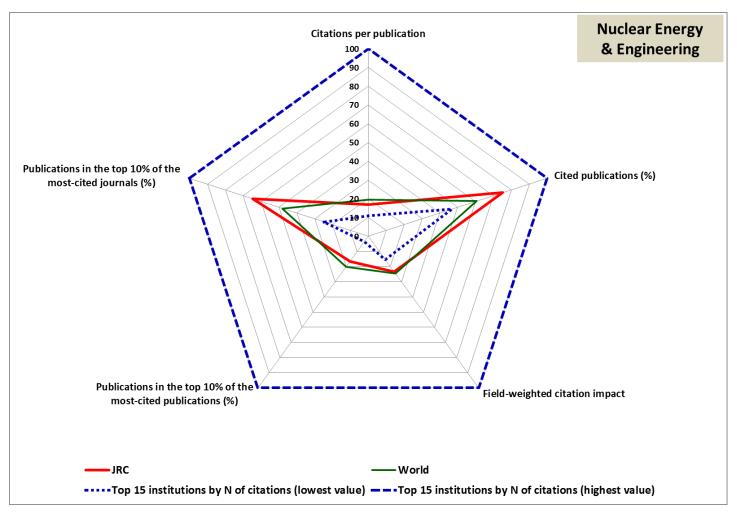# Toxicology
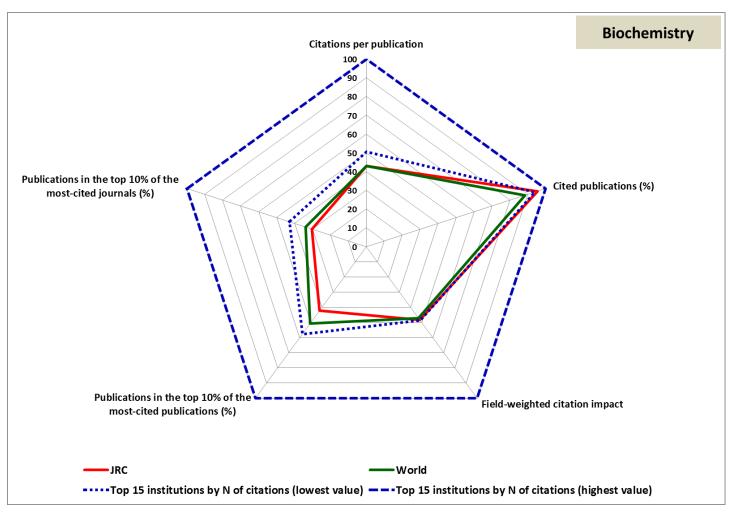
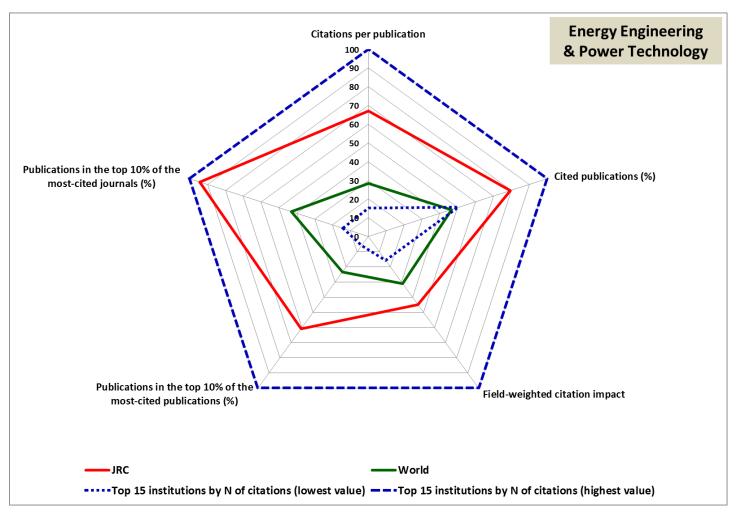# Biochemistry, Genetics and Molecular Biology
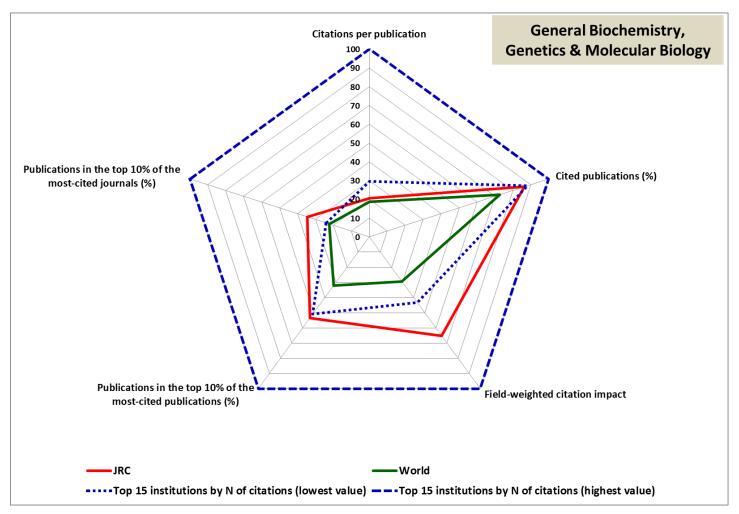
Important note: In the following graphs, the Top-15 institutions are those in term of absolute number of citations.

For each criterion, the best of the Top-15 institutions (that with the highest value) is given the reference value 100.
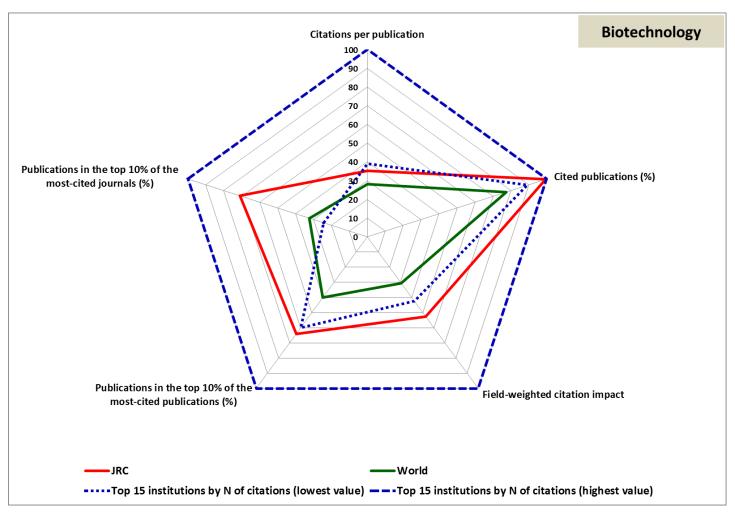
Biochemistry

General Biochemistry, Genetics and Molecular Biology

General Biochemistry, Genetics & Molecular Biology

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license
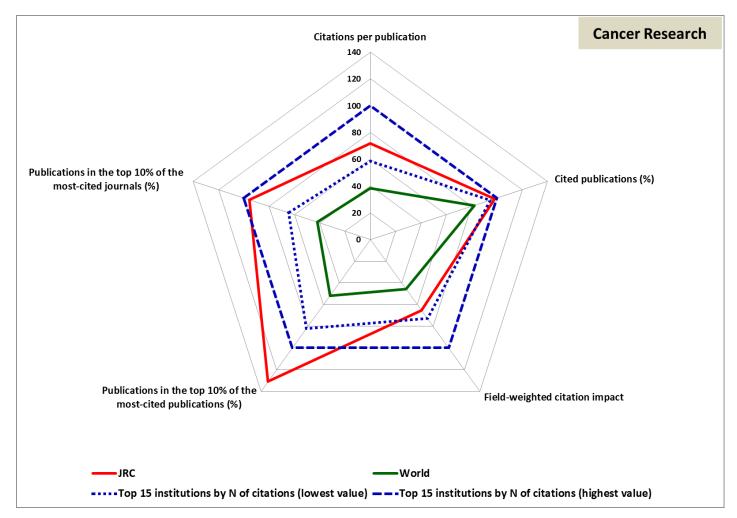
Biotechnology

Cancer Research

Cancer Research
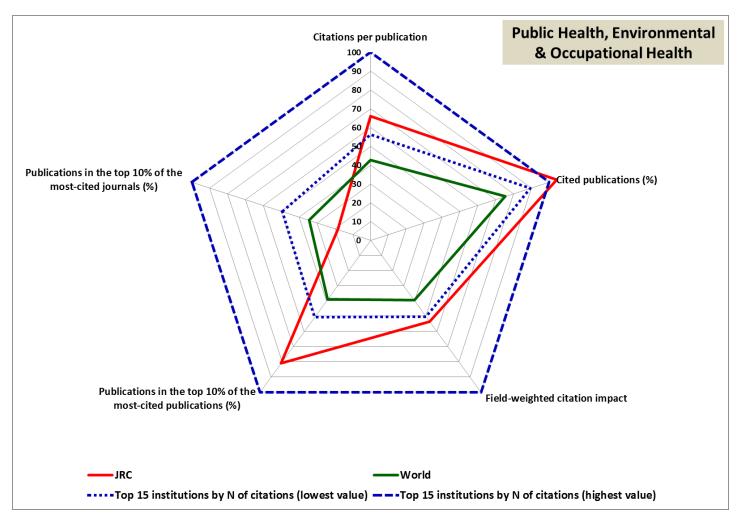
Caution: the absolute number of JRC publications in the subarea "Cancer Research" is very low (10)

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license

Medicine

Important note: In the following graphs, the Top-15 institutions are those in term of absolute number of citations.

For each criterion, the best of the Top-15 institutions (that with the highest value) is given the reference value 100.

Public Health, Environmental and Occupational Health
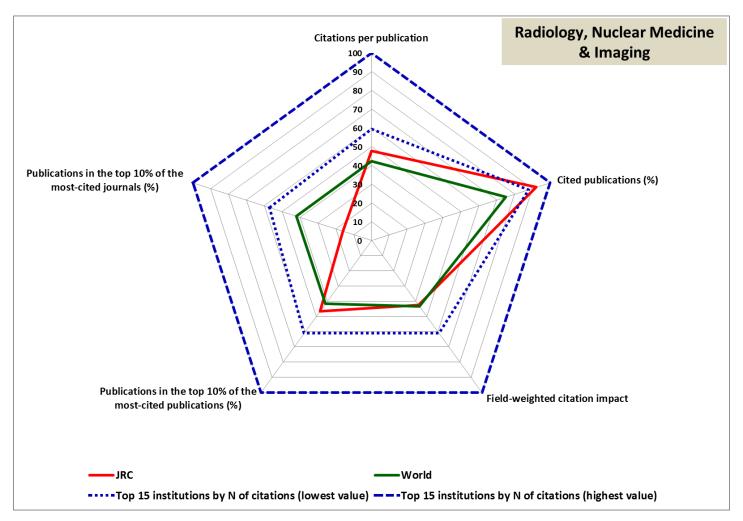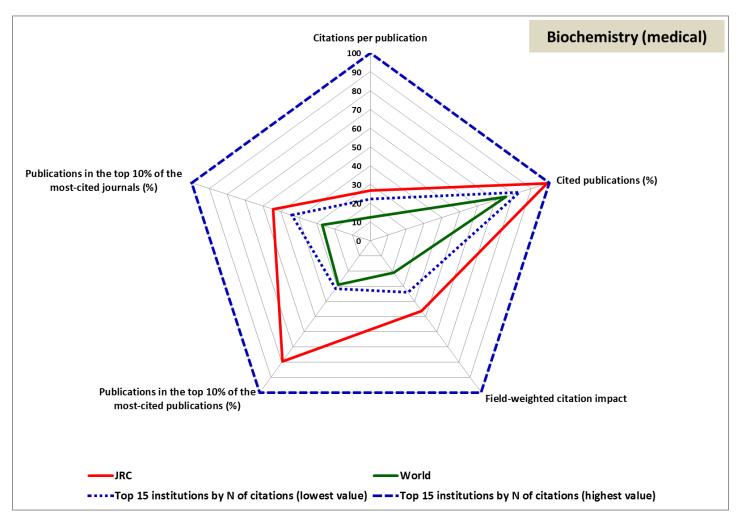
Public Health, Environmental & Occupational Health

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

JRC
World
Top 15 institutions by N of citations (lowest value)
Top 15 institutions by N of citations (highest value)

General Medicine

Radiology, Nuclear Medicine and Imaging

Radiology, Nuclear Medicine & Imaging

- Citations per publication
- Cited publications (%)
- Field-weighted citation impact
- Publications in the top 10% of the most-cited publications (%)
- Publications in the top 10% of the most-cited journals (%)

Legend:
- JRC
- World
- Top 15 institutions by N of citations (lowest value)
- Top 15 institutions by N of citations (highest value)

Biochemistry (medical)

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license

Computer Science

Important note: In the following graphs, the Top-15 institutions are those in term of absolute number of citations.
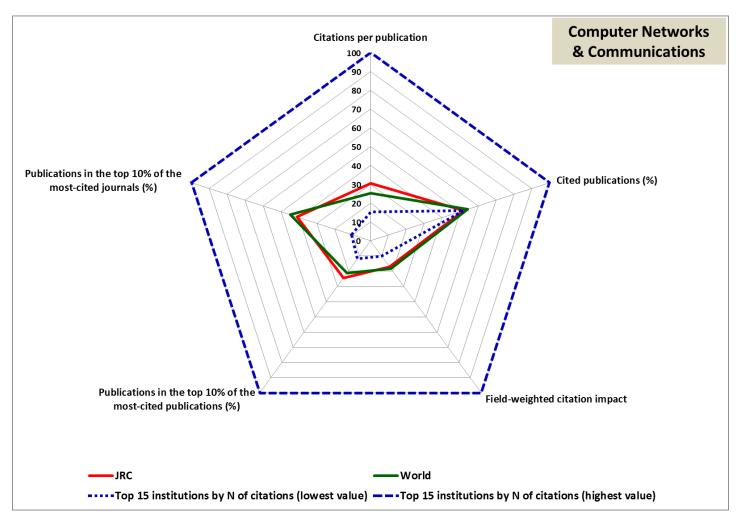
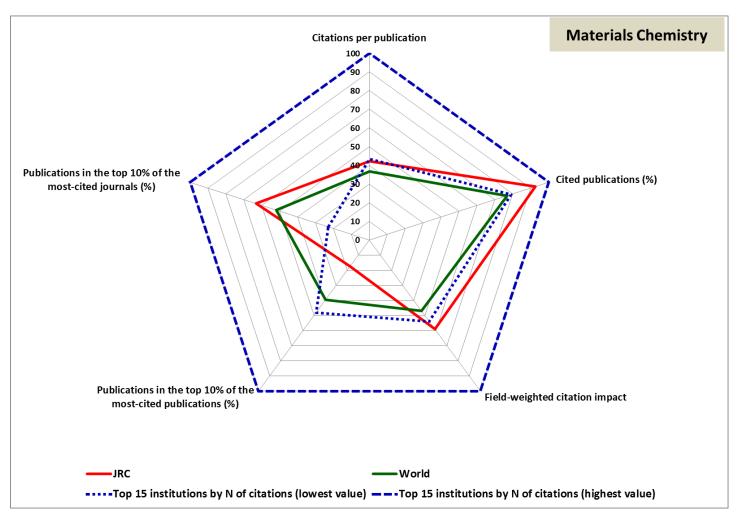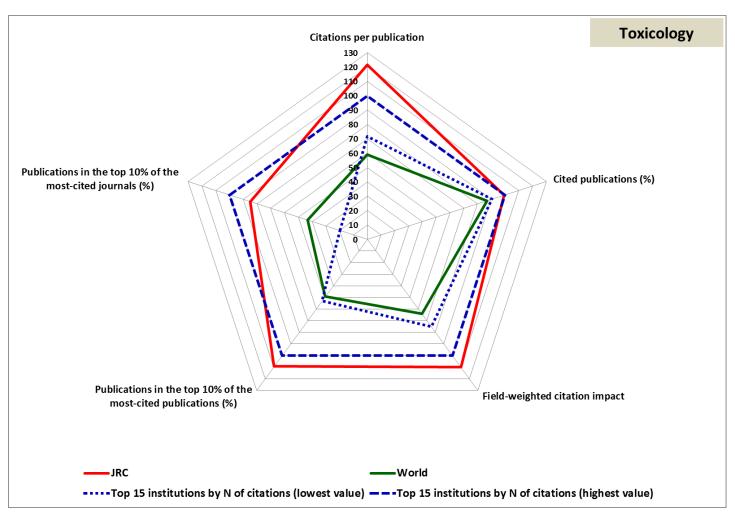**For each criterion, the best of the Top-15 institutions (that with the highest value) is given the reference value 100.**

Computer Science Applications

Computer Networks and Communications

Computer Networks and Communications radar chart with axes: Citations per publication, Cited publications (%), Field-weighted citation impact, Publications in the top 10% of the most-cited publications (%), Publications in the top 10% of the most-cited journals (%). Series: JRC, World, Top 15 institutions by N of citations (lowest value), Top 15 institutions by N of citations (highest value).

Software

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license

General Computer Science

General Computer Science

- Citations per publication
- Cited publications (%)
- Field-weighted citation impact
- Publications in the top 10% of the most-cited publications (%)
- Publications in the top 10% of the most-cited journals (%)

Legend:
- JRC
- World
- Top 15 institutions by N of citations (lowest value)
- Top 15 institutions by N of citations (highest value)

Information Systems

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license

Social Sciences

Important note: In the following graphs, the Top-15 institutions are those in term of absolute number of citations.

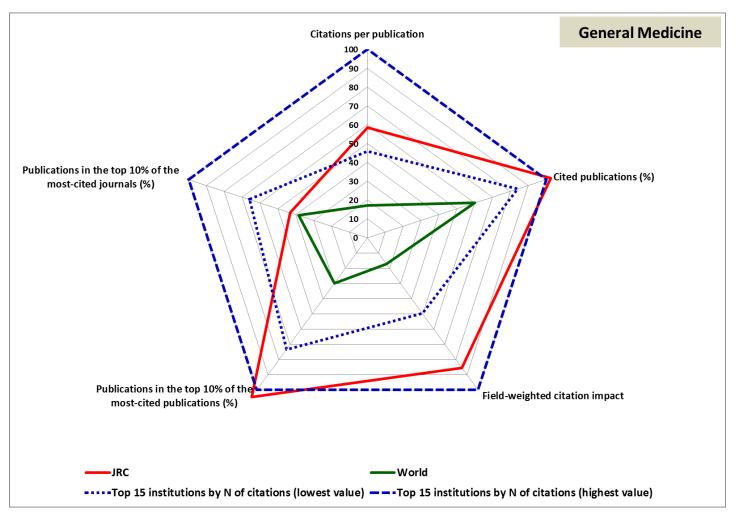**For each criterion, the best of the Top-15 institutions (that with the highest value) is given the reference value 100.**

Geography, Planning and Development

Geography, Planning & Development

- Citations per publication
- Cited publications (%)
- Field-weighted citation impact
- Publications in the top 10% of the most-cited publications (%)
- Publications in the top 10% of the most-cited journals (%)

Legend:
- —— JRC
- —— World
- ·····Top 15 institutions by N of citations (lowest value)
- – – –Top 15 institutions by N of citations (highest value)

General Social Sciences

General Social Sciences

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

— JRC
— World
······· Top 15 institutions by N of citations (lowest value)
– – – Top 15 institutions by N of citations (highest value)

Sociology and Political Science
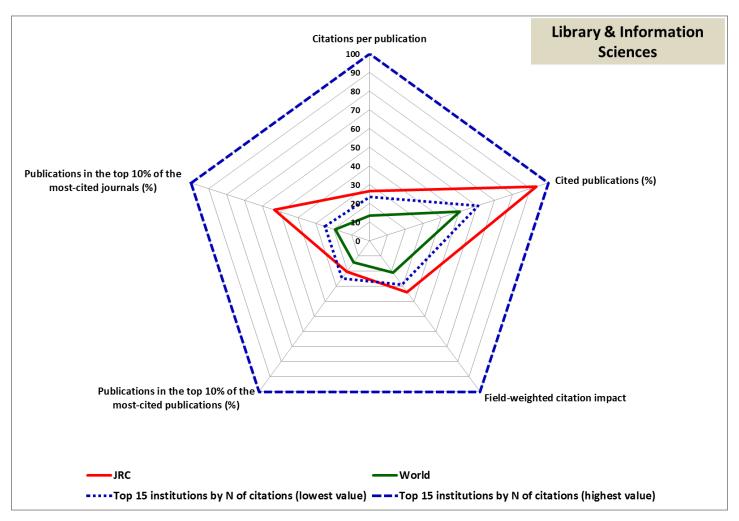
Sociology & Political Science

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

JRC

World

Top 15 institutions by N of citations (lowest value)

Top 15 institutions by N of citations (highest value)

Development

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license
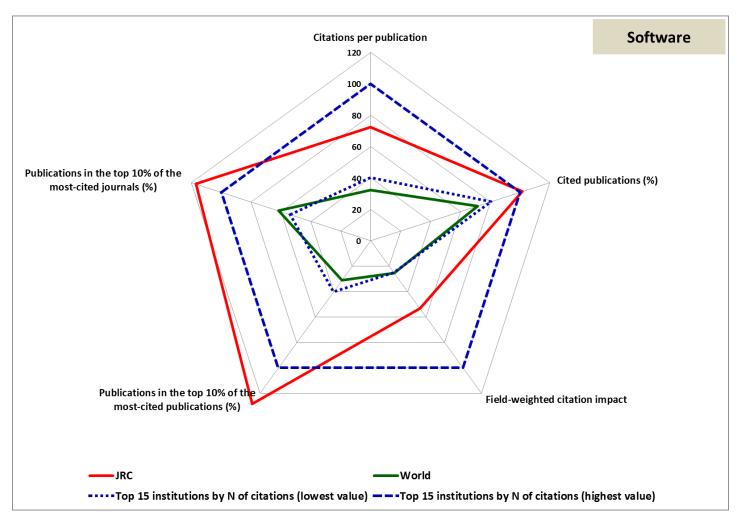
Law
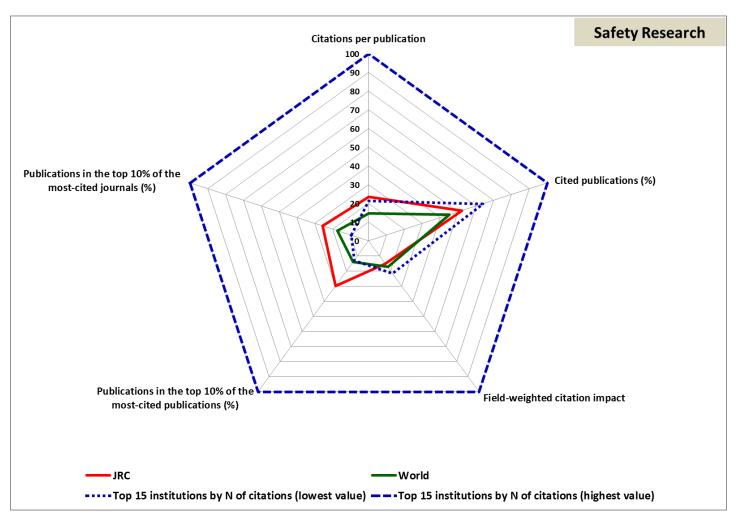
Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license

Library and Information Sciences

Library & Information Sciences

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

JRC

World

Top 15 institutions by N of citations (lowest value)

Top 15 institutions by N of citations (highest value)

Safety Research

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license
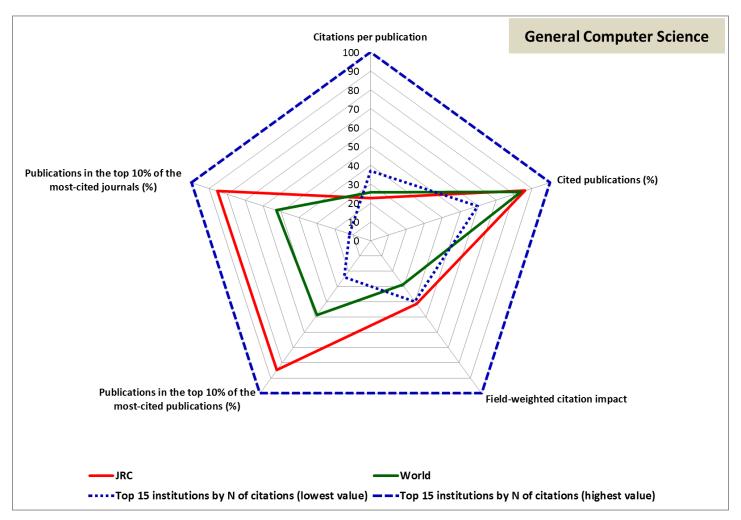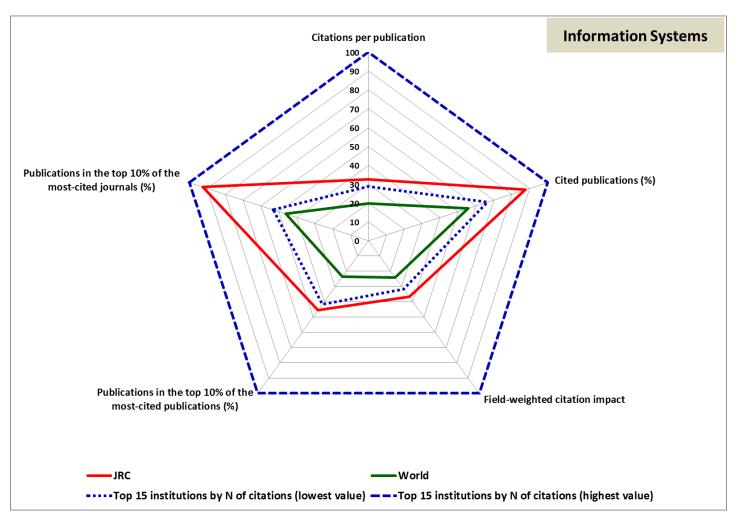
Chemical Engineering

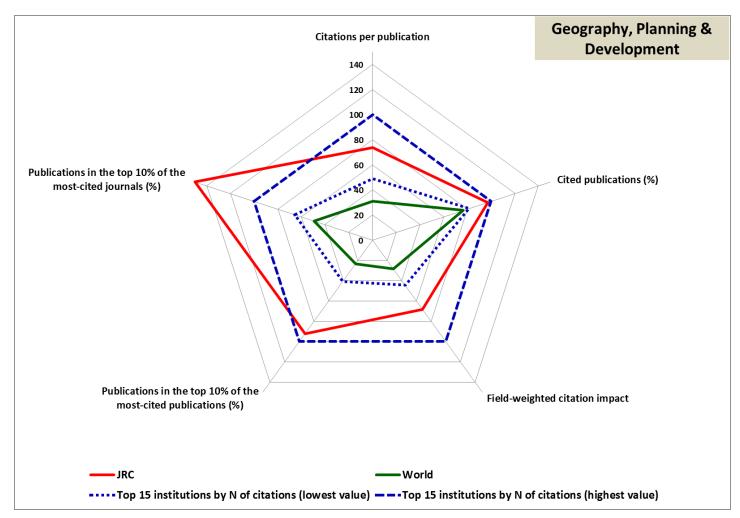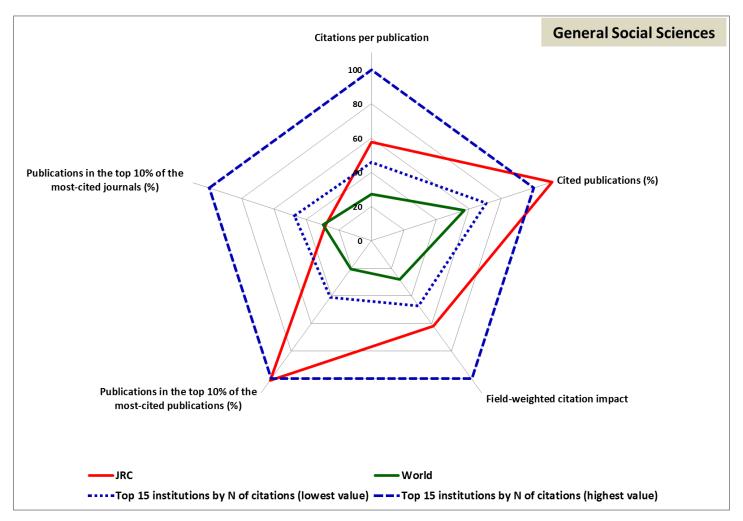**Important note: In the following graphs, the** **Top-15 institutions** **are those in term of absolute** **number of citations.**

For each criterion, the best of the Top-15 institutions (that with the highest value) is given the reference value 100.
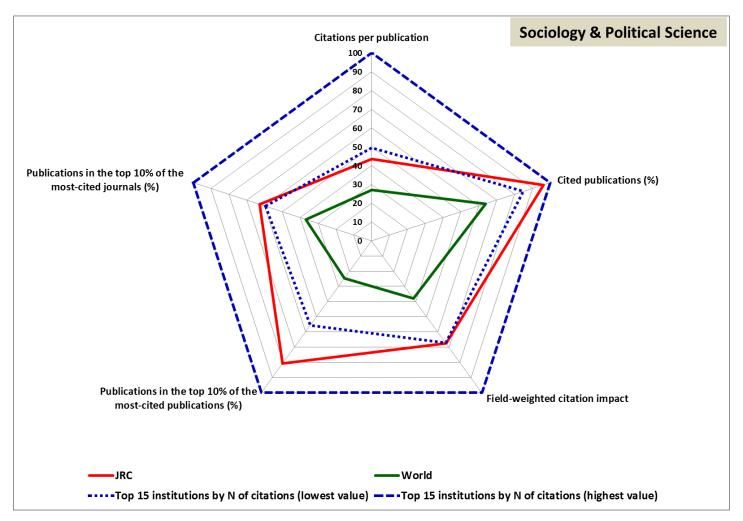
General Chemical Engineering

General Chemical Engineering

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

- JRC
- World
- Top 15 institutions by N of citations (lowest value)
- Top 15 institutions by N of citations (highest value)

Bioengineering

Bioengineering

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

JRC

World

Top 15 institutions by N of citations (lowest value)

Top 15 institutions by N of citations (highest value)

Mathematics

Important note: In the following graphs, the Top-15 institutions are those in term of absolute number of citations.

For each criterion, the best of the Top-15 institutions (that with the highest value) is given the reference value 100.
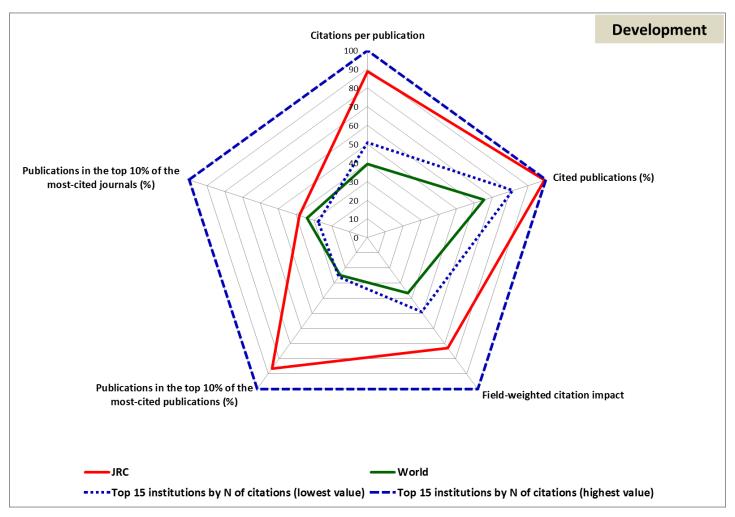
Applied Mathematics

Modelling and Simulation

Modelling & Simulation

Citations per publication

100
90
80
70
60
50
40
30
20
10
0

Cited publications (%)

Publications in the top 10% of the most-cited journals (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

JRC

World

Top 15 institutions by N of citations (lowest value)

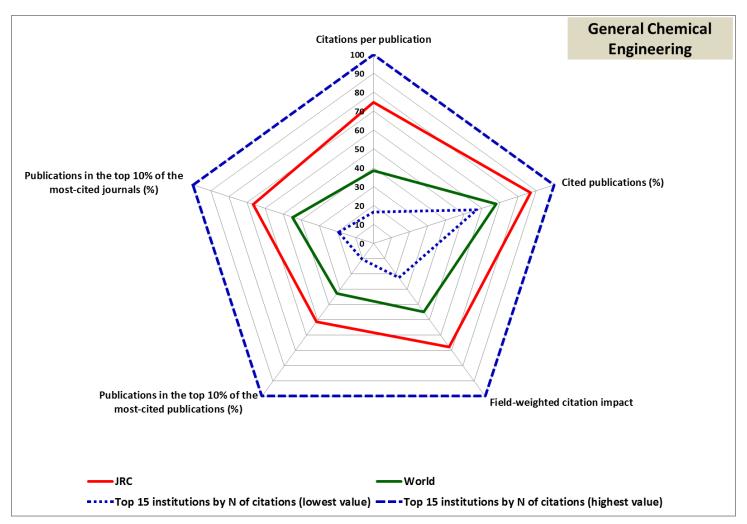Top 15 institutions by N of citations (highest value)

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license

Theoretical Computer Science

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license

Computational Mathematics

Statistics and Probability

Statistics & Probability

- Citations per publication
- Cited publications (%)
- Field-weighted citation impact
- Publications in the top 10% of the most-cited publications (%)
- Publications in the top 10% of the most-cited journals (%)

Legend:
- JRC
- World
- Top 15 institutions by N of citations (lowest value)
- Top 15 institutions by N of citations (highest value)
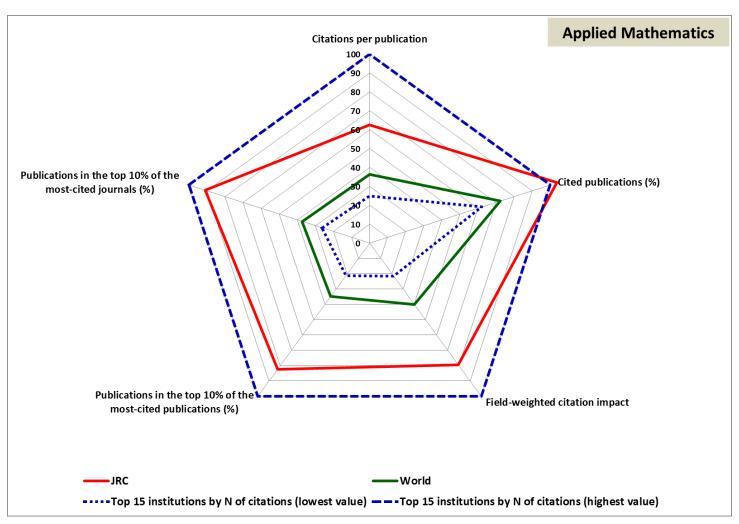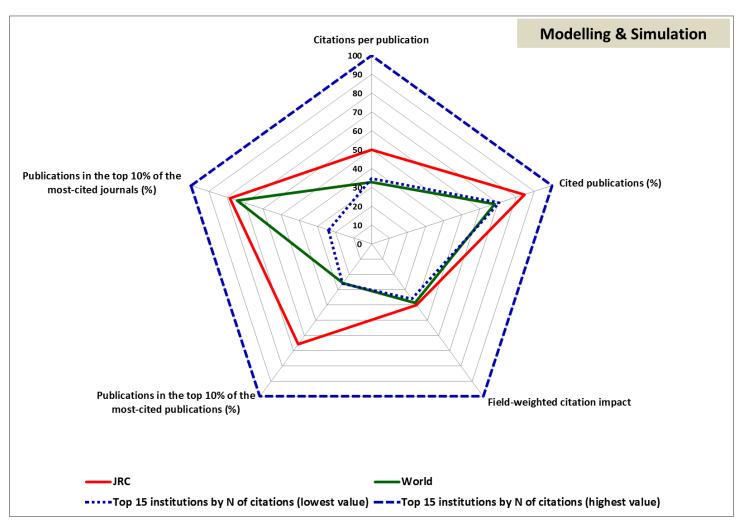
Economics, Econometrics and Finance

Important note: In the following graphs, the Top-15 institutions are those in term of absolute number of citations.

For each criterion, the best of the Top-15 institutions (that with the highest value) is given the reference value 100.
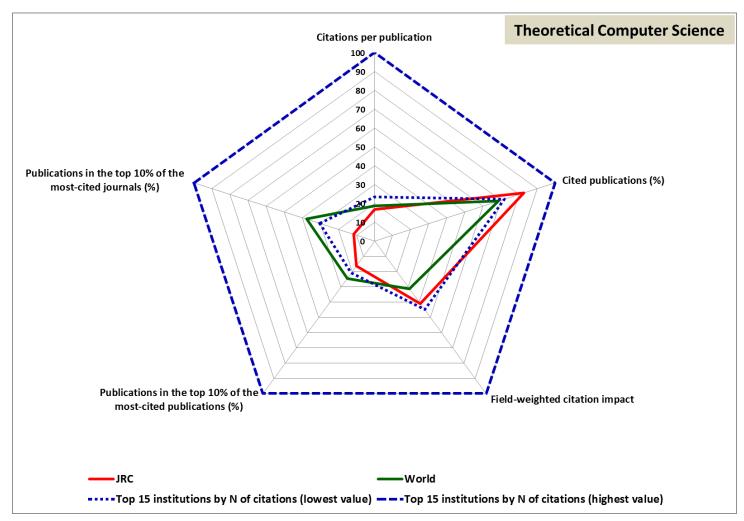
Economics and Econometrics

Economics & Econometrics

- Citations per publication
- Cited publications (%)
- Field-weighted citation impact
- Publications in the top 10% of the most-cited publications (%)
- Publications in the top 10% of the most-cited journals (%)

JRC — World — Top 15 institutions by N of citations (lowest value) — Top 15 institutions by N of citations (highest value)

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license

Business, Management and Accounting
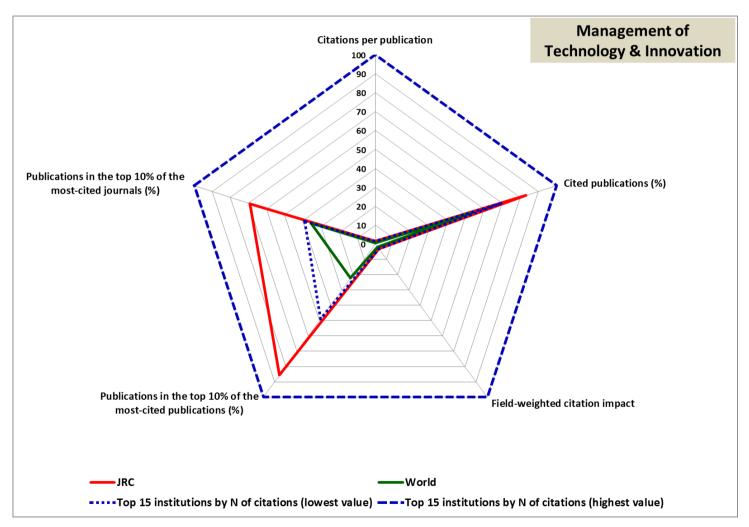
Important note: In the following graphs, the Top-15 institutions are those in term of absolute number of citations.

For each criterion, the best of the Top-15 institutions (that with the highest value) is given the reference value 100.
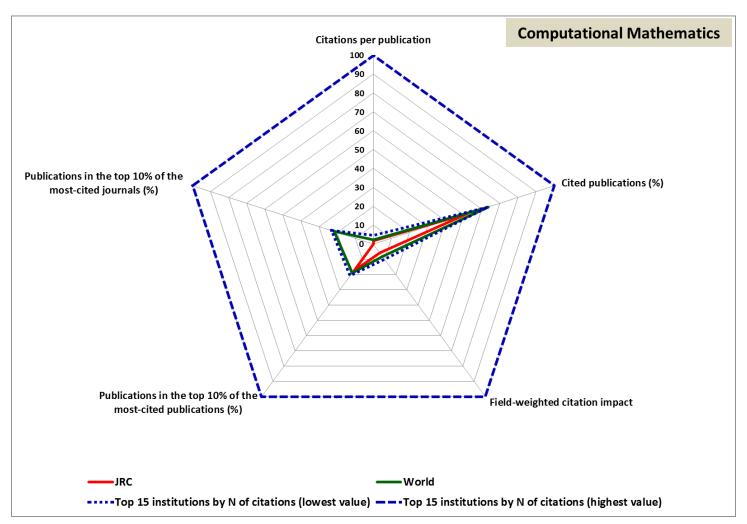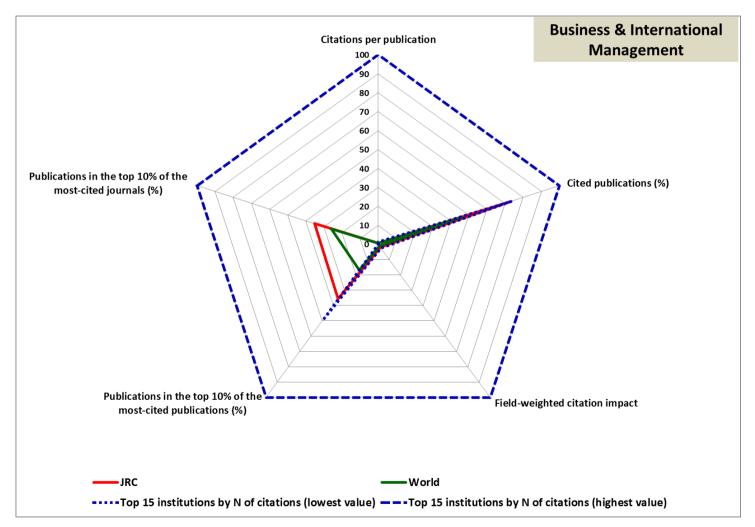
Strategy and Management

Strategy & Management
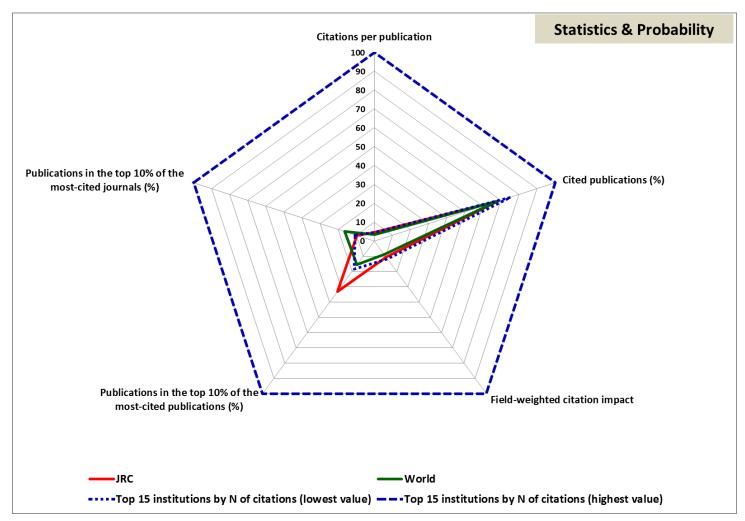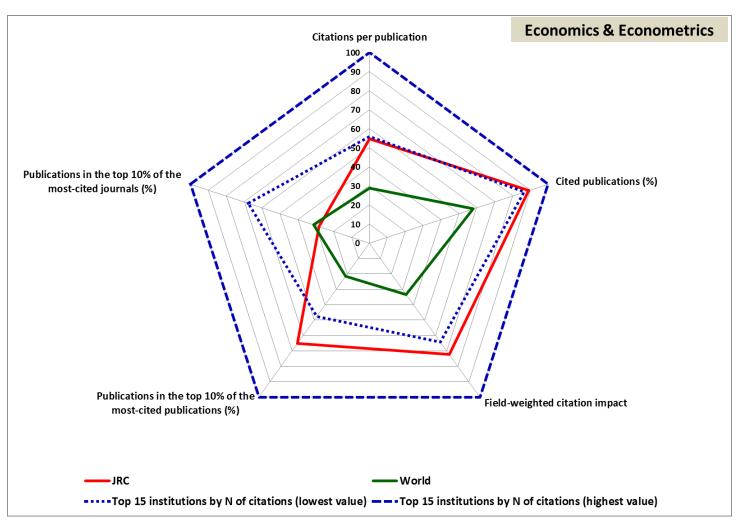
Citations per publication

Cited publications (%)

Publications in the top 10% of the most-cited journals (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

JRC

World

Top 15 institutions by N of citations (lowest value)

Top 15 institutions by N of citations (highest value)

Management of Technology and Innovation

Management of Technology & Innovation

Citations per publication

Cited publications (%)

Field-weighted citation impact

Publications in the top 10% of the most-cited publications (%)

Publications in the top 10% of the most-cited journals (%)

JRC

World

Top 15 institutions by N of citations (lowest value)

Top 15 institutions by N of citations (highest value)

Business and International Management

Business & International Management

Citations per publication

100
90
80
70
60
50
40
30
20
10
0

Cited publications (%)

Publications in the top 10% of the
most-cited journals (%)

Field-weighted citation impact

Publications in the top 10% of the
most-cited publications (%)

JRC

World

Top 15 institutions by N of citations (lowest value) Top 15 institutions by N of citations (highest value)

Source: own calculations. Raw data: © 2014 Elsevier B.V. All rights reserved. SciVal ® is a registered trademark of Elsevier Properties S.A. used under license

Europe Direct is a service to help you find answers to your questions about the European Union
Free phone number (*): 00 800 6 7 8 9 10 11
(*) Certain mobile telephone operators do not allow access to 00 800 numbers or these calls may be billed.

A great deal of additional information on the European Union is available on the Internet.
It can be accessed through the Europa server http://europa.eu

How to obtain EU publications

Our publications are available from EU Bookshop (http://publications.europa.eu/howto/index_en.htm),
where you can place an order with the sales agent of your choice.

The Publications Office has a worldwide network of sales agents.
You can obtain their contact details by sending a fax to (352) 29 29-42758.

JRC Mission

As the Commission's in-house science service, the Joint Research Centre's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle.

Working in close cooperation with policy Directorates-General, the JRC addresses key societal challenges while stimulating innovation through developing new methods, tools and standards, and sharing its know-how with the Member States, the scientific community and international partners.

Serving society
Stimulating innovation
Supporting legislation

Publications Office