

9. Research

9-1. Trends Across Kyushu University as a Whole Based on Field Classification of Journals

At Kyushu University, there is a high percentage of publications carried in journals for the fields of Medicine, Physics and Astronomy, Engineering, Biochemistry, Genetics and Molecular Biology, and Material Science. Also, for Kyushu University the percentage of publications in the top 10%, the percentage of publications carried in the top 10% of journals, internationally co-authored publications, and publications resulting from academic-corporate collaboration were all higher than the average for Japan as a whole.

Kyushu University

128th (QS) · 351-400 (THE) · 201-300 (ARWU) | Japan | More details on this Institution

2013 to 2017

no subject area filter selected

ASJC

Overall research performance

Number of Publications

24,624 ▼

Number of authors

14,428 ▲

Field-Weighted Citations Impact

1.11

Number of Citations

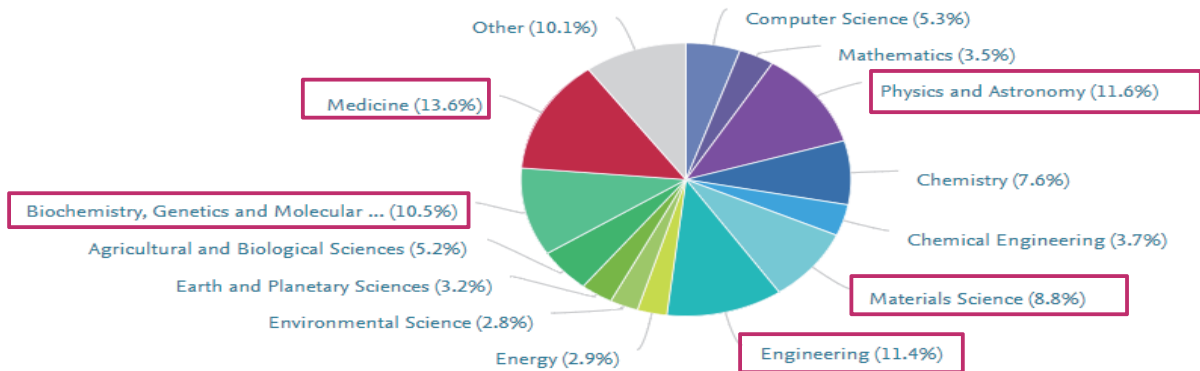
178,082

Citations per Publication

7.2

h5-index

97

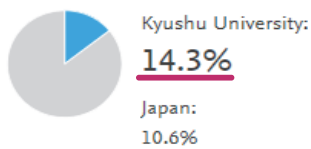


Performance indicators

Outputs in Top Citation Percentiles ⚙️

+ Add to Reporting

Publications in top 10% most cited worldwide

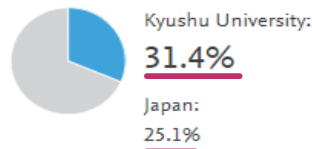


> Analyze in more detail

Publications in Top Journal Percentiles ⚙️

+ Add to Reporting

Publications in top 10% journals by CiteScore Percentile

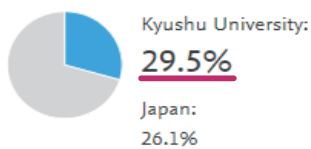


> Analyze in more detail

International Collaboration ⚙️

+ Add to Reporting

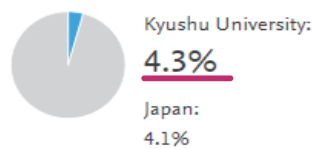
Publications co-authored with Institutions in other countries



Academic-Corporate Collaboration ⚙️

+ Add to Reporting

Publications with both academic and corporate affiliations



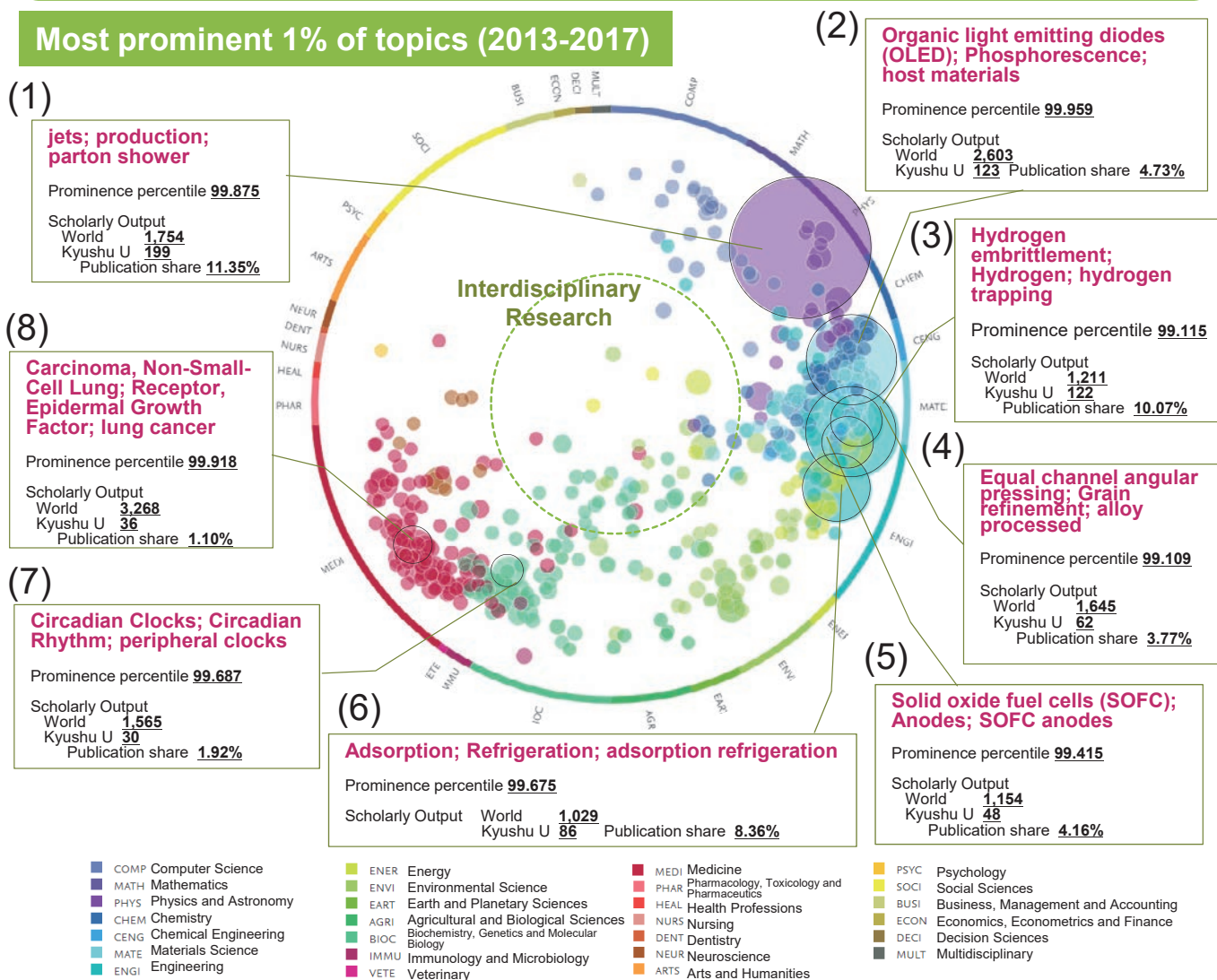
*Source: Elsevier's SciVal (as of September 2018)

Topic prominence

— Analysis of University Strengths Based on Co-citation of Publications —

According to the Topic Prominence function of SciVal, of the papers published by Kyushu University between 2013 and 2017, the research field is a topic that is attracting attention in 9,047 cases. The figure below shows the research field topics that correspond to the most prominent 1%. The topics are concentrated in the fields of Physics and Astronomy, chemicals, chemical engineering, material science, engineering, energy and medicine. Among these, there are many publications on topics such as (1) jets; production; parton shower, (2) Organic light emitting diodes(OLED), (3) Hydrogen embrittlement, (4) Equal channel angular pressing, (5) Solid oxide fuel cells(SOFC), (6) Adsorption; Refrigeration, (7) Circadian Clocks; Circian Rhythm, (8) Carcinoma, Non-Small-Cell Lung. Because the global publication share of such fields also tends to be high, these research fields tend to be lively within Kyushu University as well.

Most prominent 1% of topics (2013-2017)



Overview of the Topic Prominence function

This function uses citation links to documents in Scopus and clusters them into around 97,000 topics, ranked by Prominence. The new Prominence indicator shows the most recent citation count for documents, the display count and the level of interest. Prominence is correlated with grants, and helps researchers and research managers identify topics that are highly likely to see an increase in funding. The closer a topic as to the center of the circle, the more interdisciplinary it is.
(Excerpted from Elsevier Quick Reference Guide, January 2018)

◆ Perspectives ◆

- Small circles: Individual topics.
- Circumference: Research fields used in Scopus (ASJC 27 major subject areas) are indicated by color.
- Size of small circles: Indicates the number of publications that make up each topic.
- Color of small circles: For the fields of the articles that make up the topics, the fields that make the highest proportion of the total are displayed in the color of the fields located around the circumference.
- Position of small circles: Arranged in accordance with the share of each field in the publications that make up the topic. Interdisciplinary research is positioned toward the center.

*Source: Elsevier's "SciVal" (as of September 2018)

9-2. Comparisons of Publication Quantity and Quality

The number of publications has been on an increasing trend over the most recent 10 years for Kyushu University, and a comparison between 2008 and 2017 shows that there has been an increase of around 1,000 publications over the past 9 years. In 2011, FWCI exceeded the global average of 1.0. Since then it has been more or less stable, maintaining a level of around 1.1. In 2016, it reached a high level of 1.24.

◆ Comparisons with Other Universities ◆

[Scholarly Output]

Rank	University	Number
1	The University of Tokyo	59,232
2	Kyoto University	40,531
3	Osaka University	33,406
4	Tohoku University	31,556
5	Kyushu University	24,624
6	Nagoya University	23,624
7	Hokkaido University	21,366
8	Tokyo Institute of Technology	19,148
9	University of Tsukuba	16,046
10	Hiroshima University	12,544

(2013~2017)

[Citation Count]

Rank	University	Number of Citations	Average Citations per Publication
1	The University of Tokyo	549,110	9.3
2	Kyoto University	365,243	9.0
3	Osaka University	264,548	7.9
4	Tohoku University	246,182	7.8
5	Nagoya University	194,714	8.2
6	Kyushu University	178,082	7.2
7	Hokkaido University	154,845	7.2
8	Tokyo Institute of Technology	138,071	7.2
9	University of Tsukuba	117,948	7.4
10	Hiroshima University	88,751	7.1

(2013~2017)

[FWCI(*1)]

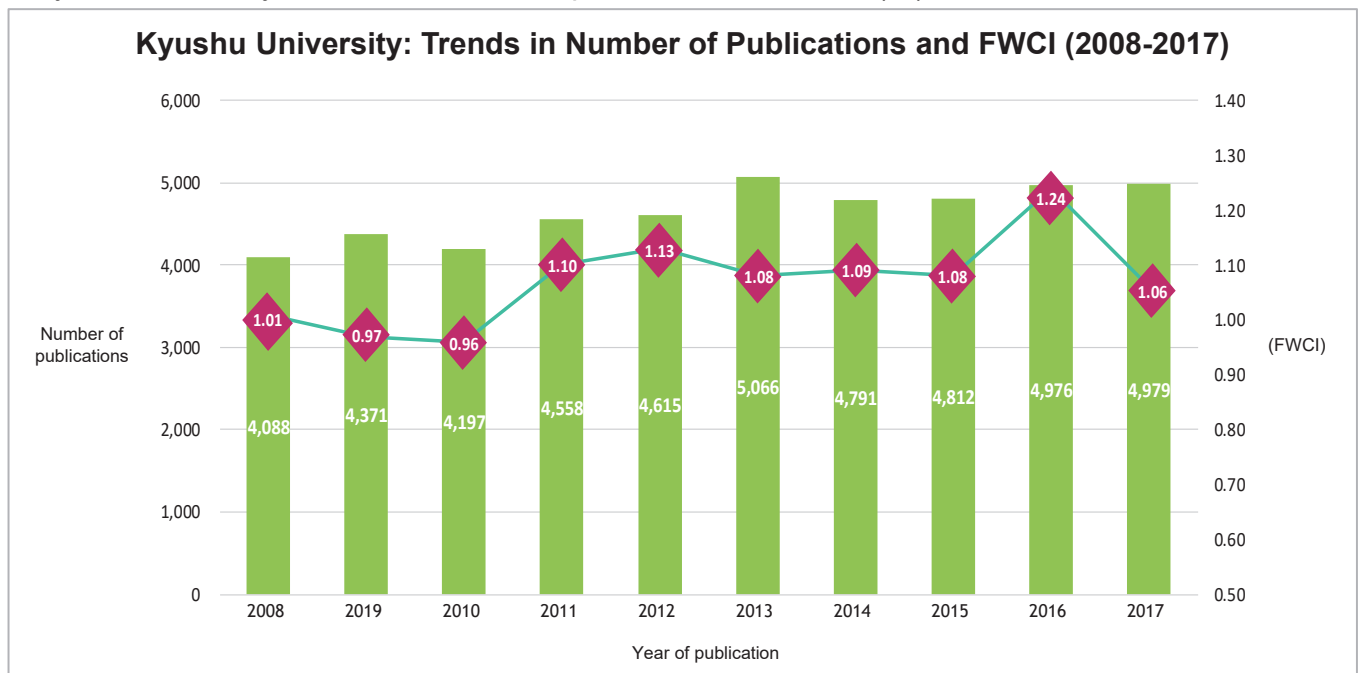
Rank	University	Citation Index
1	The University of Tokyo	1.34
2	Kyoto University	1.30
3	Nagoya University	1.20
4	Tokyo Institute of Technology	1.17
5	Tohoku University	1.16
6	Kobe University	1.15
7	Okayama University	1.13
8	University of Tsukuba	1.12
9	Chiba University	1.11
9	Niigata University	1.11
9	Osaka University	1.11
9	Kyushu University	1.11

(2013~2017)

- The top 10 universities by undergraduate enrollment capacity and the top 10 universities by graduate school enrollment capacity have been defined as the top 14 universities and ranked in order.

Top 14 universities: Hokkaido University, Tohoku University, The University of Tokyo, Tokyo Institute of Technology, University of Tsukuba, Chiba University, Niigata University, Nagoya University, Kyoto University, Osaka University, Kobe University, Okayama University, Hiroshima University, Kyushu University (in order from north to south)

◆ Kyushu University: Trends in number of publications and FWCI(*1) ◆



• (*1)FWCI(Field-Weighted Citation Impact)

The number of citations received by the article in question, divided by the world average for the same type of article in the same field and same year of publication.

An FWCI of 1 or higher means that the average impact is higher than the world average.

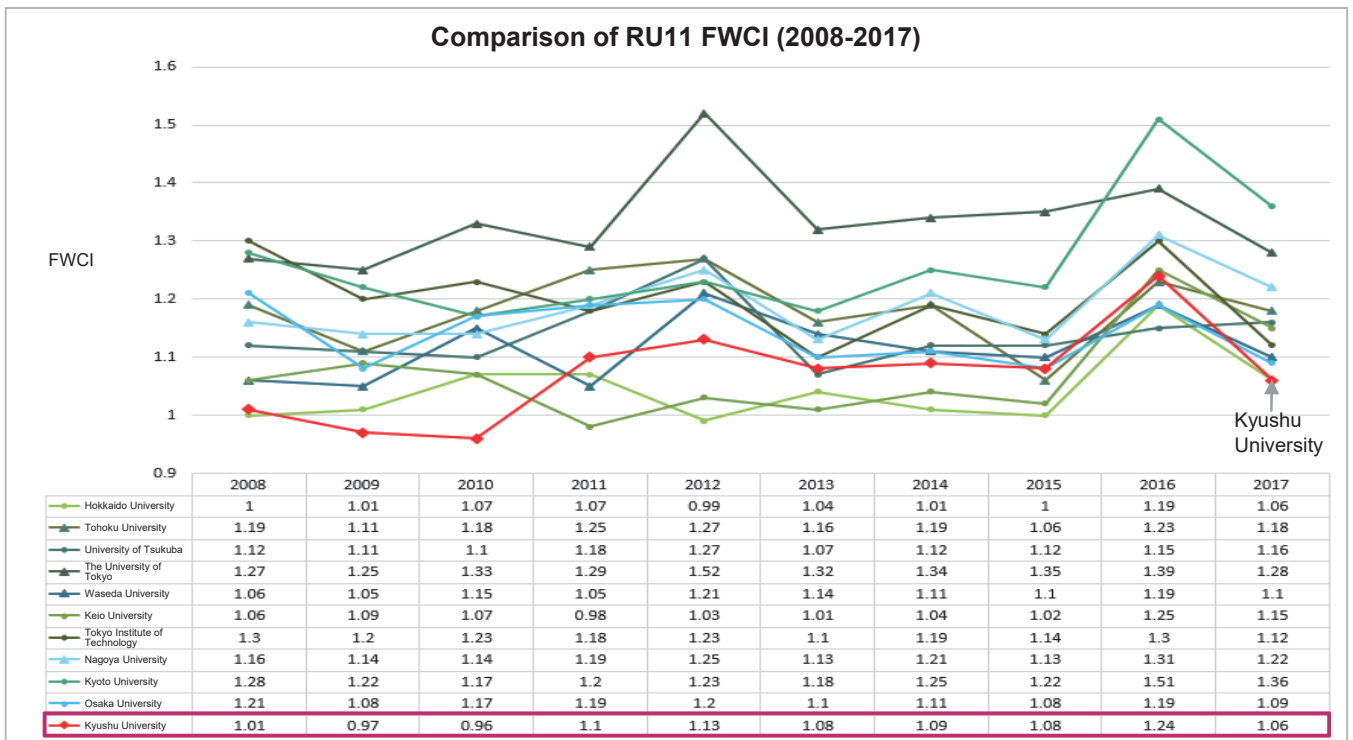
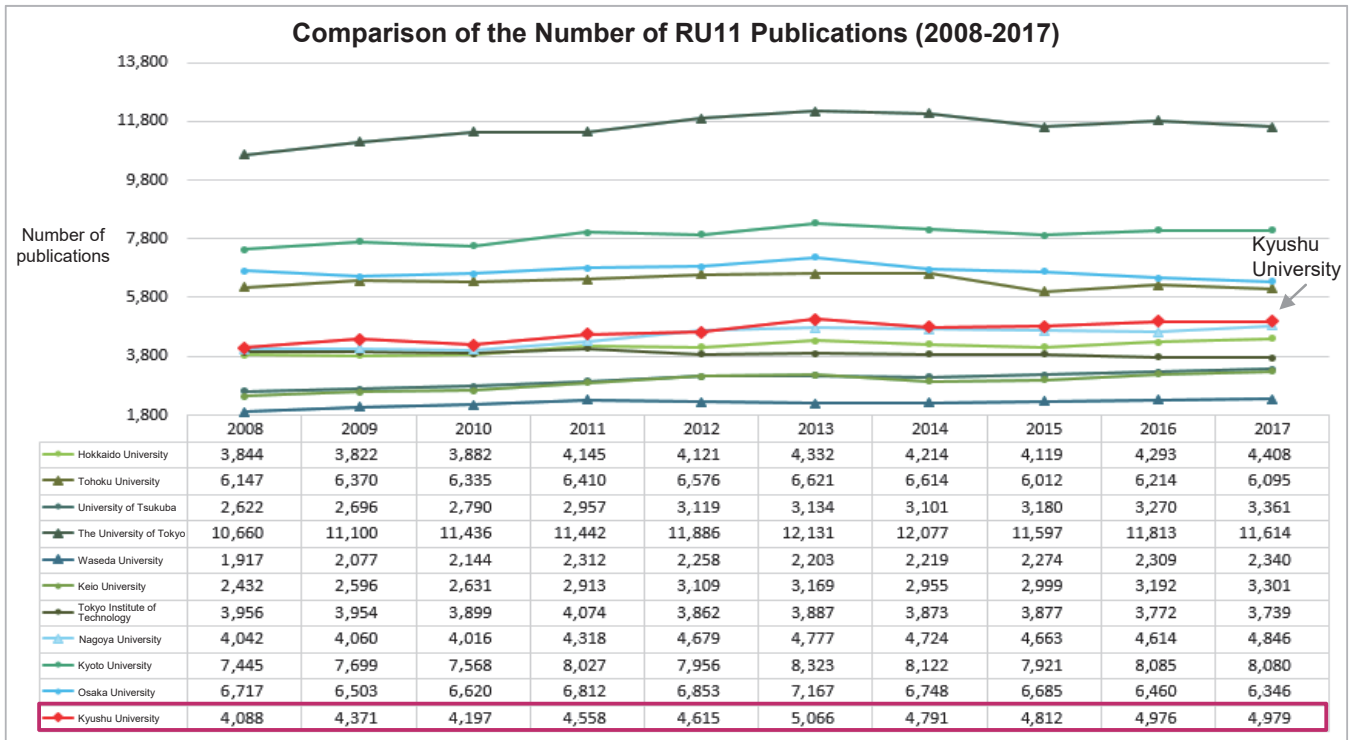
*Sources

- Number of publications, number of citations, impact of publications: Elsevier, SciVal (as of September 2018)

9-2. Comparisons of Publication Quantity and Quality (Continued)

For each RU11 (*1) university, we compared the trend in the number of publications over the most recent 10 years. Looking at the trend over the most recent 10 years, Kyushu University was ranked 5th for the number of publications. with regard to the FWCI, although it exceeded the global average of 1.0 in 2011, compared to the other RU11members it has in recent years languished near the bottom.

◆ Comparison of the RU11 ◆



(*1) Research University 11 (RU11)

A consortium of universities engaged in intensive global academic competition, placing great emphasis on research and the development of high-quality human resources through this. This consortium is composed of both national and private universities.

Hokkaido University, Tohoku University, University of Tsukuba, The University of Tokyo, Waseda University, Keio University, Tokyo Institute of Technology, Nagoya University, Kyoto University, Osaka University, Kyushu University (in order from north to south)

*Source: Elsevier's "SciVal" (as of September 2018)

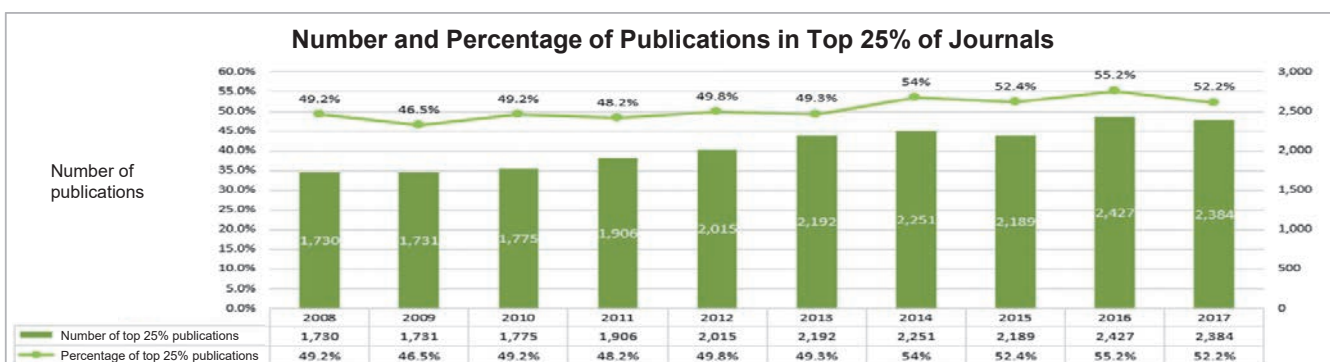
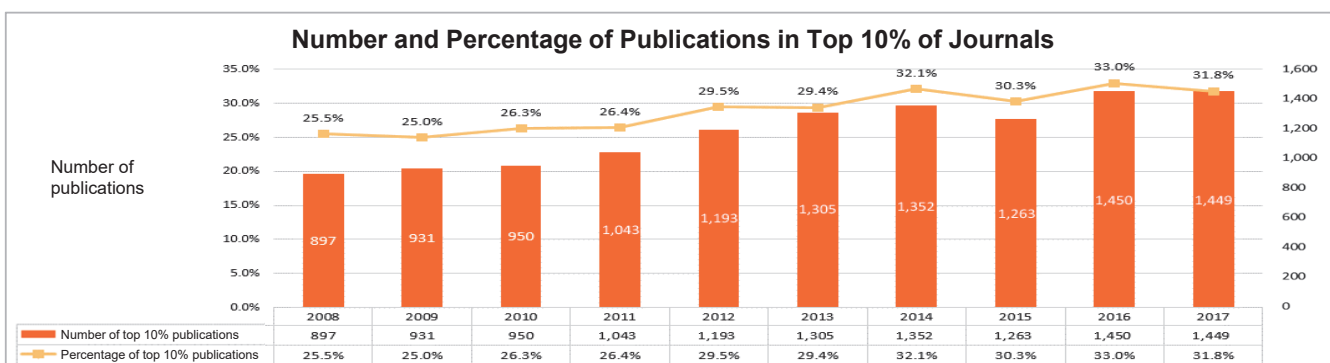
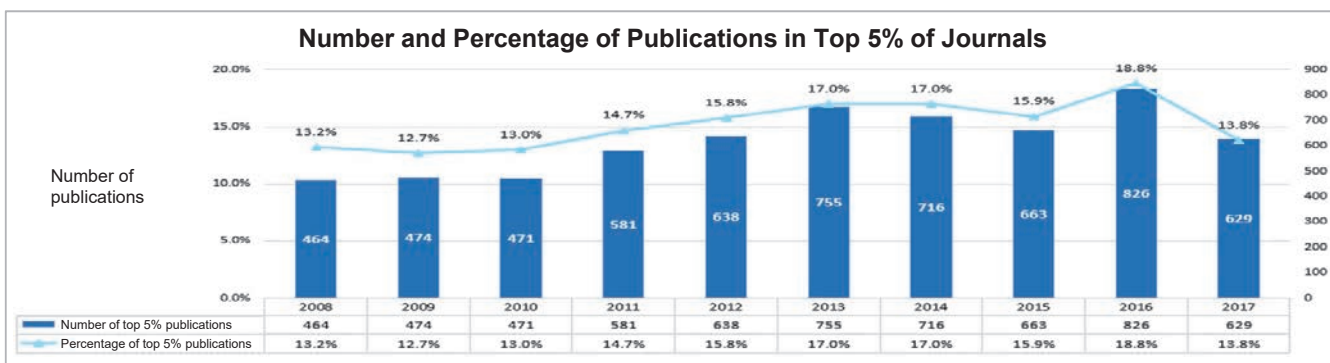
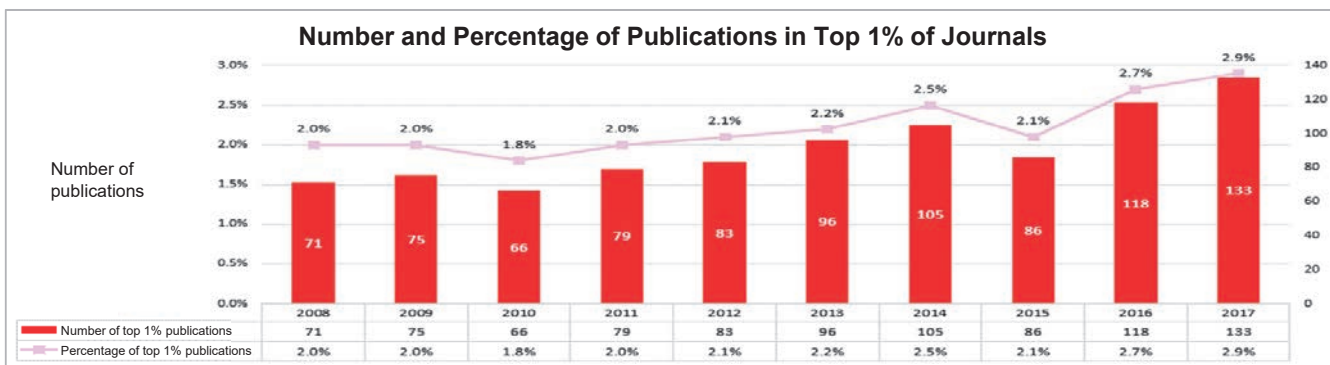
9-2. Comparisons of Publication Quantity and Quality (Continued)

Trends in the Number and Percentage of Publications Carried in the World's Top Journals

Over the long term, the number of publications carried in the top 1%, 5% and 10% of journals is on a rising trend. In particular, publications in the top 1% of journals nearly doubled between 2008 and 2017, and have continued to grow in recent years. Publications in the top 25% of journals have exceeded 50% recently, and more than 50% of the University's publications are carried in influential periodicals.

*What do we mean by the number and percentage of publications carried in the top x% of journals?

The number and percentage of publications carried in the global top x% of journals, based on citation counts. It indicates the number of publications in the top 1%, 5%, 10%, and 25% of journals based on the number and percentage of citations in Scopus each year.



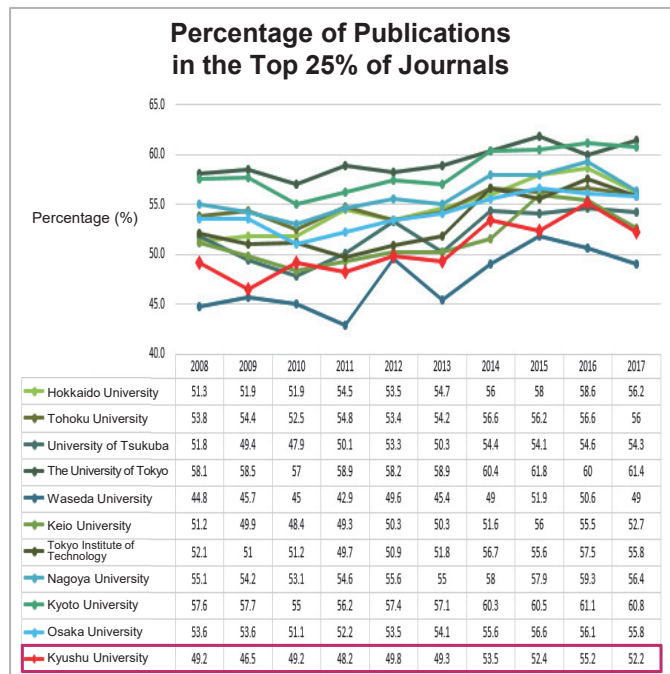
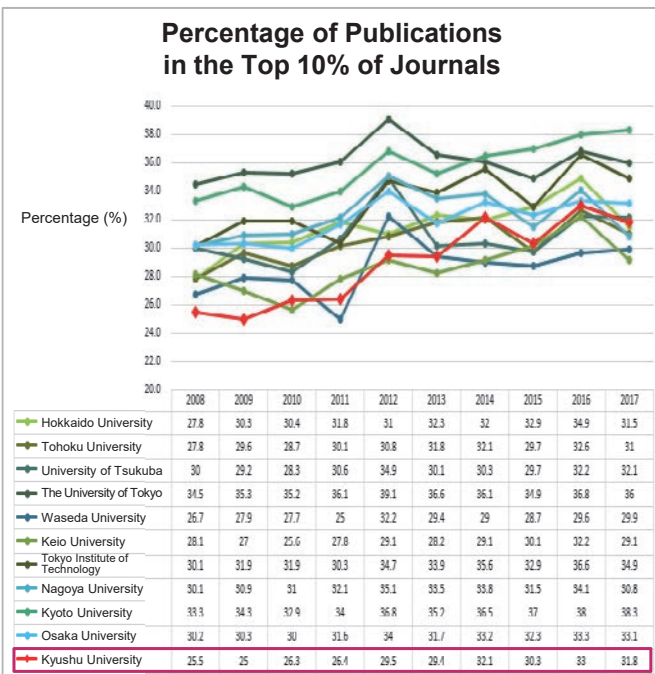
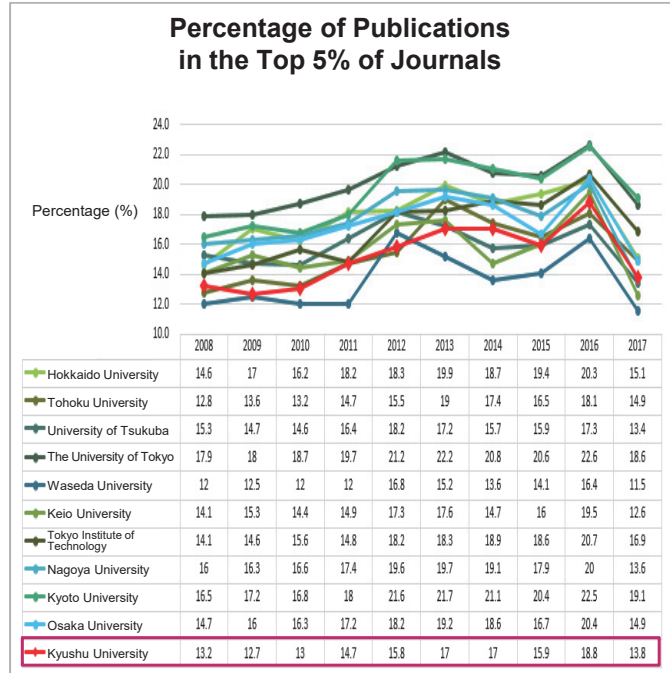
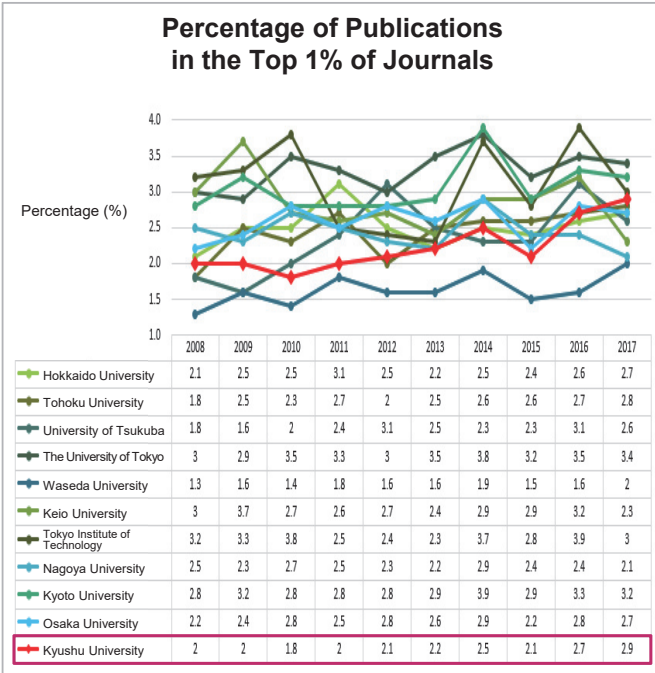
*Source: Elsevier's "SciVal" (as of September 2018)

9-2. Comparisons of Publication Quantity and Quality (Continued)

■ Trends in the Number and Percentage of Publications Carried in the World's Top Journals

◆ Comparison with the RU11(*1)◆

For each RU11 university, we compared the trends in the percentage of top journal publications. For Kyushu University, the percentage of publications in the top 10% in particular has increased significantly in comparison to that of other universities. The percentage of top 1% journal publications fell in 2016 to 2017 for many other universities, whereas Kyushu University's increased substantially.



(*1) Research University 11 (RU11)

A consortium of universities engaged in intensive global academic competition, placing great emphasis on research and the development of high-quality human resources through this. This consortium is composed of both national and private universities.

Hokkaido University, Tohoku University, University of Tsukuba, The University of Tokyo, Waseda University, Keio University, Tokyo Institute of Technology, Nagoya University, Kyoto University, Osaka University, Kyushu University

*Source: Elsevier's "SciVal" (as of September 2018)

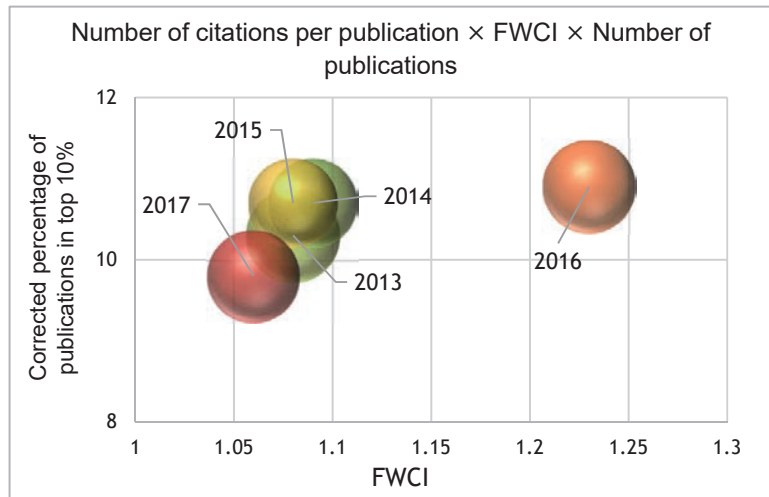
9-2. Comparisons of Publication Quantity and Quality (Continued)

In the scatter diagram below, positioning further toward the top right indicates higher publication quality. The number of publications is on a rising trend, but the top 10% corrected publication percentage(*1) is trending at around 10% or so. In addition, compared to the RU11(*2), both the top 10% corrected publication percentage and the FWCI value were ranked 9th. However, the number of publications was 5th, showing that the University's distinctiveness, compared to the RU11, lies in the number of publications.

◆ Kyushu University ◆ (2013-2017)

Kyushu University corrected percentage of publications in the top 10% (vertical axis) × FWCI (*3) (horizontal axis) × Total number of publications (bubble size)

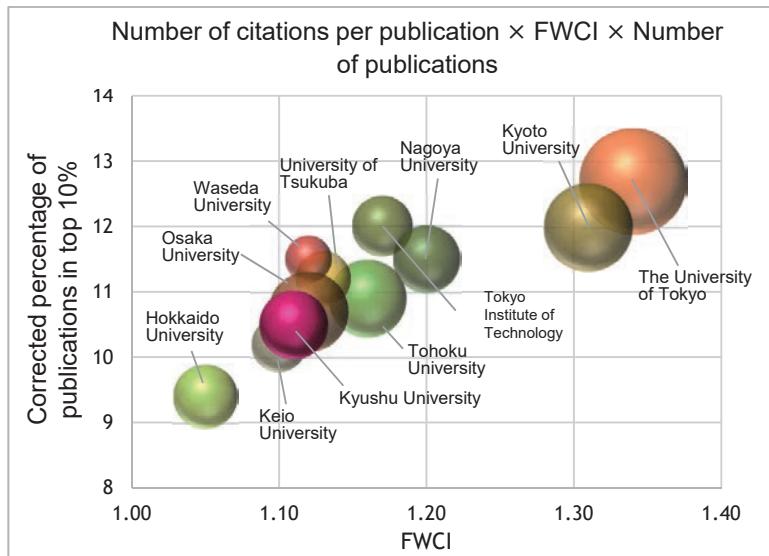
Year	Corrected percentage of publications in the Top 10%	FWCI	Number of publications
2013	10.3	1.08	5,068
2014	10.7	1.09	4,797
2015	10.7	1.08	4,818
2016	10.9	1.23	5,002
2017	9.8	1.06	5,006
Average	10.5	1.11	4,938



◆ Comparison of the RU11(*1) ◆ (2013-2017 average)

Corrected percentage of publications in the top 10% (vertical axis) × FWCI (*2) (horizontal axis) × Total number of publications (bubble size)

University	Corrected percentage of publications in the Top 10%	FWCI	Number of publications
Hokkaido University	9.4	1.05	21,414
Tohoku University	10.9	1.16	31,698
University of Tsukuba	11.2	1.13	16,083
The University of Tokyo	12.7	1.34	59,559
Waseda University	11.5	1.12	11,446
Keio University	10.2	1.10	15,680
Tokyo Institute of Technology	12.0	1.17	19,257
Nagoya University	11.5	1.20	23,751
Kyoto University	12.0	1.31	40,688
Osaka University	10.7	1.12	33,513
Kyushu University	10.5	1.11	24,691



(*1) Corrected Number/Percentage of Publications in the Top 10%

This is the number or percentage (corrected for field) of publications among the world's top by number of citations. It shows the percentage of publications in the top 10%, based on the number of citations in Scopus each year.

(*2) Research University 11 (RU11)

A consortium of universities engaged in intensive global academic competition, placing great emphasis on research and the development of high-quality human resources through this. This consortium is composed of both national and private universities.

Hokkaido University, Tohoku University, University of Tsukuba, The University of Tokyo, Waseda University, Keio University, Tokyo Institute of Technology, Nagoya University, Kyoto University, Osaka University, Kyushu University (in order from north to south)

(*3) FWCI(Field-weighted Citation Impact)

The number of citations received by the article in question, divided by the world average for the same type of article in the same field and same year of publication.

An FWCI of 1 or higher means that the average impact is higher than the world average.

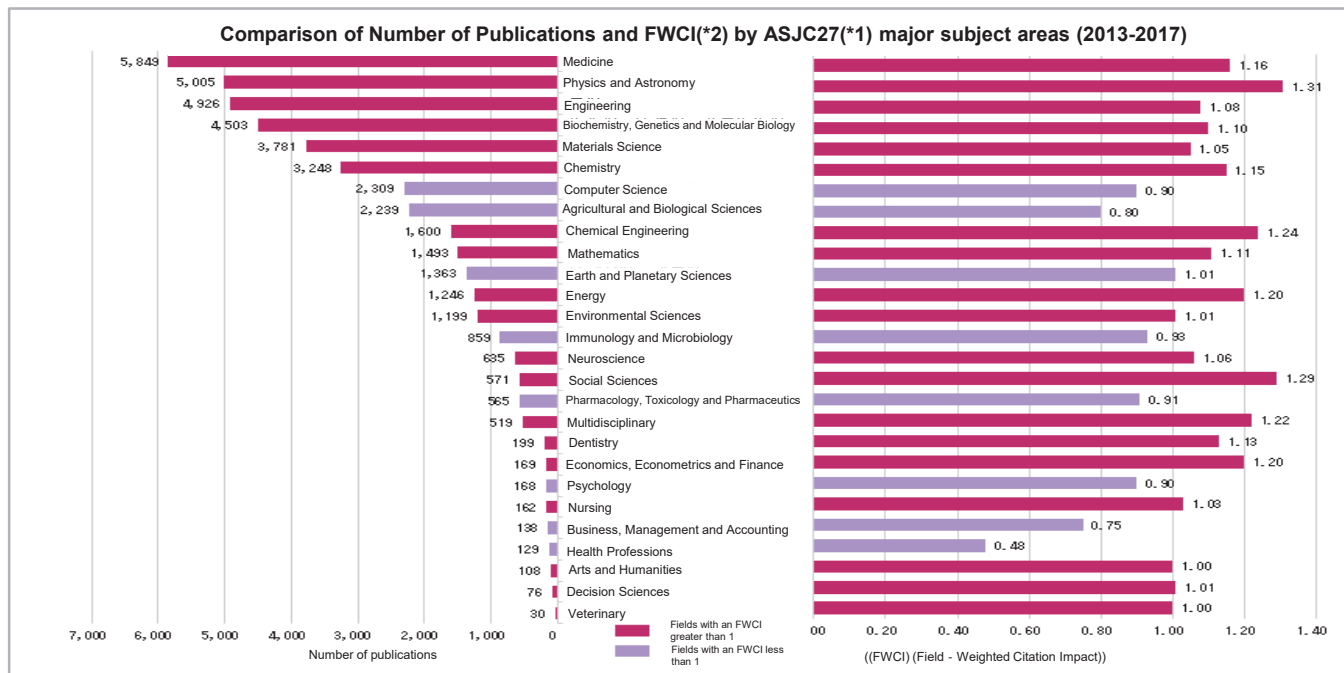
*Source: Elsevier's "SciVal" (as of October 2018)

9-2. Comparisons of Publication Quantity and Quality (Continued)

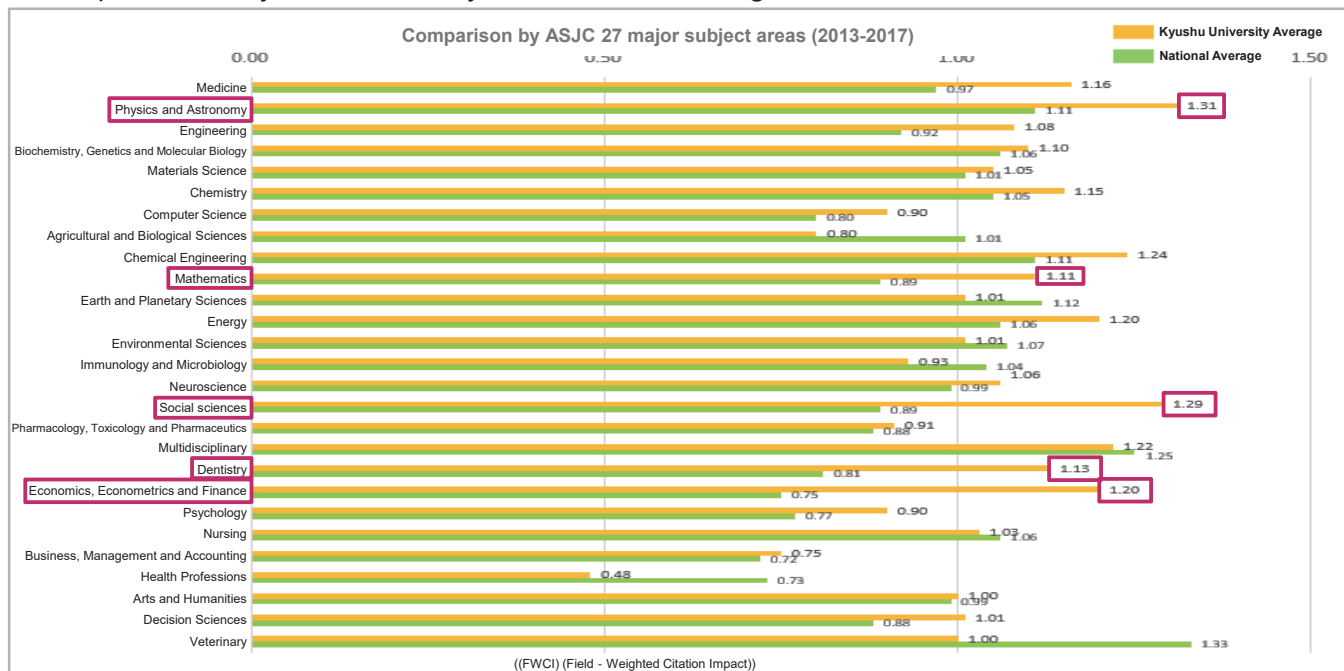
■ Comparison Between Kyushu University and the National Average (by ASJC 27 major subject areas (*1)) — Field - weighted Citation Impact (FWCI) (*2)

Kyushu University has an FWCI(*2) greater than the global average of 1 in 20 of the 27 major subject areas. The five fields in which the university's FWCI score is particularly high compared with the national average are **Economics, Econometrics and Finance; Social Sciences; Dentistry; Mathematics; Physics and Astronomy**. A larger number of publications and higher FWCI indicates greater depth of research capability (i.e. that it is one of the university's strengths). A smaller number of publications and high FWCI often indicates that there is a specific faculty member with advanced research ability. For example, this could include exceptional cases in which a specific faculty member belongs to a huge community of researchers.

◆Kyushu University◆



◆Comparison of Kyushu University with National Averages◆



(*1) ASJC 27 major subject areas

Scopus classification of journals (AJSC) services The 27 major subject areas and 334 minor subject areas based on the All Scopus Science Journal Classification (ASJC) or on research domains formulated independently.

(*2)FWCI(Field-weighted Citation Impact)

The number of citations received by the article in question, divided by the world average for the same type of article in the same field and same year of publication. An FWCI of 1 or higher means that the average impact is higher than the world average.

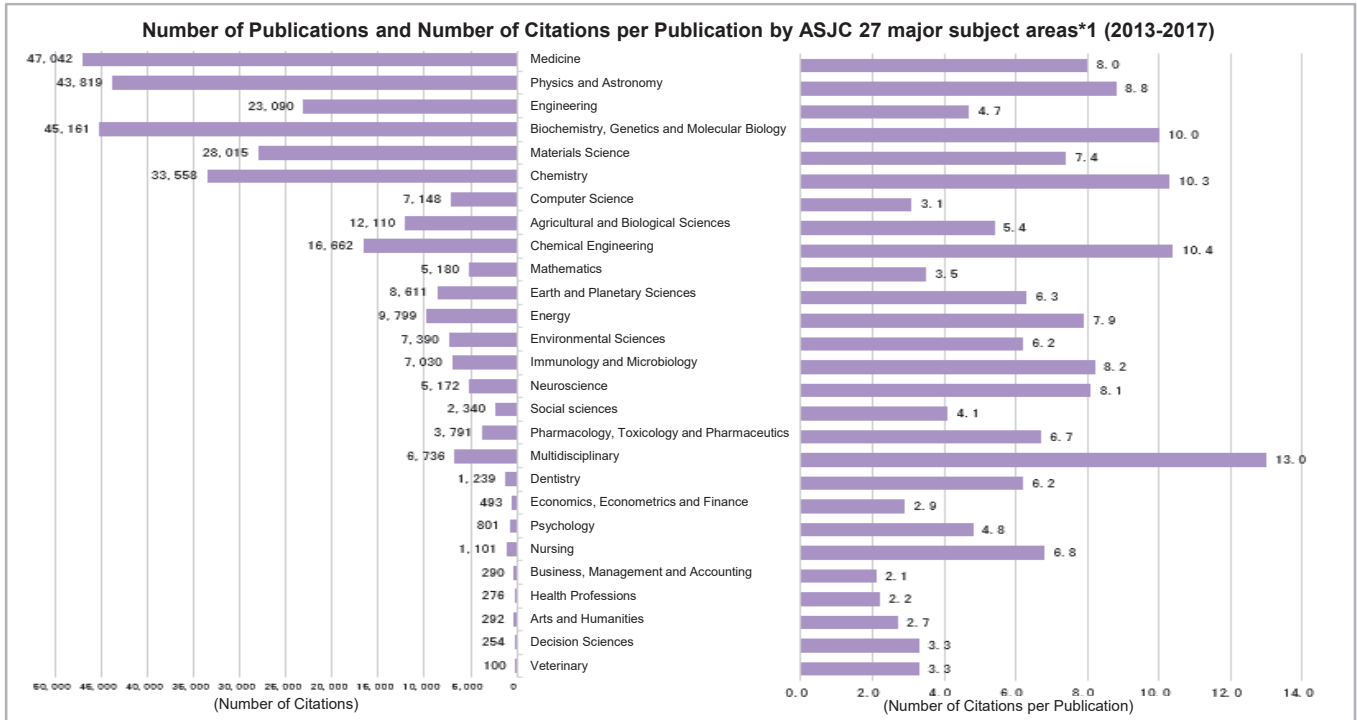
*Source: Elsevier's "SciVal" (as of September 2018)

9-2. Comparisons of Publication Quantity and Quality (Continued)

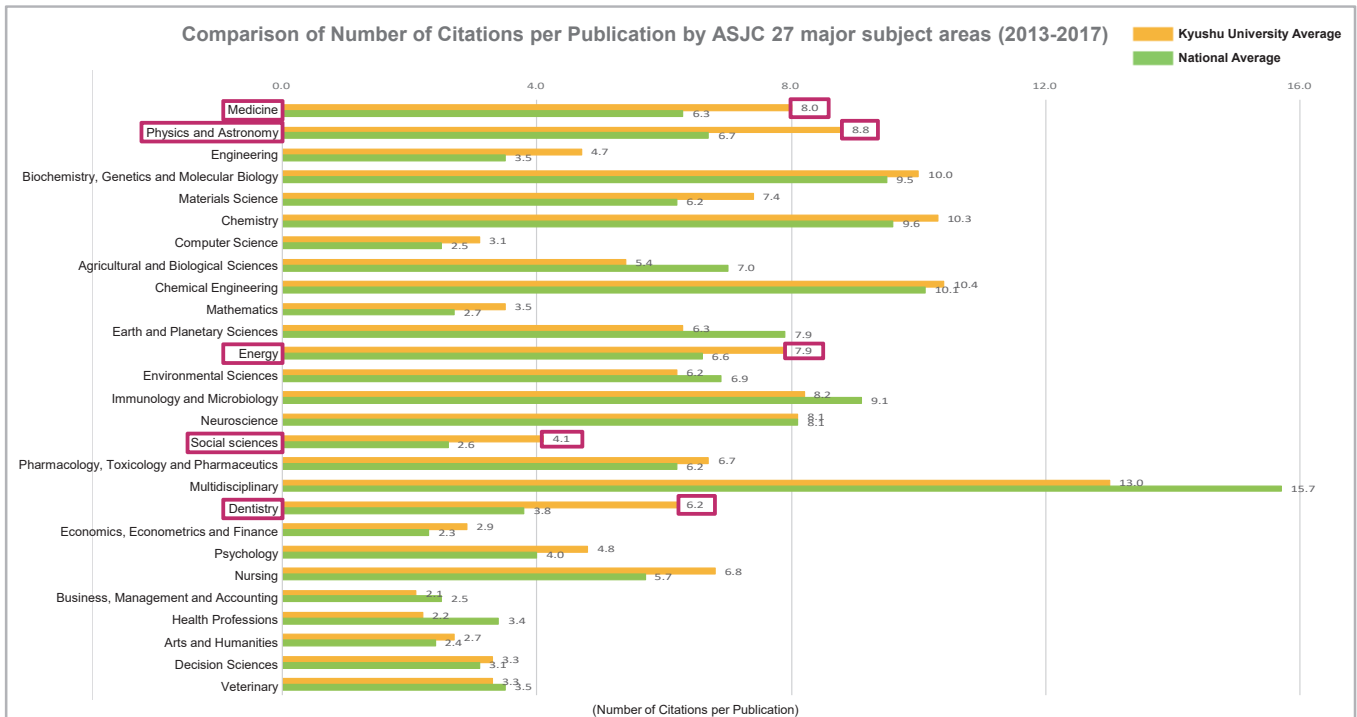
■ Comparison Between Kyushu University and the National Average (by ASJC 27 subject categories (*1)) — Number of Citations per Publication

Kyushu University's number of citations per publication is higher than the national average in 18 of the 27 categories. Within these, the fields for which the University's percentage of citations is particularly high compared with the national average are **Dentistry, Social Science, Medicine, Physics and Astronomy, and Energy**.

◆ Kyushu University ◆



◆ Comparison of Kyushu University with National Averages ◆



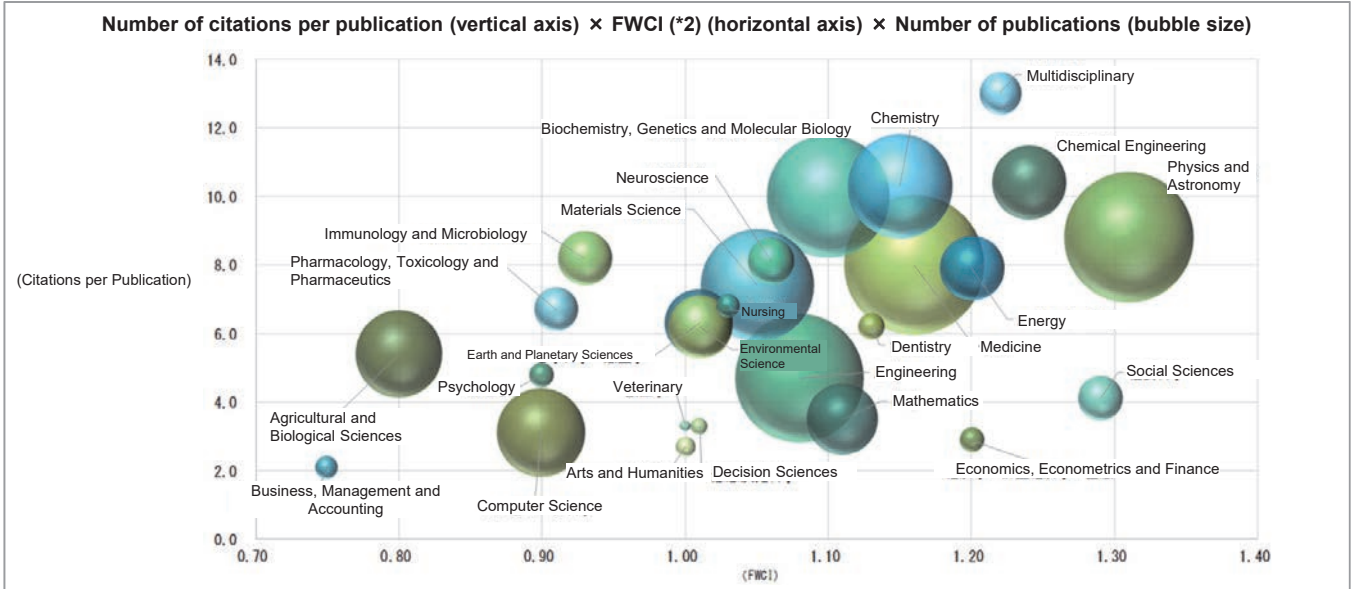
(*1) ASJC 27 major subject areas
Scopus classification of journals (AJSC) services The 27 major subject areas and 334 minor subject areas based on the All Scopus Science Journal Classification (ASJC) or on research domains formulated independently.

*Source: Elsevier's "SciVal" (as of September 2018)

9-2. Comparisons of Publication Quantity and Quality (Continued)

■ Comparison of Research Fields of Kyushu University Publications (by ASJC 27 major subject areas (*1)) (2013 - 2017)

The further right and upward a field is positioned, the higher the FWCI(*2) and the number of citations per publication, indicating that it is a high-quality publication. **The quality of publications in Physics and Astronomy, Chemical Engineering, Energy and Multidisciplinary fields was particularly high.** (An multidisciplinary field is one in which publications are carried in general scientific magazines such as "Nature" and "Science".)



■ Comparison of Research Fields of Kyushu University Publications (by ASJC 334 minor subject areas (*1)) (2013 - 2017)

Kyushu University has an FWCI(*2) greater than the global average of 1.0 in 177 of the 334 subjects. The top 10 subjects in which this university has a particularly high FWCI(*2) are listed below.

Rank	ASJC 27 major subject areas (*1)	ASJC 334 minor subject areas	FWCI
1	Arts and Humanities	Music	4.35
2	Engineering	Engineering (miscellaneous) (*3)	3.18
3	Environmental Science	Environmental Science (miscellaneous) (*4)	2.86
4	Physics and Astronomy	Physics and Astronomy (miscellaneous) (*5)	2.79
5	Arts and Humanities	Conservation	2.53
6	Nursing	Advanced and Specialized Nursing	2.47
7	Health Professions	Optometry	2.11
8	Immunology and Microbiology	Parasitology	2.06
9	Business, Management and Accounting	Business and International Management	2.01
10	Social Sciences	Social Sciences (miscellaneous) (*6)	2.00

(*1) ASJC 27 major subject areas, ASJC 334 minor subject areas

Scopus classification of journals (AJSC) services The 27 major subject areas and 334 minor subject areas based on the All Scopus Science Journal Classification (ASJC) or on research domains formulated independently.
Translation assistance provided by the National Institution for Academic Degrees and Quality Enhancement of Higher Education. (Translation of major areas by Elsevier.)

(*2) FWCI(Field-weighted Citation Impact)

The number of citations received by the article in question, divided by the world average for the same type of article in the same field and same year of publication. An FWCI of 1 or higher means that the average impact is higher than the world average.

(*3) Engineering (miscellaneous) fields other than the following

Other than aerospace engineering; automotive engineering; biomedical engineering; civil and structural engineering; computational mechanics; control and systems engineering; electrical and electronic engineering; industrial and manufacturing engineering; mechanical engineering; mechanics of materials; ocean engineering; safety, risk, reliability and quality; media technology; building and construction; and architecture

(*4) Environmental Sciences (miscellaneous) fields other than the following

Ecological modeling; ecological studies, environmental chemical; environmental engineering*; changes in the size of the planet; health, toxins, mutagenesis; environmental management & monitoring; policies and law; conservation of nature and landscapes; waste and byproducts management and processing; water resource science and engineering

(*5) Physics & Astronomy (miscellaneous) fields other than the following

Other than acoustics and ultrasonics; astronomy and astrophysics; condensed matter physics; instrumentation; nuclear and high energy physics; atomic and molecular physics, and optics; radiation; statistical and nonlinear physics; and surfaces and interfaces

(*6) Social sciences (miscellaneous) fields other than the following

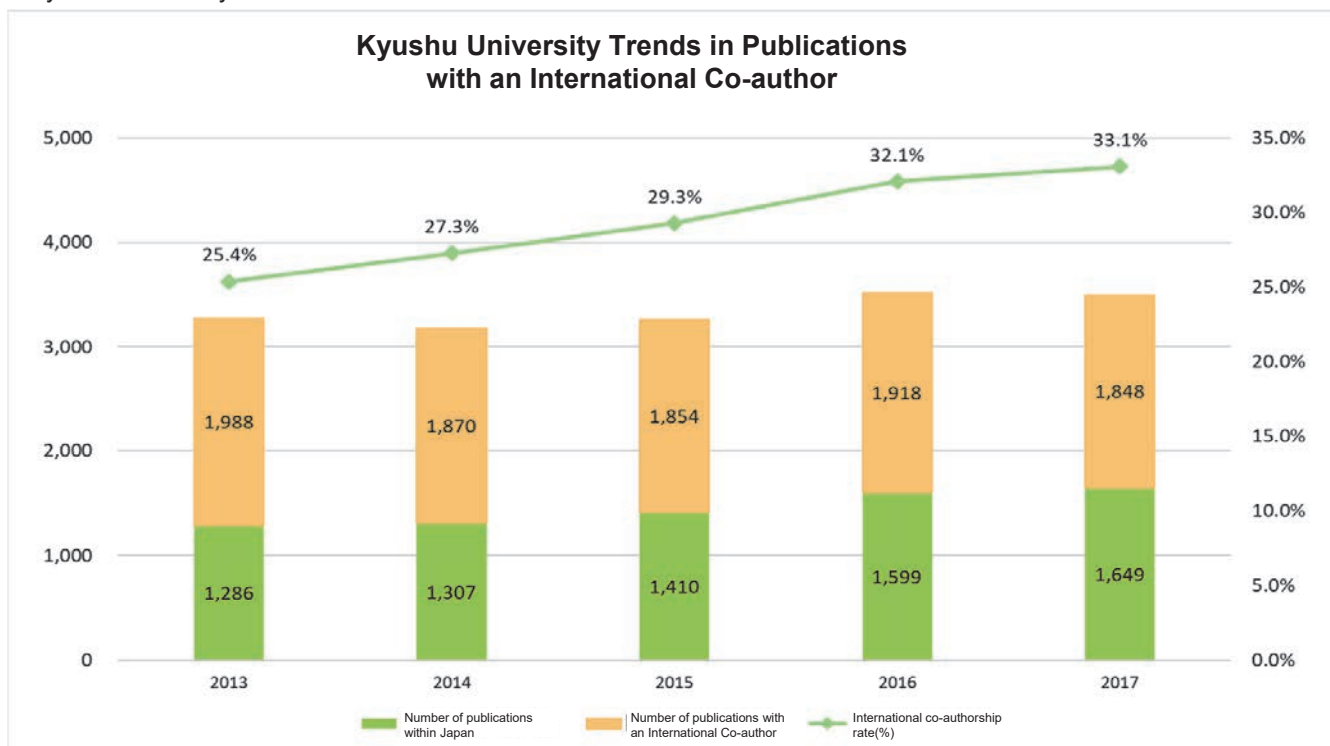
Archeology, development, education, geography/planning/development, health (social sciences). Human factors and ergonomics, law, library information systems, language study and languages, transport and transportation, safety research, social sciences and communication & culture studies; demographics; gender studies; lifelong learning; investigating life courses; politics and international relations; public administration and town planning

*Source: Elsevier's "SciVal" (as of September 2018)

9-3. Number of Publications with an International Co-author

At Kyushu University, the number of publications with an international co-author and the international co-authorship rate are both rising. Publications with an international co-author grew **1.92** times between 2008 and 2017, and the percentage of internationally co-authored publications **rose by 12%** between 2008 and 2017. This rate of growth is the **highest in the RU11(*1)**.

◆Kyushu University◆



Number of Publications with an International Co-author (by Faculty) (2013-2017)

Rank	Faculty	Number of Internationally Co-authored Publications (Total)	International Co-authorship Rate (Average) (%)
1	Faculty of Engineering	1,186	25.4
2	Faculty of Science	1,090	50.8
3	Faculty of Agriculture	651	35.5
4	Faculty of Information Science and Electrical Engineering	542	27.1
5	Faculty of Medical Sciences	493	11.2
6	Faculty of Engineering Sciences	360	32.3
7	Faculty of Pharmaceutical Sciences	163	24.4
8	Faculty of Dental Science	119	18.2
9	Faculty of Design	80	17.9
10	Faculty of Economics	69	42.3
11	Faculty of Social and Cultural Studies	56	34.8
12	Faculty of Human - Environment Studies	53	29.4
13	Faculty of Mathematics	35	21.5
14	Faculty of Law	5	17.9
15	Faculty of Humanities	0	0.0
16	Faculty of Languages and Cultures	0	0.0

(*1) Research University 11 (RU11)

A consortium of universities engaged in intensive global academic competition, placing great emphasis on research and the development of high-quality human resources through this. This consortium is composed of both national and private universities.

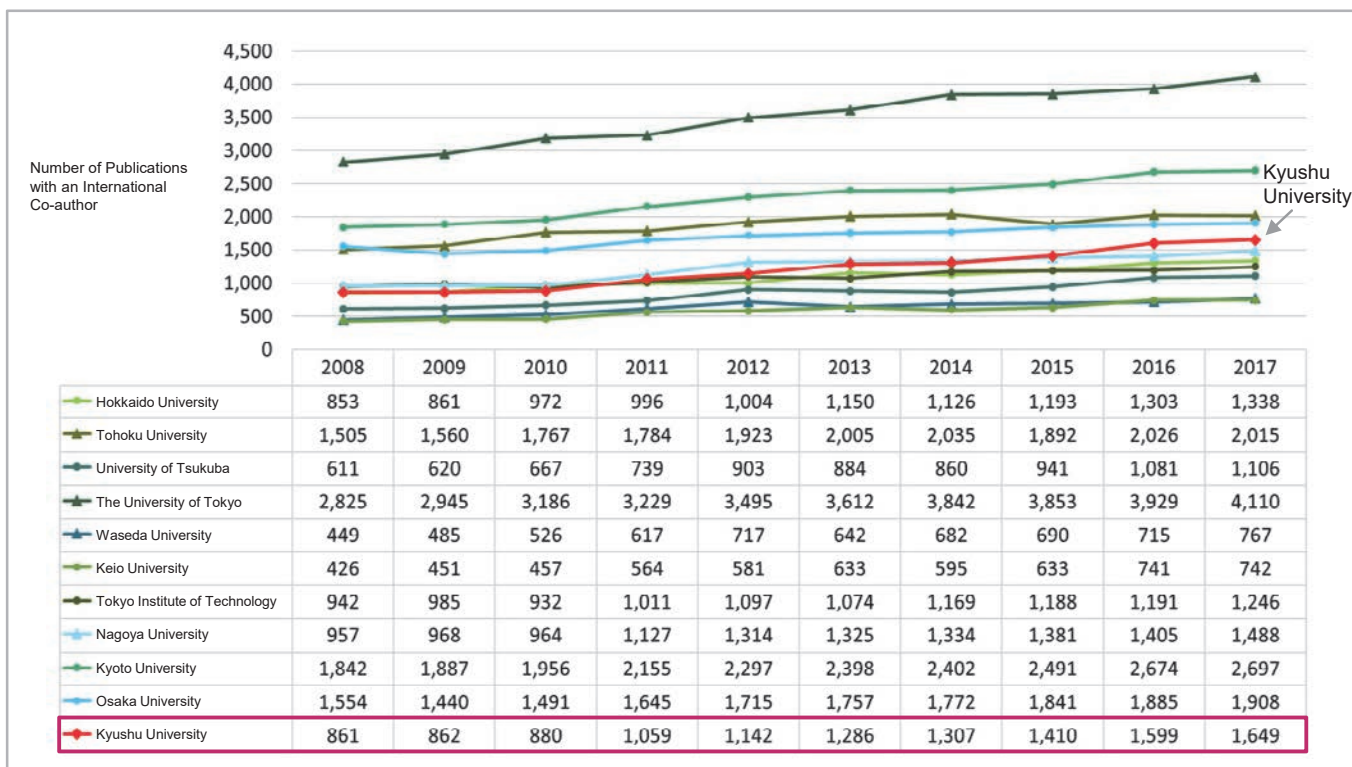
Hokkaido University, Tohoku University, University of Tsukuba, The University of Tokyo, Waseda University, Keio University, Tokyo Institute of Technology, Nagoya University, Kyoto University, Osaka University, Kyushu University (in order from north to south)

*Source: Elsevier's "SciVal" (as of September 2018)

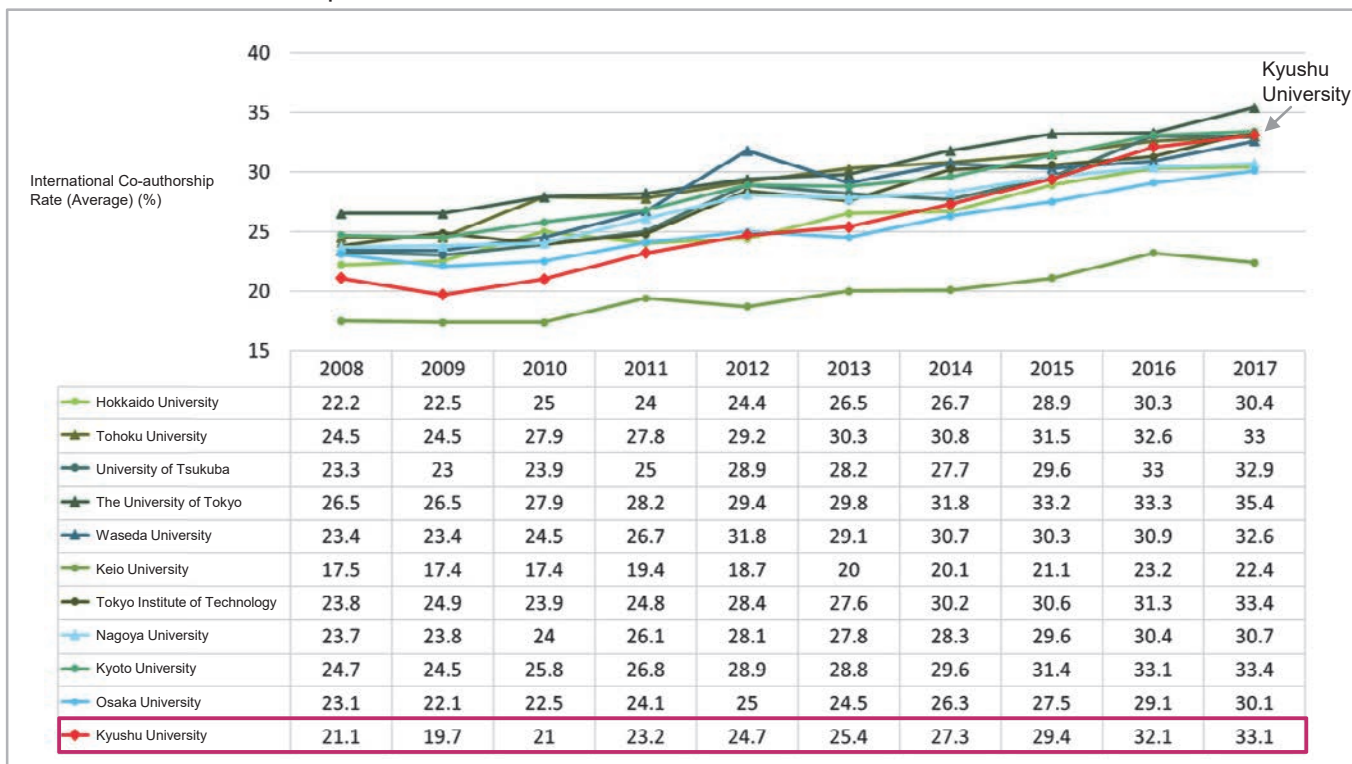
9-3. Number of Publications with an International Co-author (Continued)

◆ Comparison with the other RU11(*1) members ◆ (2008 - 2017)

Number of Publications with an International Co-author



International Co-authorship Rate



(*1) Research University 11 (RU11)

A consortium of universities engaged in intensive global academic competition, placing great emphasis on research and the development of high - quality human resources through this. This consortium is composed of both national and private universities.

Hokkaido University, Tohoku University, University of Tsukuba, The University of Tokyo, Waseda University, Keio University, Tokyo Institute of Technology, Nagoya University, Kyoto University, Osaka University, Kyushu University (in order from north to south)

*Source: Elsevier's "SciVal" (as of September 2018)

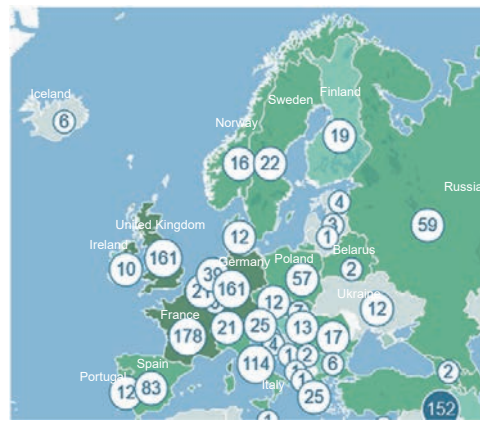
9-3. Number of Publications with an International Co-author (Continued)

[International Co-authorship with Institutions Worldwide (2013 - 2018)]

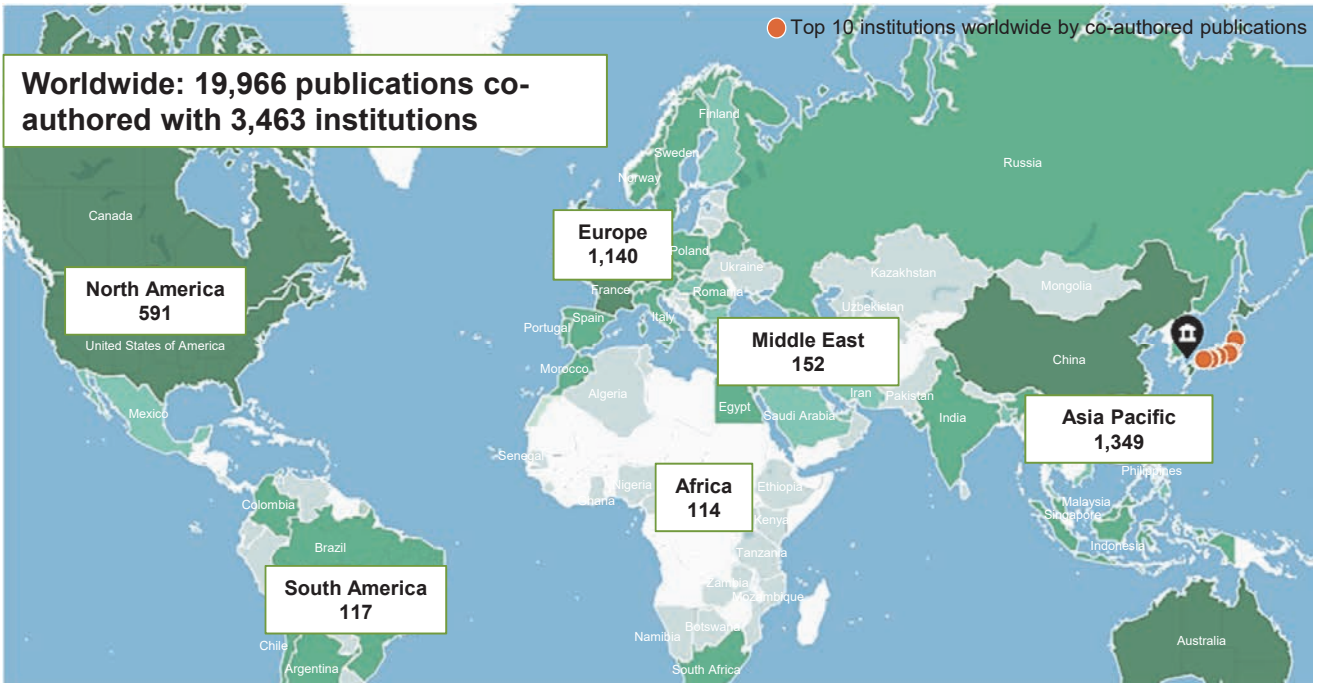
North America
3,063 publications co-authored with
591 institutions



Europe
3,031 publications co-authored with 1,140
institutions



Asia-Pacific
17,788 publications co-authored with
1,349 institutions



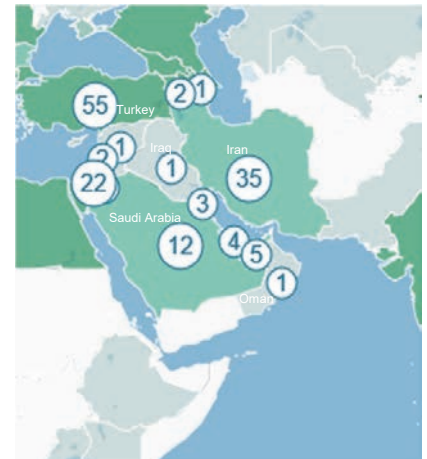
South America
748 publications co - authored with
117 institutions



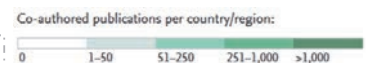
Africa
1,158 publications co - authored with 114
institutions



Middle East
913 publications co - authored with
152 institutions



• Figures on the maps represent the number of institutions.



*Source: Elsevier's "SciVal" (as of February 2019)

* The data on this page of Kyushu University FY 2018 Fact Book in Japanese is as of September 2018