

A GUIDE TO THE NATURE INDEX

A description of the terminology and methodology used in this supplement, and a guide to the functionality available free online at natureindex.com

The Nature Index is a database of author affiliations and institutional relationships. The index tracks contributions to articles published in a group of highly selective science journals, chosen by an independent group of active researchers.

The Nature Index provides absolute counts of publication productivity at the institutional and national level and, as such, is one indicator of global high-quality research output. Data in the Nature Index are updated monthly, with the most recent 12 months of data made available under a Creative Commons licence at natureindex.com. The database is compiled by Springer Nature.

The list of journals tracked by the Nature Index is under review, and from the end of 2017 will be extended to include clinical sciences.

NATURE INDEX METRICS

There are several measures provided by the Nature Index to track affiliation data. The simplest is the **article count (AC)**. A country or institution is given an AC of 1 for each article that has at least one author from that country or institution. This is the case whether an article has one or a hundred authors, and it means that the same article can contribute to the AC of multiple countries or institutions. To get a sense of a country or institution's contribution to an article, and to remove the possibility of counting articles more than once, the Nature Index uses the **fractional count (FC)**, which takes into account the relative contribution of each author to an article. The total FC available per paper is 1, which is shared between all authors under the assumption that each contributed equally. For instance, a paper with 10 authors means that each author receives an FC of 0.1. For authors who have joint affiliations, the individual FC is then split equally between each affiliation. Another measure used is the **weighted fractional count (WFC)**, which applies a weighting to the FC to adjust for the over-representation of papers in astronomy and astrophysics. The four journals in these disciplines publish about 50% of all papers in journals in this field — approximately five times the equivalent percentage for other fields. Therefore, although the data for astronomy and astrophysics are compiled in the same way as for all other disciplines, articles from these journals are assigned one-fifth the weight of other articles (i.e., the FC is multiplied by 0.2 to derive the WFC).

The total FC or WFC for an institution is

natureindex.com users can search for specific institutions or countries and generate their own reports, ordered by article count (AC), fractional count (FC) or weighted fractional count (WFC).

Each query will return a profile page that lists the country or institution's recent outputs, from which it is possible to drill down for more information. Articles can be displayed by journal, and then by article. Research outputs are organized by subject area. The pages list the institution or country's top collaborators, as well as its relationship with other organizations. Registering allows users to track an institution's performance over time, create their own indexes and export table data.

calculated by summing the FC or WFC for individual authors. The process is similar for countries, although complicated by the fact that some institutions have overseas labs that will be counted towards host country totals. Also, there is variability in the way authors present their affiliations. Every effort is made to count affiliations consistently, with a background of reasonable assumptions. For more information on how the affiliation information is processed and counted, see the FAQ section at natureindex.com.

THE SUPPLEMENT

Nature Index 2017 China is based on data

from natureindex.com, covering articles published during five years from 1 January 2012 to 31 December 2016.

The tables in this supplement list China's top 100 international and domestic collaborations, measured by bilateral collaboration score. This is derived by adding the FC for all papers with co-authors from those two institutions. If institution A has relationships with another institution B, then the collaboration score between A and B is the sum of FC for A + B. This issue also includes data and bespoke analyses from Web of Science. Analyses from these sources refer to articles only, unless otherwise stated. ■

NATUREINDEX.COM

A global indicator of high-quality research

The screenshot shows the Nature Index website interface. At the top, it says "nature INDEX" with navigation links for Home, Institution outputs, Country outputs, Customer support, and FAQ. Below this, there are search filters for "Institution name" and "Country". There are three tabs: "Research" (selected), "Collaboration", and "Relationships". The main content area shows a date range of "1 January 2014 - 31 December 2014". A table displays metrics: AC (1221), FC (598.04), and WFC (558.30). Below the table, there is a donut chart titled "Outputs by subject" with four segments: Chemistry (red), Earth & Environmental Sciences (green), Life Sciences (yellow), and Physical Sciences (blue). A table below the chart lists the AC, FC, and WFC for each subject.

Subject	AC	FC	WFC
Chemistry	276	179.1	179.11
Earth & Environmental Sciences	95	42.73	42.73
Life Sciences	439	231.50	231.50
Physical Sciences	652	284.48	244.74