TIM Dual-use web-platform

Developed by European Commission Joint Research Centre,

in collaboration with Liege university

Dr. F. Sevini (EC JRC), E. Caponetti (ULG)

Summary

- Introduction
- General features
- Country-based views
- Organisations
- Authors

European Commission

JRC Tools for Innovation Monitoring

TIM's database contains 3 types of documents, updated annually:

- **Scientific publications** in Scopus, **40,000 journals** by Elsevier and other publishers, with more than **50 million abstracts** (in English, also if the full paper is e.g. in Chinese)
- **Patents (European Patent Office - PATSTAT**, containing about **25 million patents** from more than **90 worldwide patent authorities** including all the major countries
- **EU funded projects (CORDIS):** more than **77,000 research projects**, including also partners from third countries

TIM Tools for Innovation Monitoring

European Commission

TIM Dual-use:
Mapping Dual-Use Technology Transfers

https://knowledge4policy.ec.europa.eu/text-mining/tim-dual-use_en

TIM dual-use project's objective is **mapping**:

1. The items controlled in the "**EU dual-use control list**" (Annex I to EU DU Reg. 2021/821)

2. Selected **emerging technologies** of the dual-use area.

TIM Dual-use: Mapping Dual-Use Technology Transfers

https://knowledge4policy.ec.europa.eu/text-mining/tim-dual-use_en

- Mapping is realized via a search functionality based on queries with a specific syntax
- Each query is made up of a combination of **keywords** (DU related), **fields** (where the keywords are searched, e.g. title, abstract, name of the organization etc.) and **Boolean operators** (AND, OR, NOT)
- The retrieved documents are, to a different extent, dual-use related but an assessment by a technical expert is always needed
- No specific export feature is available, but abstracts, titles, charts, tables can be copied / pasted

https://knowledge4policy.ec.europa.eu/text-mining/tim-dual-use_en

TIM Dual-Use Web Platform

Screen grab from TIM Dual-Use: organisations involved in nuclear dual-use research, 1996-2020

TIM Dual-Use is a web-based platform tailored to the **mapping** of:

- **Dual-use technologies** listed in the **"EU dual-use control list"** (Annex I to Regulation 2021/821, as amended under annual delegated Acts), divided into ten categories;
- **Emerging technologies** not listed but with potential dual-use applications.

Dual-use technologies might be included in the contents of SCOPUS abstracts, patents and EU-funded research projects, which therefore could be subject to export authorisations prior to publication or sharing, as required by Regulation 2021/821.

TIM DU's mapping of **Dual-use technologies** is performed by means of search algorithms

Access TIM DU dashboards for:

Technologies related to the EU dual-use control list's categories:

Cat.0 Nuclear Material, Facilities and Equipment | Cat.1 Pathogens | Cat.1 Special Materials and Related Equipment | Cat.2 Material Processing | Cat.3 Electronics | Cat.4 Computers | Cat.5

Select category, or emerging technology

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Cat.1 Special Materials and Related Equipment | Cat.2 Material Processing

Cat.3 Electronics | Cat.4 Computers

Cat.5 Telecommunications and Information Security

Cat.6 Sensors and Lasers | Cat.7 Navigation and Avionics

Cat.8 Marine | Cat.9 Aerospace and Propulsion

Global Dual-Use Queries

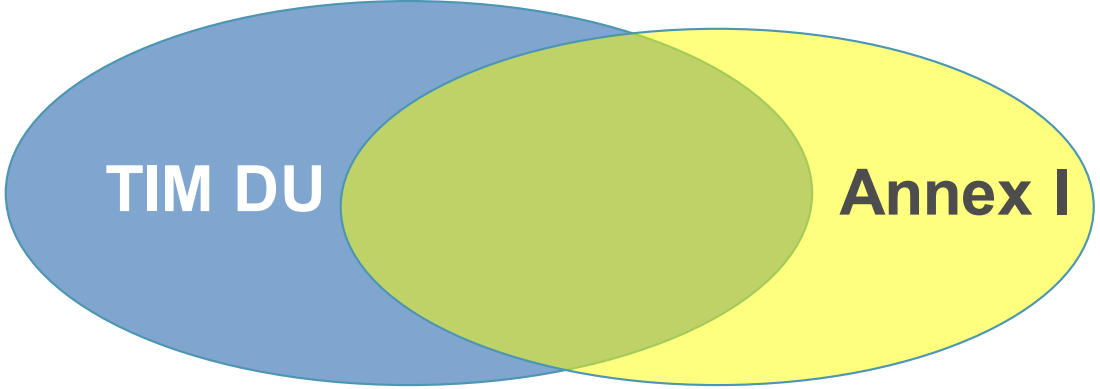
Emerging technologies:

Additive Manufacturing | Artificial Intelligence | Biotechnology

Blockchain | Cyber-Surveillance | Nanotechnology

Quantum Technology | Smart Materials

Summary



- TIM DU allows mapping scientific products/patents/EU projects related to dual-use & some emerging technologies
- TIM DU provides a picture of who is researching on what, where, when
- The 200+ queries are not exhaustive, nor mapping 1:1 each item. They are a compromise between broad enough searches, multiple alternative names, reliability and quantity
- Papers retrieved by TIM DU merit further assessment. They could provide hints at more focused compliance in similar cases
- Another application is prioritization and targeting of EUP2P cooperation projects

General features

- Dashboard views and tiles
- Main contents of the various tiles

European Commission

TIM Dual-Use | Knowledge for pc

TIM Dashboard | Cat. 2 - MATERI

timanalytics.eu/TimTechPublic/dashboard/index.jsp#/space/s_1523?ds=182144

TIM Tools for Innovation Monitoring

Cat. 2 - MATERIAL PROCESSING (P)

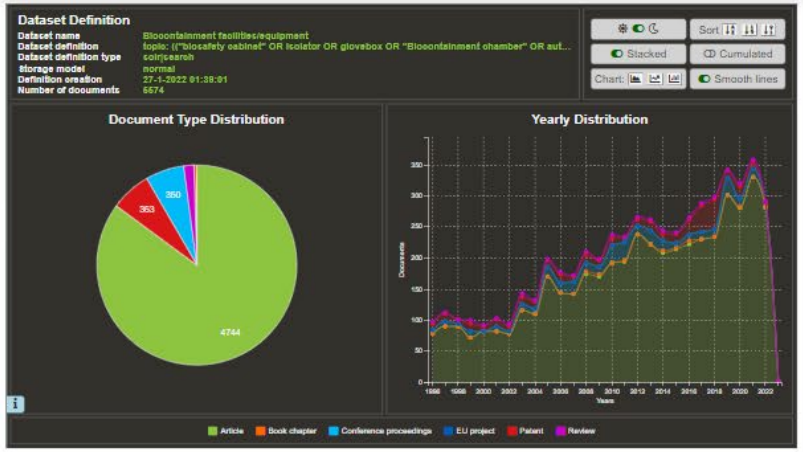
Dataset

Biocontainment facilities/equipment

FILTERS ORDER

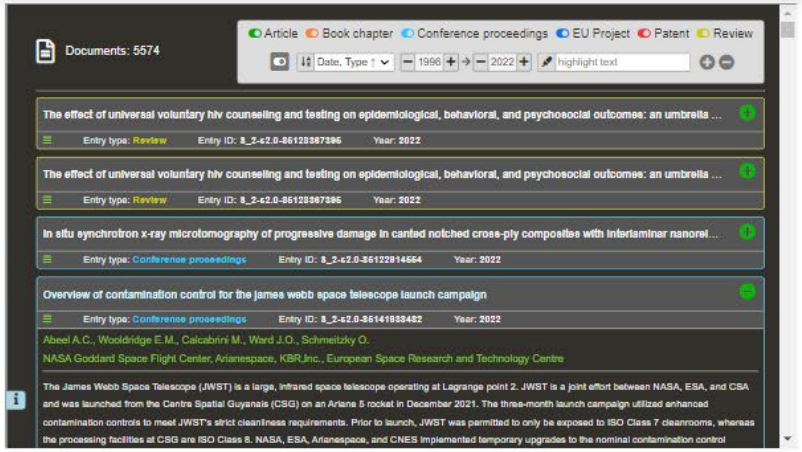
Dataset Info

SWITCH TO DATASET LIST



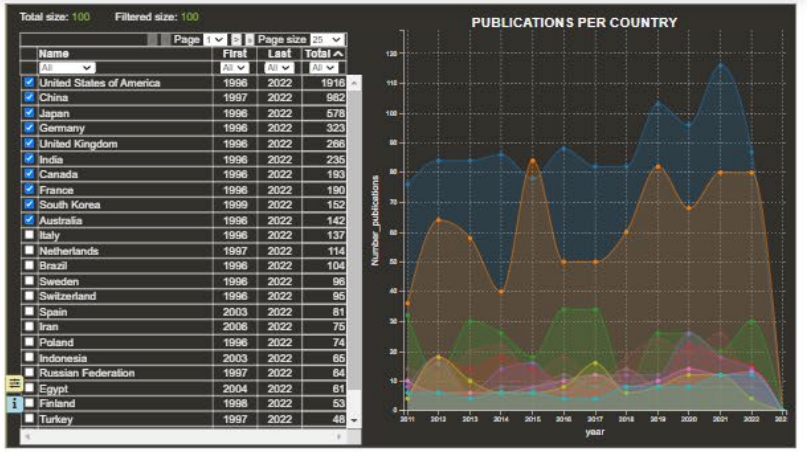
Documents

SWITCH TO DATASET LIST



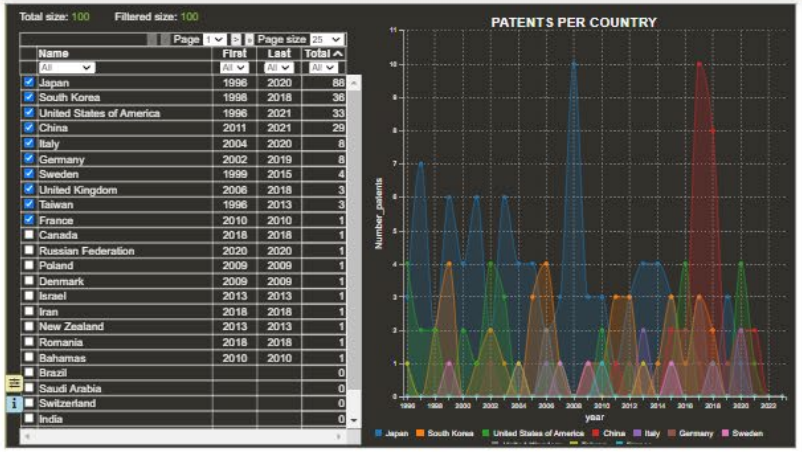
Publications_per_country

SWITCH TO DATASET LIST



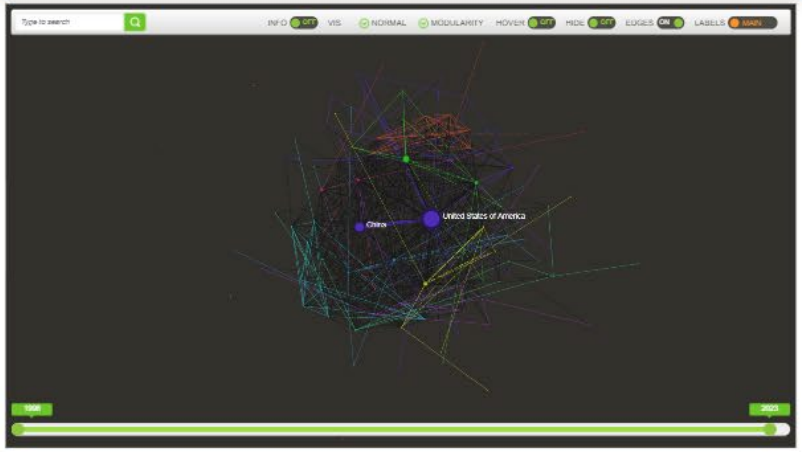
Patents_per_country

SWITCH TO DATASET LIST



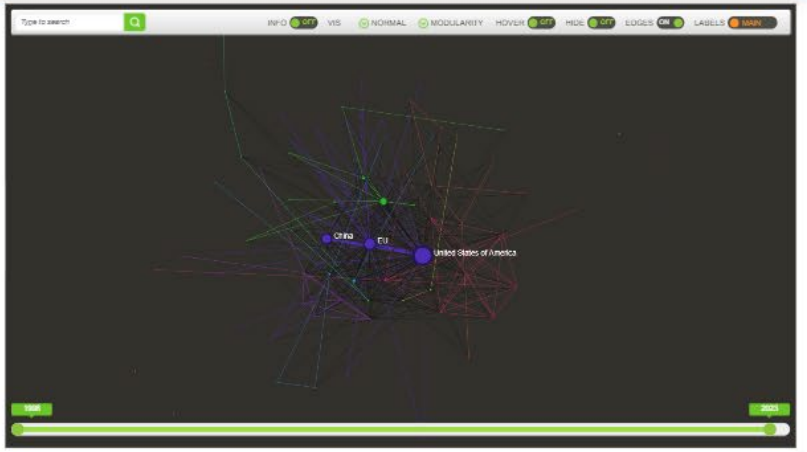
Countries

SWITCH TO DATASET LIST



EU vs World

SWITCH TO DATASET LIST



Heatmap Country

SWITCH TO DATASET LIST

Countries_summary

SWITCH TO DATASET LIST

Organisations

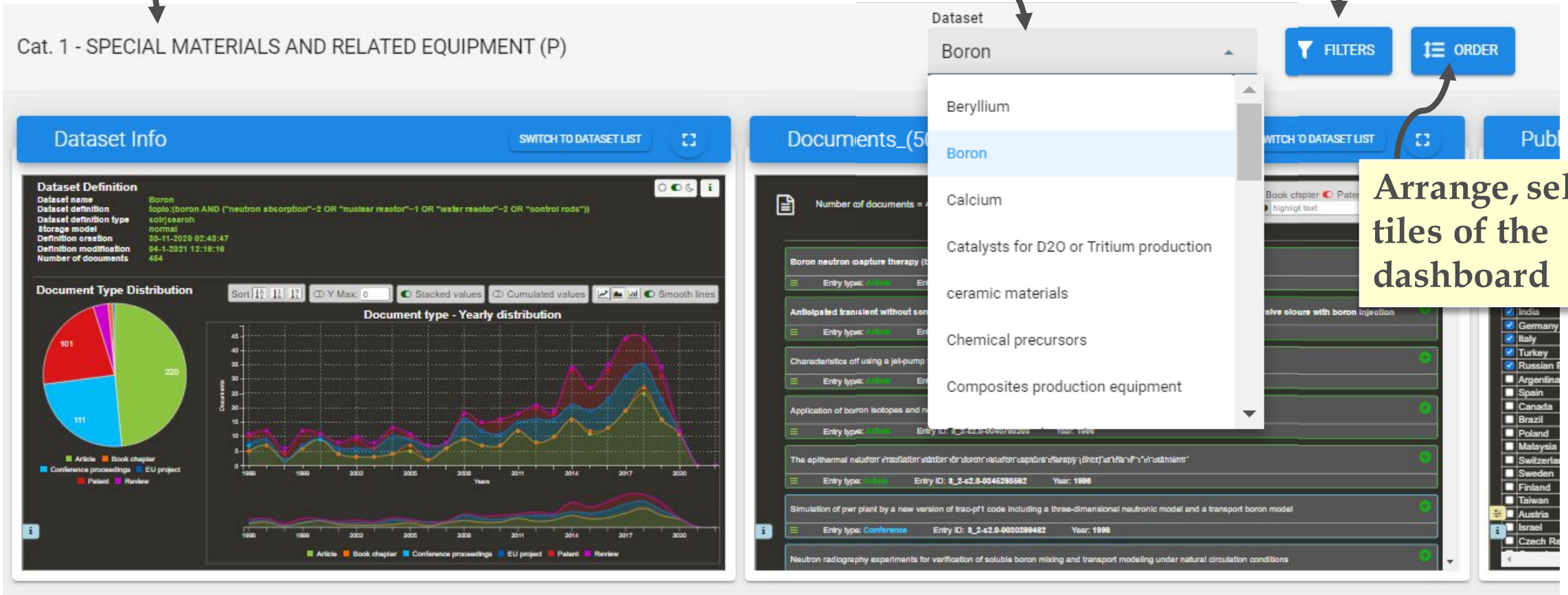
SWITCH TO DATASET LIST

Selected category

Choose a dataset from the drop list

Select filters

Arrange, select tiles of the dashboard



European Commission

If you want to check more items, or even an entire category…

TIM Dual-Use Web Platform

Screen grab from TIM Dual-Use: organisations involved in nuclear dual-use research, 1996-2020

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…Select entire categories by clicking on Global Queries

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Global Dual-Use Queries

Emerging technologies:

Additive Manufacturing | Artificial Intelligence | Biotechnology

Blockchain | Cyber-Surveillance | Nanotechnology

Quantum Technology | Smart Materials

timanalytics.eu/TimTechPublic/dashboard/index.jsp#/space/s_1536

GLOBAL DUAL-USE QUERIES (P)

Dataset

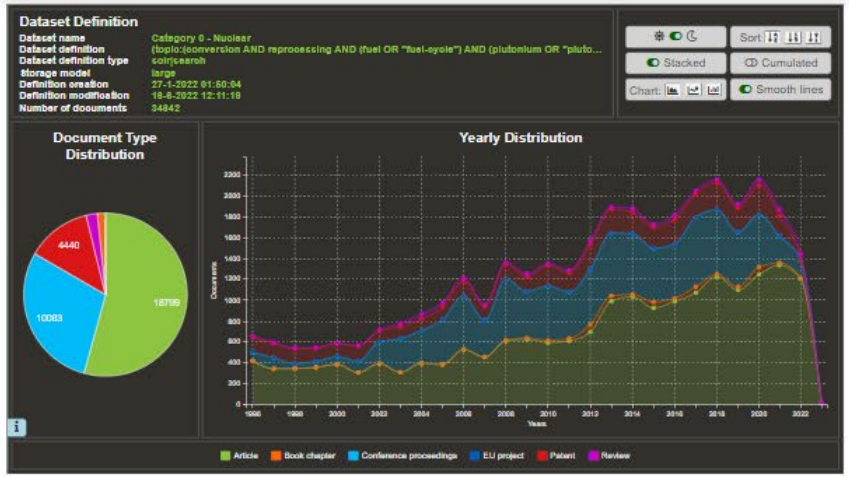
Category 0 - Nuclear

FILTERS ORDER

- Category 0 - Nuclear
- Category 1 - Pathogens
- Category 1 - Special materials
- Category 2 - Material processing
- Category 3 - Electronics
- Category 4 - Computers
- Category 5-Telecom & Info Security

Dataset Info

SWITCH TO DATASET LIST

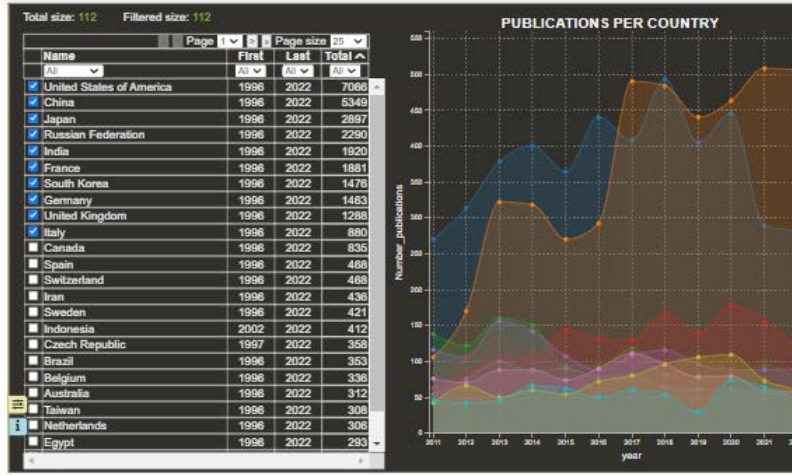


Docu

SWITCH TO DATASET LIST

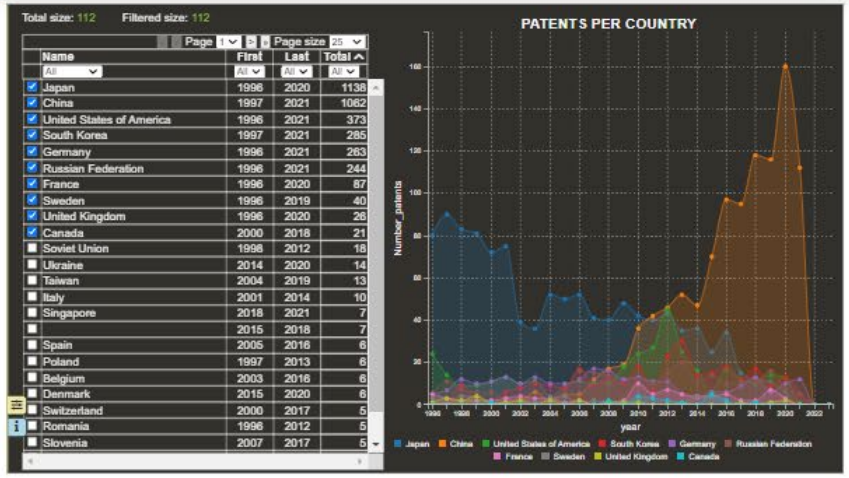
Publications_per_country

SWITCH TO DATASET LIST



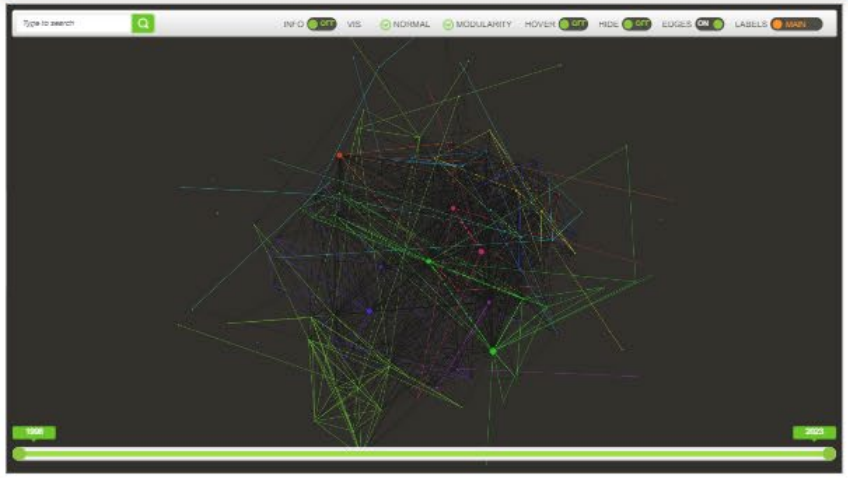
Patents_per_country

SWITCH TO DATASET LIST



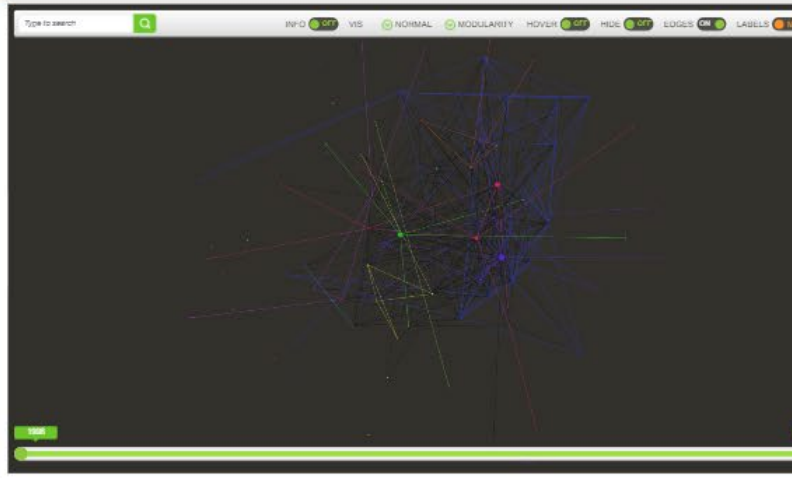
Countries

SWITCH TO DATASET LIST



EU vs World

SWITCH TO DATASET LIST



Heatmap Country

SWITCH TO DATASET LIST

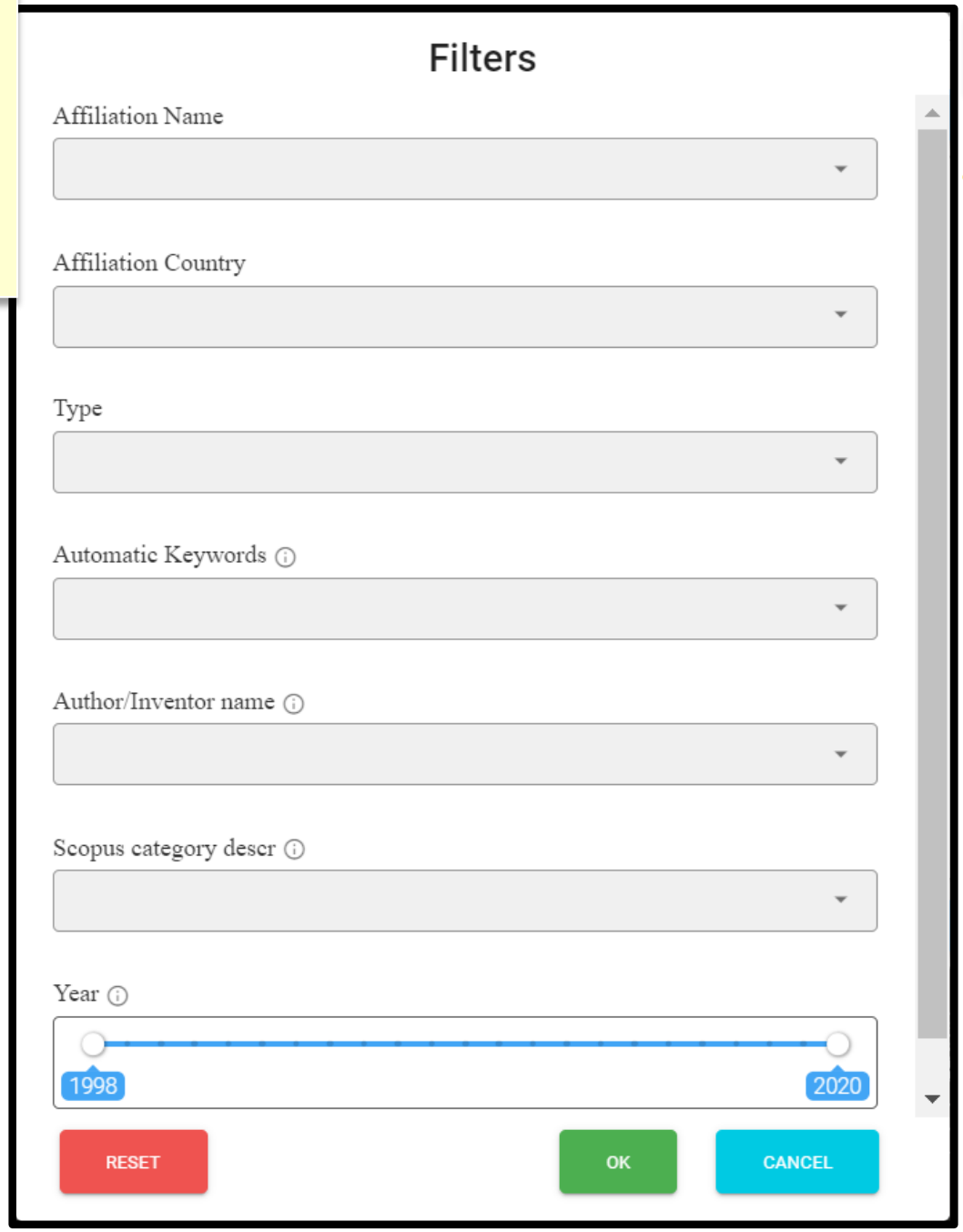
Countries_summary

SWITCH TO DATASET LIST

Organisations

SWITCH TO DATASET LIST

To search for specific organisations, Countries, etc. use the filters!



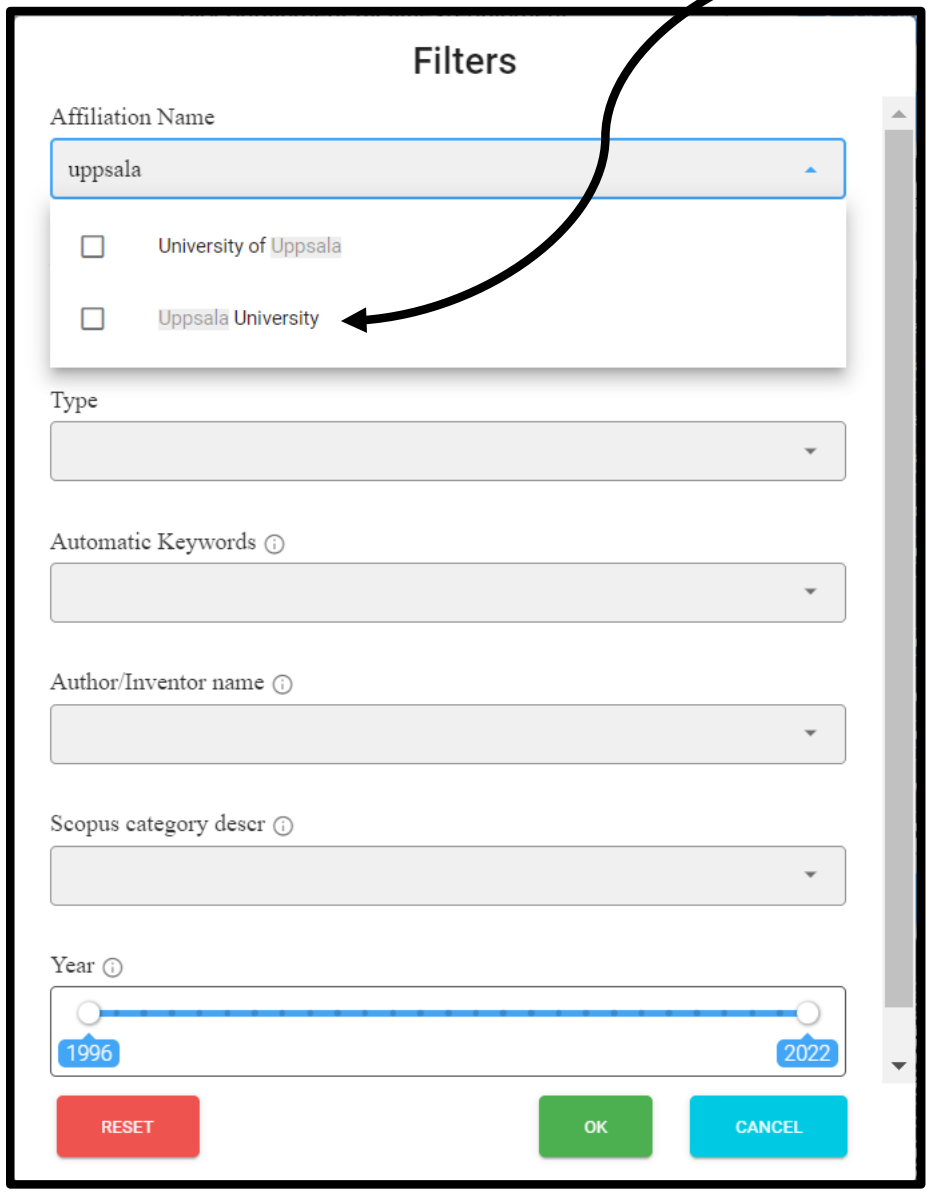
Multiple filters can be applied, or reset

- Organisations: different spellings could exist, select a
- Country, or countries of interest
- Type of documents
- Keywords automatically retrieved within the results. Select to focus the analysis and the views

Once you click on OK, all the tiles synchronise to the selection

European Commission

Start typing in the field, selecting all possible spellings/acronyms



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European Commission

TIM Dual-Use | Knowledge for pc

TIM Dashboard | Cat. 2 - MATERI

timanalytics.eu/TimTechPublic/dashboard/index.jsp#/space/s_1523?ds=182144

Cat. 2 - MATERIAL PROCESSING (P)

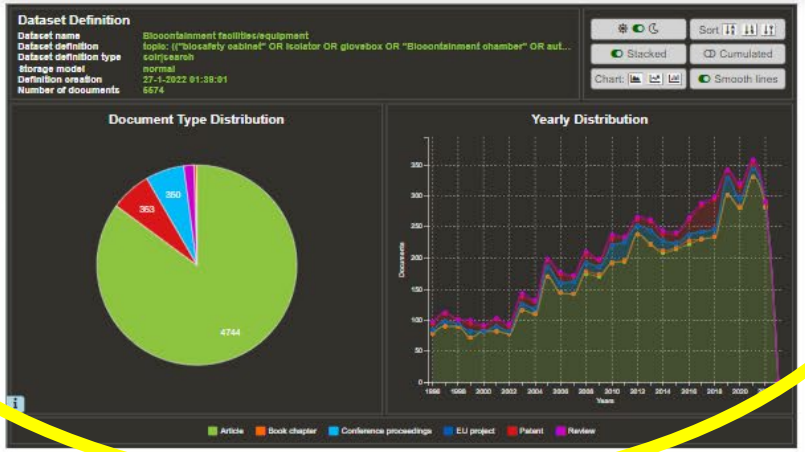
Dataset

Biocontainment facilities/equipment

FILTERS ORDER

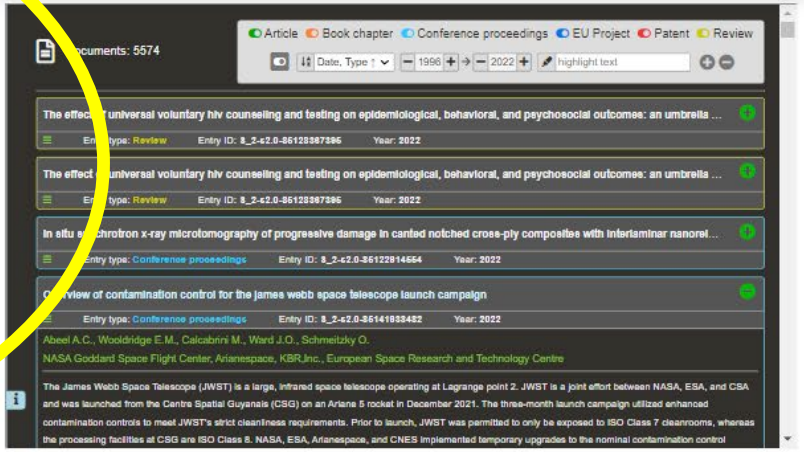
Dataset Info

SWITCH TO DATASET LIST



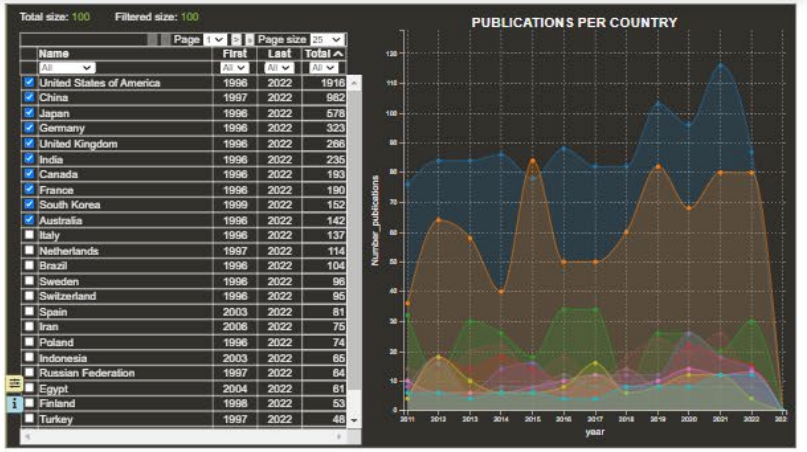
Documents

SWITCH TO DATASET LIST



Publications_per_country

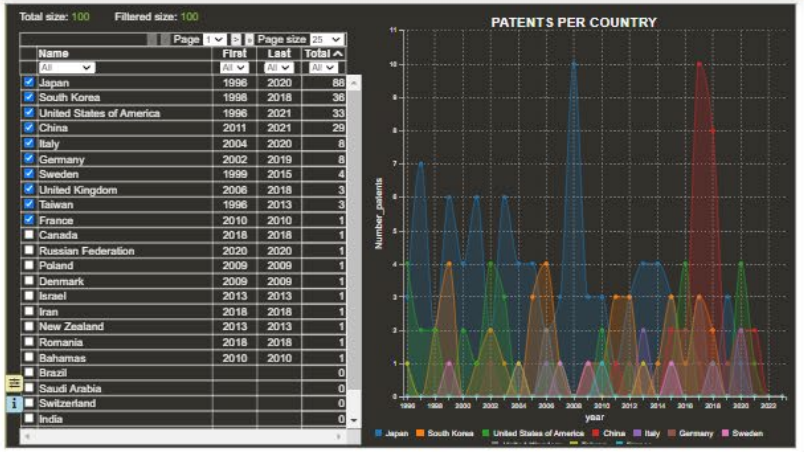
SWITCH TO DATASET LIST



Name	First	Last	Total
United States of America	1996	2022	1916
China	1997	2022	982
Japan	1996	2022	578
Germany	1996	2022	323
United Kingdom	1996	2022	266
India	1996	2022	235
Canada	1996	2022	193
France	1996	2022	190
South Korea	1999	2022	152
Australia	1996	2022	142
Italy	1996	2022	137
Netherlands	1997	2022	114
Brazil	1996	2022	104
Sweden	1996	2022	96
Switzerland	1996	2022	95
Spain	2003	2022	81
Iran	2008	2022	75
Poland	1996	2022	74
Indonesia	2003	2022	65
Russian Federation	1997	2022	64
Egypt	2004	2022	61
Finland	1998	2022	53
Turkey	1997	2022	46

Patents_per_country

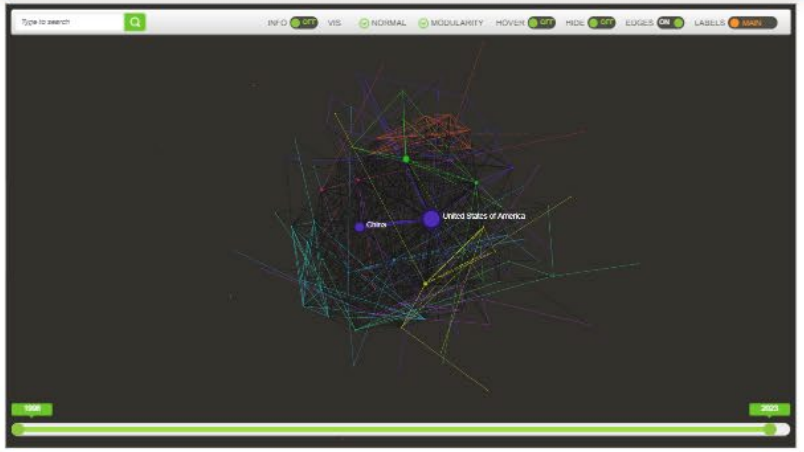
SWITCH TO DATASET LIST



Name	First	Last	Total
Japan	1996	2020	86
South Korea	1998	2018	36
United States of America	1996	2021	33
China	2011	2021	29
Italy	2004	2020	8
Germany	2002	2019	8
Sweden	1999	2015	4
United Kingdom	2006	2018	3
Taiwan	1996	2013	3
France	2010	2010	1
Canada	2018	2018	1
Russian Federation	2020	2020	1
Poland	2009	2009	1
Denmark	2009	2009	1
Israel	2013	2013	1
Iran	2018	2018	1
New Zealand	2013	2013	1
Romania	2018	2018	1
Bahamas	2010	2010	1
Brazil			0
Saudi Arabia			0
Switzerland			0
India			0

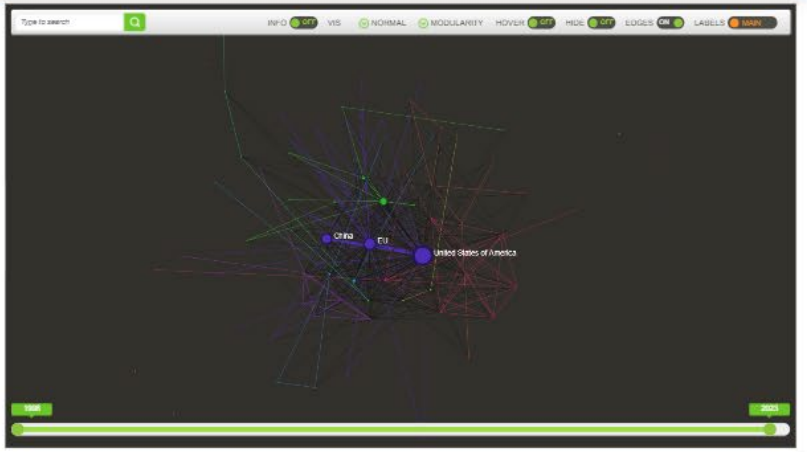
Countries

SWITCH TO DATASET LIST



EU vs World

SWITCH TO DATASET LIST



Heatmap Country

SWITCH TO DATASET LIST

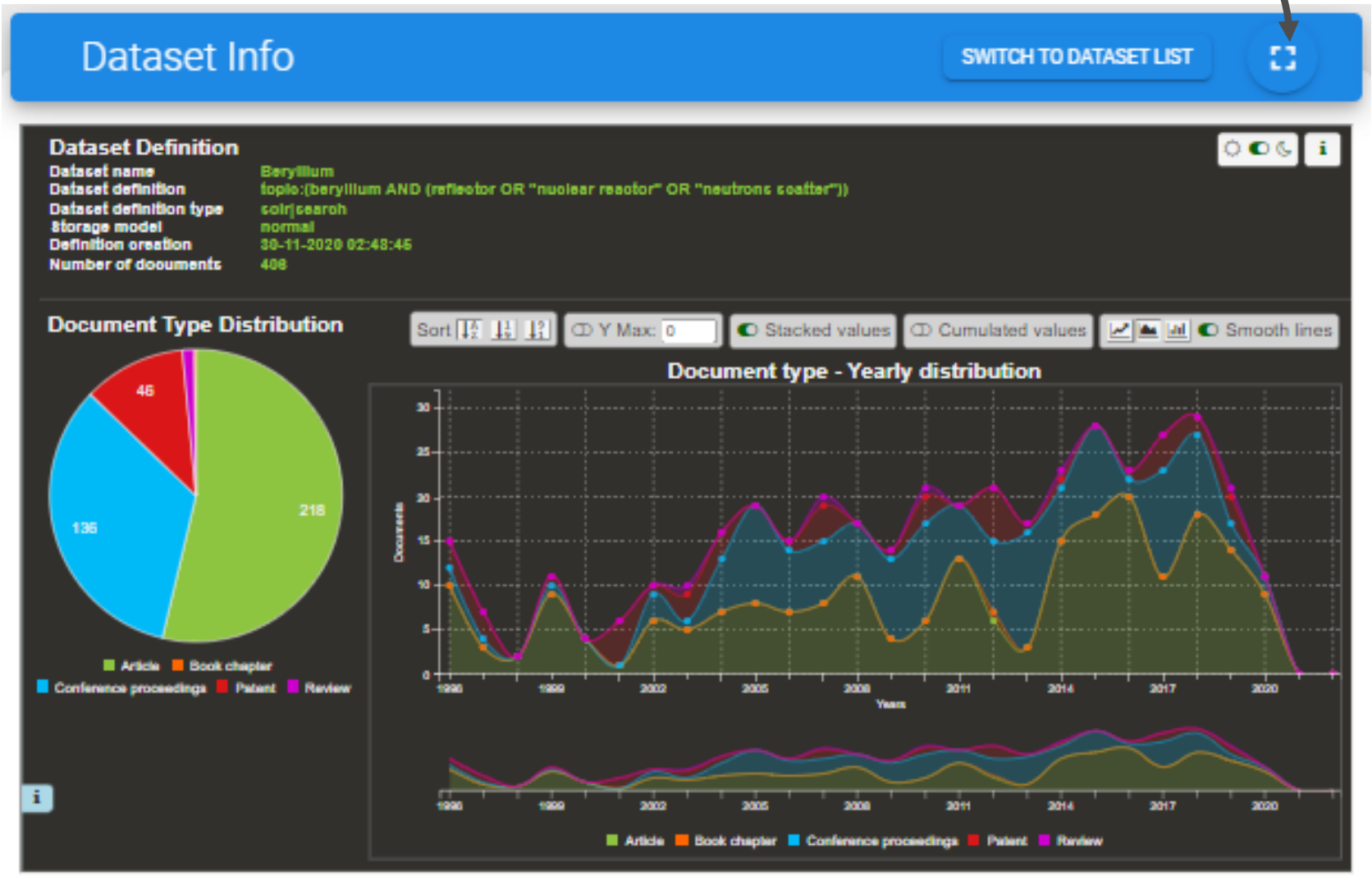
Countries_summary

SWITCH TO DATASET LIST

Organisations

SWITCH TO DATASET LIST

Click here to maximise the window of each specific tile



European Commission

Dataset Info

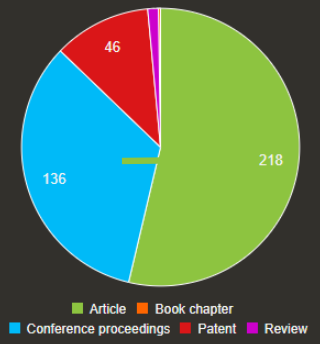
SWITCH TO DATASET LIST

Dataset Definition

Dataset name	Beryllium
Dataset definition	topic:(beryllium AND (reflector OR "nuclear reactor" OR "neutrons scatter"))
Dataset definition type	solr|search
Storage model	normal
Definition creation	30-11-2020 02:48:45
Number of documents	406

query generating the dataset

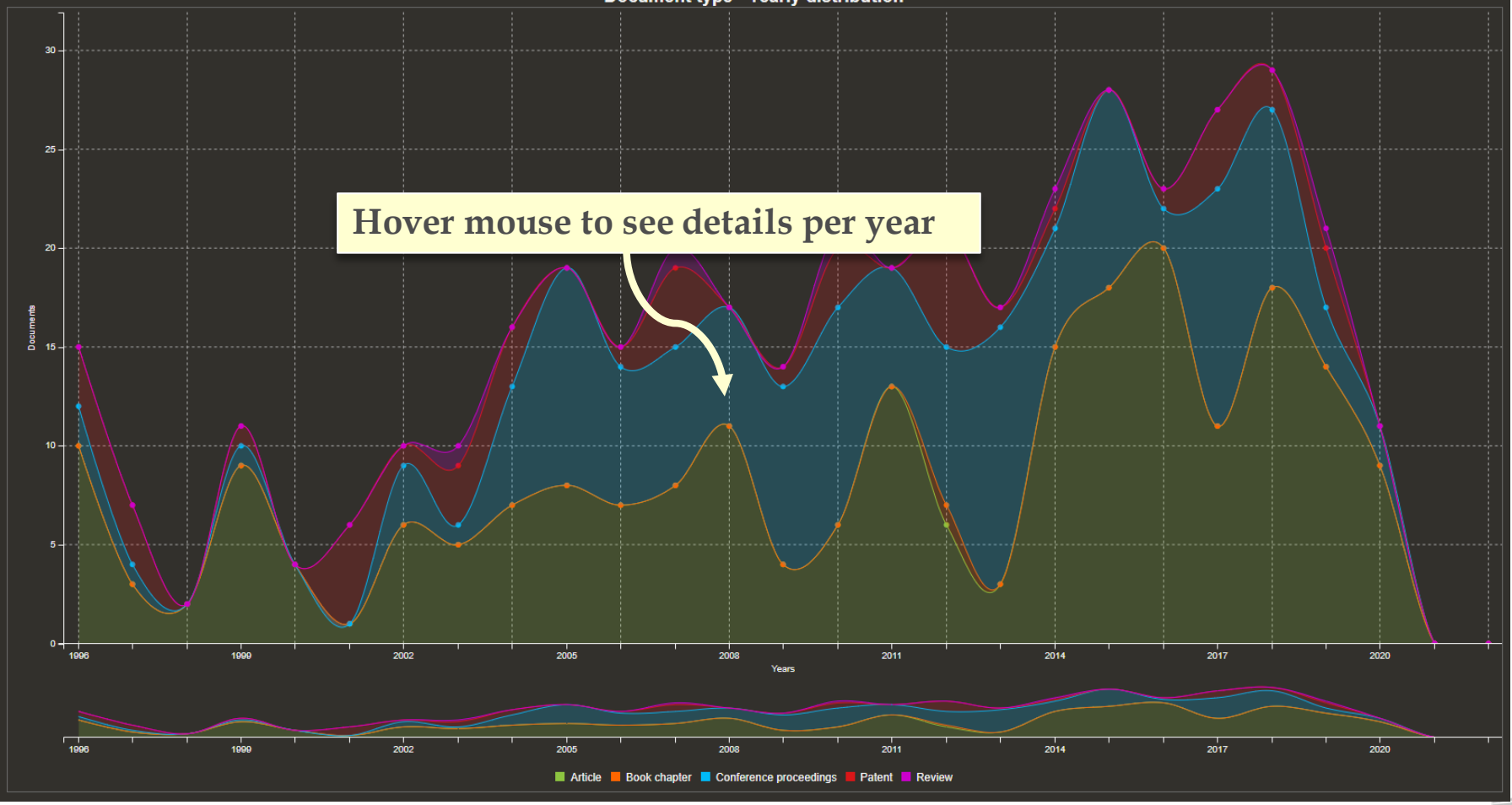
Document Type Distribution



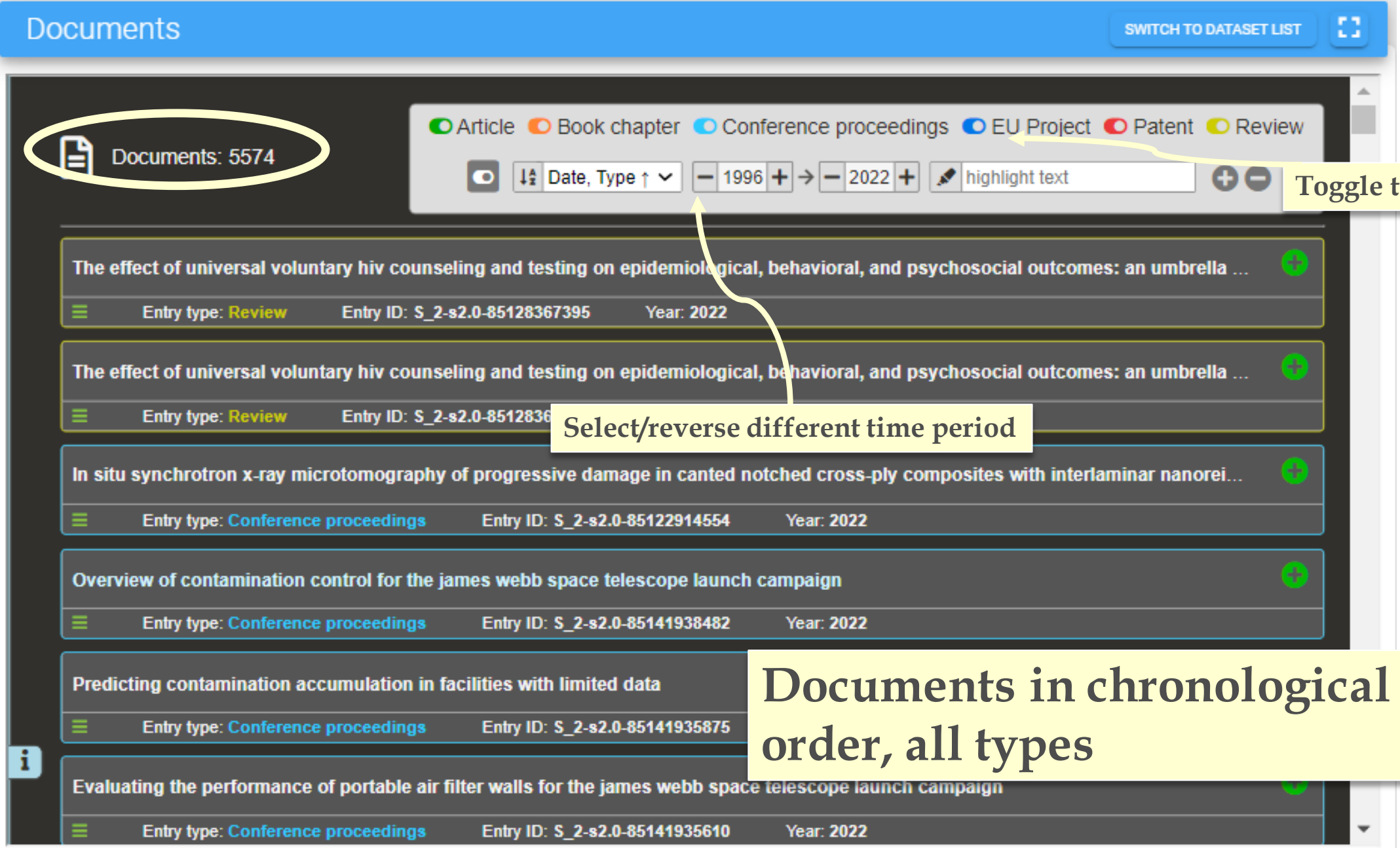
Sort | Y Max: 0 | Stacked values | Cumulated values | Smooth lines

Document type - Yearly distribution

Hover mouse to see details per year

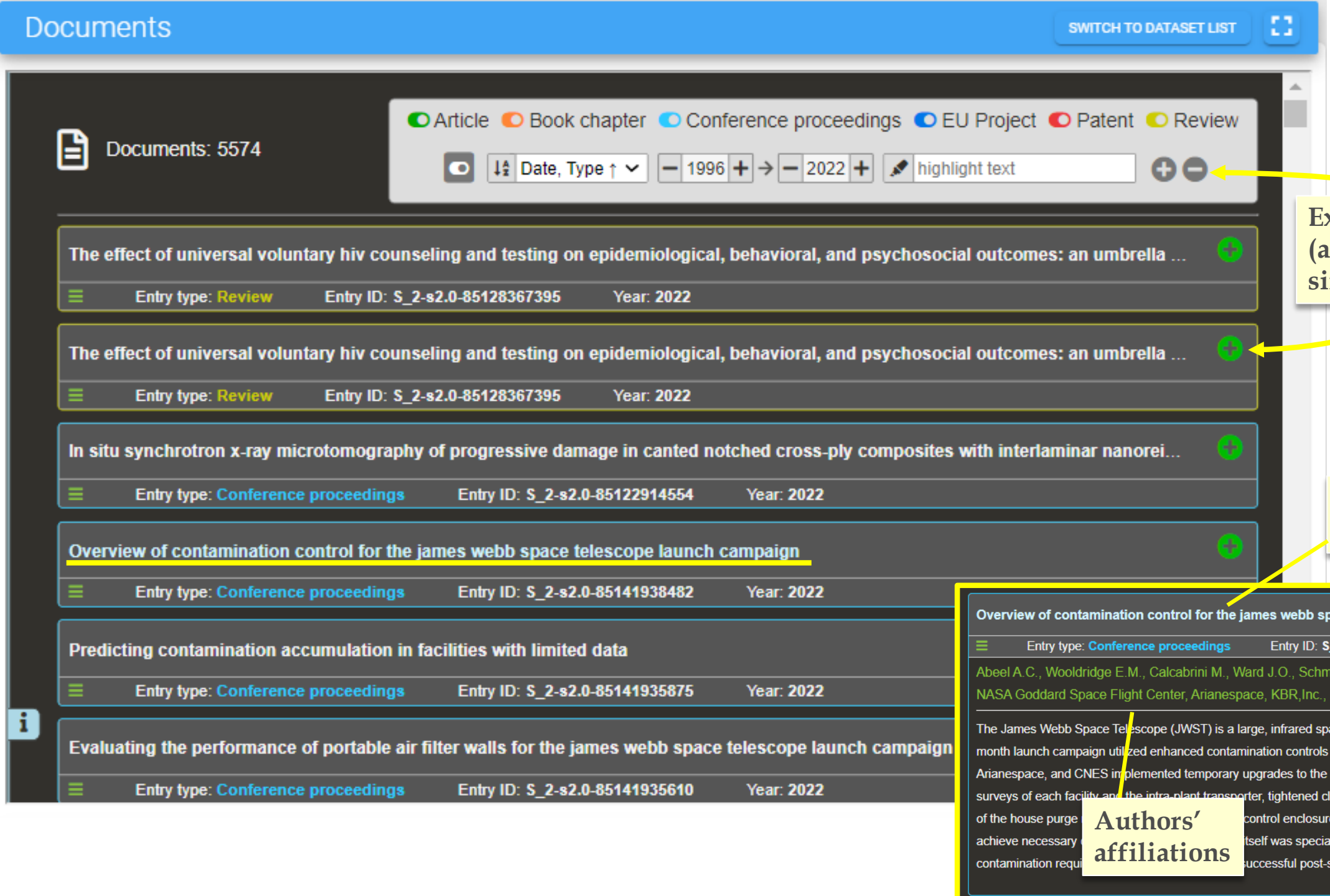


European Commission



Documents in chronological order, all types

European Commission


Documents
SWITCH TO DATASET LIST
Documents: 5574
Article
Book chapter
Conference proceedings
EU Project
Patent
Review
Date, Type
1996
2022
highlight text
The effect of universal voluntary hiv counseling and testing on epidemiological, behavioral, and psychosocial outcomes: an umbrella ...
Entry type: Review
Entry ID: S_2-s2.0-85128367395
Year: 2022
The effect of universal voluntary hiv counseling and testing on epidemiological, behavioral, and psychosocial outcomes: an umbrella ...
Entry type: Review
Entry ID: S_2-s2.0-85128367395
Year: 2022
In situ synchrotron x-ray microtomography of progressive damage in canted notched cross-ply composites with interlaminar nanorei...
Entry type: Conference proceedings
Entry ID: S_2-s2.0-85122914554
Year: 2022
Overview of contamination control for the james webb space telescope launch campaign
Entry type: Conference proceedings
Entry ID: S_2-s2.0-85141938482
Year: 2022
Predicting contamination accumulation in facilities with limited data
Entry type: Conference proceedings
Entry ID: S_2-s2.0-85141935875
Year: 2022
Evaluating the performance of portable air filter walls for the james webb space telescope launch campaign
Entry type: Conference proceedings
Entry ID: S_2-s2.0-85141935610
Year: 2022
Expanded views (all articles, or single one)
Click on title to access the source
Overview of contamination control for the james webb space telescope launch campaign
Entry type: Conference proceedings
Entry ID: S_2-s2.0-85141938482
Year: 2022
Abeel A.C., Wooldridge E.M., Calcabrini M., Ward J.O., Schmeitzky O.
NASA Goddard Space Flight Center, Arianespace, KBR,Inc., European Space Research and Technology C
The James Webb Space Telescope (JWST) is a large, infrared space telescope operating at Lagrange point 2. JWS
month launch campaign utilized enhanced contamination controls to meet JWST's strict cleanliness requirements.
Arianespace, and CNES implemented temporary upgrades to the nominal contamination control operations for the
surveys of each facility and the intra-plant transporter, tightened cleanroom protocols, upgraded garmenting and lau
of the house purge
control enclosure atop the Ariane 5 launcher prior to fairing encap
achieve necessary
itself was specially sealed to protect the inner environment with ju
contamination requi
successful post-separation deployments and mission science.
Authors' affiliations

3 October 2022

Overview of contamination control for the James Webb Space Telescope launch campaign

Alan C. Abeel, *Eve M. Wooldridge*, *Marco Calcabrini*, *Joseph O. Ward*, *Olivier Schmeitzky*

Author Affiliations +

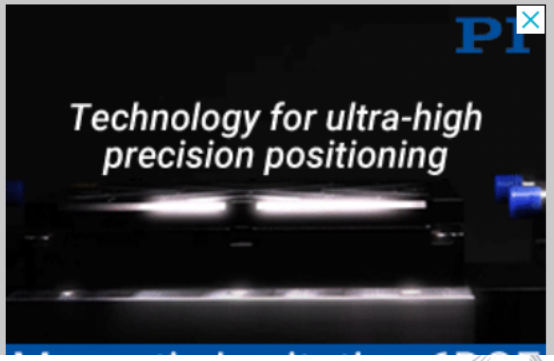
Proceedings Volume 12224, Space Systems Contamination: Prediction, Control, and Performance 2022; 122240D (2022) https://doi.org/10.1117/12.2632462

Event: SPIE Optical Engineering + Applications, 2022, San Diego, California, United States

Abstract

The James Webb Space Telescope (JWST) is a large, infrared space telescope operating at Lagrange point 2. JWST is a joint effort between NASA, ESA, and CSA and was launched from the Centre Spatial Guyanais (CSG) on an Ariane 5 rocket in December 2021. The three-month launch campaign utilized enhanced contamination controls to meet JWST's strict cleanliness requirements. Prior to launch, JWST was permitted to only be exposed to ISO Class 7 cleanrooms, whereas the processing facilities at CSG are ISO Class 8. NASA, ESA, Arianespace, and CNES implemented temporary upgrades to the nominal contamination control operations for the launch campaign unique to JWST, including the use of vetted, portable High Efficiency Particulate Air (HEPA) filter walls, pre-entrance cleanliness acceptance surveys of each facility and the intra-plant transporter, tightened cleanroom protocols, upgraded garmenting and laundering techniques, cleaning of Self-Contained Atmospheric Protection Ensemble (SCAPE) suits, increased maintenance, staffed

Advertisement



Publications_per_country

SWITCH TO DATASET LIST

Total size: 54 Filtered size: 54

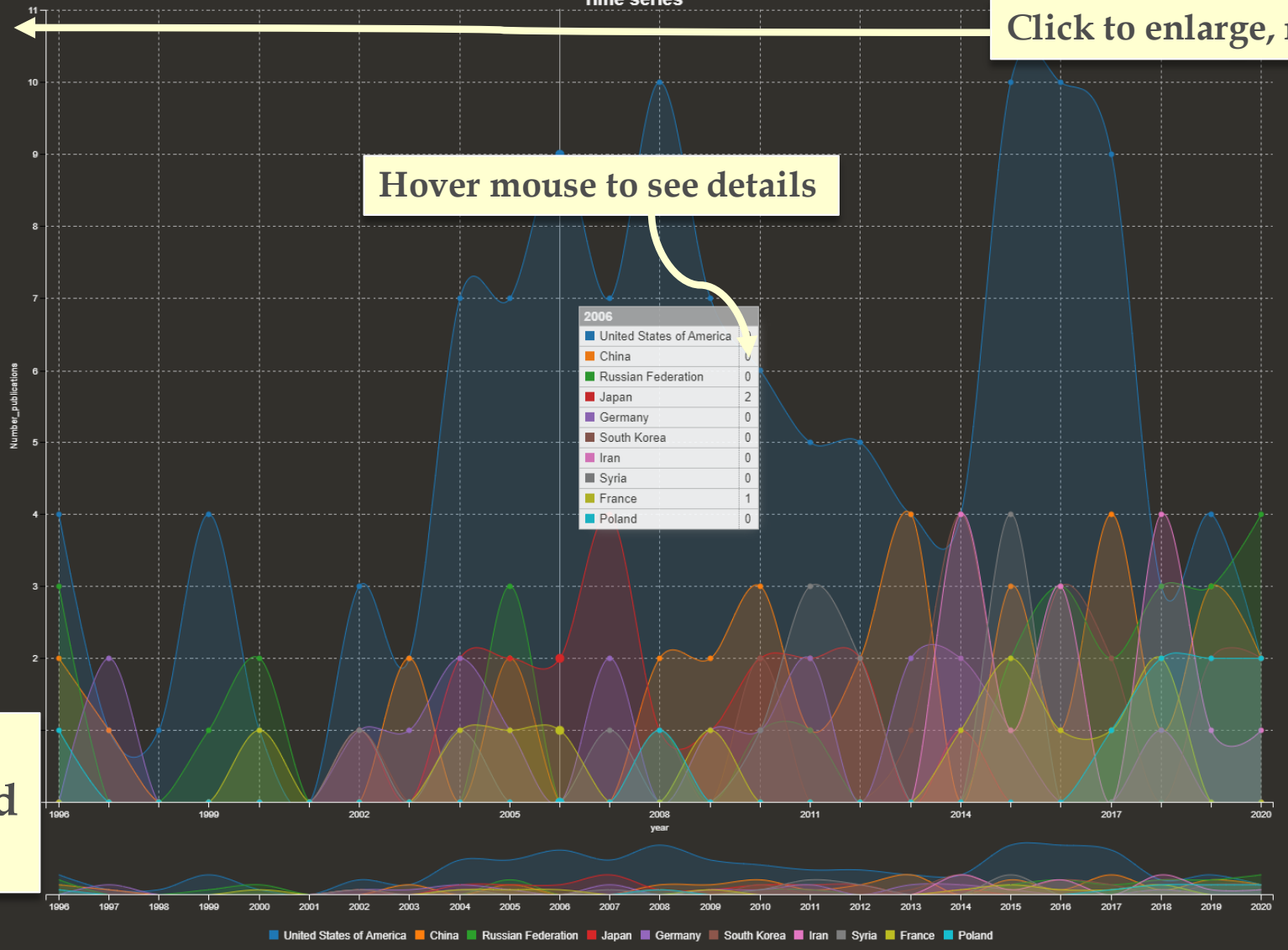
Page 1 Page size 25

Name	First	Last	Total
United States of America	1996	2020	125
China	1996	2020	35
Russian Federation	1996	2020	29
Japan	2002	2018	21
Germany	1997	2018	19
South Korea	2002	2020	19
Iran	2014	2020	14
Syria	2002	2015	13
France	2000	2018	12
Poland	1996	2020	9
Italy	1997	2019	8
Pakistan	2002	2017	8
India	2004	2018	8
Sweden	2013	2018	7
Portugal	1996	2014	6
Spain	2011	2020	6
United Kingdom	1996	2019	5
Turkey	1999	2019	5
Egypt	2001	2019	5
Switzerland	2014	2018	5
Denmark	2015	2018	5
Canada	2007	2020	4
Ghana	2010	2018	4
Brazil	2013	2018	4
Netherlands	2002	2015	3

Time series

Click to enlarge, reorder the list

Hover mouse to see details

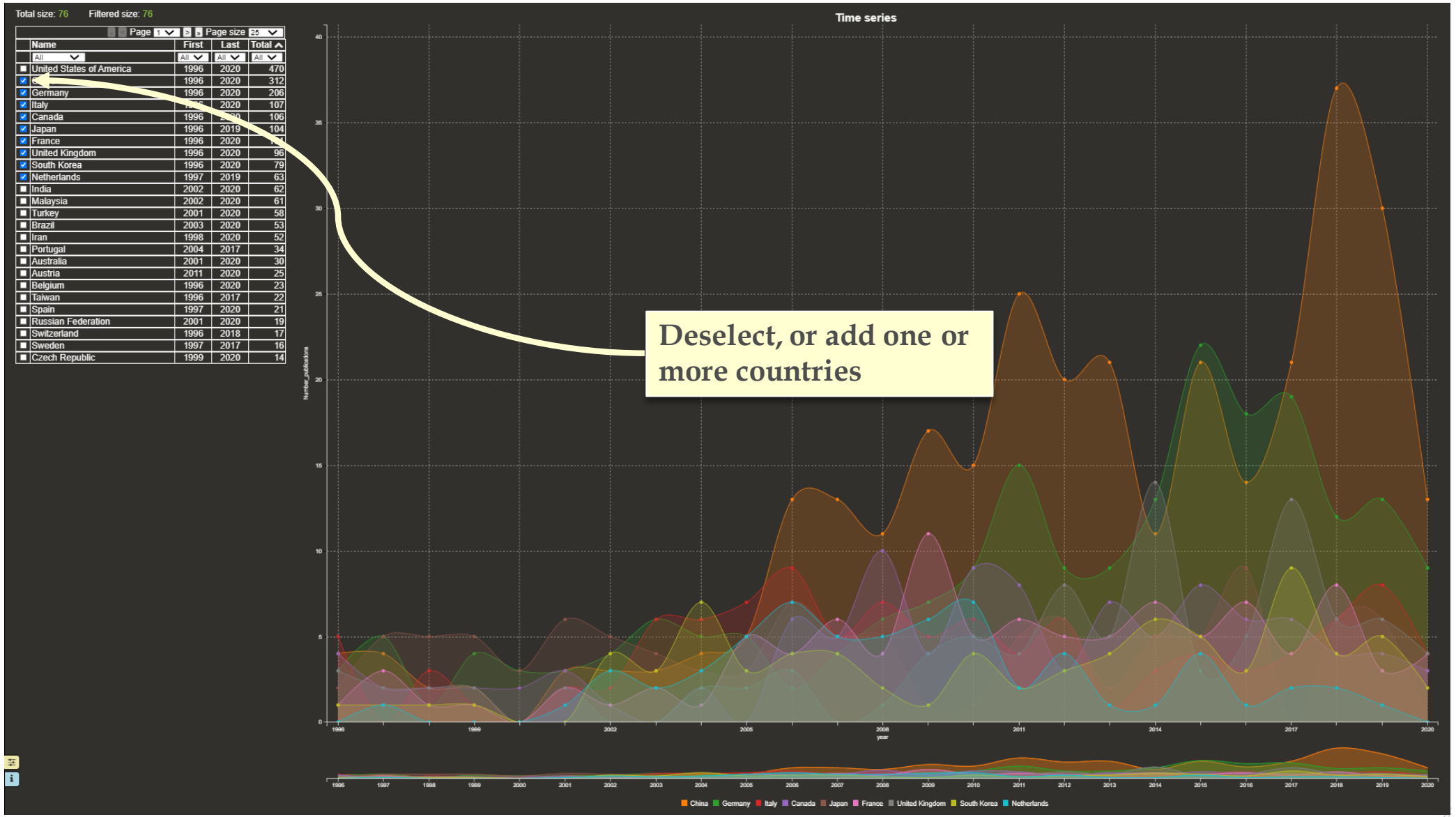


Top 10 countries for publications produced shown in the chart

European Commission

Publications_per_country

SWITCH TO DATASET LIST



Deselect, or add one or more countries

European Commission

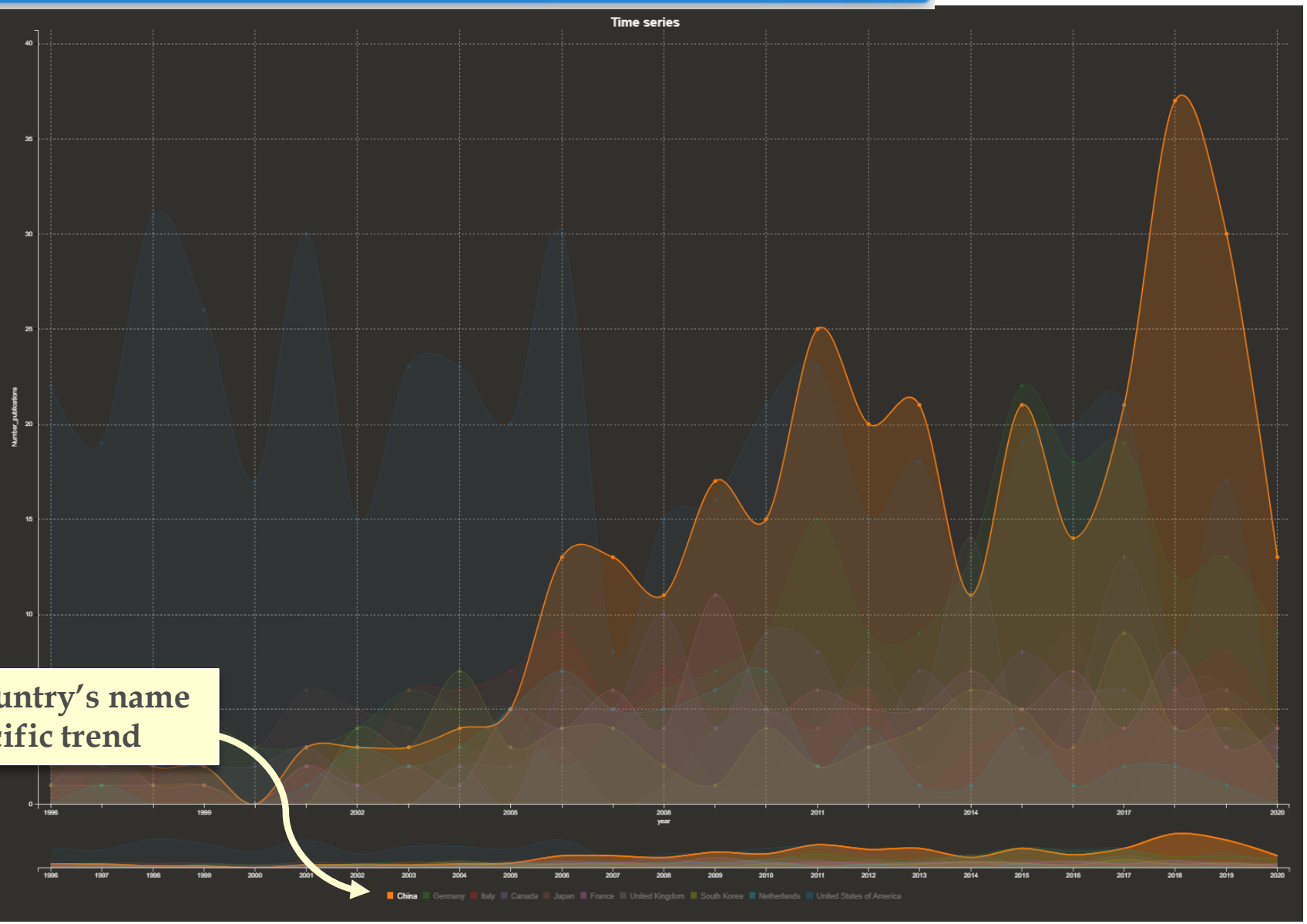
Publications_per_country

SWITCH TO DATASET LIST

Total size: 76 Filtered size: 76

Page 1 > » Page size 25

Name	First	Last	Total
All	All	All	All
United States of America	1996	2020	470
China	1996	2020	312
Germany	1996	2020	206
Italy	1996	2020	107
Canada	1996	2020	106
Japan	1996	2019	104
France	1996	2020	101
United Kingdom	1996	2020	96
South Korea	1996	2020	79
Netherlands	1997	2019	63
India	2002	2020	62
Malaysia	2002	2020	61
Turkey	2001	2020	58
Brazil	2003	2020	53
Iran	1998	2020	52
Portugal	2004	2017	34
Australia	2001	2020	30
Austria	2011	2020	25
Belgium	1996	2020	23
Taiwan	1996	2017	22
Spain	1997	2020	21
Russian Federation	2001	2020	19
Switzerland	1996	2018	17
Sweden	1997	2017	16
Czech Republic	1999	2020	14



Hover mouse on country's name to highlight its specific trend

European Commission

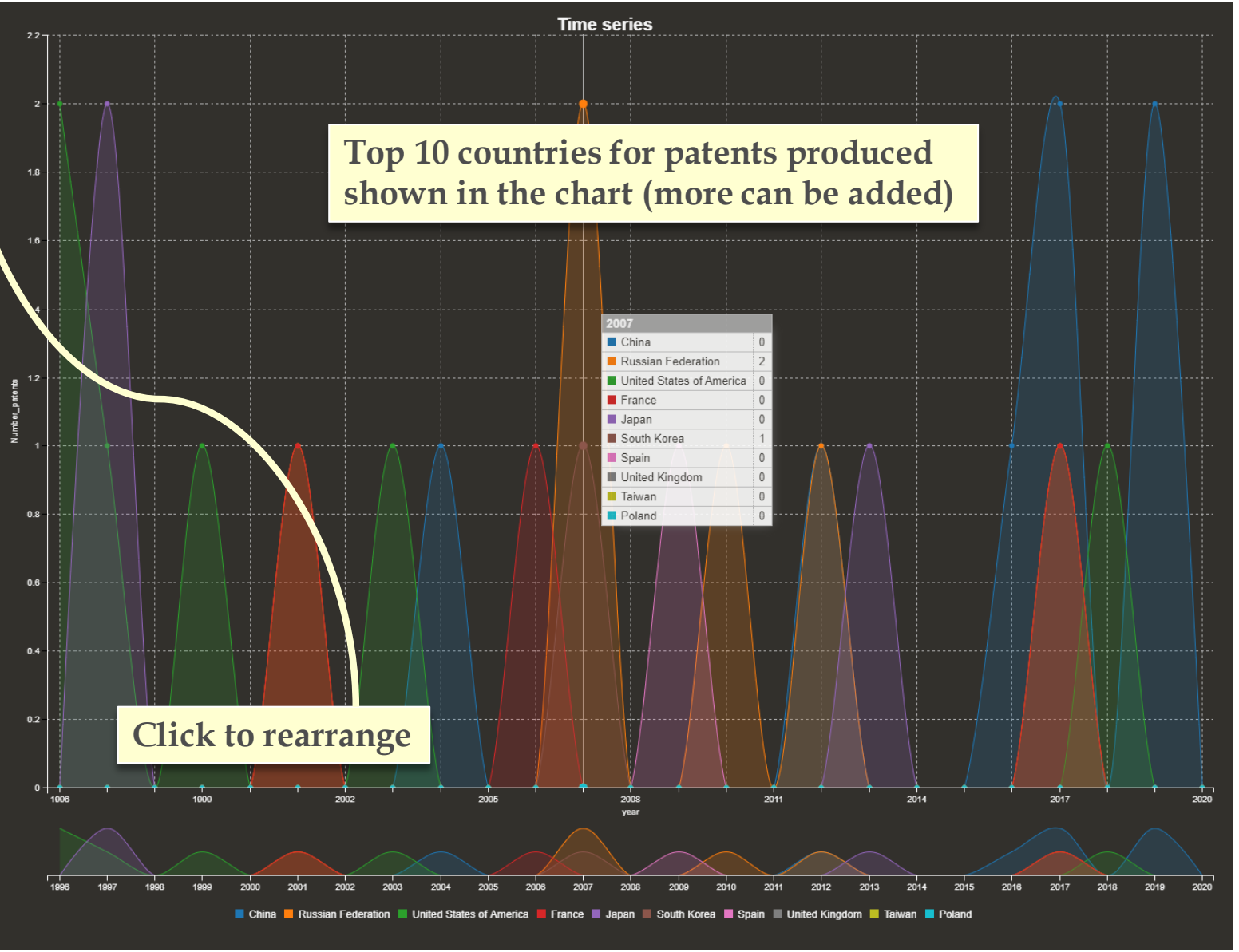
Patents_per_country

SWITCH TO DATASET LIST

Total size: 54 Filtered size: 54

Page 1 Page size 25

Name	First	Last	Total
All	All	All	All
China	2004	2019	0
Russian Federation	2001	2017	0
United States of America	1996	2018	0
France	2001	2017	3.0
Japan	1997	2013	3.0
South Korea	2007	2007	1.0
Spain	2009	2009	1.0
United Kingdom	NaN	NaN	0
Taiwan	NaN	NaN	0
Poland	NaN	NaN	0
Italy	NaN	NaN	0
Germany	NaN	NaN	0
Argentina	NaN	NaN	0
Turkey	NaN	NaN	0
Syrian Arab Republic	NaN	NaN	0
Egypt	NaN	NaN	0
Syria	NaN	NaN	0
Pakistan	NaN	NaN	0
Nigeria	NaN	NaN	0
India	NaN	NaN	0
Portugal	NaN	NaN	0
Finland	NaN	NaN	0
Netherlands	NaN	NaN	0
Belgium	NaN	NaN	0
Ukraine	NaN	NaN	0



European Commission

Country-based views

European Commission

Countries

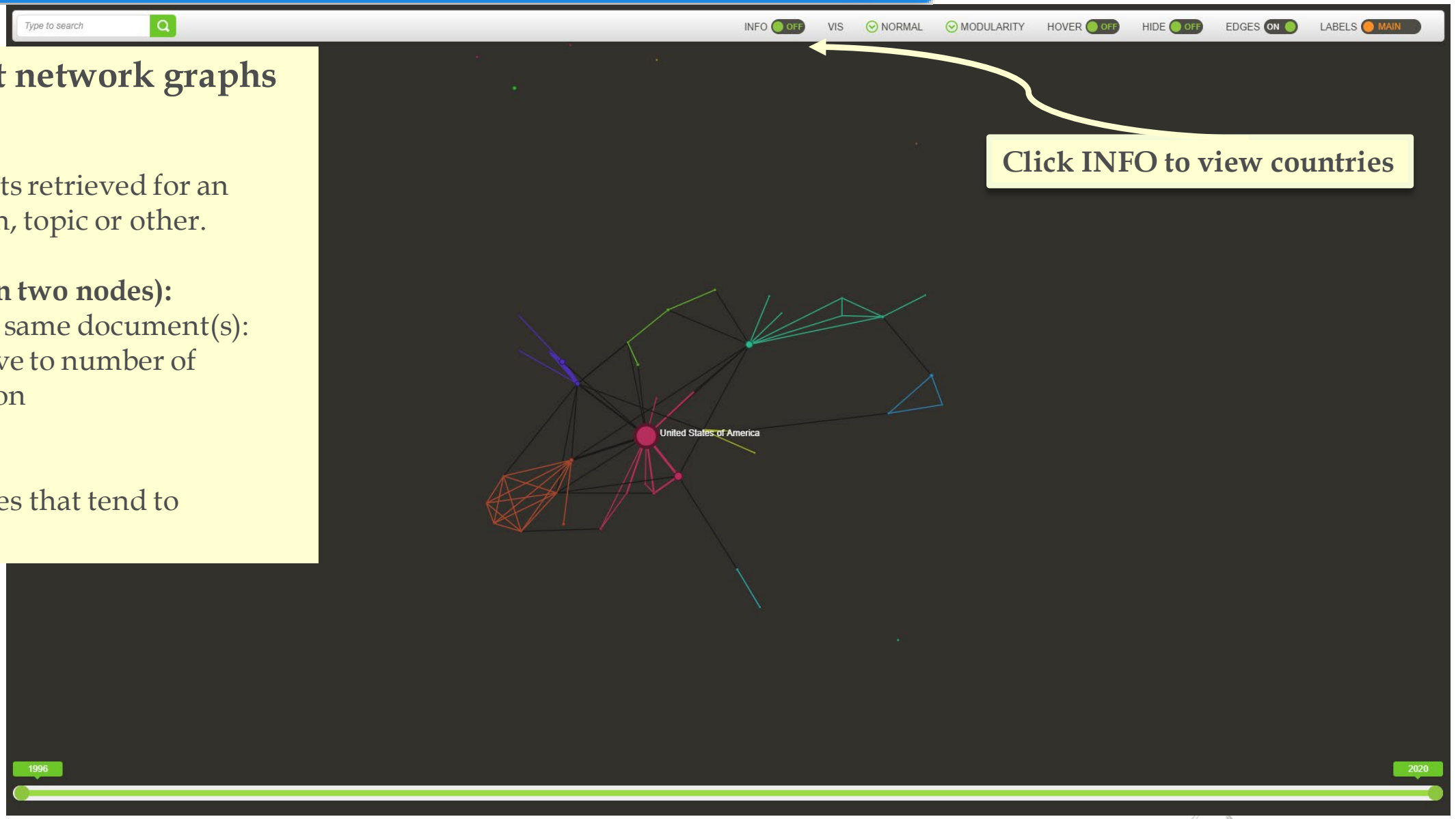
SWITCH TO DATASET LIST

How to interpret network graphs

Size of the nodes:
Number of documents retrieved for an organisation, location, topic or other.

Edges (lines between two nodes):
Co-occurrence in the same document(s): edge thickness relative to number of documents in common

Colours:
Communities of nodes that tend to collaborate together



European Commission

Type to search

INFO ON | VIS | NORMAL | MODULARITY | HOVER OFF | HIDE OFF | EDGES ON | LABELS MAIN

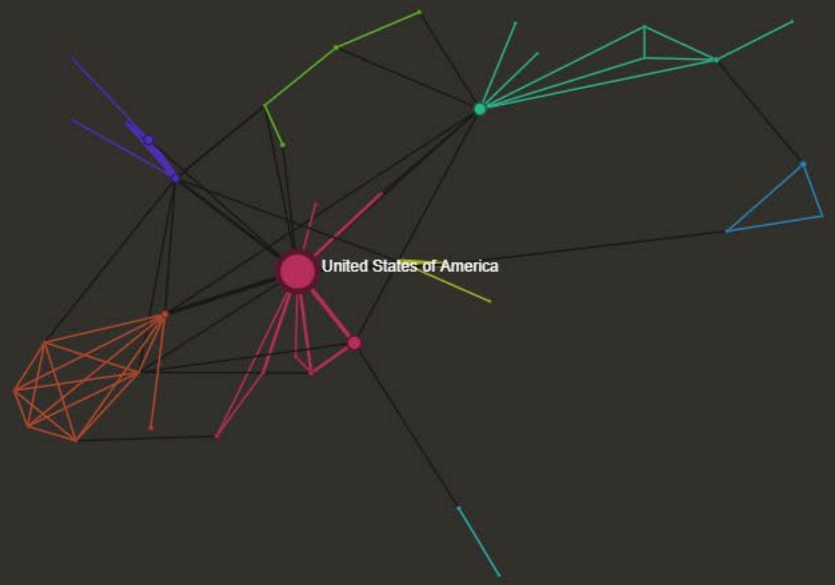
Nodes: 54

- Algeria
- Argentina
- Armenia
- Austria
- Belarus
- Belgium
- Brazil
- Canada
- Chile
- China
- Czech Republic
- Denmark
- Egypt
- Finland
- France
- Germany
- Ghana
- Greece
- Hungary
- India
- Indonesia
- Iran
- Italy
- Jamaica
- Japan
- Jordan
- Kazakhstan
- Malaysia
- Morocco
- Netherlands
- Nigeria

Countries

SWITCH TO DATASET LIST

List of countries



The default view shows only the MAIN label(s)

Toggle to view ALL labels

1996

2020

Type to search

INFO ON | VIS | NORMAL | MODULARITY | HOVER OFF | HIDE OFF | EDGES ON | LABELS ALL

Nodes: 54

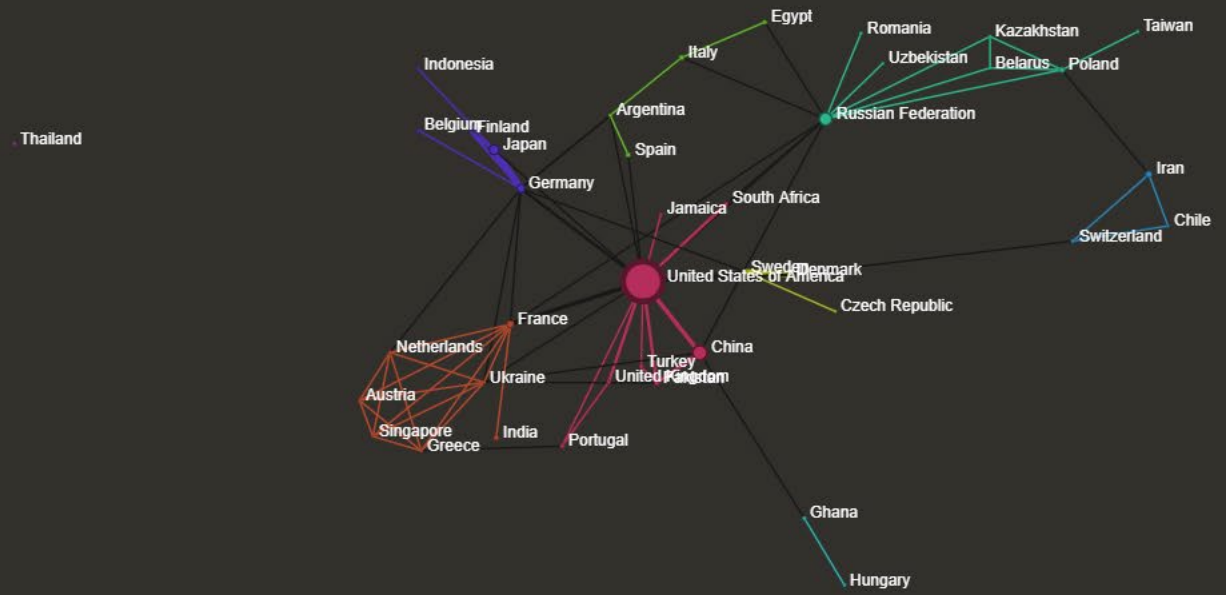
Algeria
Argentina
Armenia
Austria
Belarus
Belgium
Brazil
Canada
Chile
China
Czech Republic
Denmark
Egypt
Finland
France
Germany
Ghana
Greece
Hungary
India
Indonesia
Iran
Italy
Jamaica
Japan
Jordan
Kazakhstan
Malaysia
Morocco
Netherlands
Nigeria

Countries

SWITCH TO DATASET LIST

Norway

ALL country labels



Brazil

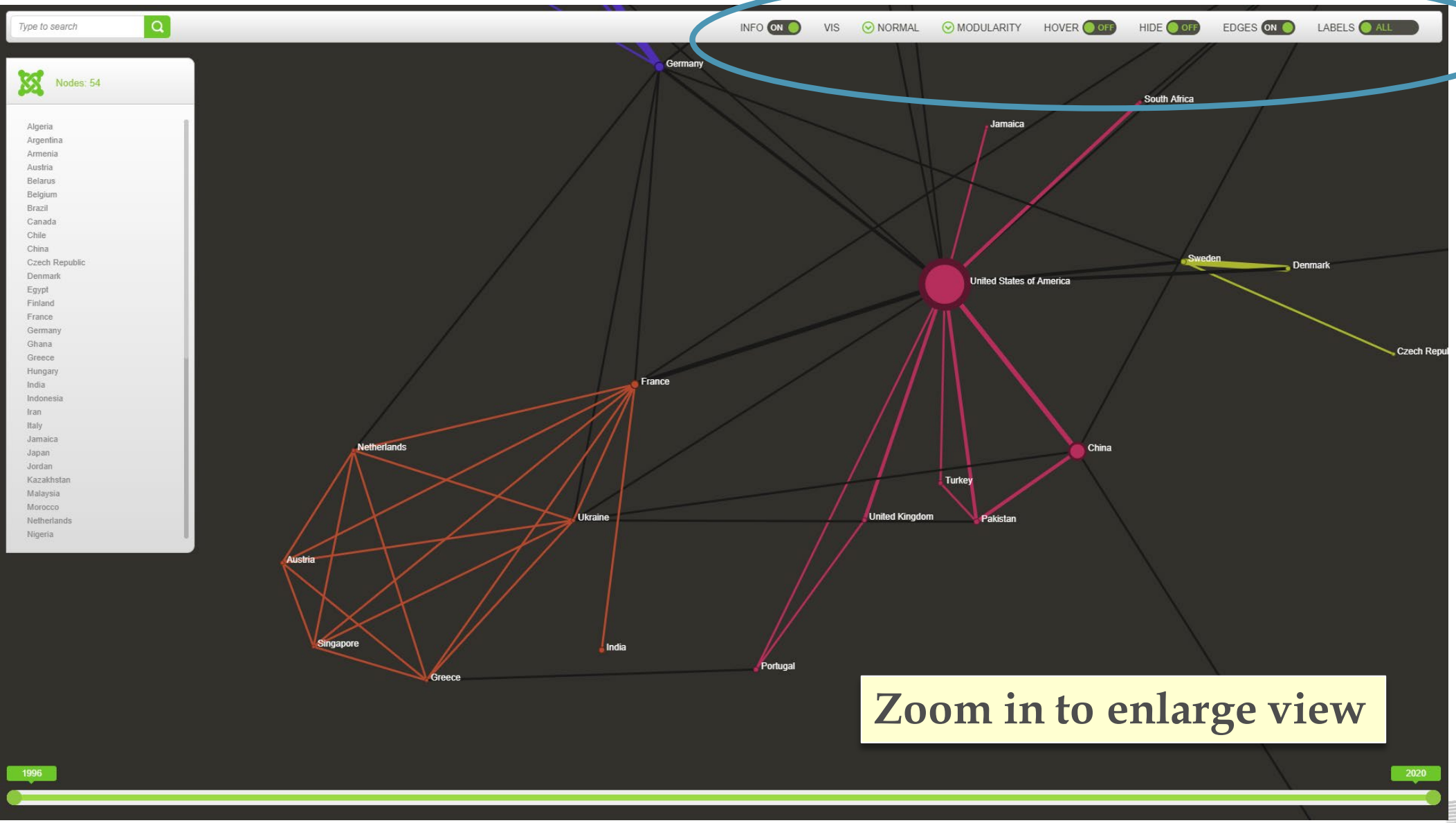
1996

2020

Countries

SWITCH TO DATASET LIST

More toolbar's options available



Zoom in to enlarge view

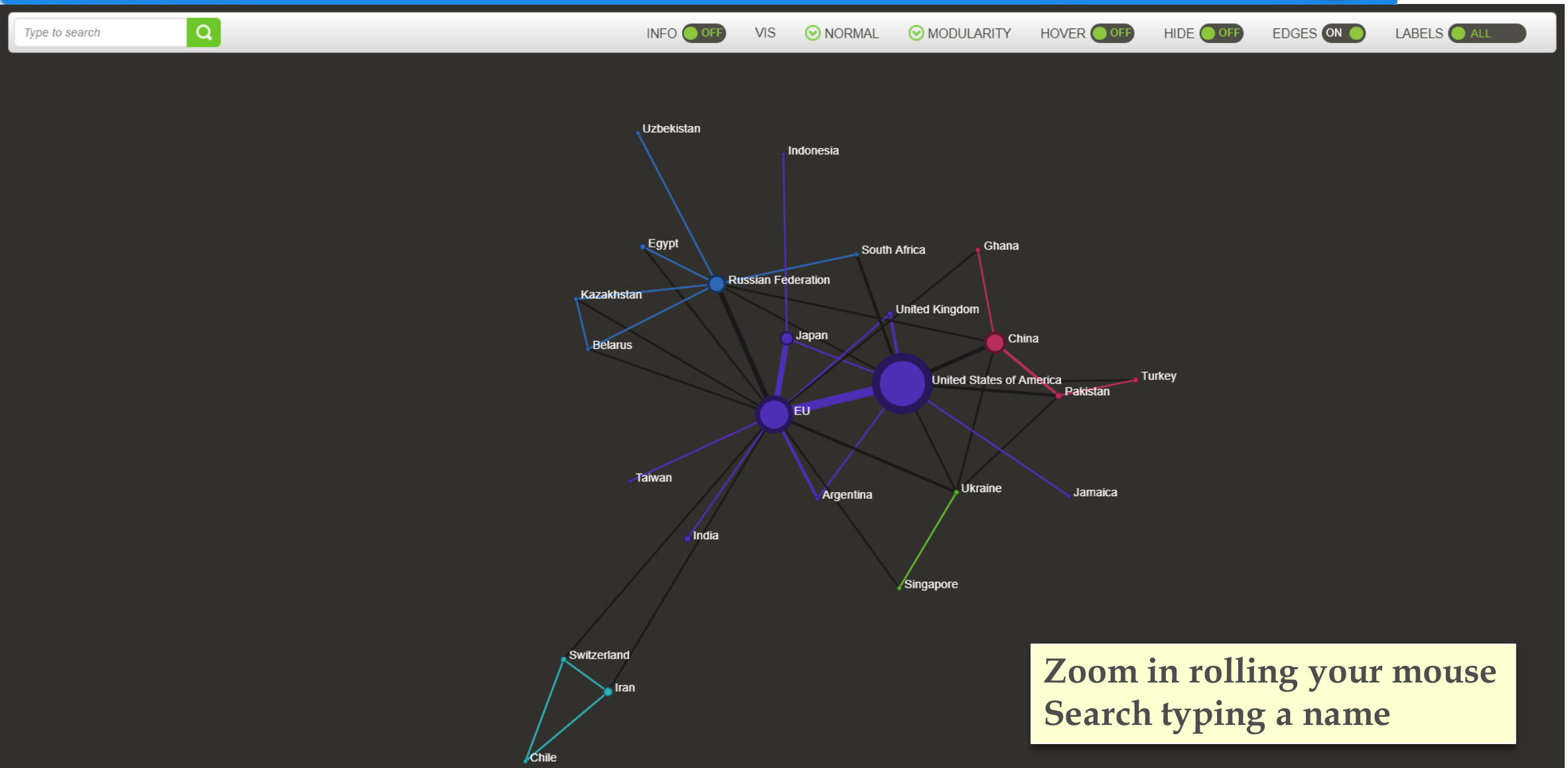
European Commission

EU vs World

SWITCH TO DATASET LIST

Type to search

INFO OFF | VIS NORMAL | MODULARITY | HOVER OFF | HIDE OFF | EDGES ON | LABELS ALL

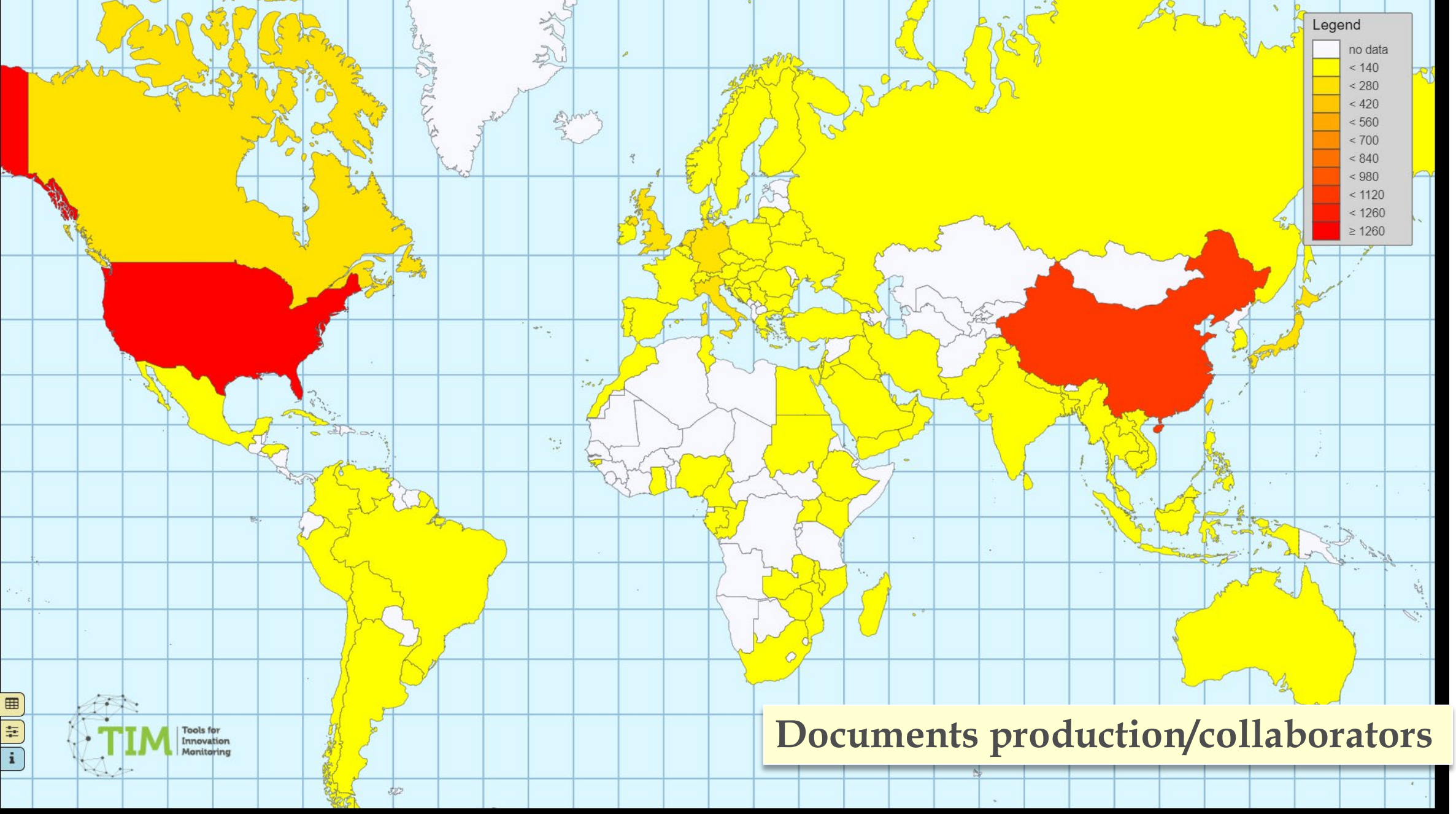


Zoom in rolling your mouse
Search typing a name

1996

2020

ean
nission



Documents production/collaborators

Heatmap Country

SWITCH TO DATASET LIST

European Commission

Countries_summary

SWITCH TO DATASET LIST

Entries : 76

emm_affiliation__...	Value	orderby_Num...	orderby_Num...
	1	1	0
Algeria	7	7	0
Argentina	7	7	0
Australia	30	30	0
Austria	30	25	2
Azerbaijan	1	1	0
Bangladesh	3	3	0
Belarus	1	0	1
Belgium	34	23	8
Brazil	55	53	2
Bulgaria	1	1	0
Cameroon	4	4	0
Canada	112	106	6
Chile	1	1	0
China	547	312	235
Colombia	1	1	0
Croatia	1	1	0
Czech Republic	17	14	1
Denmark	9		
Egypt	6		
EL	1		
Estonia	3		
Ethiopia	1	1	0
Finland	11	7	1
France	123	101	16

1 2 3 4 »

Page size: 5 10 25 50 100 All

Click to rearrange, e.g. based on the number of documents

Entries : 76

emm_affiliation__...	Value	orderby_Num...	orderby_Num...
United States of America	600	470	129
China	547	312	235
Japan	544	104	439
Germany	241	206	27
South Korea	181	79	101
France	123	101	16
United Kingdom	114	96	13
Italy	114	107	4
Canada	112	106	6
Netherlands	73	63	7
India	63	62	1
Malaysia	61	61	0
Turkey	59	58	0
Iran	55	52	3
Brazil	55	53	2
Portugal	38	34	0
Taiwan	36	22	14
Belgium	34	23	8
Spain	32	21	5
ussian Federation	31	19	12
Austria	30	25	2
Australia	30	30	0
Switzerland	21	17	3
Sweden	18	16	2
Pakistan	18	12	6

1 2 3 4 »

Page size: 5 10 25 50 100 All

Organisations

European Commission

Type to search
INFO OFF
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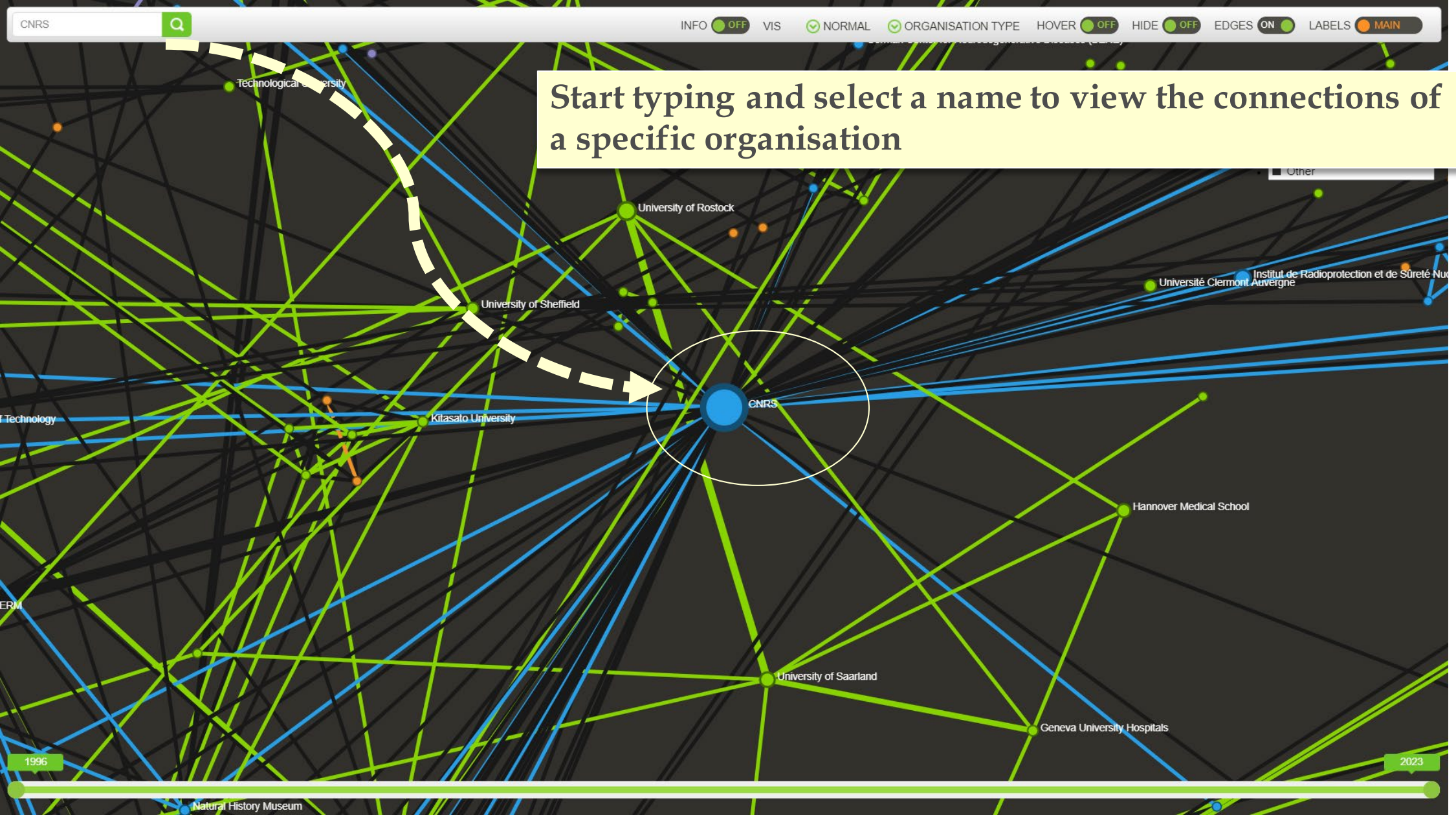
HIDE OFF
EDGES ON
LABELS MAIN
Company
University
Hospital
Research Centre
Foundation
Other
Japan Synchrotron Radiation Research Institute
Chinese Academy of Agricultural Sciences
Chinese Academy Of Sciences
National Institutes of Health
Harvard University
University of Washington
CNRS
University of California
Zoom in rolling your mouse
Search typing a name
1996
2023



Documents_per_organisation

SWITCH TO DATASET LIST

European Commission

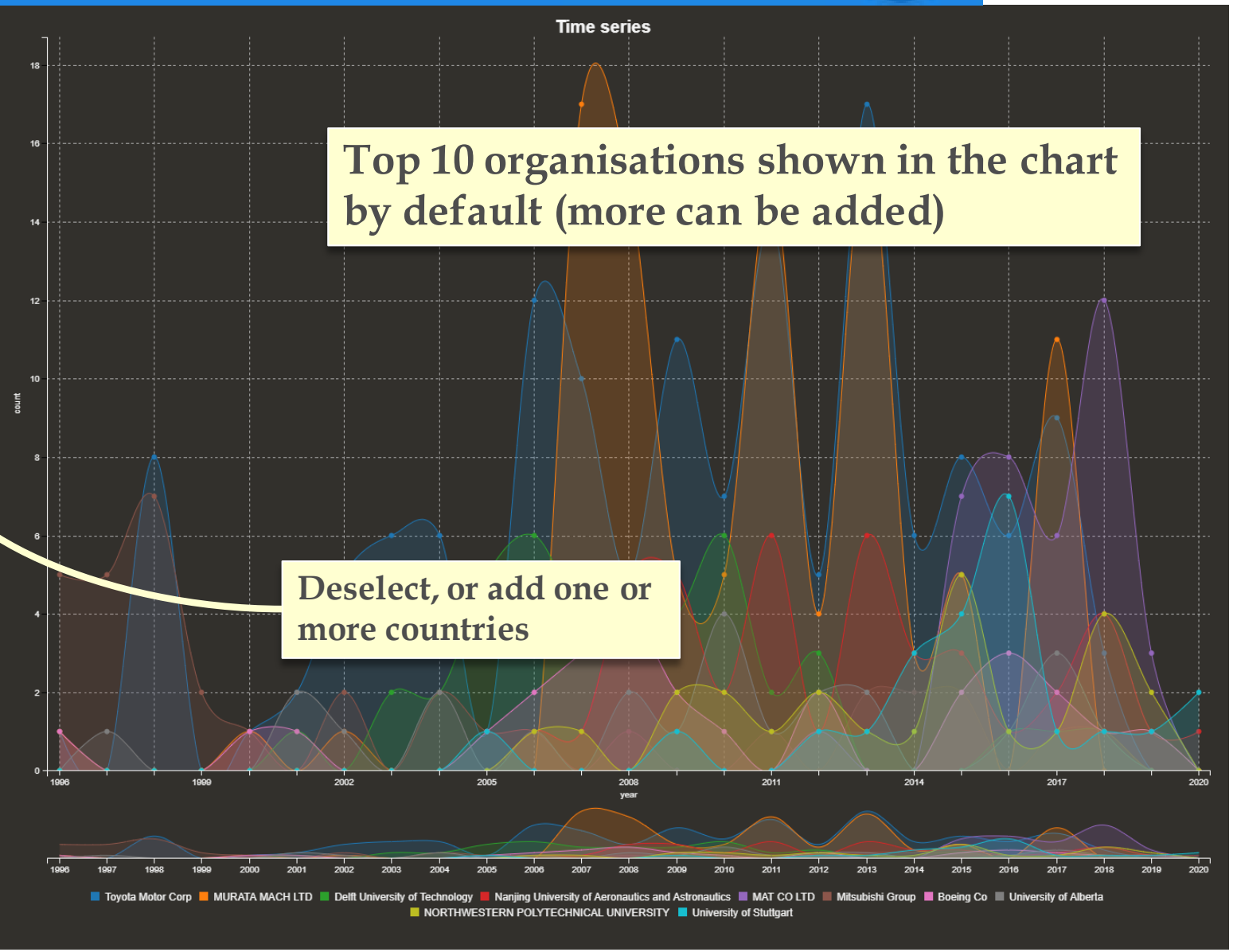
Documents_per_organisation

SWITCH TO DATASET LIST

Total size: 2315 Filtered size: 2315

Page 1 Page size 25

Name	First	Last	Total
All	All	All	All
Toyota Motor Corp	1996	2018	143
MURATA MACH LTD	1996	2017	99
Delft University of Technology	2001	2018	42
Nanjing University of Aeronautic...	2006	2020	42
MAT CO LTD	2012	2019	37
Mitsubishi Group	1996	2018	36
Boeing Co	1996	2019	27
University of Alberta	1997	2018	24
NORTHWESTERN POLYTECH...	2006	2019	24
University of Stuttgart	2005	2020	23
[illegible]conductor Manufacturing In...	2003	2019	22
Zhejiang University	1996	2020	21
Harbin Institute of Technology	2004	2020	18
TORAY IND INC	[illegible]	2016	18
Concordia University	1996	2020	17
CNRS	1997	2020	17
Beijing University of Chemical Te...	2005	2020	17
RWTH Aachen University	2004	2019	17
Universiti Malaysia Perlis	2011	2019	17
Federal University of Rio Grande...	2014	2020	17
University of Manitoba	1998	2020	16
YINGLI SOLAR CO., LTD.	2006	2018	16
ISEP	2005	2014	15
Université de Sherbrooke	2007	2020	15
China University of Mining and T...	2006	2018	15



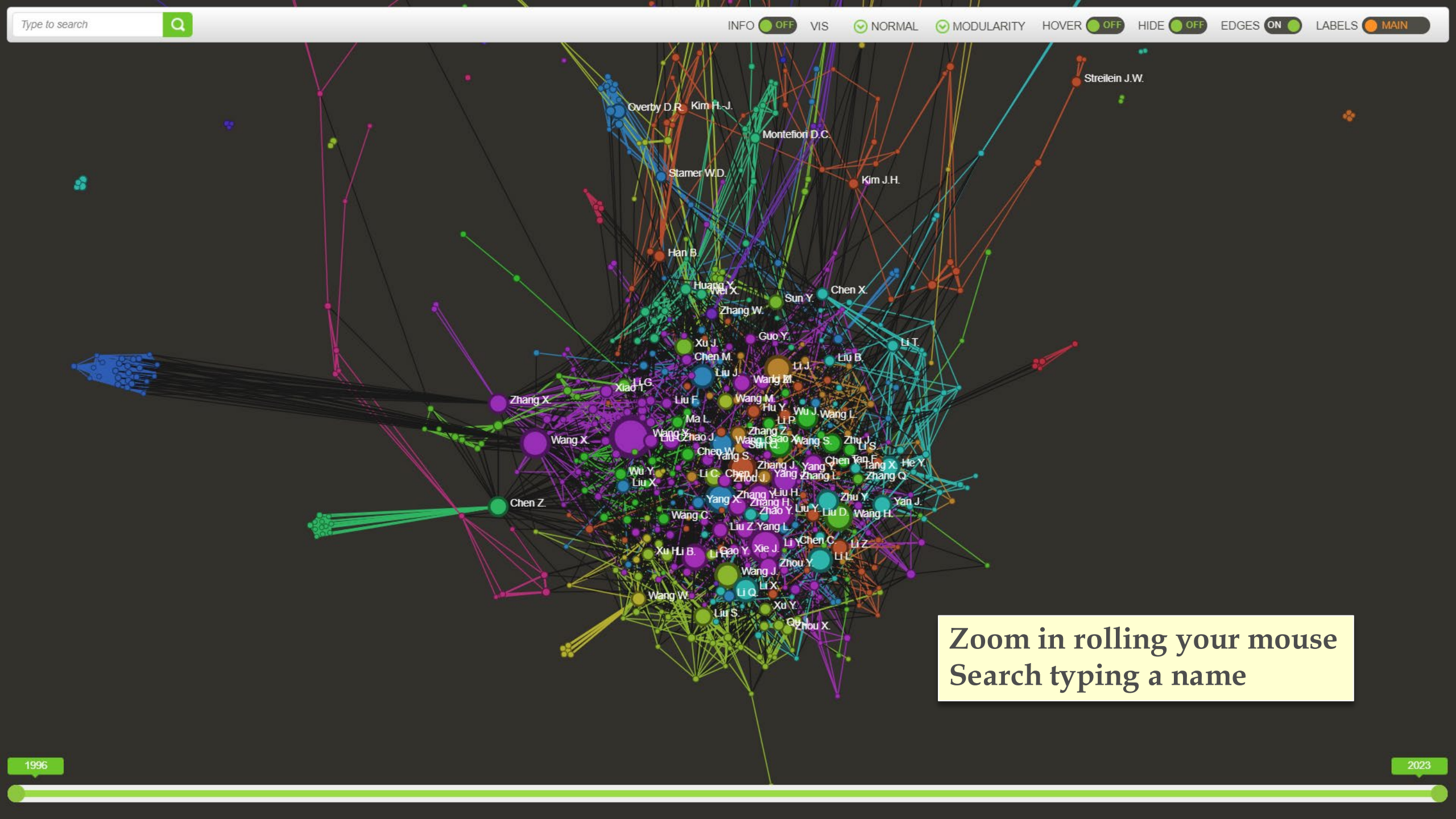
Top 10 organisations shown in the chart by default (more can be added)

Deselect, or add one or more countries

European Commission

Authors

European Commission


Type to search
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LABELS MAIN
Streilein J.W.
Overby D.R.
Kim H.-J.
Montefiori D.C.
Stamer W.D.
Kim J.H.
Han B.
Huang Y.
Wei X.
Sun Y.
Chen X.
Zhang W.
Guo Y.
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Xiao T.
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Zhu J.
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Cheo W.
Yang S.
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Tan F.
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Liu H.
Chen Z.
Yang X.
Zhang H.
Zhu Y.
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Wang J.
Li X.
Li Q.
Wang W.
Xu Y.
Liu S.
Zhou X.
Zoom in rolling your mouse
Search typing a name
1996
2023

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Thank you

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