

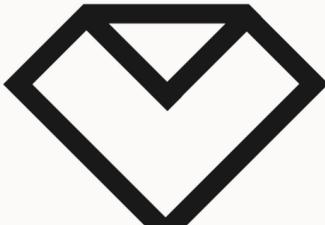
# Climate Change and Migration

*Scientific Knowledge for citizens; technical and political issues*

Peter Murray-Rust, contentmine.org

*European Forum for Advanced Practices, Virtual, 2020-06-10*

citizens  
knowledgebase



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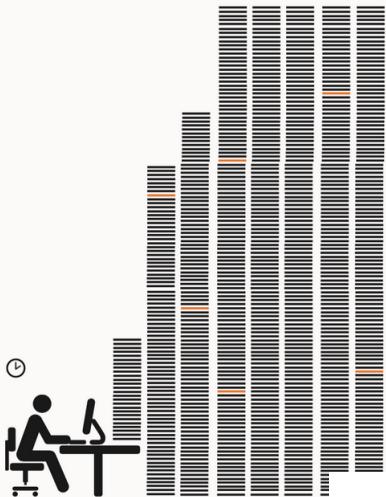
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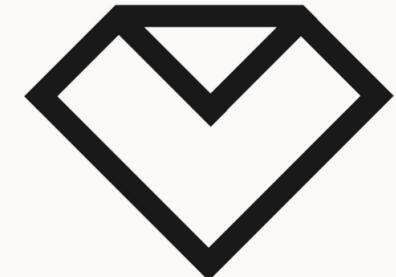


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Christoph Steinbeck  
@csteinbeck ○



Christopher Kittel  
@chriskittel ○ 10:52 AM local time

Remko Popma,  
Lezan Hawizy, Tim Voronov,  
Andy Jackson,  
Clyde Davies,  
Thomas Shafee,  
Priya JK , Kareena Singh, + 5  
Simon Worthington,



Joseph McArthur  
@joemcarthur ○



Puneet Kishor  
@punkish ○ 1:55 AM local time



Richard Smith-Unna  
@rsu ○ Lead developer



Ross Mounce  
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@steph ○ Documentation wizard



Tom Arrow  
@tarro ○

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# The world's existential problems need knowledge

2019\* we set up

**“Open Climate Knowledge” (OCK)**

to build tools to mine the scientific articles about ***climate change***.

Why?

50-90% of all published science is behind PAYWALLS.  
And the rest is very hard to find...

This presentation asks “Can citizens apply our tools to:  
**“Climate Change and Migration”**

\*Simon Worthington and PMR

... knowledge can prevent viral epidemics ...



The Ebola outbreak in Liberia was predicted in 1984 ...  
... and forgotten. <https://www.nytimes.com/2015/04/08/opinion/yes-we-were-warned-about-ebola.html>

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## Annales de l'Institut Pasteur / Virologie

Volume 133, Issue 2, 1982, Pages 125–128



# A serological survey on viral haemorrhagic fevers in liberia \*

J. Knobloch<sup>(1)</sup>, E.J. Albiez<sup>(2)</sup>, H. Schmitz<sup>(3)</sup>

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Considering that active cases of Ebola or Marburg virus disease have never been reported from Liberia, the occurrence of these specific antibodies was surprising. The results seem to indicate that Liberia has to be included in the Ebola and Marburg virus endemic zone. Therefore, the

doi:10.1016/S0769-2617(82)80028-2

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# Climate change, migration and violent conflict: vulnerabilities, pathways and adaptation strategies

Michael Brzoska & Christiane Fröhlich 

Pages 190-210 | Received 30 Aug 2014, Accepted 20 Feb 2015, Published online: 30 Mar 2015

 Download citation<https://doi.org/10.1080/21632324.2015.1022973> Check for updates Full Article Figures & data References Citations Metrics Reprints & Permissions Get access

## Abstract

It has often been predicted that large numbers of people will be displaced by climate change and that this will lead to violent conflict. At the core of this prediction is a simple causal model which assumes that climate change will result in resource scarcities, which in turn will drive migration as well as violent conflict. Academic research into the links between climate change, migration and conflict has questioned such predictions; their theoretical foundation and empirical support are thin. This does not mean that climate change will be irrelevant for future patterns of migration, including migration that may be linked to violent conflict. However, it has become clear that the links between climate change, migration and conflict are complex and defy simple and sensationalist conclusions. After outlining the state of the art on climate migration and the environment-migration-conflict nexus, this article sketches the environmental, economic and sociopolitical consequences of climate change contributing to migration and the different functions of migration in this context, for instance as an adaptive strategy to environmental change. It then delineates the different theorized pathways from migration to conflict escalation, evaluates their analytical value and develops a more differentiated model of the assumed links between climate change, migration and conflict.



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# Climate change, migration and violent conflict: vulnerabilities, pathways and adaptation strategies

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migration and the environment. It explores the economic and sociopolitical functions of migration in the context. The article delineates the different dimensions of migration, its value and develops a model of migration and conflict.

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Article

Securitizing ‘climate refugees’: the futurology of climate-induced migration >

Andrew Baldwin, Chris Methmann & Delf Rothe

Critical Studies on Security, Volume 2, 2014 - Issue 2

Published Online: 28 Aug 2014

Review

Climate change-related migration and infectious disease >

Celia McMichael

Virulence, Volume 6, 2015 - Issue 6

Published Online: 07 Jul 2015

Article

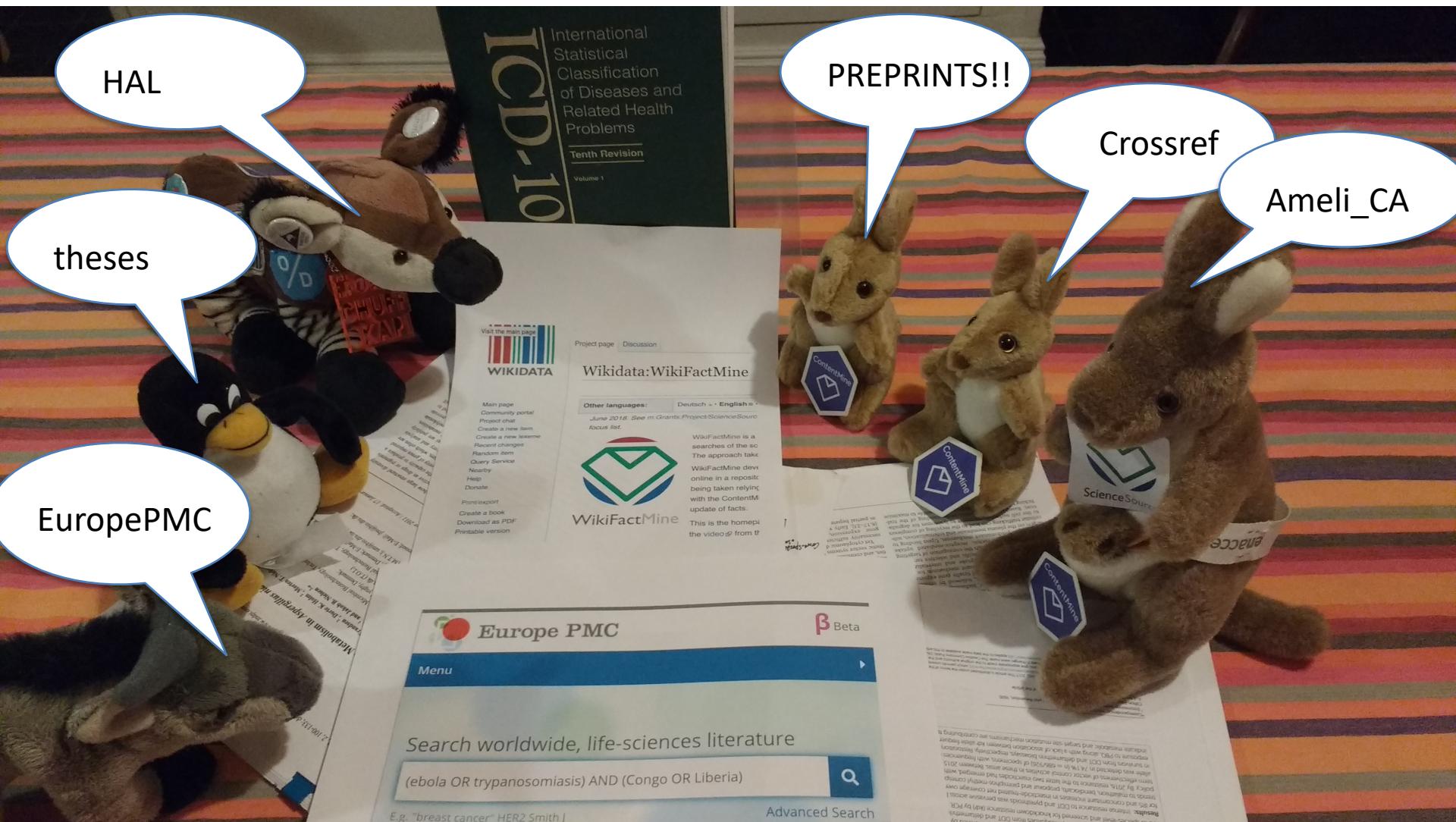
Human mobility in response to rainfall variability: opportunities for migration as a successful adaptation strategy in eight case studies >

Tamer Afifi, Andrea Milan, Benjamin Etzold, Benjamin Schraven, Christina Rademacher-Schulz, Patrick Sakdapolrak, Alexander Reif, Kees van der Geest & Koko Warner

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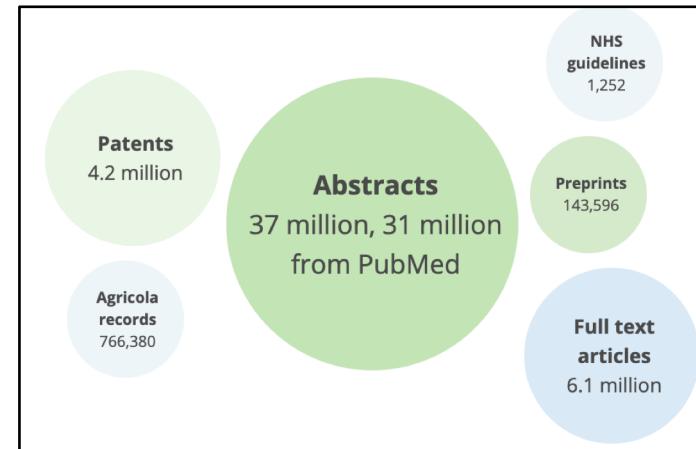
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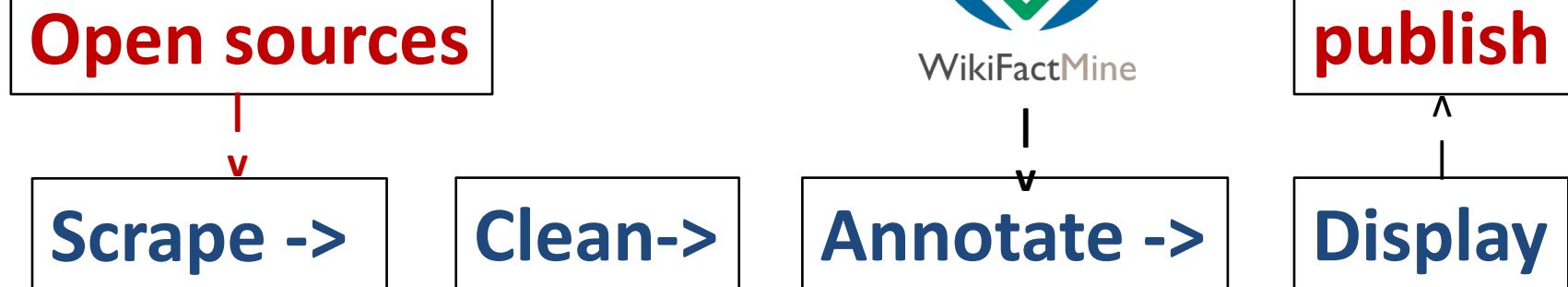
<https://europepmc.org>

<https://ethos.bl.uk/Home.do>

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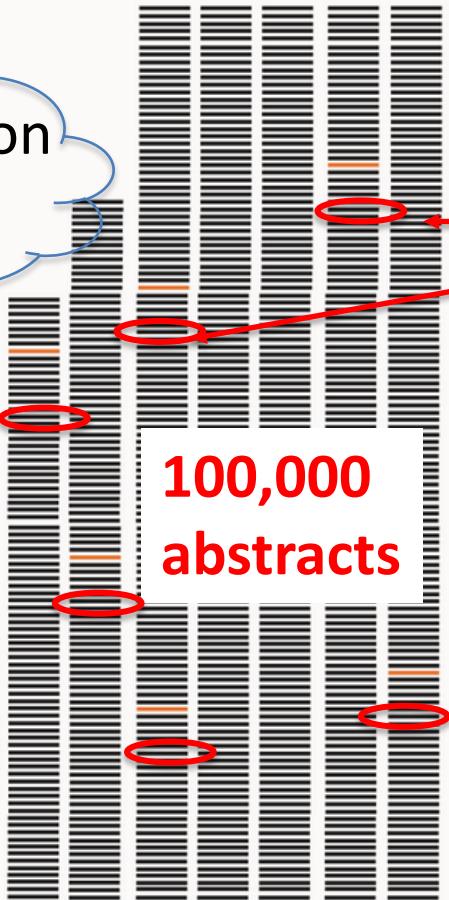


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- *analyze, display*.

Only 4.6 million  
more to go



**"(virus OR viral) AND  
epidemic"**

Clyde Davies

**45 hits** 0.05%

**DOAJ**  
**Directory of Open Access Journals**

Complete repo would yield  
> 2000 articles

The power is with the READER

20 GB total

# UK Theses (EThOS)

The screenshot shows the openVirus EThOS search interface. At the top, there's a search bar with the placeholder "You can use AND and OR in your queries." Below it, there are three filter panels: "Domain Name", "Year of Last-Modified Date", and "Content Type".

- Domain Name:** A list of UK university domains with counts:
  - bham.ac.uk (303)
  - warwick.ac.uk (305)
  - st-andrews.ac.uk (2666)
  - kcl.ac.uk (2635)
  - bath.ac.uk (2545)
  - royalholloway.ac.uk (2205)
  - exeter.ac.uk (2177)
- Year of Last-Modified Date:** A list of years with counts:
  - 1600 (26)
  - 2002 (5)
  - 2003 (67)
  - 2004 (5)
  - 2005 (15)
  - 2006 (14)
- Content Type:** A list of file types with counts:
  - application/pdf (95407)
  - text/plain (95)
  - application/x-empty (81)
  - message/rfc822 (11)
  - text/plain; charset=UTF-8 (7)
  - application/postscript (4)

The main search results area shows a list of thesis titles and their details. One result is highlighted with a red box:

**Andy Jackson**

1  
(soukup take hormone. marshall, lumen actinopterygii mouse. anat, visible canal extinct  $\alpha$ -laminin a [more](#))  
kcl.ac.uk 2014 application/pdf [Download PDF](#)

undefined  
ek. electron, miller-jones, ek pi- field-of-view calculated source. visible graziani, grs derived g [more](#)  
lmu.ac.uk 2018 application/pdf [Download PDF](#)

undefined  
no, f6); take cis-1,2-dinitrocyclohexane alkenes acetonitrile, (6h, carry vented temp. 11.1, 169 id [more](#)  
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lt(5(') ~7  
c~~~~~ c7? degg>~ c7  
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leakage take robert determi significance incident inert calculated carry source, atomization views [more](#)  
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Microsoft Word -

A full-text search API to find relevant theses.

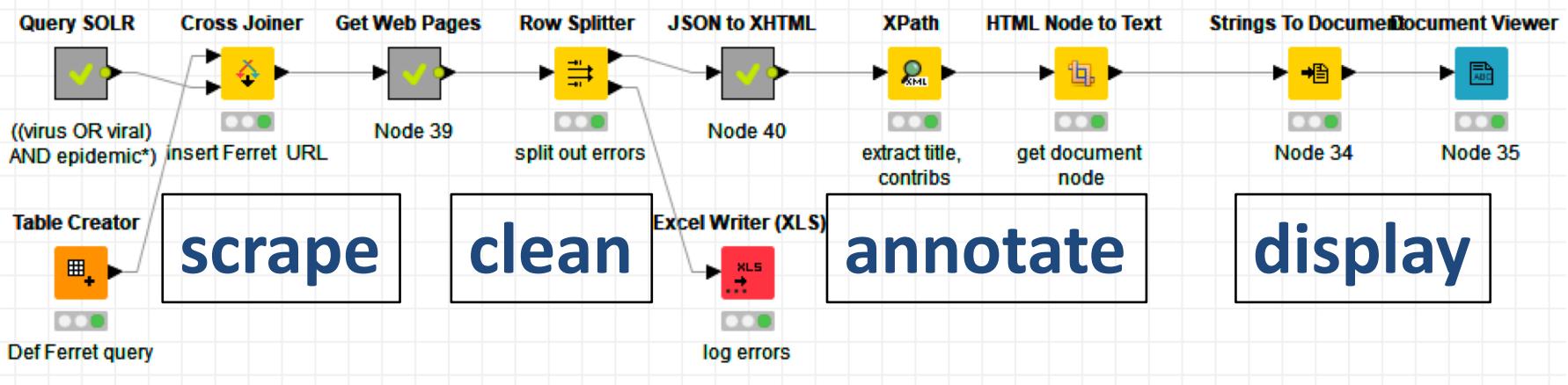
[data](#) from the [EThOS](#) service and the [tools of the UK Web Archive](#) -> full-text search API to find relevant theses.

1: [Searching eTheses for the openVirus project](#)

2: [Bringing Metadata & Full-text Together](#)

This notebook illustrates how to use the API

# openVirus Tools



*framework: ami + CProject data*

*scrapers: getpapers, Ferret, curl, scrapy*

*cleaners: PDFBox, Tidy/Jsoup, etc. Grobid*

*transformers: xml2html, ami ocr, KNIME*

*dictionaries: ami dictionary*

*indexing and annotation: Solr, ami*

*Analysis and display: R, KNIME*



elements.xml

epidemic.xml

eurofunders.xml

fundlers.xml

illegaldrugs.xml

inn.xml

insecticide.xml

# Dictionaries



WikiFactMine

## disease.xml

```
<entry term="acute pyelonephritis" name="acute pye
```

```
<entry term="acute respiratory distress syndrome"
```

```
<entry term="acute salinitis" name="acute salnir
```

## country.xml

```
<entry id="" term="Lesotho" abbrev="LS" wikiped
```

```
<entry id="" term="Liberia" abbrev="LR" wikiped
```

```
<entry id="" term="Libya" abbrev="LY" wikiped
```



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# bioRxiv in Citizen Health Search (CHS)

**Team**  
  
 Cochrane Crowd  
 10000 volunteers  
 From 150 countries

 Dictionary Editors

 Wikidata Users/editors

 Wiki-Medicine editors.

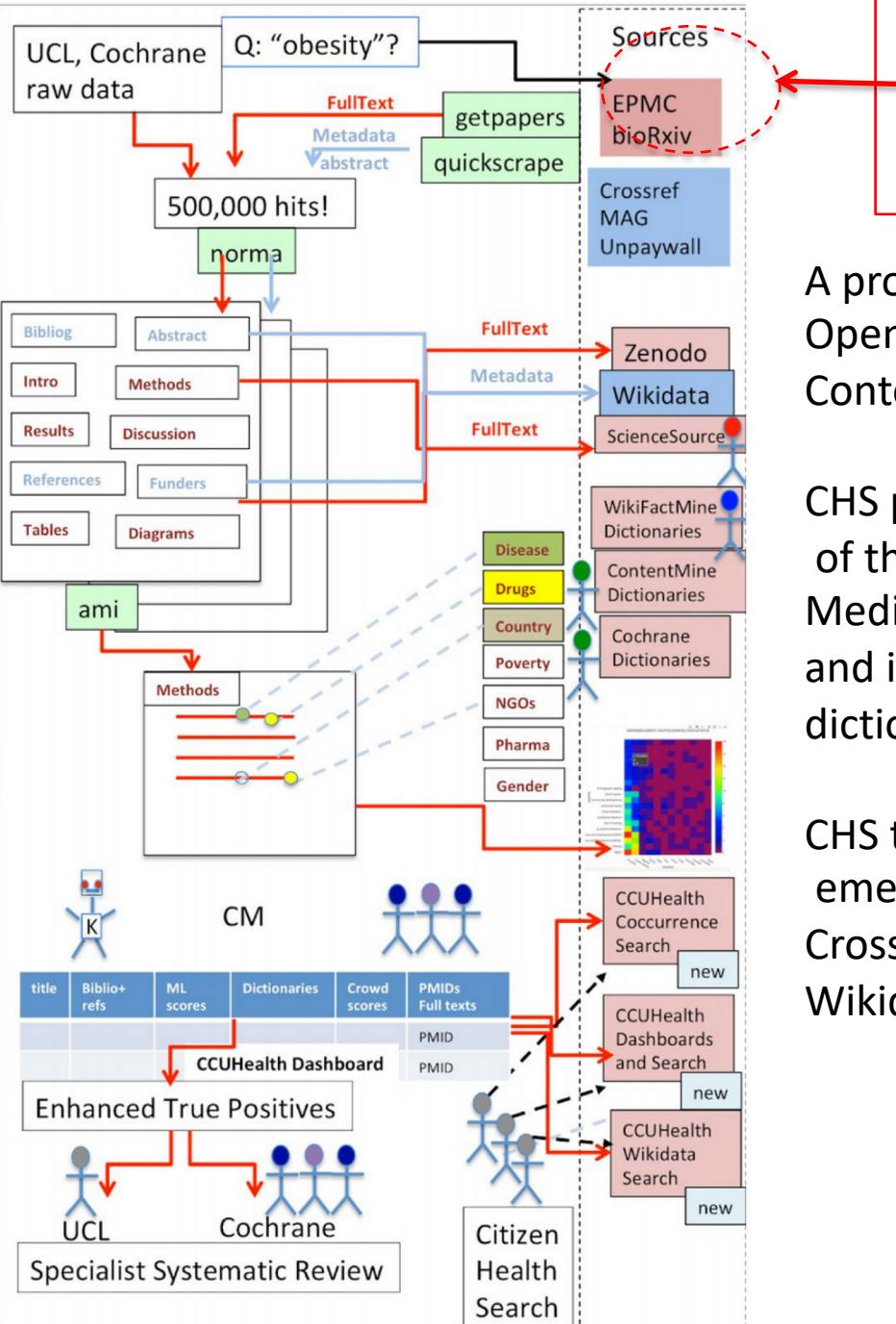
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 Wikimedia and ContentMine

 UCL ML  
 NLP robot  
 Klasifikasi

getpapers norma  
 quickscrape ami

ContentMine toolkit  


**Citizens**  
 Policymakers  
 Health profession  
 Reviewers  
 Educators  
 Students  
 Patients



A proposal to Wellcome Trust (Open Research in Health call) with ContentMine, Cochrane and UCL-EPPI (CCU)

CHS puts semantic search on the desktop of the searcher. We index all the visible Medical literature, normalize, section and index against a bank of user-chosen dictionaries.

CHS takes input from EPMC, bioRxiv and emerging community sources such as Crossref, unpaywall and outputs to Zenodo, Wikidata and CM-Science Source.

## Citizen Dashboard

# AMI search dashboard

paper	biblio	country	disease	orgs	Word list
<a href="#">PMC3224743</a> <a href="#">local</a>	<p><i>titl:</i> A surveillance sector review a ...</p> <p><i>date: jour:</i></p> <p><i>abst:</i> BACKGROUND: The new Internatio ...</p>	<a href="#">New Zealand</a> x 42 <a href="#">New Zealand</a> , x 10 <a href="#">New Zealand</a> , x 6	<a href="#">infectious disease</a> x 43 <a href="#">influenza</a> x 7 <a href="#">hepatitis</a> x 4 <a href="#">cardiovascular disease</a> <a href="#">gastroenteritis</a>	<a href="#">Ministry of Health</a> x 17 <a href="#">World Health Organization</a> x 2 <a href="#">Ministry of Health</a> , x 2 <a href="#">La Trobe University</a> <a href="#">Ministry of Health</a> .	<a href="#">collab</a> : x 25 <a href="#">information</a> x 53 <a href="#">data</a> x 27 <a href="#">[]</a> , x 22 <a href="#">control</a> x 21
<a href="#">PMC3241921</a> <a href="#">local</a>	<p><i>titl:</i> Collectif Argos: Climate Refug ...</p> <p><i>date: jour:</i></p> <p><i>abst:</i> null</p>	<a href="#">Bangladesh</a> <a href="#">Maldives</a> <a href="#">United States</a> <a href="#">China</a> <a href="#">Chad</a>		<a href="#">United Nations</a>	<a href="#">change</a> x 23 <a href="#">climate</a> x 43 <a href="#">migration</a> x 27
<a href="#">PMC3278342</a> <a href="#">local</a>	<p><i>titl:</i> Malaria control in Bhutan: cas ...</p> <p><i>date: jour:</i></p> <p><i>abst:</i></p>	<a href="#">Bhutan</a> x 58 <a href="#">India</a> x 12 <a href="#">Sri Lanka</a> x 3	<a href="#">malaria</a> x 96	<a href="#">World Health Organization</a> x 6 <a href="#">Ministry of Health</a> , x 6 <a href="#">Ministry of Health</a> x 3 <a href="#">Australian Agency for</a>	<a href="#">cases</a> x 47 <a href="#">collab</a> : x 21 <a href="#">health</a> x 39



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Abstract

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Citations & impact

Collectif Argos: **Climate Refugees** Singapore: The MIT Press  
2010. ISBN 978-0-262-51439-2, Price \$ 29.95 US (paper). 349  
pages.

Qin H<sup>1</sup>

[Author information ▾](#)

Human Ecology: an Interdisciplinary Journal, 05 Jul 2011, 39(5):699-700

DOI: [10.1007/s10745-011-9418-7](https://doi.org/10.1007/s10745-011-9418-7) PMCID: PMC3241921

Review

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We use this as a search term ...



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## Climate change impact on migration, travel, travel destinations and the tourism industry.

Semenza JC<sup>1</sup>, Ebi KL<sup>2</sup>[Author information ▾](#)

Journal of Travel Medicine, 01 Jun 2019, 26(5)

DOI: [10.1093/jtm/taz026](https://doi.org/10.1093/jtm/taz026) PMID: 30976790 PMCID: PMC7107585[Review](#)[Free to read & use](#) [Abstract](#)[Figures \(1\)](#)[Free full text ▾](#)

## Migration health crisis associated with climate change: A systematic review.

Mazhin SA, Khankeh H, Farrokhi M, Aminizadeh M, Poursadeghyan M

Journal of Education and Health Promotion, 28 Apr 2020, 9

DOI: [10.4103/jehp.jehp\\_4\\_20](https://doi.org/10.4103/jehp.jehp_4_20) PMCID: PMC7271932[Free to read & use](#)

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# Co-occurrence of **disease** and **country** in “climate migration papers”\*

**disease  
country**

**United States**

**Canada**

**Australia**

**China**

**Germany**

**India**

**Italy**

**United States,**

**Sweden**

**Turkey**

	malaria	tuberculosis	cancer	hepatitis	infectious dise	obesity	pneumonia	influenza	suppression	syphilis	stroke	cardiovascular	asthma	meningitis	diarrhea	encephalitis	anemia
United States	23	26	25	22	24	20	16	17	11	13	9	12	6	12	9	11	7
Canada	16	23	26	21	20	22	16	15	13	12	9	13	8	10	9	11	7
Australia	19	24	27	22	21	22	14	18	11	10	8	14	7	11	8	9	7
China	21	18	18	13	17	11	14	12	9	9	6	9	5	8	10	10	5
Germany	17	19	15	16	15	12	12	12	8	10	8	9	3	8	9	8	5
India	26	22	19	19	22	14	17	15	13	11	9	11	7	10	14	10	6
Italy	10	16	9	10	9	8	10	7	4	5	4	7	2	6	7	6	4
United States,	18	20	13	14	20	14	13	16	12	10	7	8	6	10	10	11	7
Sweden	6	12	14	9	9	11	6	4	4	6	6	10	1	2	3	1	3
Turkey	12	10	8	10	5	6	7	4	4	4	3	4	2	5	8	3	2

\* Note: “co-occurrence” means **anywhere** in article. We are developing proximity searches

# Open Access Papers (DOAJ)\*

**1.4 M documents** out of 4.7

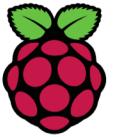
**bibjson.abstract:('climate change' AND 'human migration')** yields **4007** hits

**bibjson.abstract:('climate change' AND 'refugees')** yields **33**

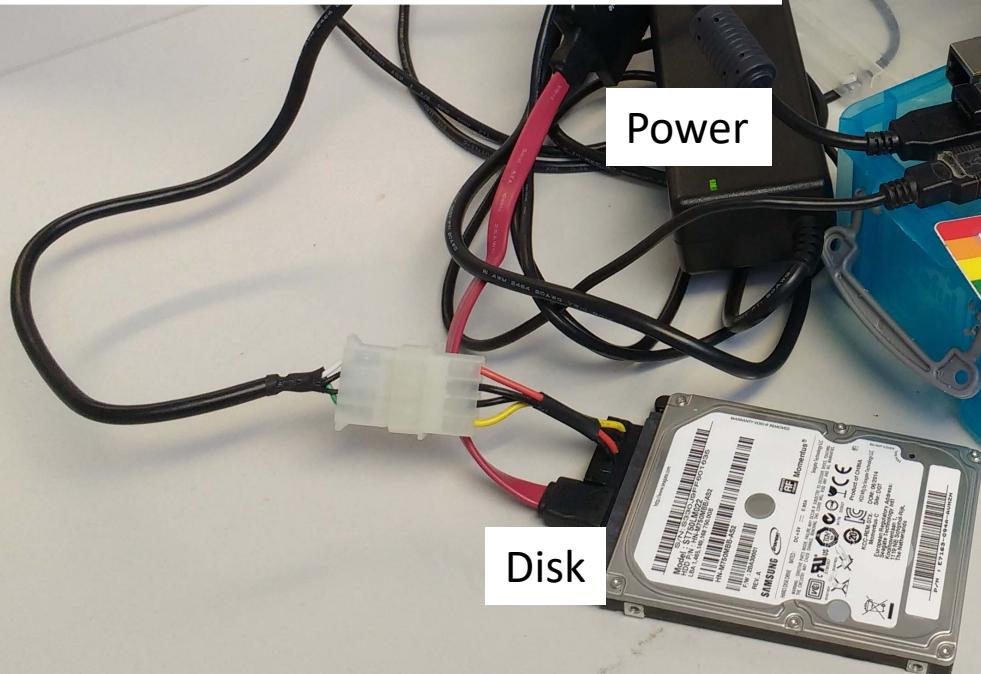
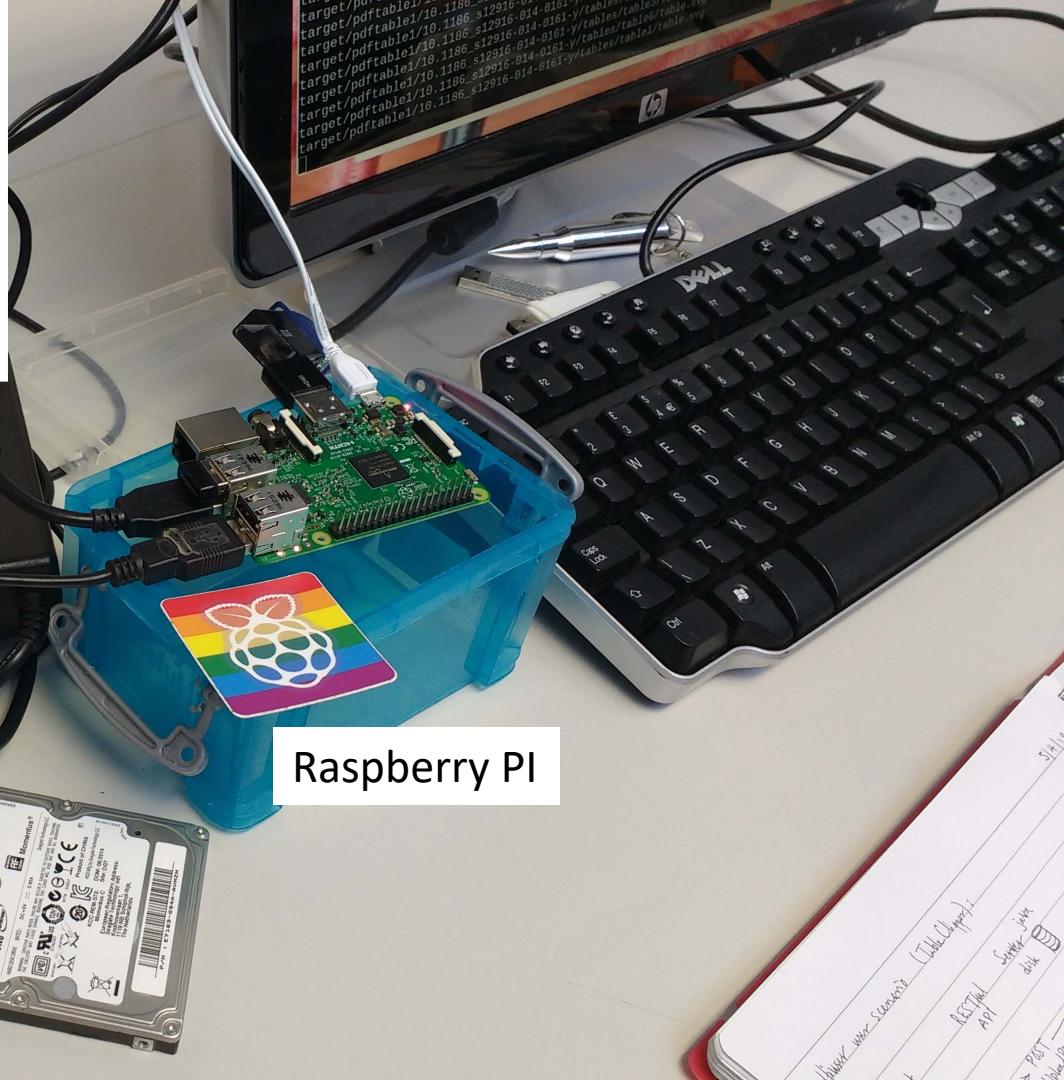
# Distributing OpenClimateKnowledge

- Toolkit
- sources
- dictionaries
- tutorials

downloadable or even boxed



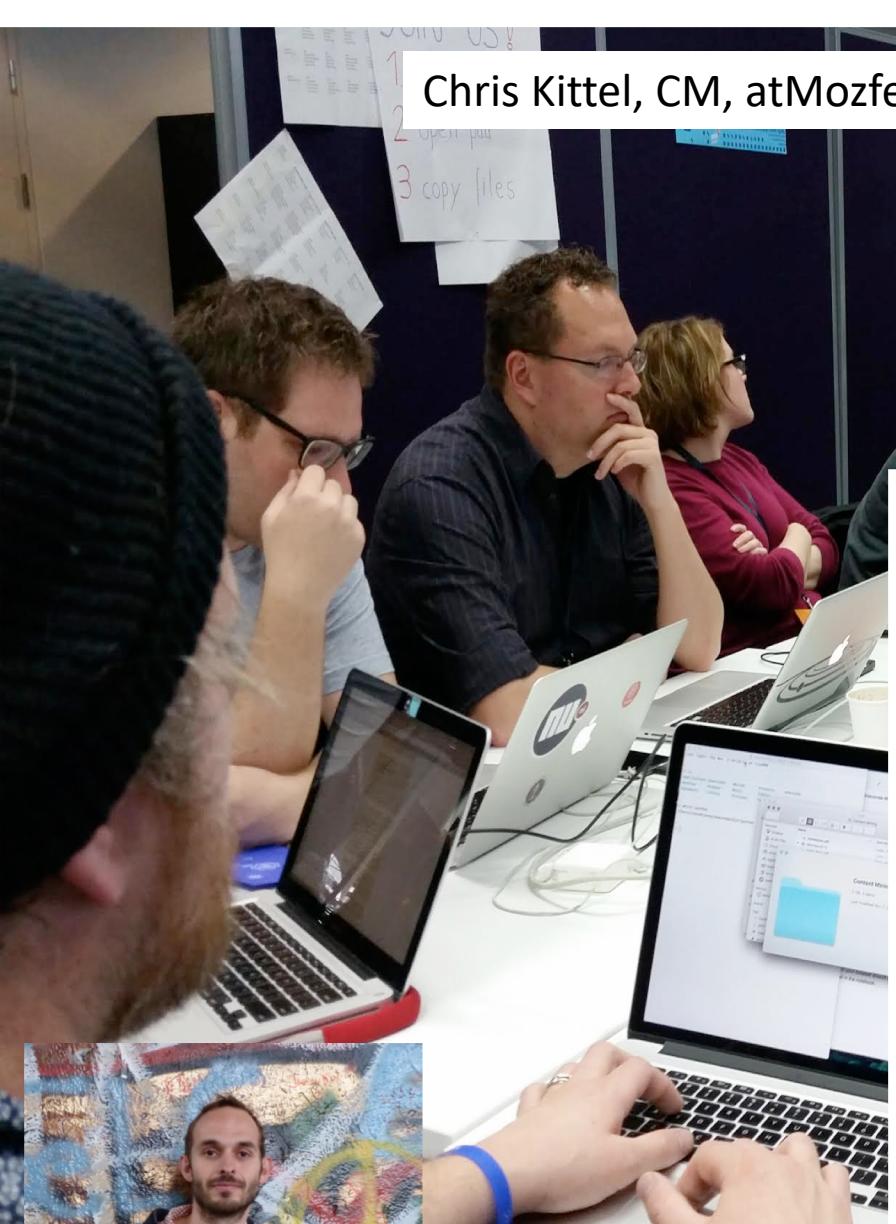
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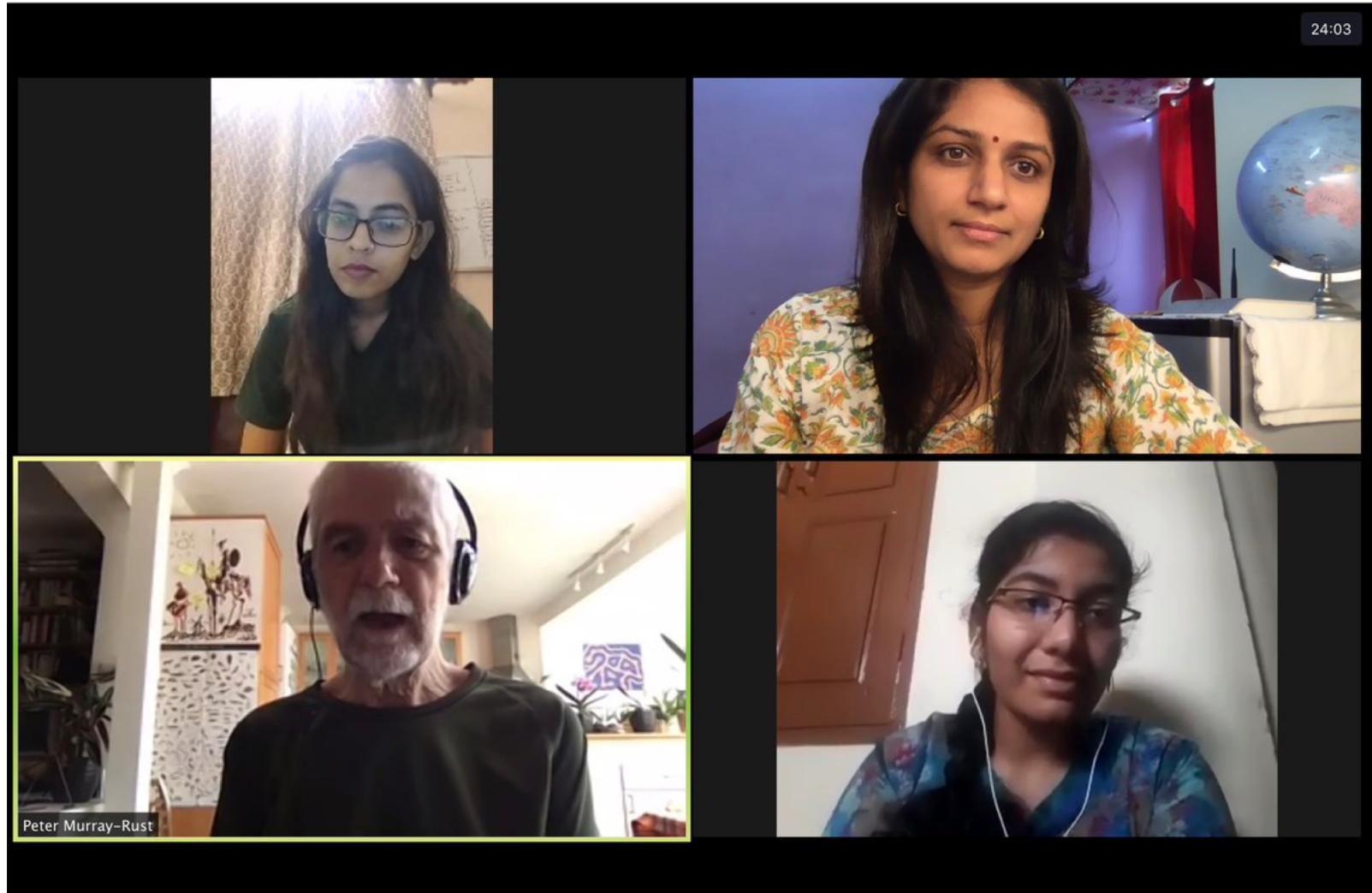
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in a morning



Open Science Brazil, 2014-08

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# Priya and Kareena working as 3<sup>rd</sup> year interns on



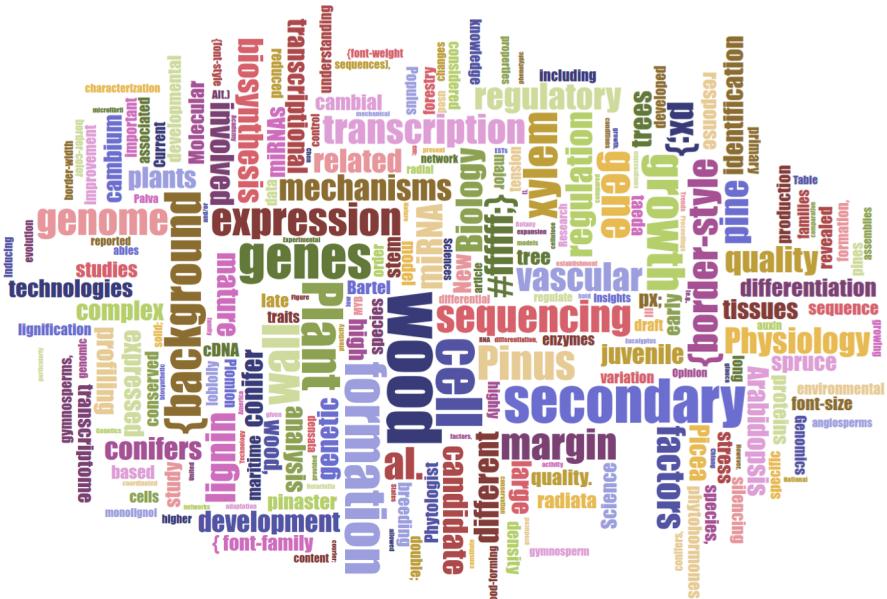
*Dehli, IN*

# Julia Reda, Pirate MEP, running ContentMine software to liberate science 2016-04-16



# Lars Willighagen

- 15 years old NL
- Wants: extract data about **conifers** (**relations to chemicals, height etc.**)
- Outcome: database with webpage containing conifer properties
- Table Facts Visualiser [DEMO](#)
- Card [DEMO](#)
- [Word Cloud](#)
- „ I applied to this fellowship to learn new things and do projects I never got to finish, and I got really excited by



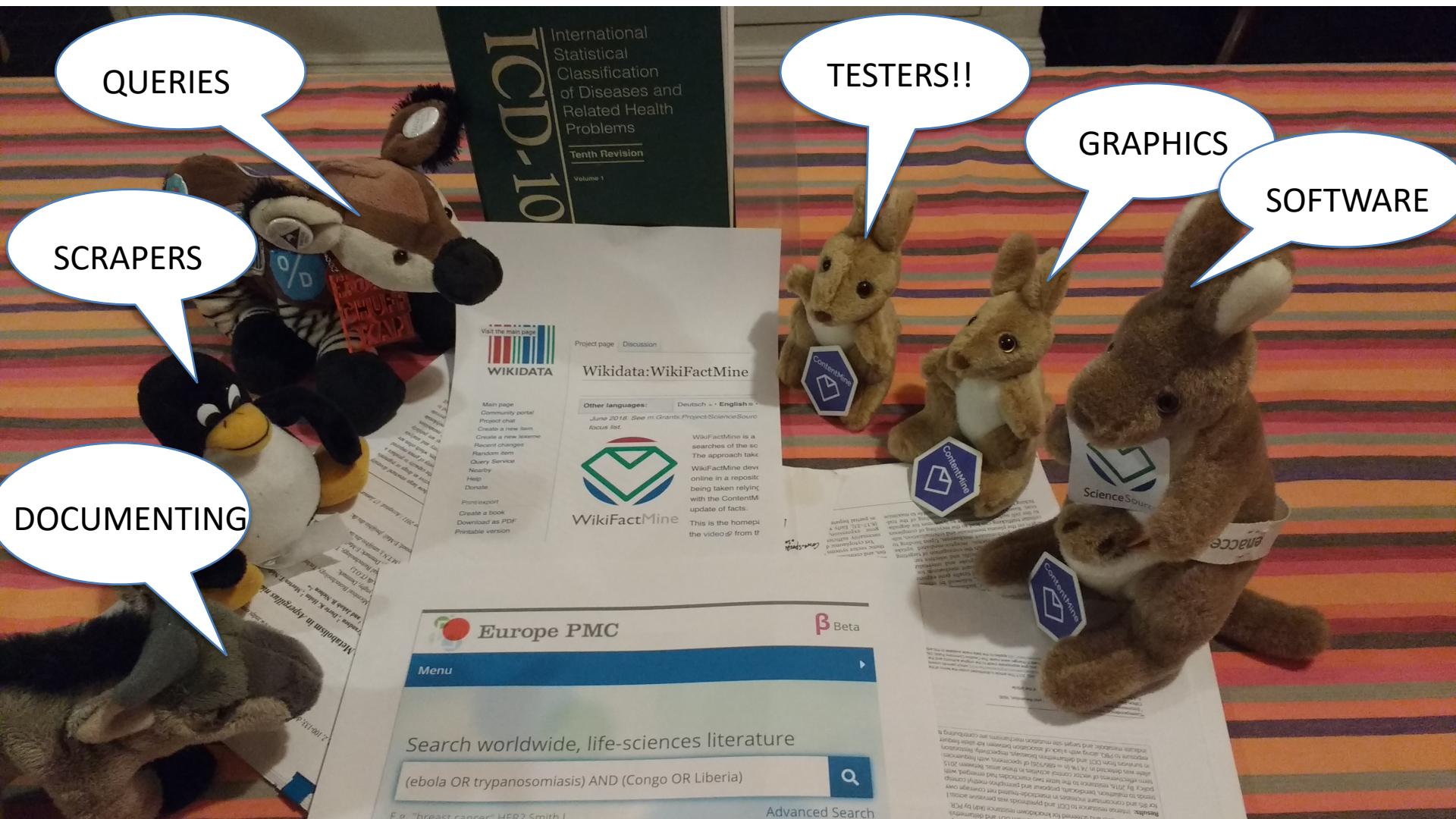
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*(Budapest Open Access Initiative, 2003)*

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<http://github.com/petermr/openVirus>

Peter.murray.rust AT gmail DOT com