

Making Sense of Data

(collection + organization + visualization)

Final Conference – 25th November 2016



DENSITY DESIGN

DensityDesign is a research lab in the Design Department of the Politecnico di Milano. It focuses on the visual representation of complex social, organizational and urban phenomena [read more...](#)

Activities



Borders

Since the launch of the Internet Movie Database in 1990 a large amount of data about movies has been collected online, giving us the possibility to... [more...](#)



A visual exploration of the online conversational space.

Abstract Since the last decade journalism has been going through a fast and substantial revolution. The morning paper is now replaced with almost... [more...](#)



Italian Social Condition

Elective affinities between Economic Statistic & Communication Design Economic statistic concerns understanding complex, multidimensional,... [more...](#)

[See Research section](#)

[See Teaching section](#)

News

"From Mind to Reality" Workshop

The week of May 2nd we experimented a new workshop format, engaging students

San Marino Design Workshop

Within the rich San Marino Design workshop 2015 agenda organized by the

Depiction of cultural points of view on homosexuality using Wikipedia as a proxy

Preliminary research questions Which aspects of a controversy is a

to make **complex** phenomena (visually)
accessible, understandable and **usable**

making sense of data

Collection

Organization

Visualization

making sense of **data**: collection + organization + visualization

Collecting **articles** from **EMM Newsbrief**

Collecting **structured data** from gunpolicy.org

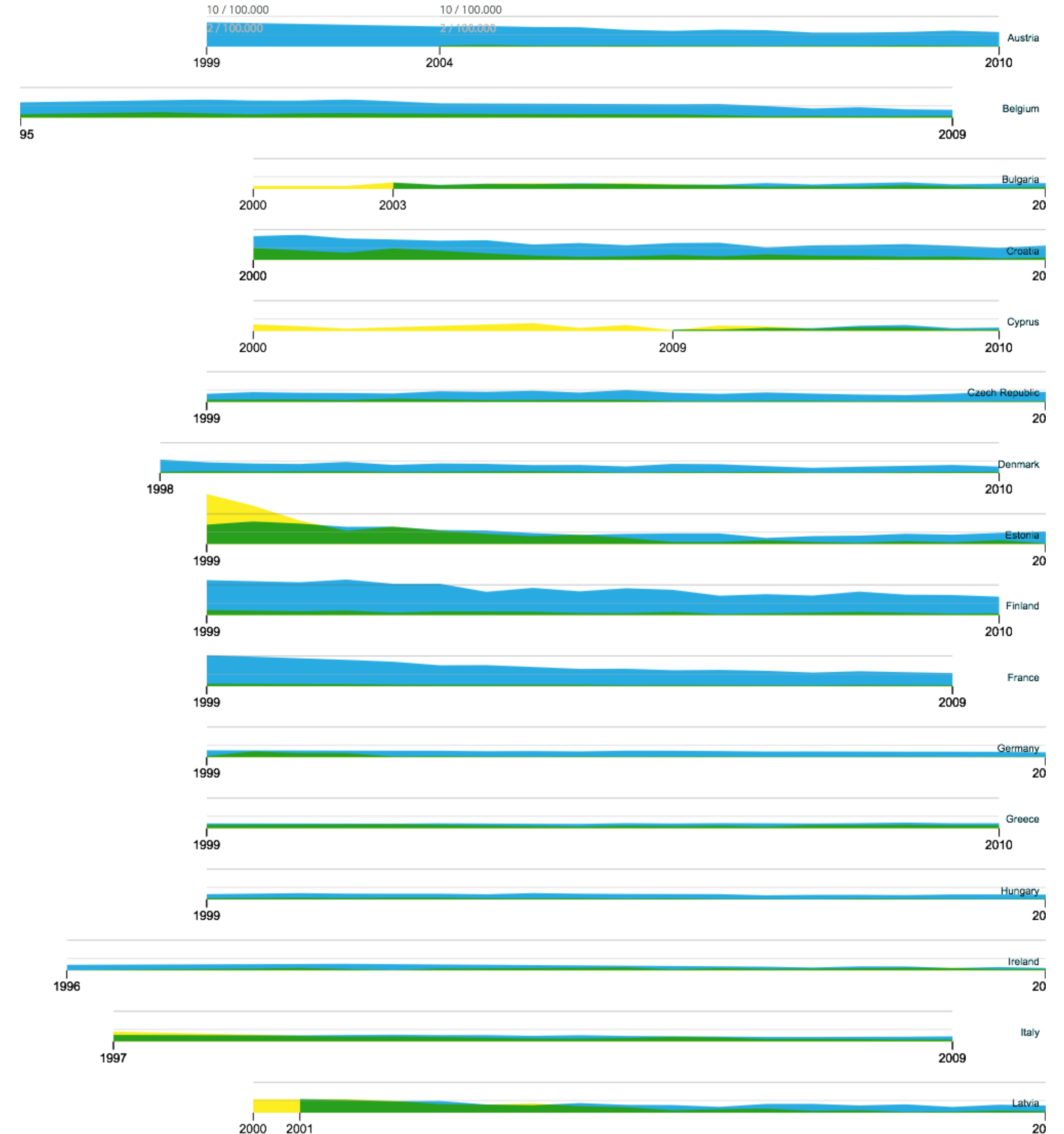
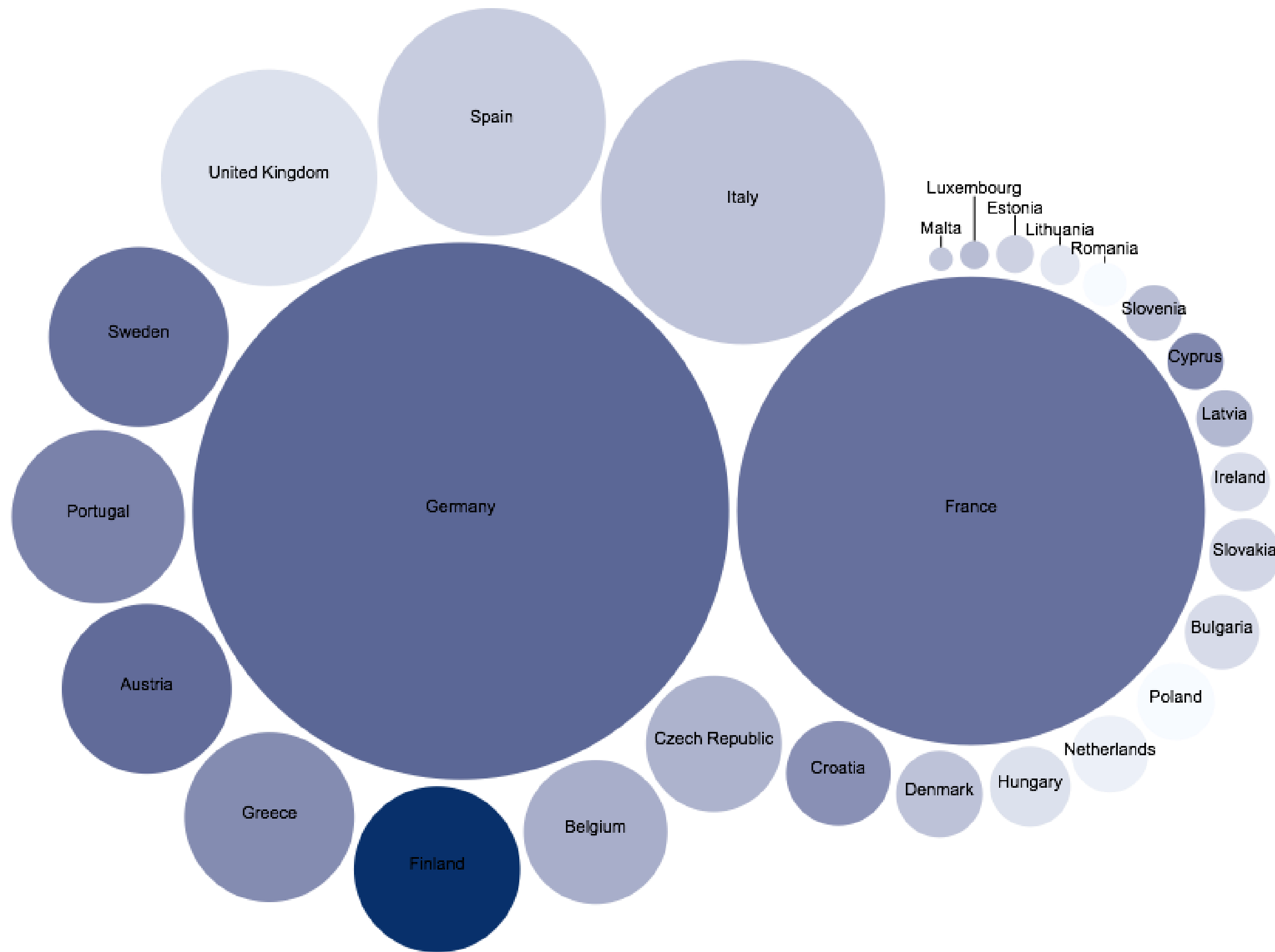
Scraping the **Deep Web**

making sense of **data**: collection + organization + **visualization**

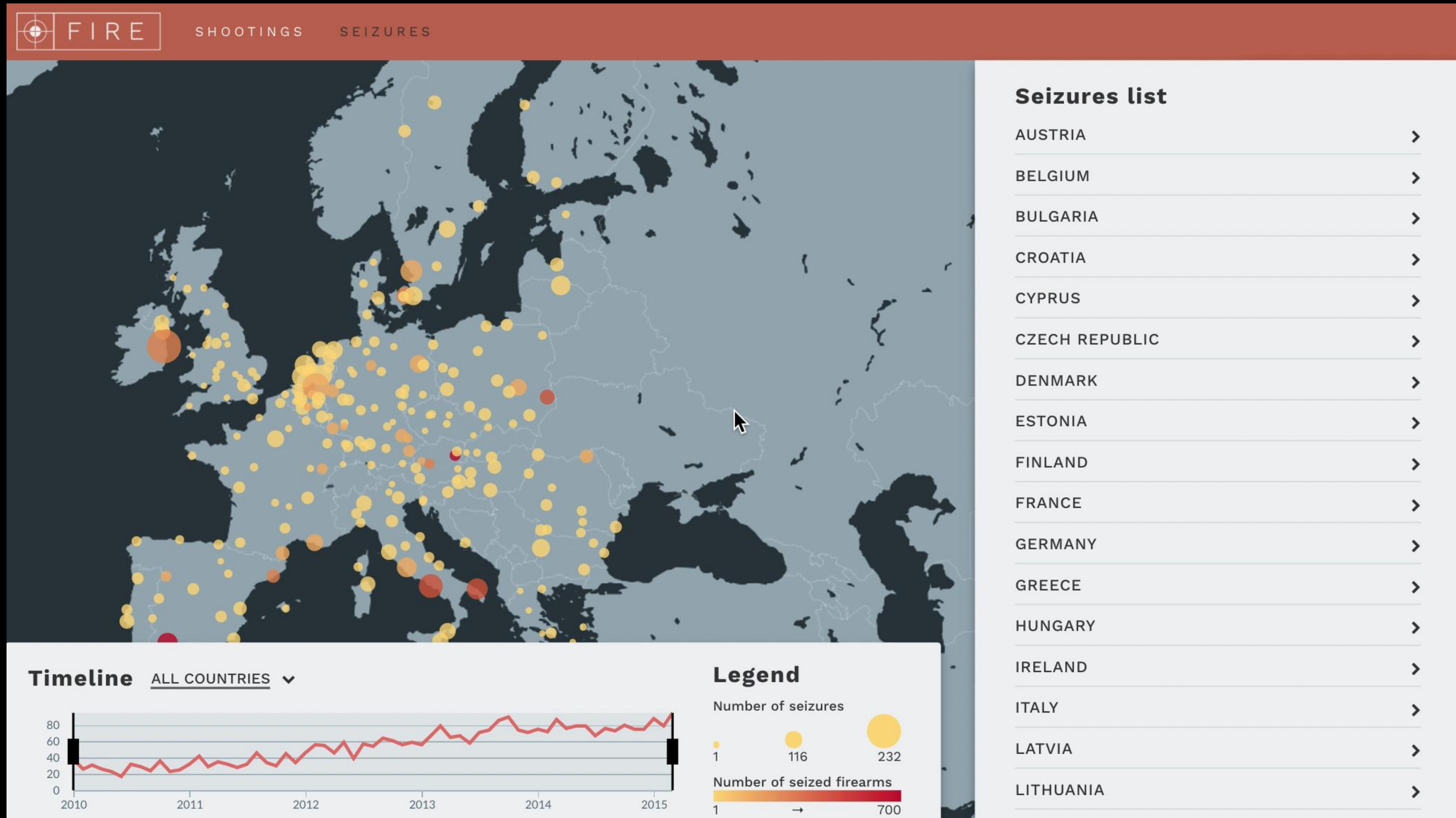
Visualization as a **research tool** (process)

Visualization as a **research result** (product)

making sense of data: collection + organization + visualization



making sense of data: collection + organization + visualization



Collecting articles from the Web

Exploiting the EMM repository



collect articles from the web related to **shootings**
and **weapon seizures** in the European Union
(01/2010 - 03/2015).

identify events from the collection.

simplify manual **analysis** for finding detailed information.

Menu principale

Notizie Principali
Panoramica sulle 24 ore
Identificazione di Eventi
Temi più attivi
Aiuto su EMM
Overview
Ricerca Avanzata
Sources list
Mappa del sito

Obiettivo sull'UE

EU Policy Areas

Temi

Il Mondo

Uffici & Agenzie

Risultati della ricerca – At least: homicide

1 2 >

Man charged for murder James Russouw, 24, a month after a \$1million reward was posted

dailymail mercoledì 13 aprile 2016 8.53.00 CEST | Info [it] [other]

Cold case breakthrough: Man charged with murder of James Russouw, 24, a month after a \$1 million reward was posted James Russouw, 24, was stabbed, doused in petrol and set alight in 2008; The Melbourne man's murder has remained unsolved for eight years; A mystery suspect called Mr Russouw from a pay.....

Man charged for murder James Russouw, 24, a month after a \$1million reward was posted for the cold case death

dailymail mercoledì 13 aprile 2016 7.25.00 CEST | Info [it] [other]

Cold case breakthrough: Man charged with murder of James Russouw, 24, a month after a \$1 million reward was posted James Russouw, 24, was stabbed, doused in petrol and set alight in 2008; The Melbourne man's murder has remained unsolved for eight years; A mystery suspect called Mr Russouw from a pay.....

Quelle: nationalpost.com, vor 11 Minuten veröffentlicht

direktbroker mercoledì 13 aprile 2016 7.00.00 CEST | Info [it] [other]

13.04.2016 - 05:57 Uhr German rail dispatcher played game on his phone shortly before horrific train collision that killed 11. The unnamed dispatcher was arrested on suspicion of negligent homicide, prosecutors in the Bavarian town of Traunstein said in a statement

Dispatcher 'played phone game' before train crash Authorities have arrested a rail dispatcher in Germany after accusing him of allowing a fatal collision

deutschewelle-en mercoledì 13 aprile 2016 5.14.00 CEST | Info [it] [other]

Accidents Dispatcher arrested: Game linked to Bad Aibling crash. Authorities have arrested a rail dispatcher in Germany after accusing him of allowing a fatal collision to happen because he was distracted by a video game. The crash killed 11 people in February....

Seattle mother 'was dismembered by her date with a 15-inch pruning saw in her own bathtub': FBI to investigate similar crimes in the region after horr

dailymail mercoledì 13 aprile 2016 2.32.00 CEST | Info [it] [other]

Detectives investigating the gruesome murder of a woman whose head, leg, and arm were dumped in a recycling bin in Seattle found a 15-inch pruning saw and bits of flesh in the bathroom of her Renton, Washington, home, court documents reveal. Ingrid Lyne, 40, was reported missing on Saturday morning.....

LEWISTOWN, Mont (AP) — Drones might soon be dropping ...

adhoc mercoledì 13 aprile 2016 2.08.00 CEST | Info [it] [other]

voanews.com berichtet: At least eight people were killed Monday and early Tuesday in U S . At Least 8 Killed as US Airstrikes Target al-Shabab in Somalia. airstrikes targeting al-Shabab militants in southern Somalia. Pentagon spokesman Captain Jeff Davis said unmanned drones were used in the attacks....

Has man who 'butchered Seattle mother-of-three killed before'? FBI to investigate similar crimes in the region after it emerges a 15-inch pruning saw

Strumenti

mercoledì 13 aprile 2016
11.55.00 CEST

RSS

Facebook

Gestisci

current page | all pages

Info



Languages

Select your languages

ar be bg bs ca cs
da de el en es et
fa fi fr ga ha he
hi hr hu hy id is
it ja ka km ko ku
lb lo lt lv mk mt
my nl no pap pl ps
pt ro ru rw sk sl
sq sr sv sw ta tg
th tr uk ur vi zh
all

Interface: it - Italiano

Legend

Source

EMM newsbrief: A news aggregator website collecting articles from a vast variety of online newspapers.

EMM newsbrief

<http://emm.newsbrief.eu/>

challenges | **time & volume**

~3 seconds to get full information about an article

~50.000 articles per country

~2 days for each country

challenges | **noise**

Many **outliers** not related to the starting queries.

Many **duplicates** of the same articles on different sites.

Many different articles talking about the same **event**.

challenges | **language**

28 different countries, almost each one with its own **language**.

Text analysis and **results evaluation** may be difficult for less used idioms.

Methodology

Definition and preparation of the queries

Each query is a set of **keywords**, translated in **all the languages of the EU**

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Category	English	Bulgarian	Catalan	Croatian	Czech	Danish	Dutch	Estonian	Finnish	Flemish	French	German	Greek	Hungarian	Irish	Italian
Firearm (object)	firearm	огнестрелно	arma de foc	vatreno oružje	střelná zbraň	skydevåben	vuurwapen	tulirelv	tuliase	vuurwapen	arme à feu	Schusswaffe	πυροβόλο	lőfegyver	arm tine	arma
	revolver	револвер	revòlver	revolver	revolver	revolver	revolver	revolver	revolver	revolver	revolver	Revolver	περίστροφο	revolver	gunnán	rivoltella
	pistol	пистолет	pistol	pištolj / revolver	pistole	pistol	pistool	püstol	pistooli	pistool	pistolet	Pistole	πιστόλι	pisztoly	piostal	pistola
	rifle	пушка	rifle	puška	puška	riffel	geweer	vintpüss	kivääri	schietwapen	fusil	Gewehr	τουφέκι	puska	raidhfil	fucile
	gun	пистолет	pistola	pištolj	pistole	gun	pistool	relv / püss / pü	ase	geweer	pistolet	Gewehr	πιστόλι	pisztoly	gunna	pistola
weapon	оръжие	arma	oružje	zbraň	våben	wapen	relv	ase	wapen	arme	Waffe	όπλο	fegyver	arm	arma	
Seizure	seize	конфискува	confiscar	zaplijeniti	chytit	beslaglægge	in beslag	haarama / kiinn	takavarik	grijpen / in	saisir	beschlagnehmen	προβαίνω	megragac	urghabh	sequestrare
	seized	обзет	confiscada	zaplijenjen	chytit	beslaglag	in beslag	konfiskeerima	takavarik	gegrepen	saisis	beschlagnehmen	κατασχεμ	lefoglalt	urghabha	sequestrate
	seizure	припадък	confiscaci	zapljena	záchvat	beslaglægge	inbeslagn	konfiskeerimine	takavarik	beslagleg	saisie	Beschlagnahme	κατάσχεση	elkobzás	urghabhá	sequestro
	confiscate	конфискува	confiscar	konfiscirati	zabavit	konfiskere	confiscere	konfiskeerima	takavarik	aangegre	confisquer	konfiszieren	κατάσχω	lefoglal	coigistigh	confiscare

Site scraping

Each translated query has been used as input for an ad-hoc developed **crawler** and **scraper**.

Information about each article (title, publication date, source country, source publisher, full text, original link) can be saved in a **structured dataset**.

Entries filtering

A first filter is applied by looking for a set of **geographical** ("Mexico", "Syria",...), **VIP** ("Obama", "Pistorius", ...), **stopwords**, in order to exclude potentially non-relevant entries.

Entries extraction

In order to further characterize each entry in our dataset, an **Entity Extraction Routine** was applied to the full text of each article.

Barclays misled **shareholders** and the public about one of the biggest **investments** in the **bank's** history, a **BBC Panorama** investigation has found.

[Words](#) [Phrases](#) [Relations](#) [Entities](#) [Meaning](#) [Dependency Parse](#)

The bank announced in **2008** that **Manchester City** owner **Sheikh Mansour** had agreed to **invest** more than **£3bn**.

[Words](#) [Phrases](#) [Relations](#) [Entities](#) [Meaning](#) [Dependency Parse](#)

But the **BBC** found that the **money**, which helped **Barclays** avoid a **bailout** by **British taxpayers**, actually came from the **Abu Dhabi** government.

[Words](#) [Phrases](#) [Relations](#) [Entities](#) [Meaning](#) [Dependency Parse](#)

Barclays said the mistake in its accounts was "a drafting error".

[Words](#) [Phrases](#) [Relations](#) [Entities](#) [Meaning](#) [Dependency Parse](#)

CATEGORIES

- 0.77 economy, business and finance>economy (general)
- 0.74 politics>government
- 0.67 politics
- 0.67 investment
- 0.65 religion and belief>values>ethics
- 0.65 economy, business and finance>finance (general)
- 0.65 economy, business and finance>business (general)
- 0.65 crime, law and justice>laws
- 0.64 social issue>social issues (general)
- 0.63 economy, business and finance>financial and business service

TOPICS

- 1.00 Barclays
- 1.00 Mansour bin Zayed Al Nahyan
- 1.00 Economics
- 1.00 Business
- 1.00 Finance
- 1.00 Financial economics
- 1.00 Investment
- 1.00 International Petroleum

Text Razor

A Named Entity Recognition and extraction service that recognizes and categorizes semantically relevant words in a text.

Supports 10 languages

Text Razor

<https://www.textrazor.com/>

Aggregation by event

Articles related to the same event where grouped by
3 main factors:

Date proximity

Title similarity

Matching entities

Manual filtering and data extraction

to obtain **detailed information** that **can't be automatically obtained** by the text, and to **clean** the dataset from outliers and errors.

Collecting structured data from gunpolicy.org

Exploiting the EMM repository



For each country, many **different data formats** can be found

single datum

no. of privately owned firearms: 1,800,000

time series

long gun homicides: 2010: 2

2009: 1

2008: 1

2007: 1

2005: 3

2004: 4

1999: 6

1998: 6

verbose statements

destruction and disposal policy: In Belgium, it is state policy to destroy surplus, collected and seized firearms rather than return them to the secondary arms market

single datum and statements

Rate civilian firearms possession
World ranking
N. registered firearms
Rate registered firearms
Estimated n. illicit firearms
Estimated rate illicit firearms
Smuggling Guns and Ammunition
Transparency of Small Arms Transfers
Penalty for Illicit Firearm Possession

time series

Total Number of Gun Deaths!
Rate of All Gun Deaths per 100,000 People!
Homicides (any method)!
Rate of Homicide per 100,000 People (any method)!
Gun Homicides
Rate of Gun Homicide per 100,000 People,
Handgun Homicides
Rate of Handgun Homicide per 100,000 People
Long Gun Homicides
Rate of Long Gun Homicide per 100,000 People
Gun Homicides (Other)
Rate of Gun Homicide (Other) per 100,000 People
Gun Suicides
Rate of Gun Suicide per 100,000 People

Retrieved data for each country

Handgun Suicides
Rate of Handgun Suicide per 100,000 People
Long Gun Suicides
Rate of Long Gun Suicide per 100,000 People
Gun Suicide (Other)
Rate of Gun Suicide (Other) per 100,000 People
Unintentional Gun Deaths
Rate of Unintentional Gun Death per 100,000 People
Unintentional Handgun Deaths
Rate of Unintentional Handgun Death per 100,000 People
Unintentional Long Gun Deaths
Rate of Unintentional Long Gun Death per 100,000 People
Unintentional Gun Deaths (Other)
Rate of Unintentional Gun Death (Other) per 100,000 People
Gun Deaths from Undetermined Cause
Rate of Gun Death from Undetermined Cause per 100,000 People
Handgun Death from Undetermined Cause
Rate of Handgun Death from Undetermined Cause per 100,000 People
Long Gun Death from Undetermined Cause
Rate of Long Gun Death from Undetermined Cause per 100,000 People
Gun Death (Other) from Undetermined Cause
Rate of Gun Death (Other) from Undetermined Cause per 100,000 People
Small Arms Exports (US\$) - Customs

Challenges

Data from gunpolicy.org **can't be directly analyzed**, since no data retrieval service is provided.

Development of an **ad-hoc crawler** and **scraper** to automatically download all the relevant data.

Value

Data regarding each country in the EU was saved in a **non relational database**, allowing the use of **complex data structures**.

Single **spreadsheets** and **aggregations** were extracted to **share** data and allow **analysis** by third party.

Open Data

Data should be **available** in a open format on the FIRE project website (*give-back, public engagement*).

Scraping the Deep Web

An Experimental Journey on a Controversial Terrain



Onion, TOR and the Deep Web

behind the (dark) curtain

← → ↻ 🏠 🔍 deep web is

deep web is - Ricerca Google

- deep web is scary
- deep web is it real
- deep web is dangerous
- deep web is bullshit
- deep web is it illegal

Los niveles de la internet Profunda

TARINGAJ!

TIMELINE OF THE DEEP WEB

- 1996: The Federal Reserve releases the first online monetary policy report.
- 1997: The US Supreme Court publishes its first online opinion.
- 1998: The first online medical journal is published.
- 1999: The first online scientific report is published.
- 2000: The first online government report is published.
- 2001: The first online organizational specific report is published.
- 2002: The first online political protest is published.
- 2003: The first online drug trafficking site is published.
- 2004: The first online private communication is published.
- 2005: The first online encrypted site is published.
- 2006: The first online TOR site is published.
- 2007: The first online TOR site is published.
- 2008: The first online TOR site is published.
- 2009: The first online TOR site is published.
- 2010: The first online TOR site is published.
- 2011: The first online TOR site is published.
- 2012: The first online TOR site is published.
- 2013: The first online TOR site is published.
- 2014: The first online TOR site is published.
- 2015: The first online TOR site is published.
- 2016: The first online TOR site is published.
- 2017: The first online TOR site is published.
- 2018: The first online TOR site is published.
- 2019: The first online TOR site is published.
- 2020: The first online TOR site is published.
- 2021: The first online TOR site is published.
- 2022: The first online TOR site is published.

95% of content on the Web (estimated)

90% of the Internet exists below the line.

Surface Web

Visible Web

Deep Web

DEEP WEB

SURFACE WEB

- Academic Information
- Medical Records
- Legal Documents
- Scientific Reports
- Subscription Information
- Illegal Information
- TOR-Encrypted sites

DEEP WEB

- Multilingual Databases
- Conference Proceedings
- Government Resources
- Competitor Websites
- Organization-specific Repositories
- Drug Trafficking sites
- Private Communications

DARK WEB

THE WEB SEA

GOVERNMENT

UNDETECTED

ILLEGAL PORN

WIKILEAKS

THE INTERNET (more or less)

Either use a proxy, or say hi to the FBI

Exploring The Hidden Internet

Deep Web

Dark Web

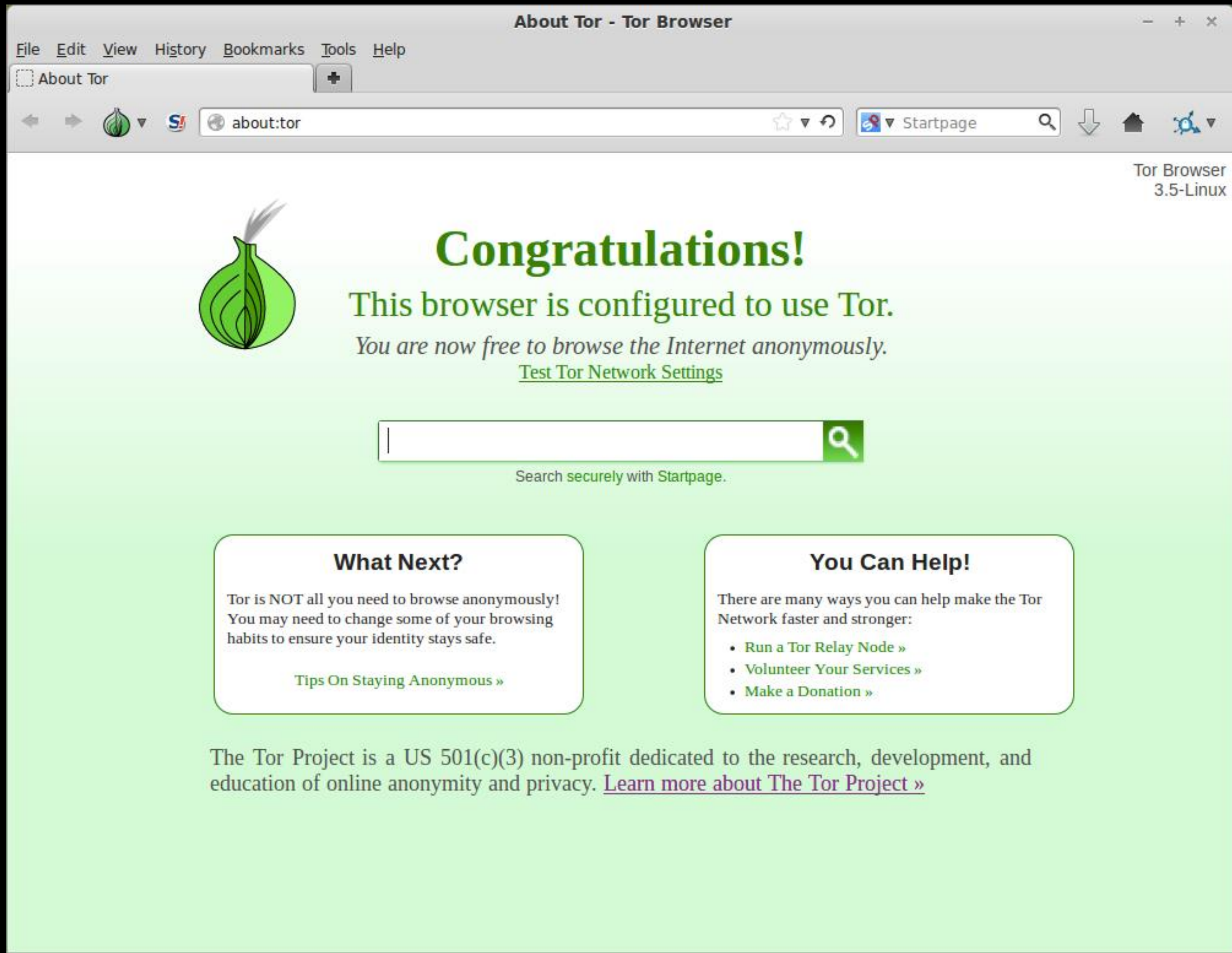
Deep Web

- Level 1: YouTube, Tumblr, Orkut, G+, Facebook, Twitter, Wikipedia, Blogs e afins, Forums, Wikileaks, Redtube, Xvideos, Ichan, Pirate bay
- Level 2: MEGA, TARINGAJ!
- Level 3: The Pirate Bay
- Level 4: Tor P.M., TorChan, Dorenie, OnionChan
- Level 5: Tor
- Level 6: [Icons]

The **Deep Web** is a World Wide Web layer that needs **specific software** to be **accessed**.

Onion routing is a technique for anonymous communication over a computer network.

In an onion network, messages are encapsulated in **layers of encryption**.



Tor Browser

A web browser implementing the onion routing protocol, thus enabling users to anonymously access deep web sites.

Weapons trafficking on the **Deep Web**

- Home
- Pistols
- Assault Weapons
- Full Auto Rifles
- Submachine Guns
- Sniper Rifles
- Grenade Launchers
- Optics
- Suppressors
- Order



main address: gunsjmzh2btr7lpy.onion
mirror: gunsdarkhzyowteb.onion

ASSAULT WEAPONS RIFLES SHOTGUNS SUBMACHINE GUNS AMMO

[International Weapons Store](#)

[FULL ESCROW](#)

[1280x768 desktop minimum resolution](#)

Personal shops

Individual e-shops where a single seller shows available weapons for purchase

guns dark market

<http://gunsjmzh2btr7lpy.onion/>

Browse by category

- Other 1217
- Defense 137
 - Self-defense 23
 - Other 90

- Digital Goods 9763
- Drugs 19710
- Drugs Paraphernalia 481
- Services 686
- Other 1217

Exchange

USD	426.5
EUR	361.0
CAD	548.5
AUD	554.1
GBP	299.9
SEK	3344.3
NOK	3423.7
DKK	2691.2
TRY	1160.5
CNH	2763.6
JPY	45886.7

Onion mirrors







lchudifyeqm4ldjj.onion
jd6yhuwcivehvd4.onion
t3e6ly3uoif4zcw2.onion
7ep7acrkunzdcw3l.onion

Defense (137)

Filter

Ships to	Ships from	Escrow	Category
<input type="text"/>	<input type="text"/>	<input type="text"/>	Defense
Price	Searchtext	Sort by	Vendor
₪ <input type="text"/> - <input type="text"/>	<input type="text"/>	<input type="text"/>	All

1 2 3 4 5 

<p>STEALTH KNIFE CARD</p>  <p>₪0.0351 BANK (454) (4.8 ★) WW → WW</p> <p><input type="button" value="Order"/></p>	<p>VCC for PAYPAL VERIFICATION 100%</p>  <p>₪0.0351 smart666tiger (1365) (4.8 ★) WW → WW</p> <p><input type="button" value="Order"/></p>
<p>where to buy 9mm Glock replica blank gun in EUROPE</p>  <p>₪0.083 fakeita (6) (4.6 ★) IT → EU, WW</p> <p><input type="button" value="Order"/></p>	<p>★ UK PASSPORT SCAN ★</p>  <p>₪0.0703 smart666tiger (1365) (4.8 ★) WW → WW</p> <p><input type="button" value="Order"/></p>
<p>VCC for PAYPAL VERIFICATION 100%</p>  <p>₪0.0351 smart666tiger (1365) (4.8 ★) WW → WW</p> <p><input type="button" value="Order"/></p>	<p>Ninja Stern,</p>  <p>₪0.0512 GermanApotheke (239) (4.6 ★) DE → DE, EU</p> <p><input type="button" value="Order"/></p>

"eBay" style shops

E-commerce websites where sellers and buyers can register an account to open their own shop or find wares to buy

dream market

<http://lchudifyeqm4ldjj.onion/>

Scraping a Deep Web site

Onion routing is a technique for **anonymous communication** over a computer network.

In an onion network, messages are **encapsulated** in layers of **encryption**.

deep web sites can be scraped as any other website, with some **additional difficulties**.

It is possible to pass through the **onion routing** by using **Tor's proxy server**.

many **.onion** sites require the user to fill in a **captcha code** to prove that they are human and prevent automated attacks.

Services that **solve captchas** for you do exist, but they don't work as expected.

Enter both words below, separated by a space.

LYNN flextime

Provided by reCAPTCHA™

Submit

Solution

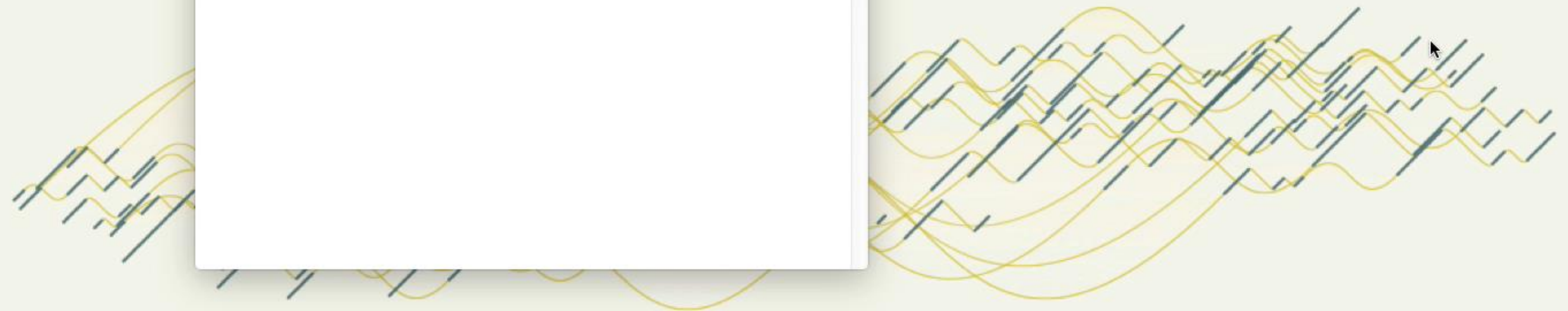
A **semi-automated deep web crawler** that waits for the user input on the captcha page and automatically takes every relevant information.



deepweb_scrapers

Demo

```
Tommasos-MacBook-Pro:Desktop tommasoelli$
```



Don't try this at home!

Results

3 months from **6 sites** (Black market guns, Oasis, Valhalla, Outlaw, Alphabay market, Dream market)

name, price, description +
caliber, provenience, destination -

Challenges

heterogeneity (analysis)

instability (consistency)

reliability (validation)

Value

experimental approach

unprecedented collection (and analysis)

knowledge (limits & legacy)

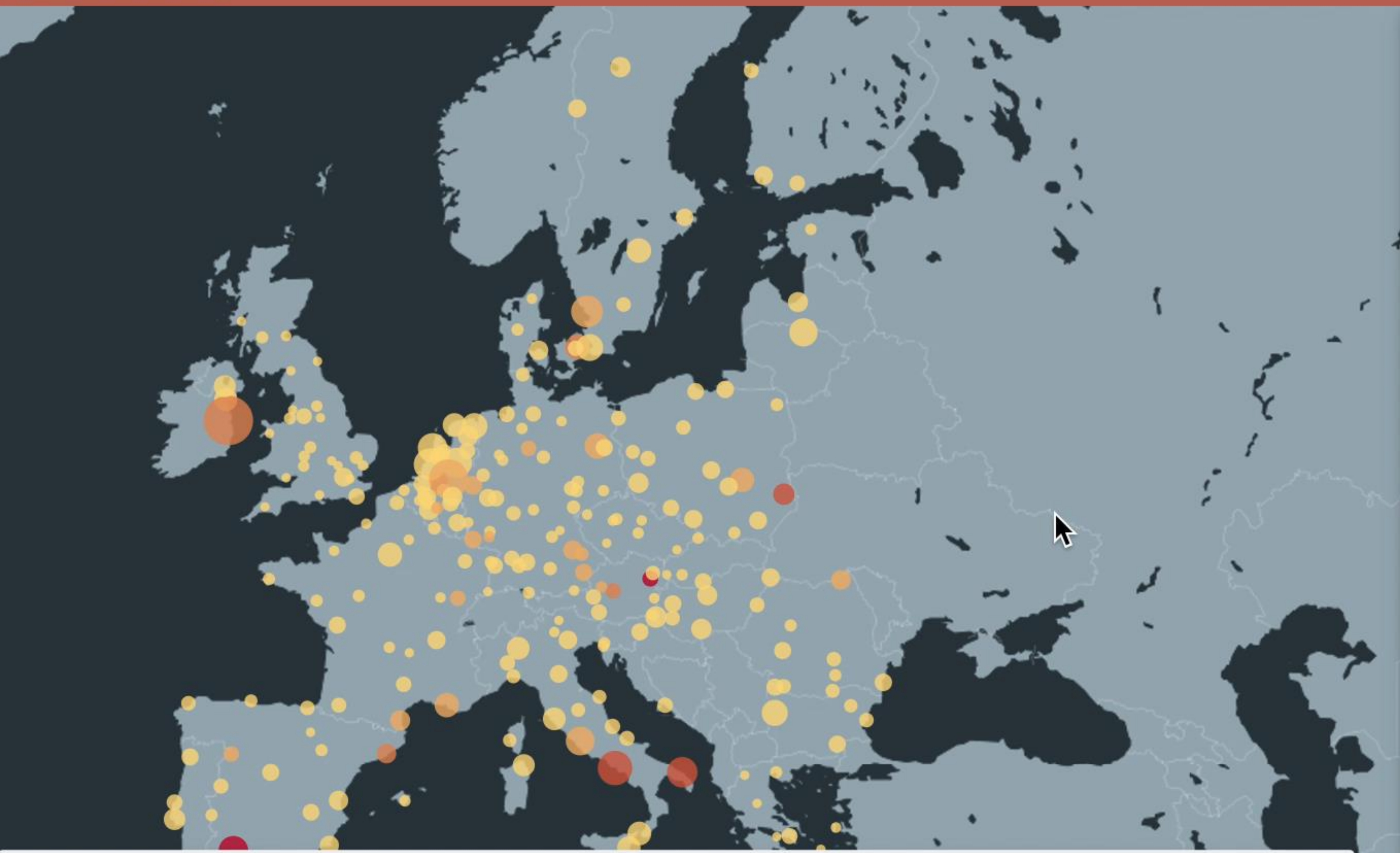
Interfaces for visual explorations

from **collection** to **visualization** (sense-making)



Available at:

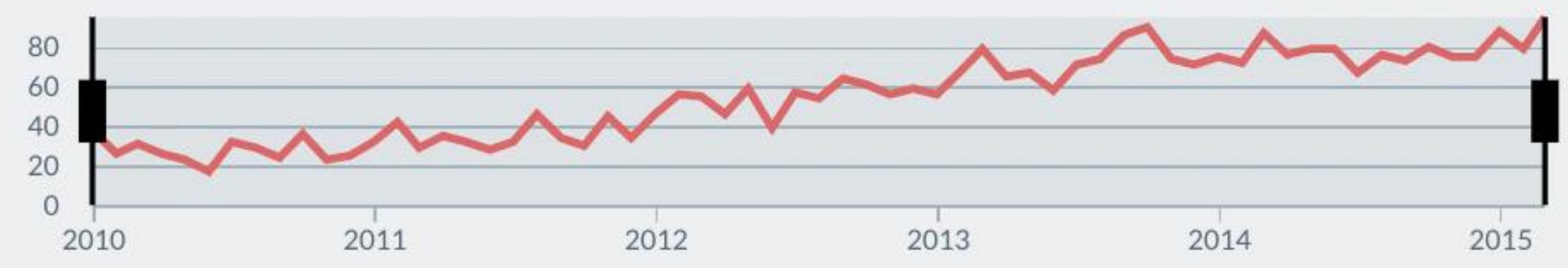
<http://fireproject.eu/explore>



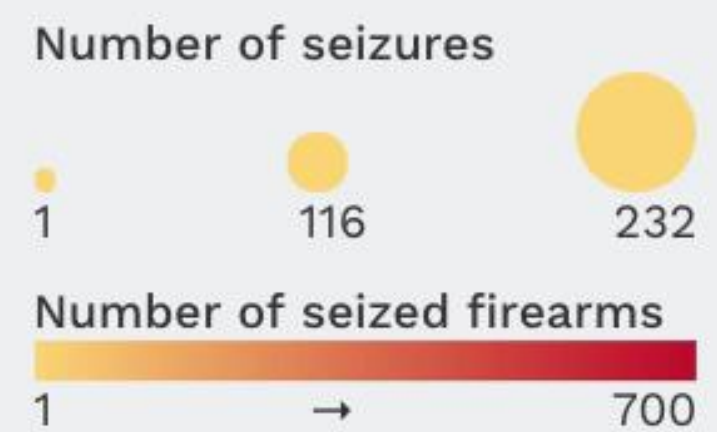
Seizures list

- AUSTRIA >
- BELGIUM >
- BULGARIA >
- CROATIA >
- CYPRUS >
- CZECH REPUBLIC >
- DENMARK >
- ESTONIA >
- FINLAND >
- FRANCE >
- GERMANY >
- GREECE >
- HUNGARY >
- IRELAND >
- ITALY >
- LATVIA >
- LITHUANIA >

Timeline ALL COUNTRIES



Legend



web-app compatible with **modern**
browsers.

Based on **open standard** and **libraries**.

Collected data had been **geo-located**

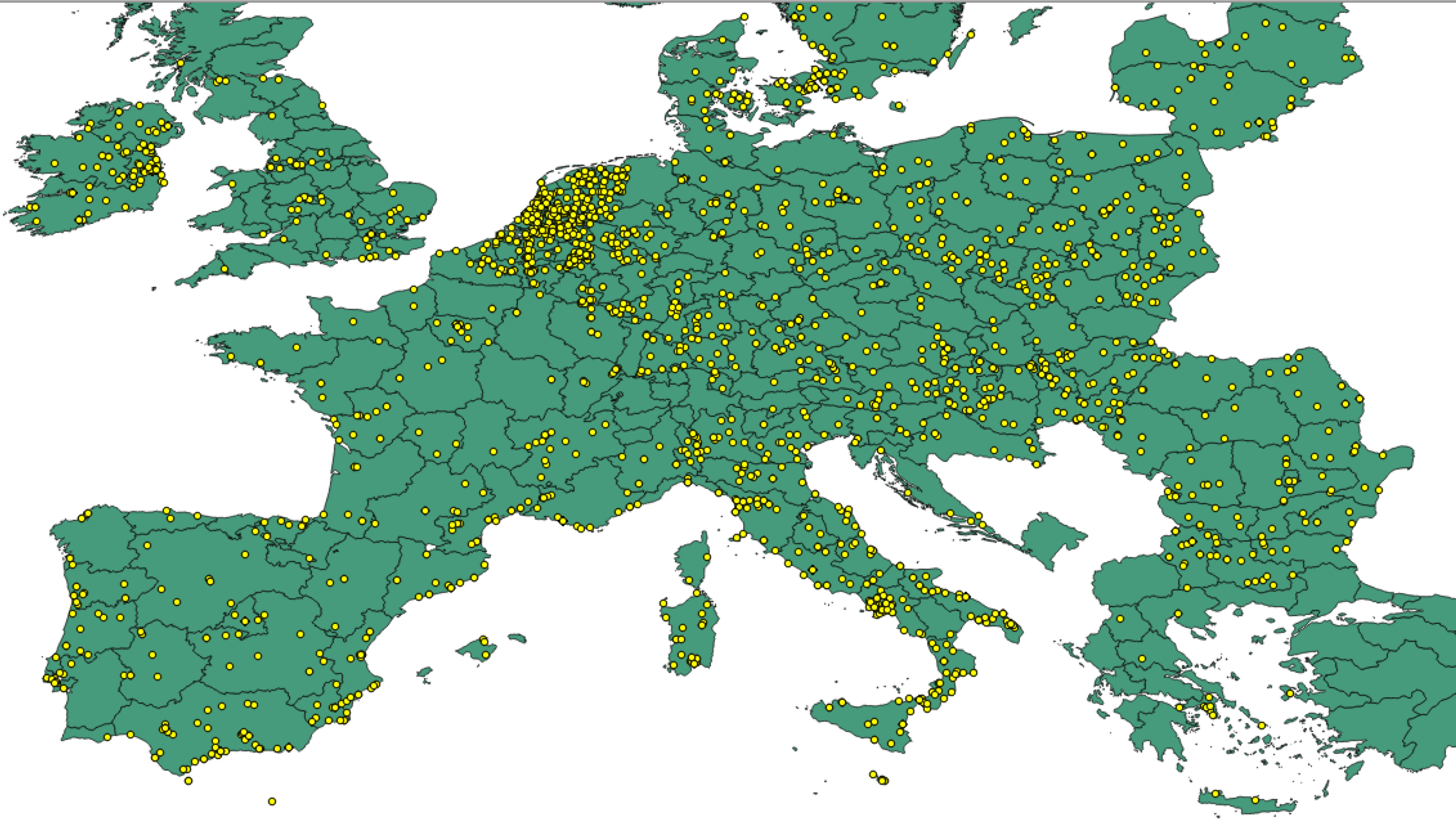


Browser Panel

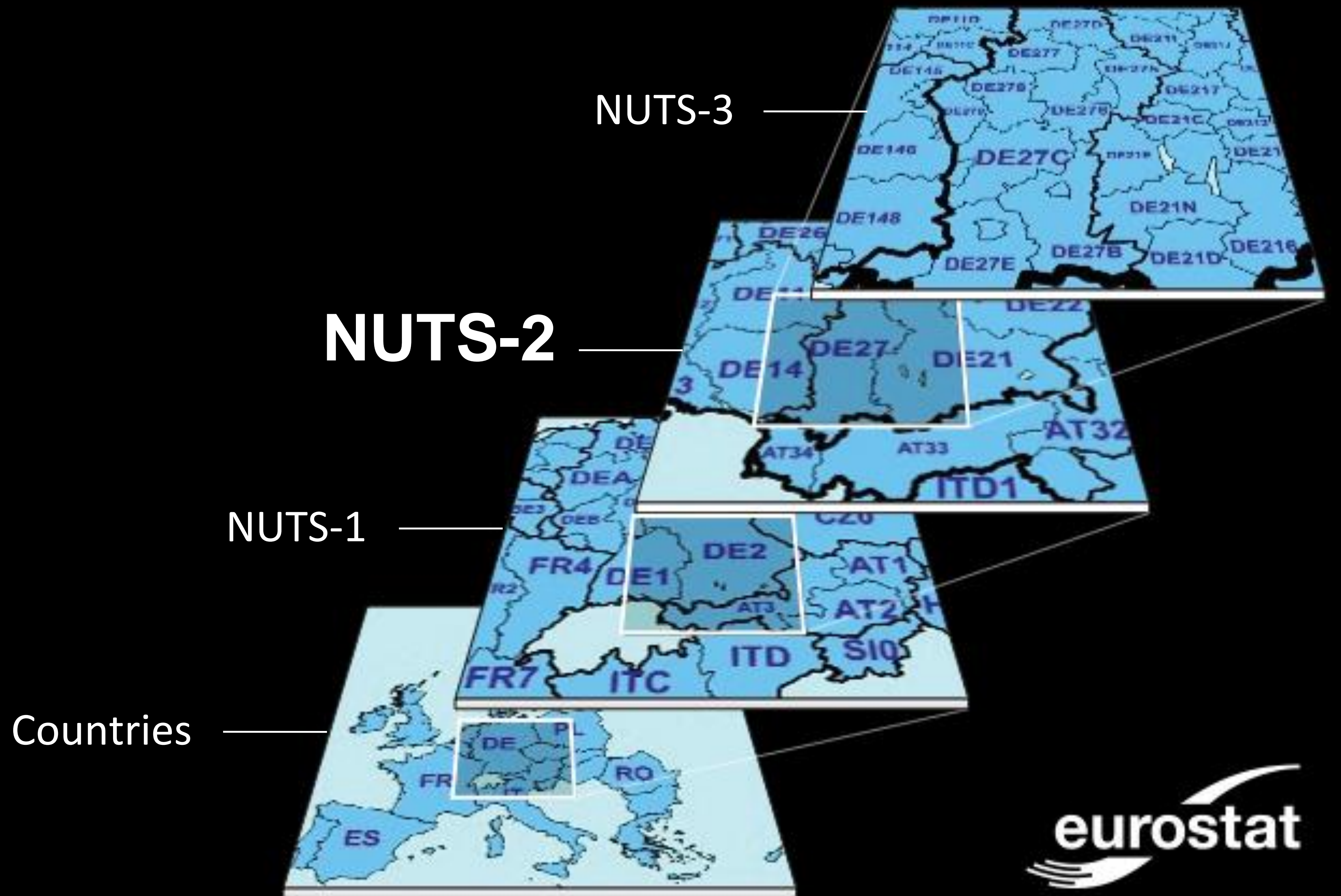
- Home
- Favourites
- /
- /Volumes
- MSSQL
- PostGIS
- Spatialite
- OWS
- WCS
- WFS
- WMS

Layers Panel

- seizures-exp
- seizures_last
- NUTS_RG_01M_20...



and **clustered** by **region**.



Data were then **checked** and **refined** to avoid **inconsistencies**.

Using facets and filters

Use facets and filters to select subsets of your data to act on. Choose facet and filter methods from the menus at the top of each data column.

Not sure how to get started? [Watch these screencasts](#)

Cluster & Edit column "Seizure_ci"

This feature helps you find groups of different cell values that might be alternative representations of the same thing. For example, the two strings "New York" and "new york" are very likely to refer to the same concept and just have capitalization differences, and "GÄ¶del" and "Godel" probably refer to the same person. [Find out more ...](#)

Method nearest neighbor Distance Function levenshtein Radius 1.0 Block Chars 6

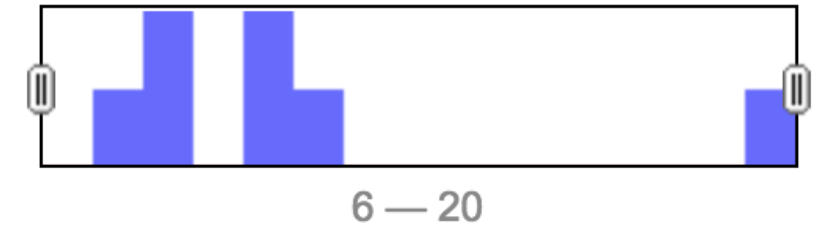
7 clusters found

Cluster Size	Row Count	Values in Cluster	Merge?	New Cell Value
2	8	<ul style="list-style-type: none"> Düsseldorf (7 rows) Düsseldorf (1 rows) 	<input type="checkbox"/>	Düsseldorf
2	2	<ul style="list-style-type: none"> Hendrik-Ido-Ambacht (1 rows) Hendrik-Ido-Ambacht (1 rows) 	<input type="checkbox"/>	Hendrik-Ido-Ambacht
2	4	<ul style="list-style-type: none"> Gdańsk (3 rows) Gdańsk (1 rows) 	<input type="checkbox"/>	Gdańsk
2	2	<ul style="list-style-type: none"> Heemskerk (1 rows) Heemskerk (1 rows) 	<input type="checkbox"/>	Heemskerk
2	2	<ul style="list-style-type: none"> Culemborg (1 rows) Culemborg (1 rows) 	<input type="checkbox"/>	Culemborg
2	7	<ul style="list-style-type: none"> Olsztyn (5 rows) Wolsztyn (2 rows) 	<input type="checkbox"/>	Olsztyn
2	2	<ul style="list-style-type: none"> Montoro (1 rows) Montorio (1 rows) 	<input type="checkbox"/>	Montoro

Rows in Cluster



Average Length of Choices



Select All Unselect All

Merge Selected & Re-Cluster Merge Selected & Close Close

Visualization of seizures

<http://fireproject.eu/explore/#/seizures>

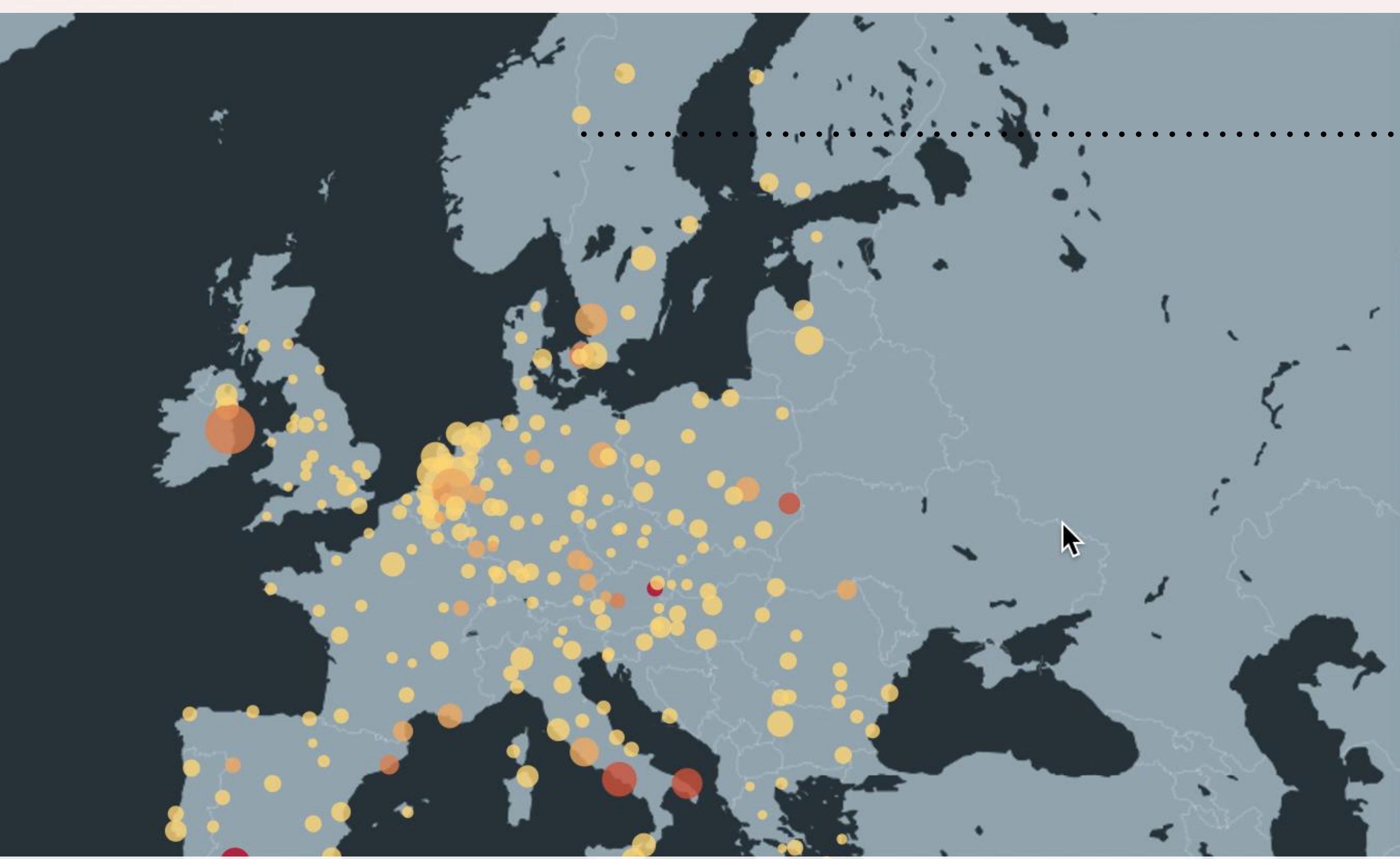


focus on **seizures** events

data is aggregated:

spatially

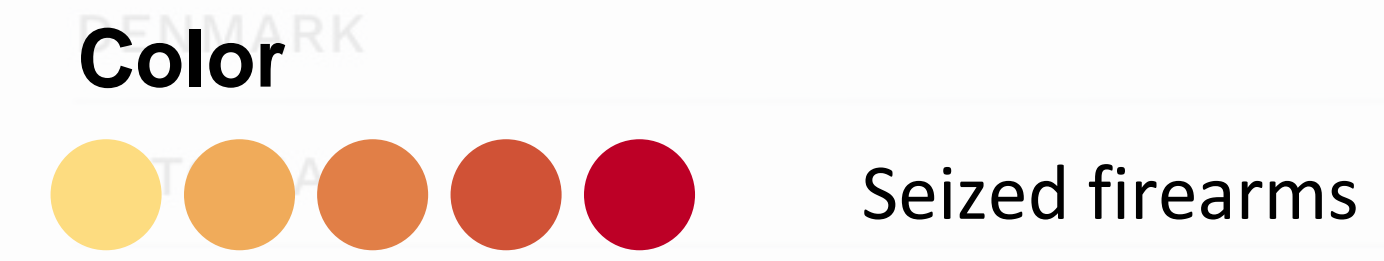
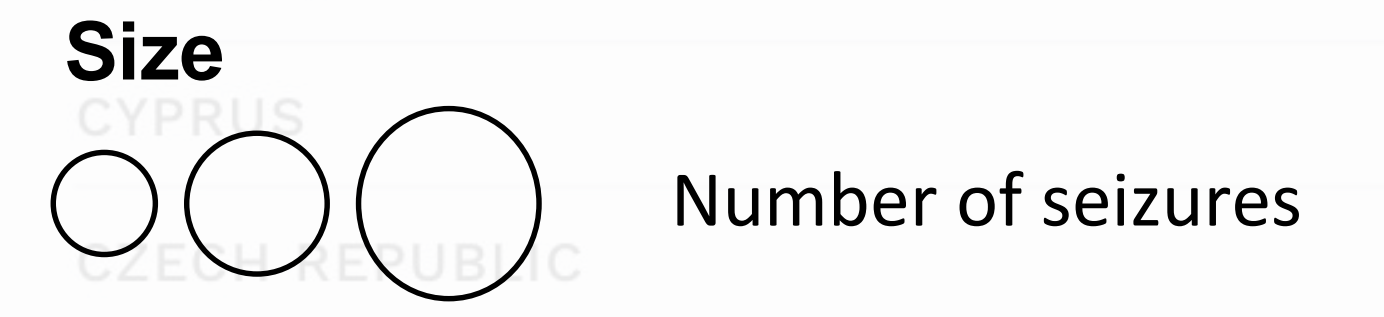
temporally



Seizures list

Map showing the locations of seizures

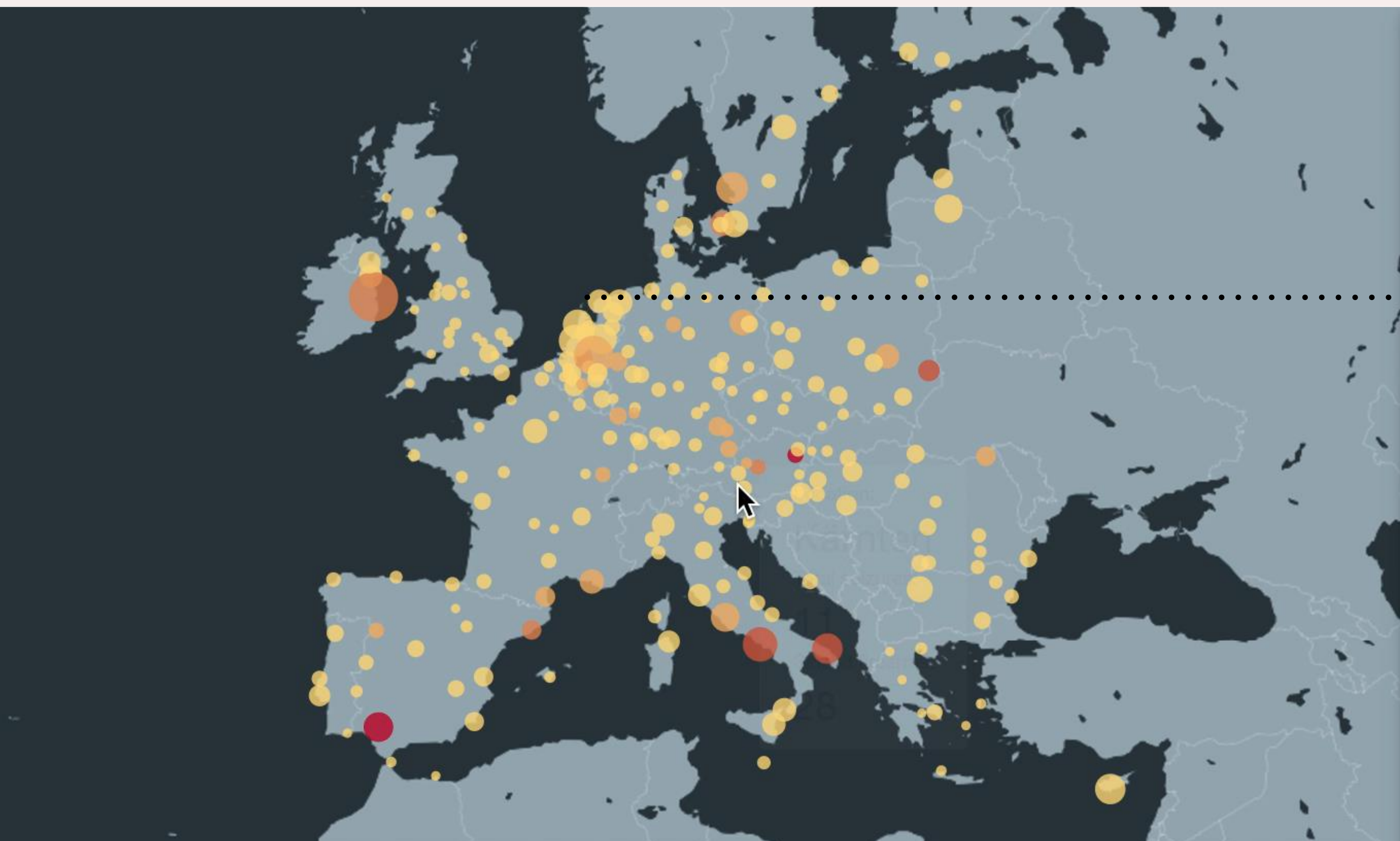
Close location are clustered together in one circle for better clarity



- AUSTRIA >
- BELGIUM >
- BULGARIA >
- CROATIA >
- CYPRUS >
- CZECH REPUBLIC >
- DENMARK >
- FINLAND >
- FRANCE >
- GERMANY >
- GREECE >
- HUNGARY >
- IRELAND >
- ITALY >
- LATVIA >
- LITHUANIA >

Timeline ALL COUNTRIES





Seizures list

- AUSTRIA >
- BELGIUM >
- FRANCE >**
- GERMANY >
- CZECH REPUBLIC >
- DENMARK >
- ESTONIA >
- FINLAND >
- FRANCE >
- GERMANY >
- GREECE >
- HUNGARY >
- IRELAND >
- ITALY >
- LATVIA >
- LITHUANIA >

Zooming in, it is possible to see cities in detail

Timeline ALL COUNTRIES ▾



Legend

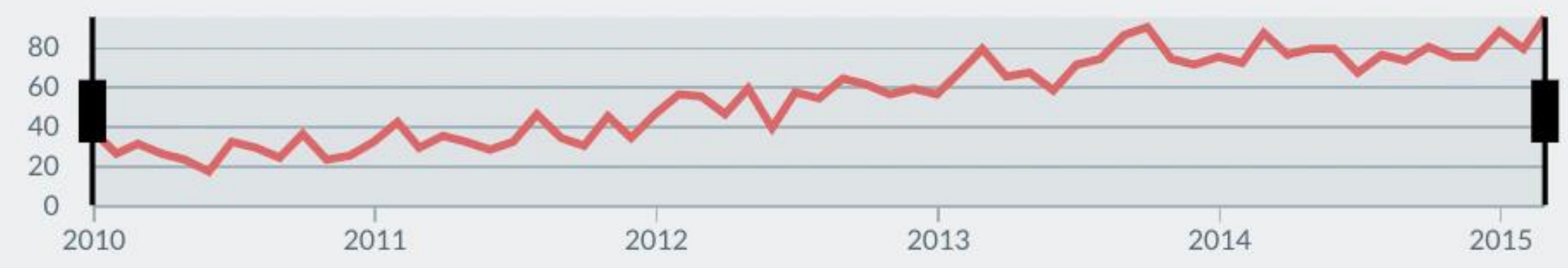




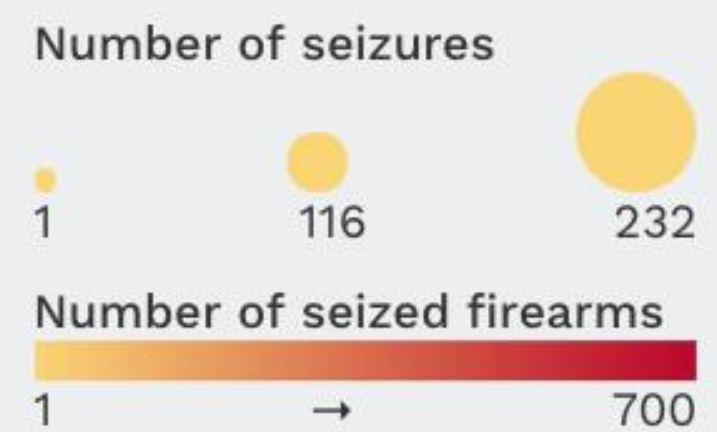
Seizures list

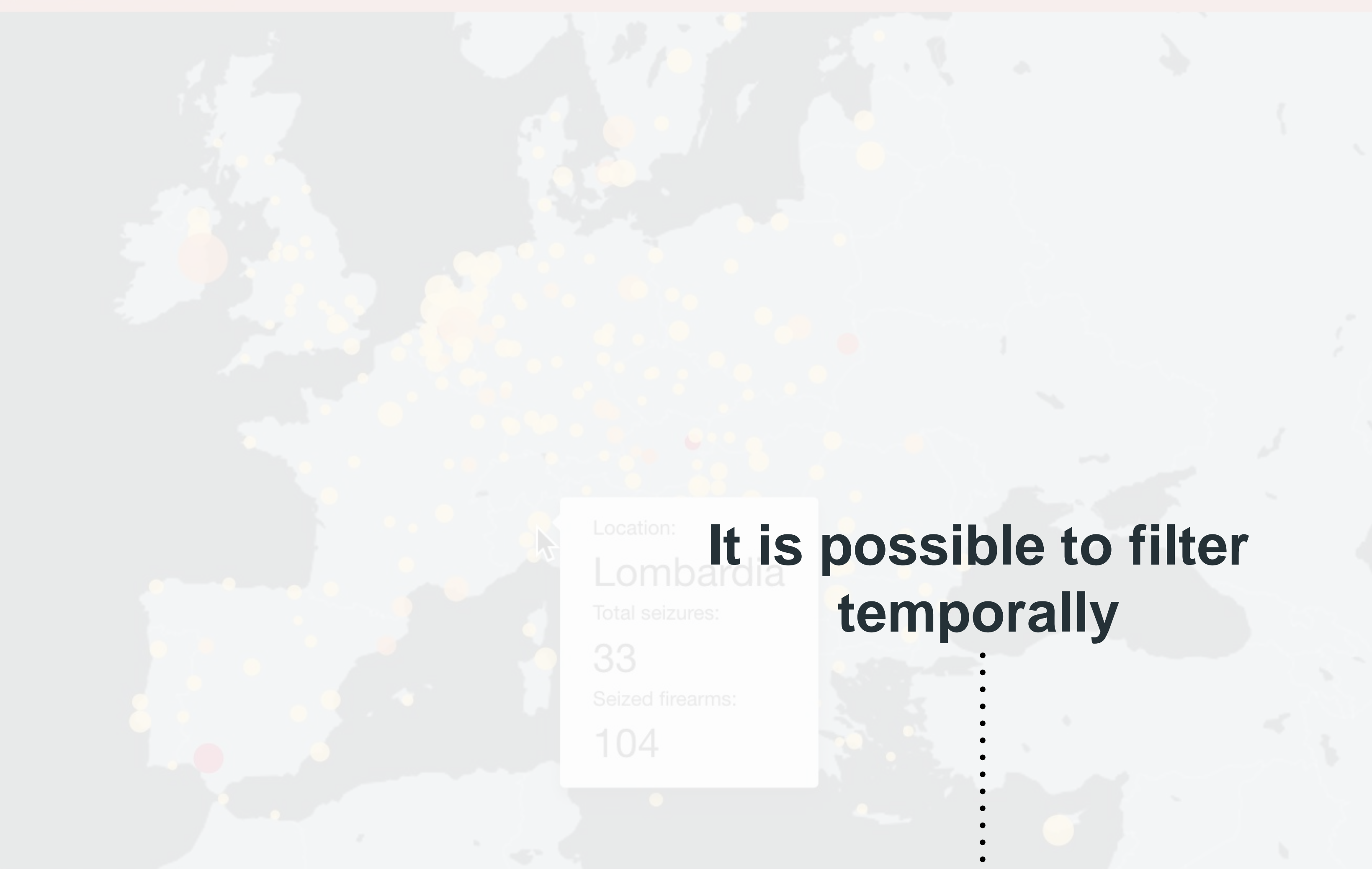
- AUSTRIA >
- BELGIUM >
- BULGARIA >
- CROATIA >
- CYPRUS >
- CZECH REPUBLIC >
- DENMARK >
- ESTONIA >
- FINLAND >
- FRANCE >
- GERMANY >
- GREECE >
- HUNGARY >
- IRELAND >
- ITALY >
- LATVIA >
- LITHUANIA >

Timeline ALL COUNTRIES ▾



Legend





Location:
Lombardia

Total seizures:
33

Seized firearms:
104

It is possible to filter temporally

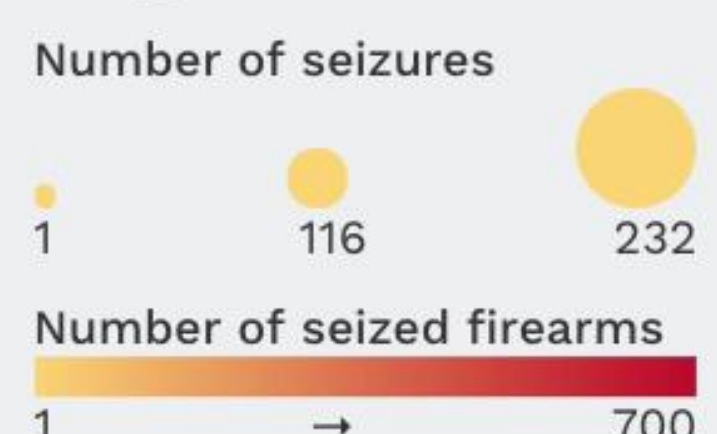
Seizures list

- AUSTRIA >
- BELGIUM >
- BULGARIA >
- CROATIA >
- CYPRUS >
- CZECH REPUBLIC >
- DENMARK >
- ESTONIA >
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- FRANCE >
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- GREECE >
- HUNGARY >
- IRELAND >
- ITALY >
- LATVIA >
- LITHUANIA >

Timeline ALL COUNTRIES ▾



Legend

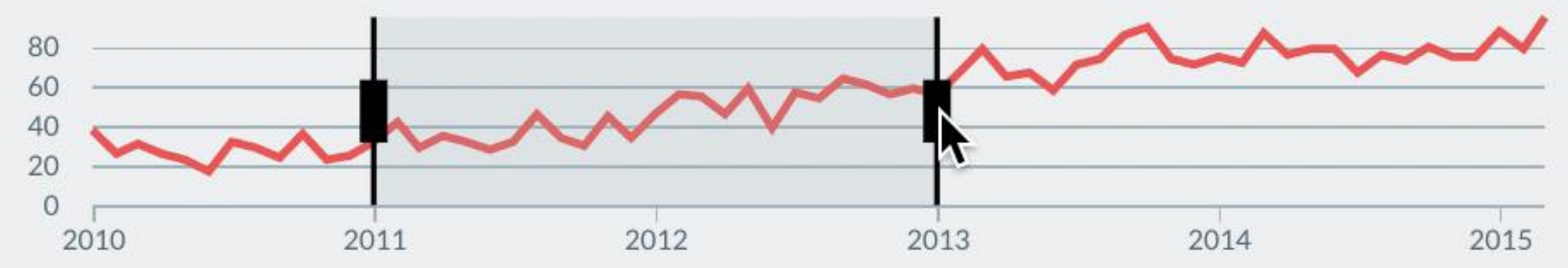




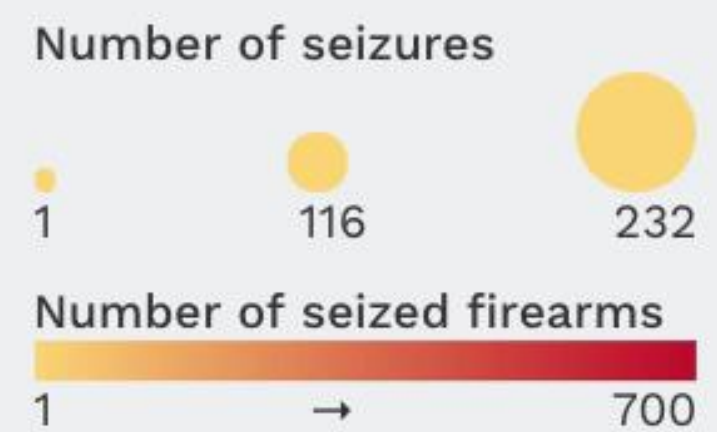
Seizures list

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- BELGIUM >
- BULGARIA >
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Timeline ALL COUNTRIES



Legend



The panel on the right provides a list of all the seizures

Seizures list

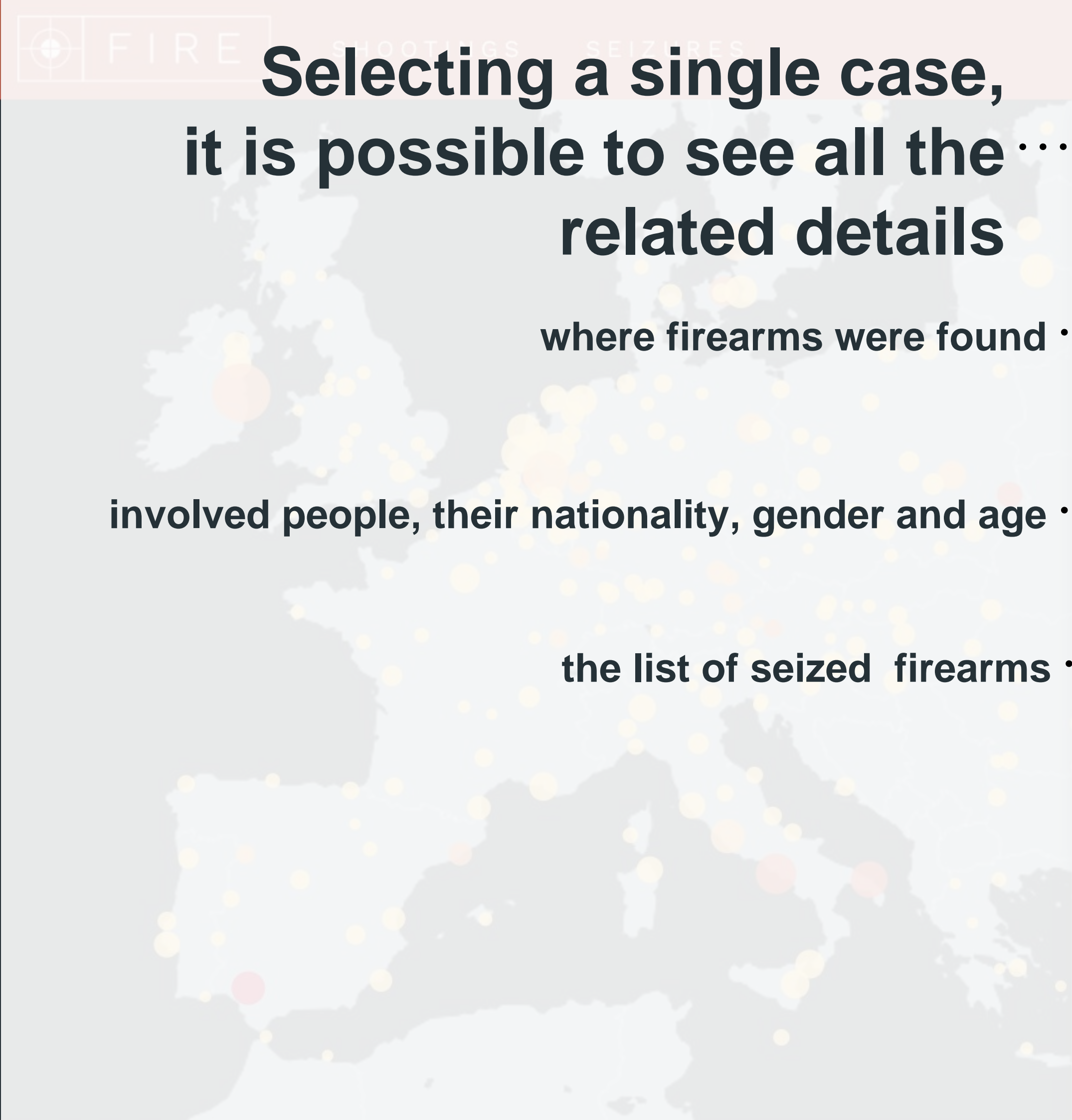
- AUSTRIA >
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- BULGARIA >
- CROATIA >
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Timeline ALL COUNTRIES



Legend





Selecting a single case, it is possible to see all the related details

where firearms were found

involved people, their nationality, gender and age

the list of seized firearms

close ✕

Krumpendorf am Wörthersee 10/05/2012

Storage House	Ammunition
House	Yes

Actors 1

Nationality	Gender	Age
German	♂	35

Firearms 7

type	number
Other	3
Pistol	4

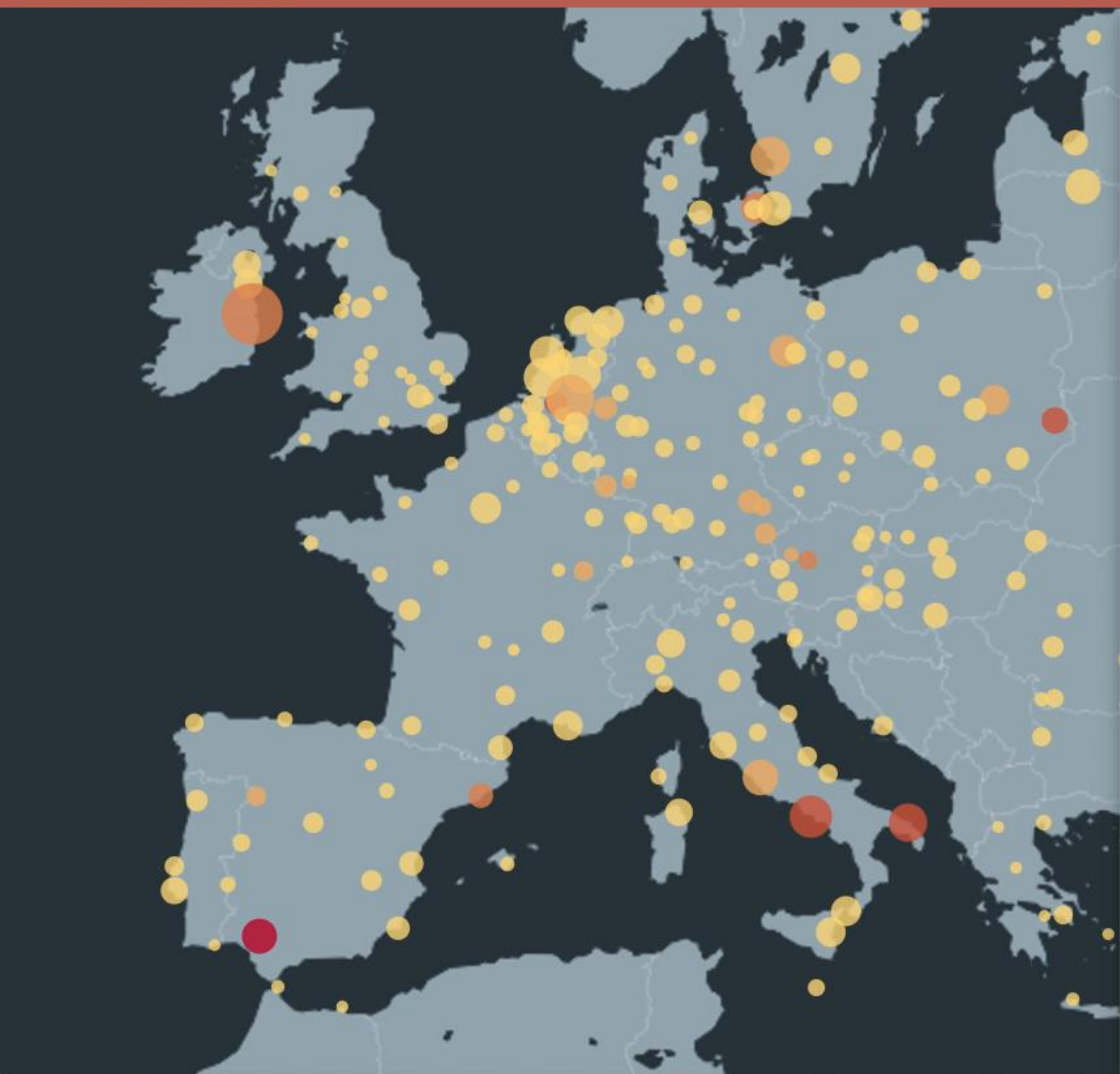
Seizures list

AUSTRIA ▾

City	Number of firearms
☞ Sankt Johann im Pongau	1
☞ Spittal an der Drau	1
☞ Bregenz	1
☞ Bad Ischl	1
☞ Götzis	N/A
☞ Villach	3
☞ Liezen	80
☞ Hartberg	N/A
☞ Vienna	N/A
☞ Judenburg	1
☞ Salzburg	1
☞ Vienna	1
☞ Baden	1
☞ Krumpendorf am Wörthersee	7
☞ Sankt Pölten	5
☞ Hallein	N/A
☞ Graz	N/A
☞ Sankt Veit an der Glan	1
☞ Sankt Veit an der Glan	1

Timeline ALL COUNTRIES ▾





close ✕

Krumpendorf am Wörthersee 10/05/2012

Storage House Ammunition Yes

Actors 1

Nationality German Gender Age 35

Firearms 7

type	number
Other	3
Pistol	4

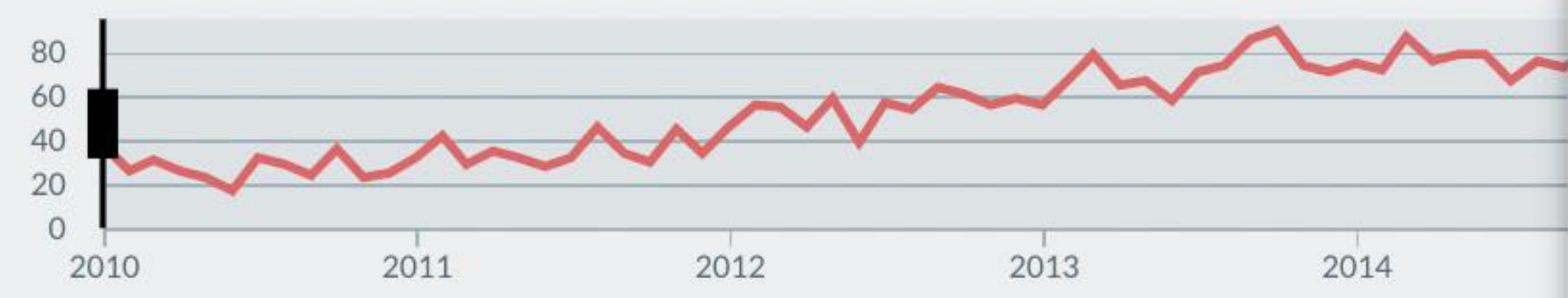
Seizures list

AUSTRIA

City Number of firearms

☞ Sankt Johann im Pongau	1
☞ Spittal an der Drau	1
☞ Bregenz	1
☞ Bad Ischl	1
☞ Götzis	N/A
☞ Villach	3
☞ Liezen	80
☞ Hartberg	N/A
☞ Vienna	N/A
☞ Judenburg	1
☞ Salzburg	1
☞ Vienna	1
☞ Baden	1
☞ Krumpendorf am Wörthersee	7
☞ Sankt Pölten	5
☞ Hallein	N/A
☞ Graz	N/A
☞ Sankt Veit an der Glan	1
☞ Sankt Veit an der Glan	1

Timeline ALL COUNTRIES ▼





The interface allows to combine multiple filters

Seizures list

AUSTRIA

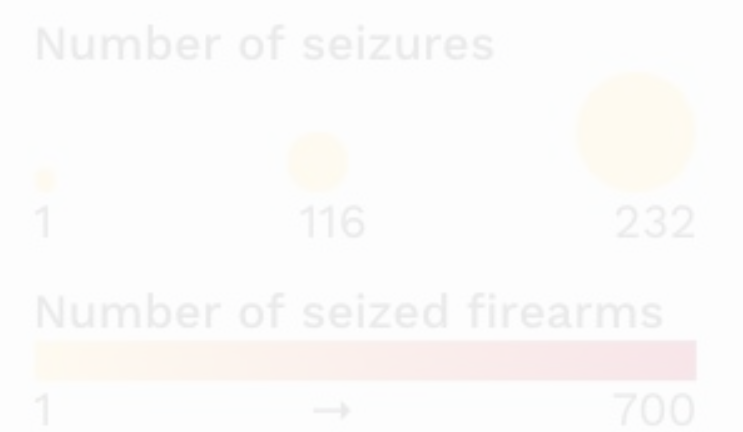
City Number of firearms

<input type="checkbox"/>	Sankt Johann im Pongau	1
<input type="checkbox"/>	Spittal an der Drau	1
<input type="checkbox"/>	Bregenz	1
<input type="checkbox"/>	Bad Ischl	1
<input type="checkbox"/>	Götzis	N/A
<input type="checkbox"/>	Villach	3
<input type="checkbox"/>	Liezen	80
<input type="checkbox"/>	Hartberg	N/A
<input type="checkbox"/>	Vienna	N/A
<input type="checkbox"/>	Judenburg	1
<input type="checkbox"/>	Salzburg	1
<input type="checkbox"/>	Vienna	1
<input type="checkbox"/>	Baden	1
<input type="checkbox"/>	Krumpendorf am Wörthersee	7
<input type="checkbox"/>	Sankt Pölten	5
<input type="checkbox"/>	Hallein	N/A
<input type="checkbox"/>	Graz	N/A
<input type="checkbox"/>	Sankt Veit an der Glan	1
<input type="checkbox"/>	Sankt Veit an der Glan	

Timeline ALL COUNTRIES



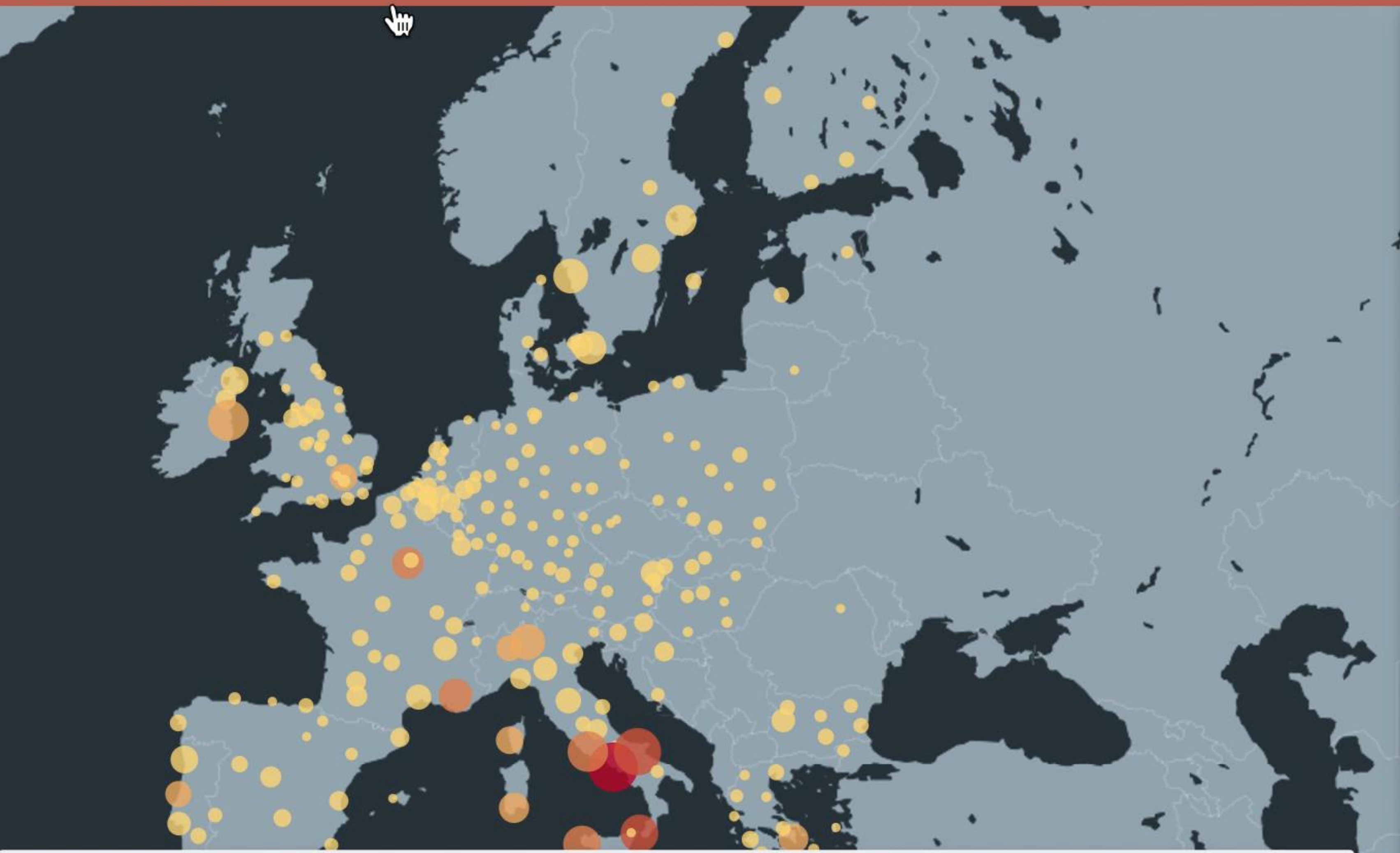
Legend



Visualization of shootings

<http://fireproject.eu/explore/#/shootings>

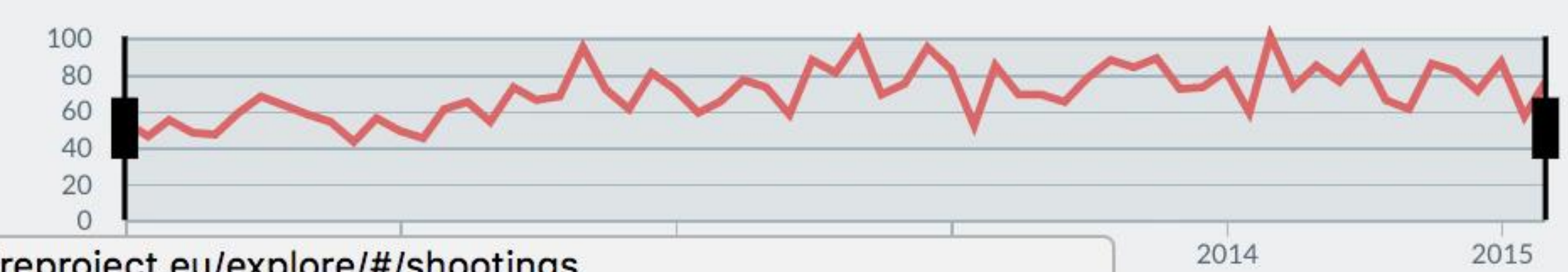




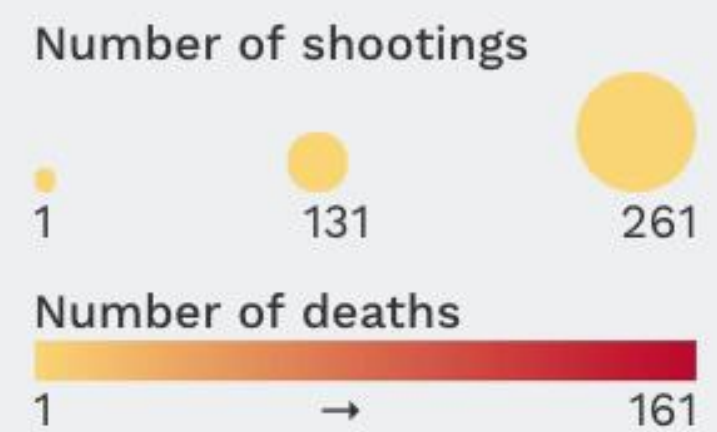
Shootings list

- AUSTRIA >
- BELGIUM >
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- CROATIA >
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- CZECH REPUBLIC >
- DENMARK >
- ESTONIA >
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- LITHUANIA >

Timeline ALL COUNTRIES ▾



Legend



focus on **shooting** events

where

when

why

who shoot

who were the victims

data is aggregated:

spatially

temporally

Challenges

portability (devices + environments)

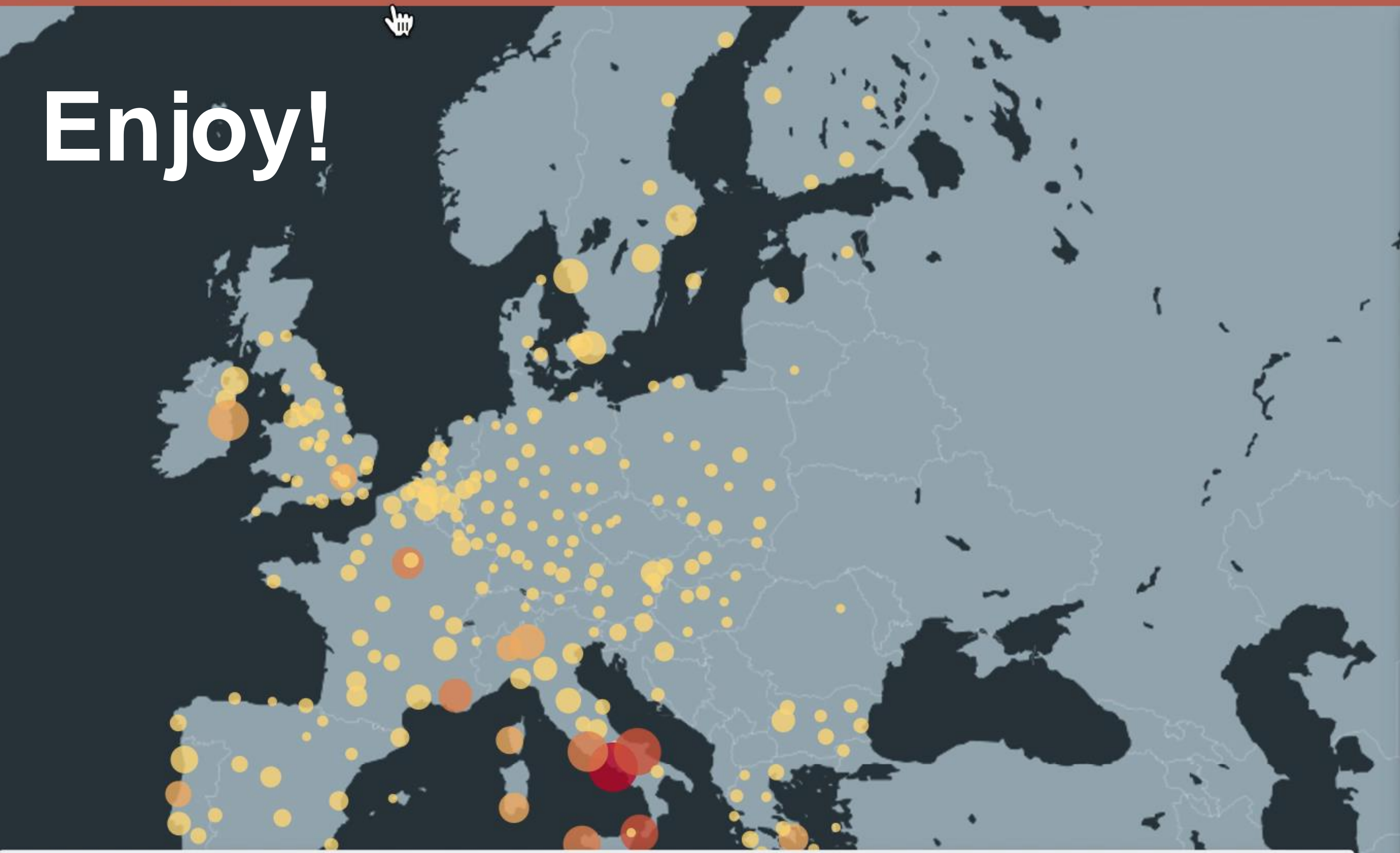
Value

Self-service visual analytics (productivity)

deep exploration (knowledge)

dissemination (public engagement)

Enjoy!



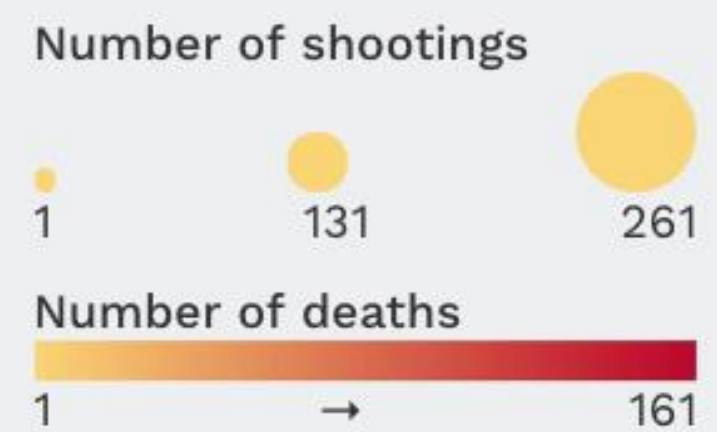
Shootings list

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Timeline ALL COUNTRIES ▾



Legend



Thank you.

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paolo.ciuccarelli@polimi.it - www.densitydesign.org

