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Knowledge visualization in environmental communication capturing politicized debates with discourse mapping

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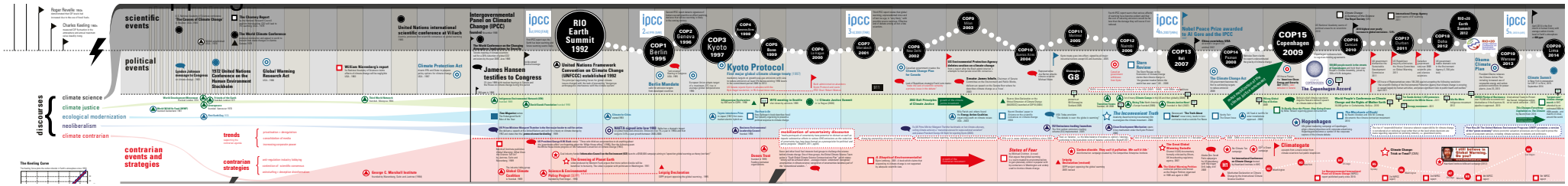
Mapping Environmental Controversies

Relating Systems Thinking and Design (RSD5)

OCAD University - Toronto, Canada

#RSD5 #SystemicDesign



Dr. Joanna Boehnert

Research Fellow in Graphic Communication Design

Centre for Research and Education in Arts and Media (CREAM)

University of Westminster

www.eco-labs.org

https://ecolabsblog.wordpress.com

@ecolabs & @ecocene

1. RSD & The Environment

2. Methodology: Knowledge mapping

3. Mapping Climate Communication (2014)

4. Mapping Degrowth (2016)

5. Reflections

1

RSD &
The Environment

Environmental problems are clearly complex problems that are also ‘wicked dilemmas’.

Environmental Problems

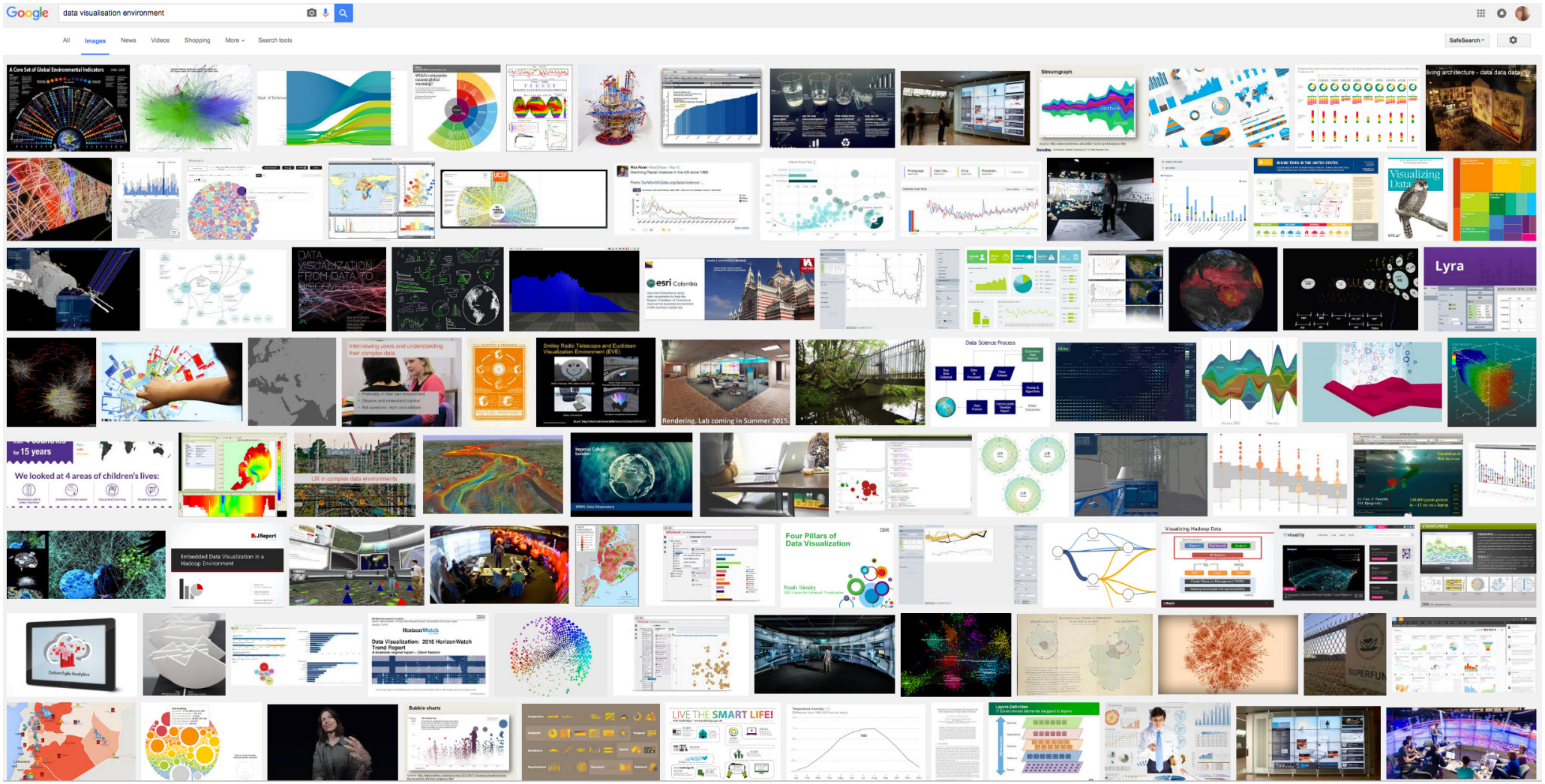
The controversies that emerge in attempting to address environmental problems (on local and global levels) often have to do with how we **understand the problems themselves** (i.e. through diverse perspectives and ideologies).

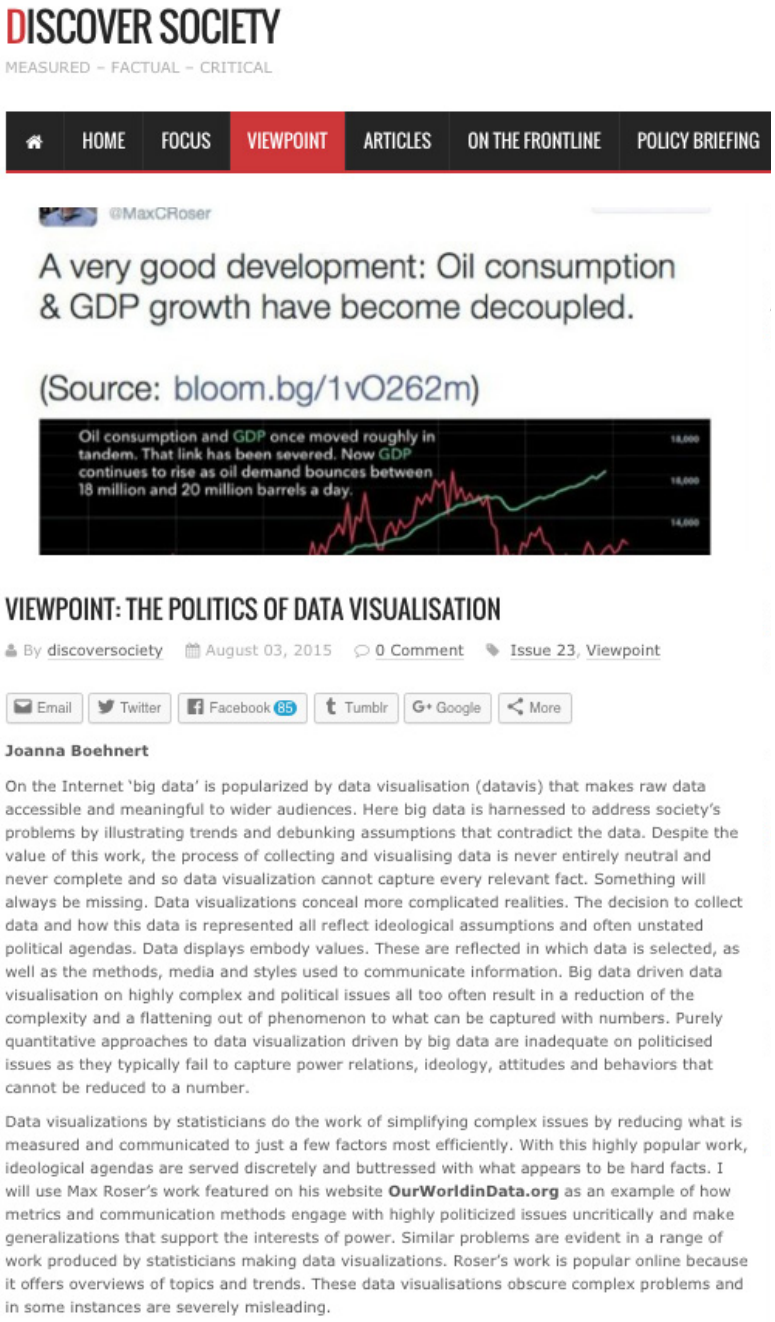
Goals (meta-)

The problem solving with this work is on various levels – but the most significant work is on the levels of discourses, ideologies and paradigms (which determine how we approach environmental problems and design solutions).

2

Methodology: Knowledge Visualisation or Transformative SOD


Google
data visualisation environment
All
Images
News
Videos
Shopping
More
Search tools
SafeSearch
A Core Set of Global Environmental Indicators
Streamgraph
living architecture - data data data
Visualizing Data
DATA VISUALIZATION FROM DATA TO DISCOVERY
esri Colombia
Lyra
Interviewing users and understanding their complex data
Smiley Radio Telescope and Euclidean Visualization Environment (EVE)
Rendering. Lab coming in Summer 2015.
Data Science Process
We looked at 4 areas of children's lives:
UX in complex data environments
Embedded Data Visualization in a Hadoop Environment
Four Pillars of Data Visualization
Noah Iliinsky
Visualizing Hadoop Data
Data Visualization: 2015 HorizonWatch Trend Report
Bubble charts
LIVE THE SMART LIFE!



DISCOVER SOCIETY
MEASURED – FACTUAL – CRITICAL

HOME | FOCUS | VIEWPOINT | ARTICLES | ON THE FRONTLINE | POLICY BRIEFING

@MaxCRoser

A very good development: Oil consumption & GDP growth have become decoupled.

(Source: bloom.bg/1vO262m)

VIEWPOINT: THE POLITICS OF DATA VISUALISATION

By discoversociety August 03, 2015 0 Comment Issue 23, Viewpoint

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Joanna Boehnert

On the Internet 'big data' is popularized by data visualisation (datavis) that makes raw data accessible and meaningful to wider audiences. Here big data is harnessed to address society's problems by illustrating trends and debunking assumptions that contradict the data. Despite the value of this work, the process of collecting and visualising data is never entirely neutral and never complete and so data visualization cannot capture every relevant fact. Something will always be missing. Data visualizations conceal more complicated realities. The decision to collect data and how this data is represented all reflect ideological assumptions and often unstated political agendas. Data displays embody values. These are reflected in which data is selected, as well as the methods, media and styles used to communicate information. Big data driven data visualisation on highly complex and political issues all too often result in a reduction of the complexity and a flattening out of phenomenon to what can be captured with numbers. Purely quantitative approaches to data visualization driven by big data are inadequate on politicised issues as they typically fail to capture power relations, ideology, attitudes and behaviors that cannot be reduced to a number.

Data visualizations by statisticians do the work of simplifying complex issues by reducing what is measured and communicated to just a few factors most efficiently. With this highly popular work, ideological agendas are served discretely and buttressed with what appears to be hard facts. I will use Max Roser's work featured on his website **OurWorldinData.org** as an example of how metrics and communication methods engage with highly politicized issues uncritically and make generalizations that support the interests of power. Similar problems are evident in a range of work produced by statisticians making data visualizations. Roser's work is popular online because it offers overviews of topics and trends. These data visualisations obscure complex problems and in some instances are severely misleading.

DRS2016
Design + Research + Society
Future-Focused Thinking

50 2016 Design Research Society
50th Anniversary Conference
27-30 June 2016, Brighton, UK

Data Visualisation Does Political Things

Dr. Joanna Boehnert [a]

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In this paper I advance the theory of critical communication design by exploring the politics of data, information and knowledge visualisation in three bodies of work. Data reflects power relations, special interests and ideologies that determine which data is collected, what data is used and how it is used. In a review of Max Roser's *Our World in Data*, I develop the concepts of digital positivism, datawash and darkdata. Looking at the *Climaps by Emaps* project, I describe how knowledge visualisation can support integrated learning on complex problems and nurture relational perception. Finally, I present my own *Mapping Climate Communication* project and explain how I used discourse mapping to develop the concept of discursive confusion and illustrate contradictions in this politicised area. Critical approaches to information visualisation reject reductive methods in favour of more nuanced ways of presenting information that acknowledge complexity and the political dimension on issues of controversy.

Keywords: data visualisation; controversy mapping; datawash; discourse mapping

1. Introduction

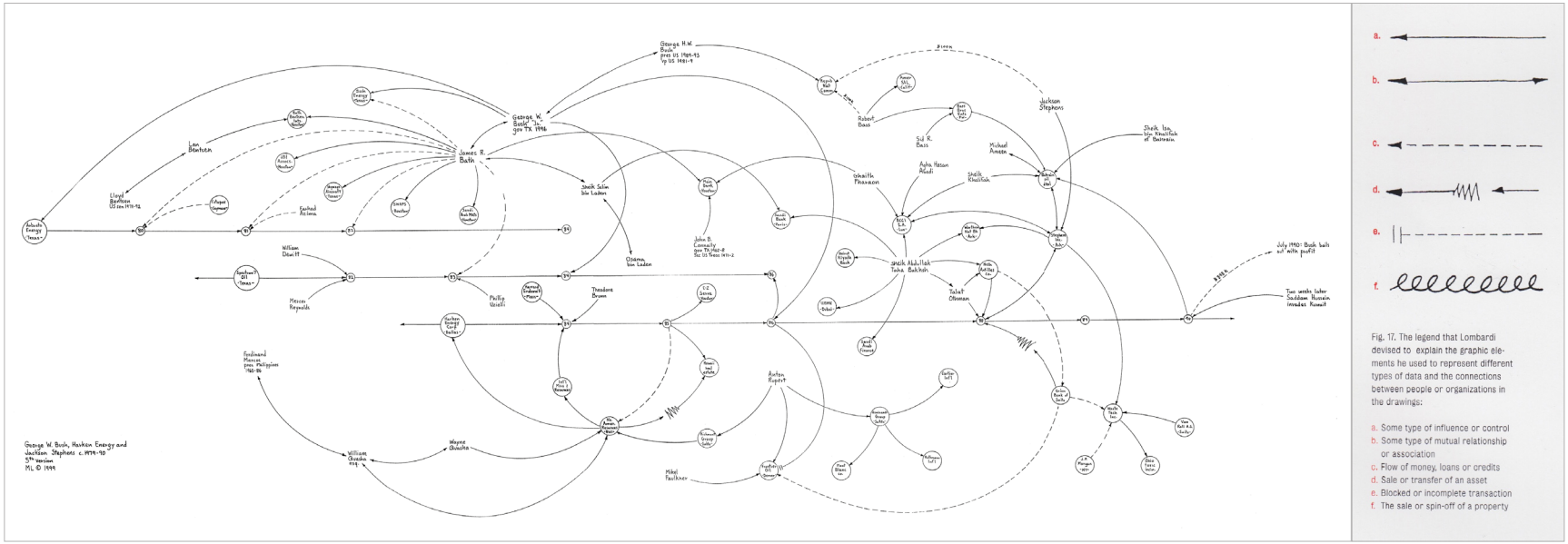
Data visualisation makes big data and other information accessible and meaningful in ways that reflect both the explicit intentions and the implicit assumptions of designers. Despite efforts some designers make to be neutral and objective interpreters, all information design is embedded with suppositions. When data visualisation illustrates trends and presents truth claims it privileges certain perspectives. We all rely on accurate information that effectively captures the complexity of contemporary conditions but neither data itself nor data visualisations are politically neutral. Data reflects power relations, special interests and ideologies in terms of which data is collected, what data is used and how it is used. In this paper I will advance critically informed approaches to data visualisation. Due to the inherent reductionism in data visualisation it can easily be used in ways that obscure complex phenomenon. For this reason, in many instances knowledge visualisation is a more effective and honest approach. This is especially true on issues of controversy.

Datawash: Where data visualisation techniques obscure knowledge on issues of controversy (Boehnert 2015, 2016).

Dark data is the missing data.
Where certain data is not collected this is often due to the epistemic and ideological assumptions of powerful constituencies – or simply where the communication of certain data is against their interests (Corby 2015, Boehnert 2016).

Digital positivism
Where complexity is reduced to numbers and certain types of knowledge are prioritised as the expense of others (Mosco 2014, Boehnert 2016, 2017).

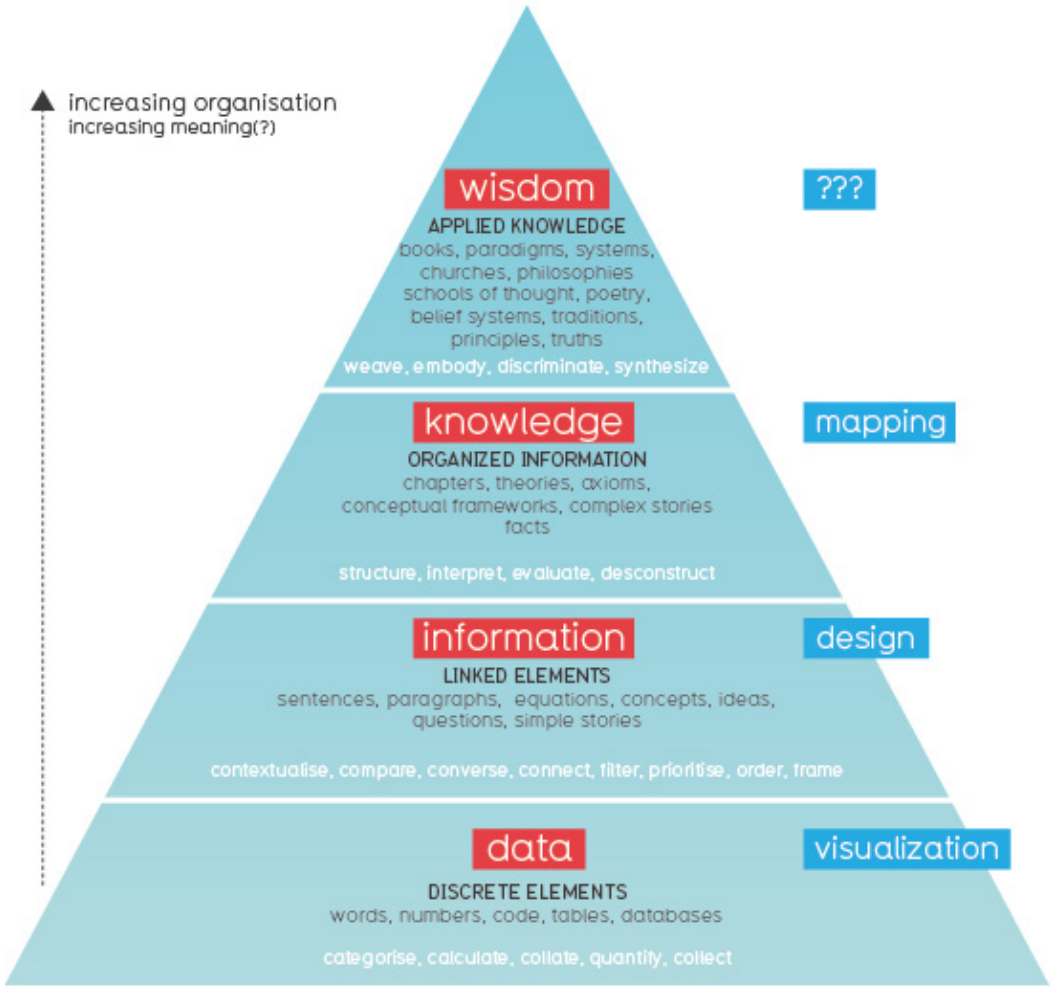
Data visualisation / mapping / knowledge visualisation / transformative SOD ....



Mark Lombardi. *George Bush, Harken Energy and Jackson Stephens.* 5th ed. 1979–90 (including legend detail).

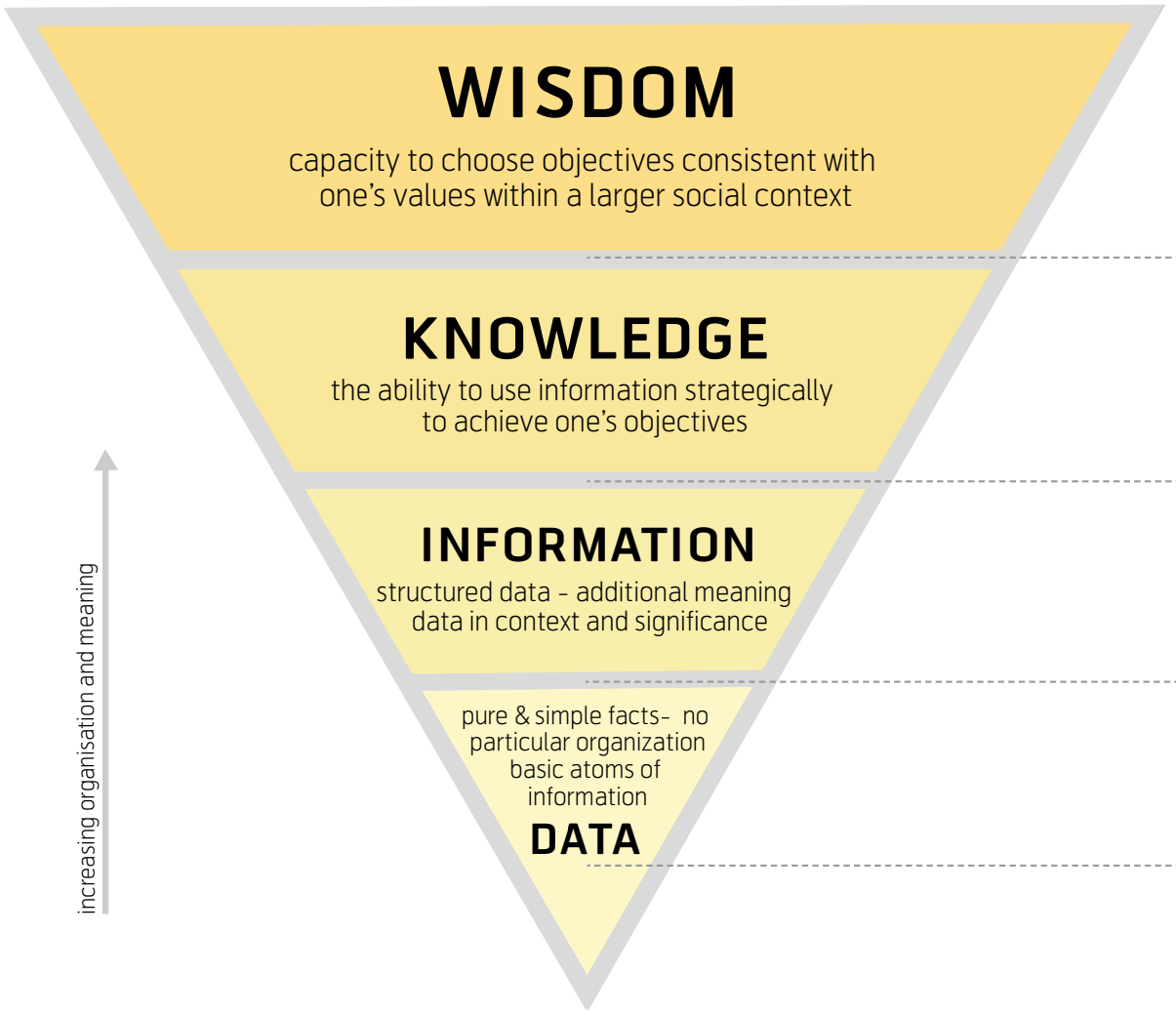
Hierarchy Of Visual Understanding?

Just playing. Something in this?



David McCandless // v 0.1 // work in progress

InformationIsBeautiful.net



transformative SOD?

knowledge visualisation

various types of mapping

data visualisation

EcoLabs 2016

References: David McCandless, *Hierarchy of Visual Understanding* + Robert Logan, *What is Information?* 2010

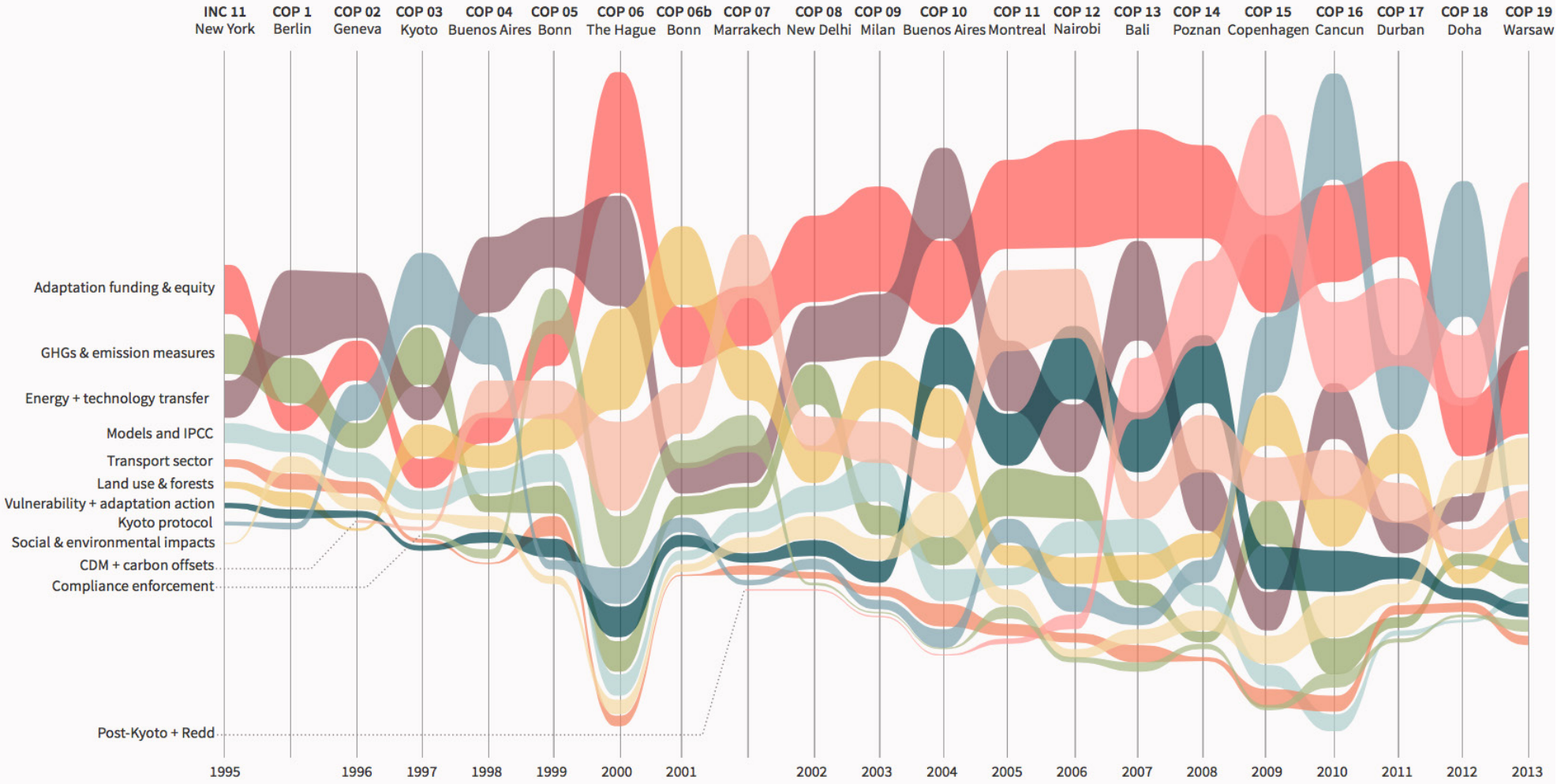
Method 1: Knowledge Visualisation, Controversy Mapping

Climaps by EMAPS:

The largest yet experiment with the method of controversy mapping.

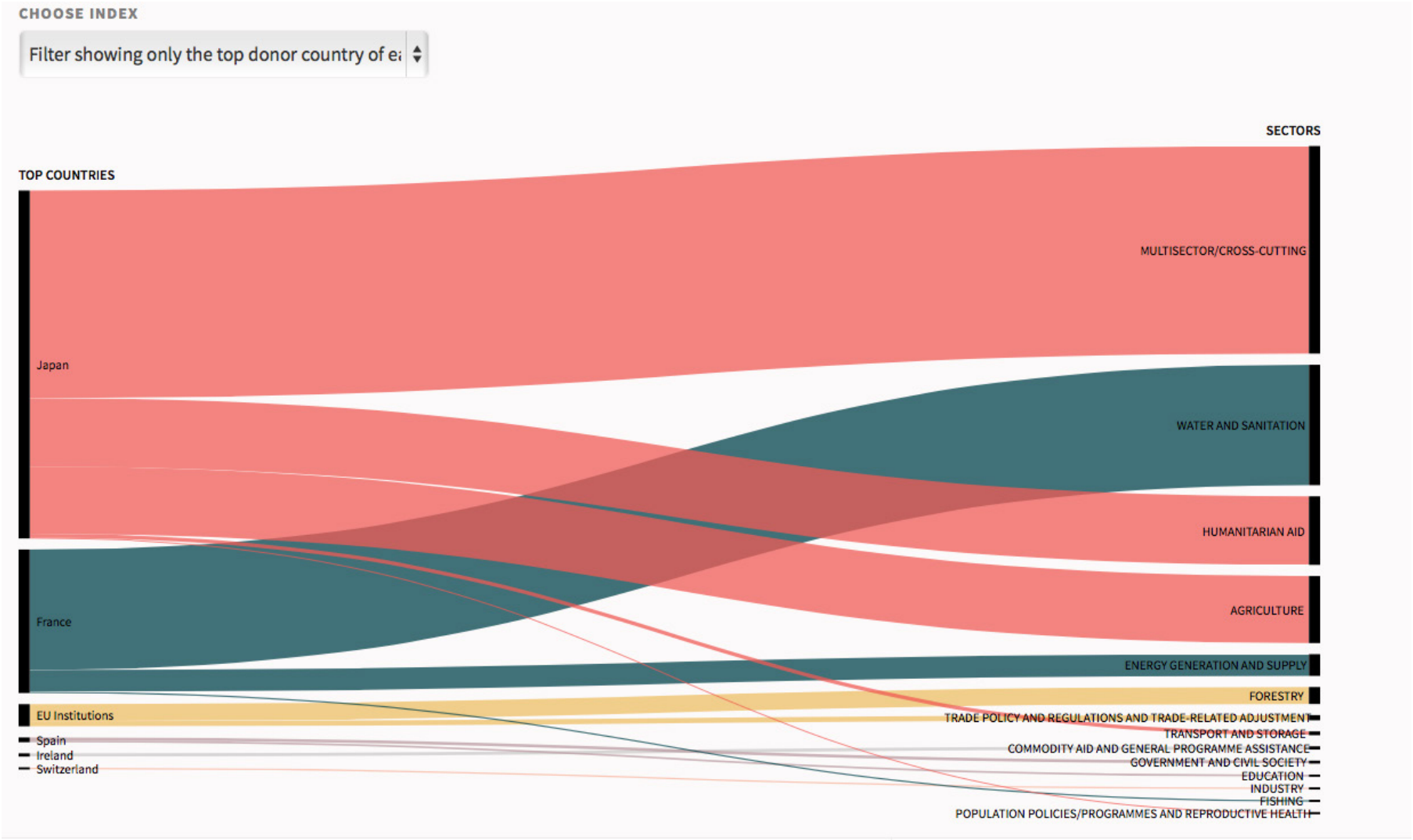
> *"Controversy mapping is a research technique developed in the field of Sciences and Technology Studies (STS) to deal with the growing intricacy of sociotechnological debates. Instead of mourning such complexity, it aims to equip engaged citizens to navigate through expert disagreement. Instead of lamenting the fragmentation of society, it aims to facilitate the emergence of more heterogeneous discussion forums"* (Venturini et al. 2014, 1).

Rise and Fall of Issues in the UNFCCC Discussions



Climaps by Emaps – *http://climaps.org*

Top Donor Countries of each Area



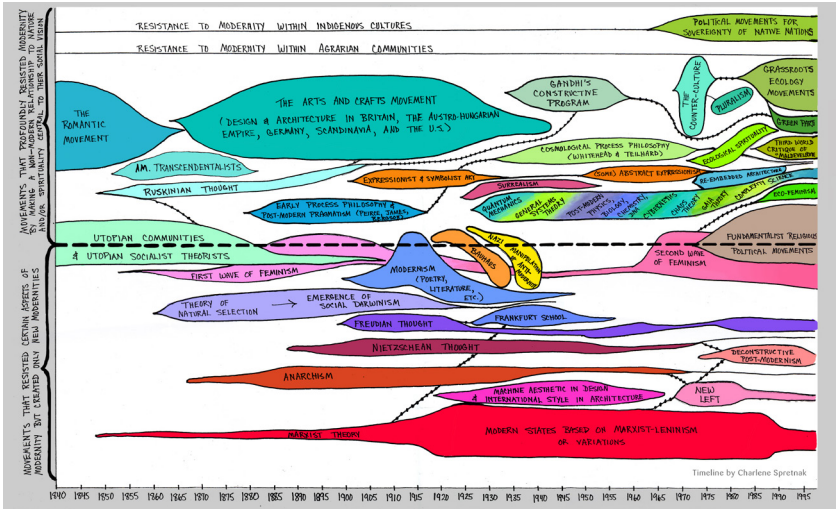
17 Issues on the International Climate Change Agenda according to the Web

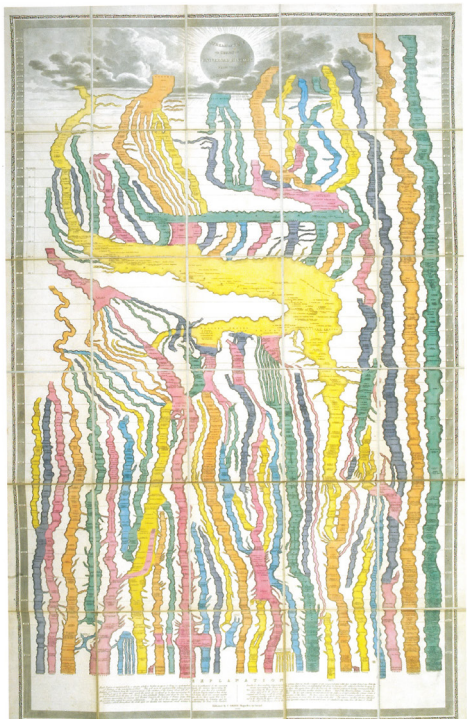
Climaps by Emaps – *http://climaps.org*

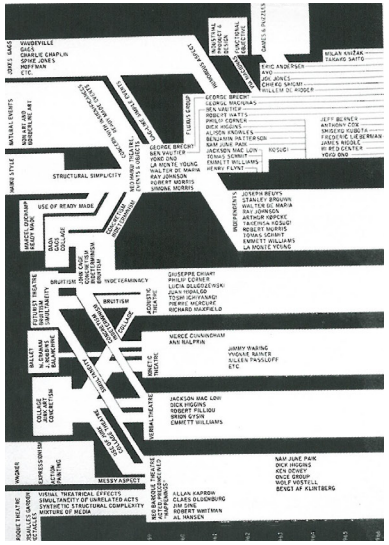
Method 2: Discourse Mapping

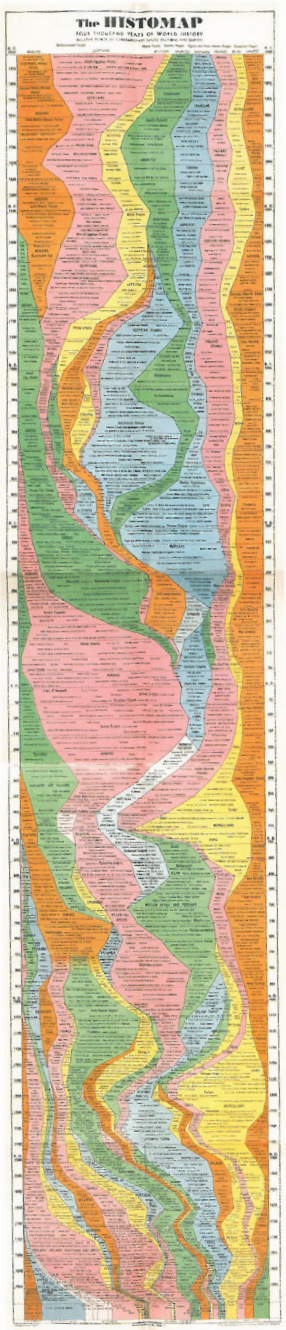
Discourses are shared ways of understanding the world. Discourses provide the basic terms for analysis and define what is understood as common sense and legitimate knowledge (Dryzek, 2013, 9).

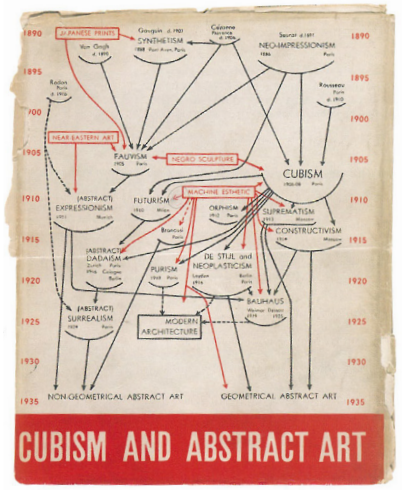
Diverse values, vested interests, critical perspectives and insights are embedded within discourses and these both reflect and construct attitudes towards the natural world.











Inspiration

Charlene Spretnak (1999). *History of EcoSocial Movements 1840–1995*. Map of environmental movements in relation to 'modernity'.

Alfred H. Barr (1939) *Cubism and Abstract Art.*

William Bell (1849) *Strom der Zeiten.* tr: 'Stream of Time'.

George Maciunas (ca. 1966) *Fluxus. Its Historical Development and Relationship to Avant Guard Movements.*

John Sparks. *The Histomap* (1931) 5', Published by Rand McNally.

Discourse Mapping

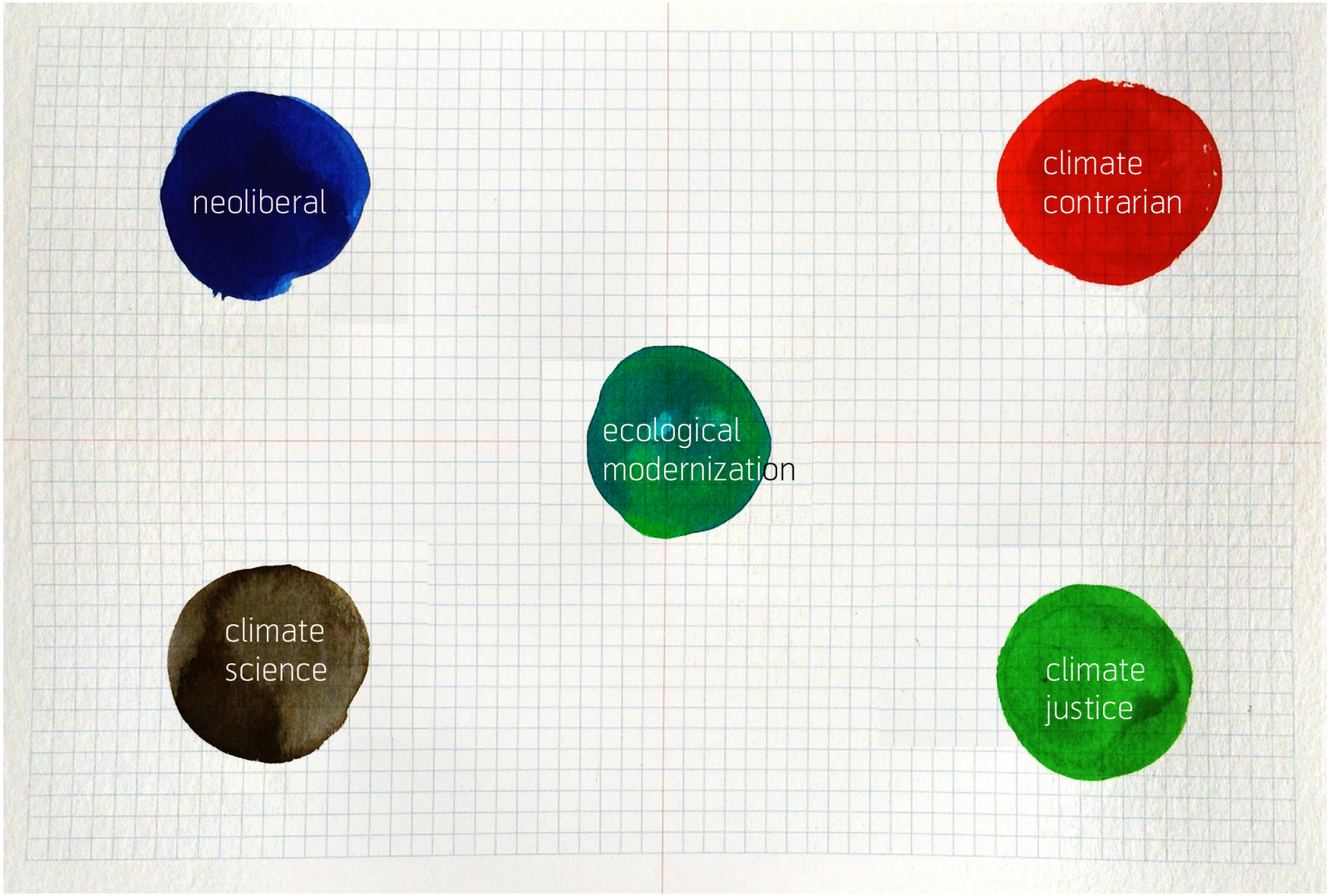
Discourse mapping is an interpretative method that **reveals the diverging worldviews and ideologies** that underlie various strategies and tactics that are used to address environmental problems.

In displaying the relationship between discourses, the outlines of the controversy are clarified. This analysis and representation serves to **highlight assumptions that are obscured by epistemological and ideological blindspots —** making deeper transformations possible.

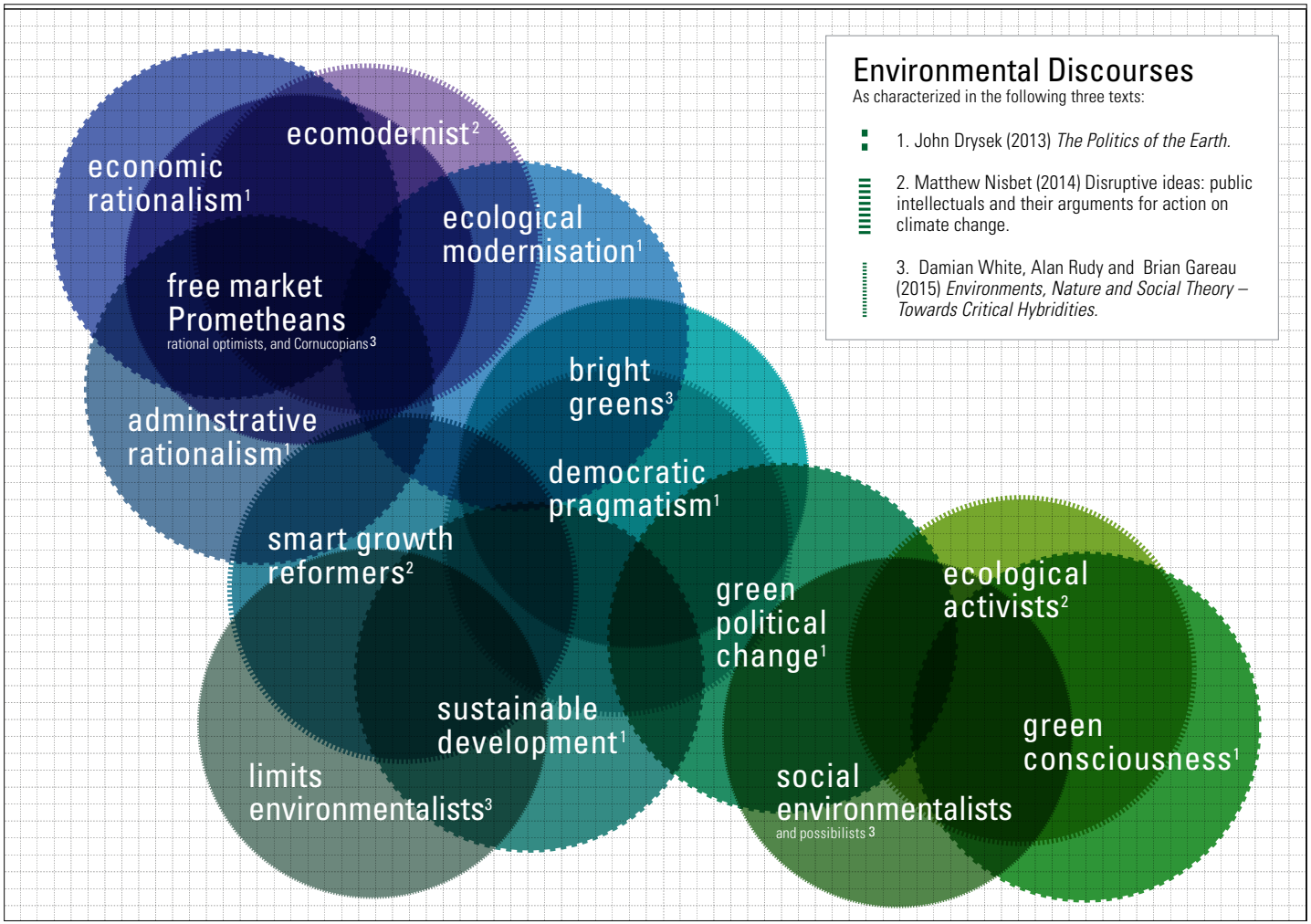
3

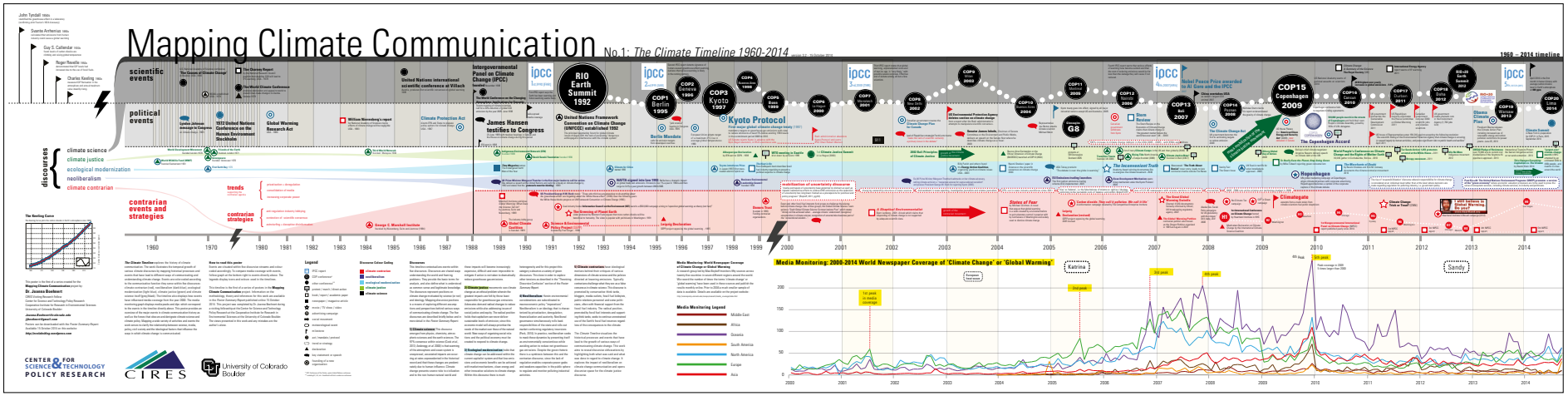
Mapping Climate Communication

http://ecolabsblog.wordpress.com

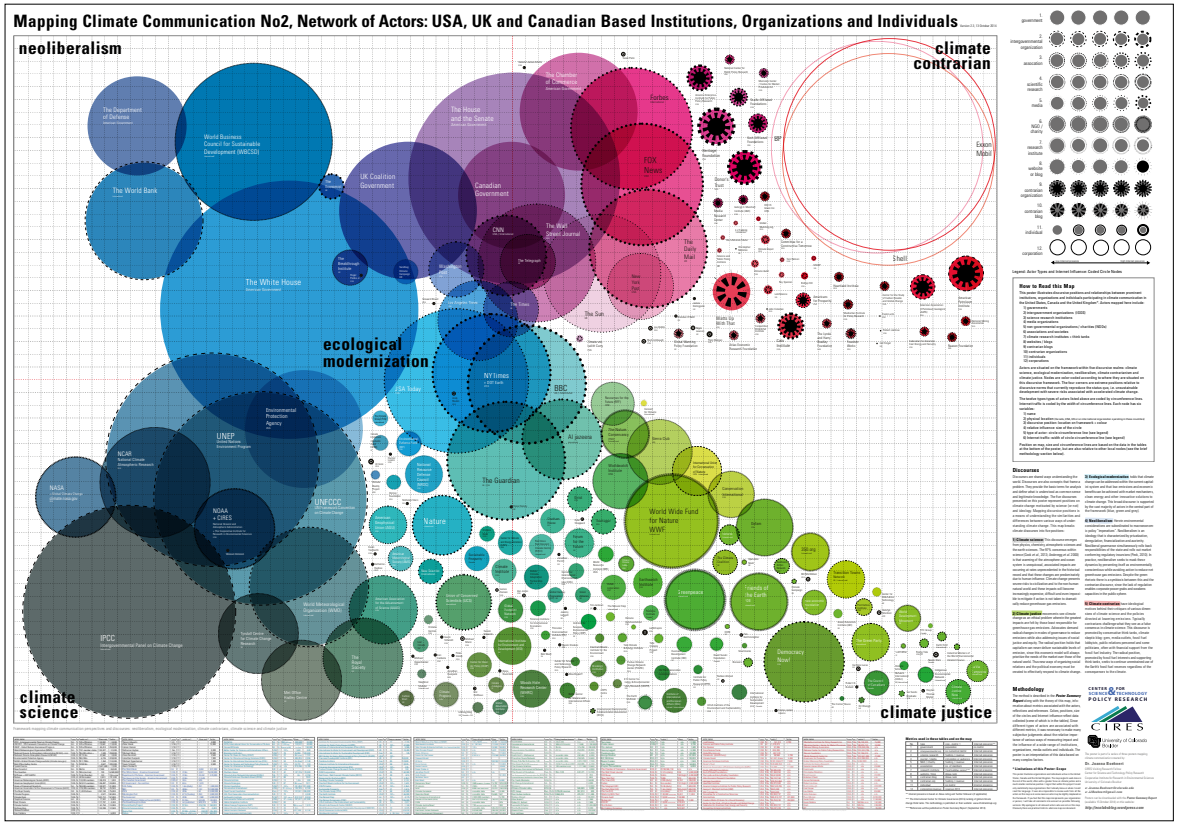


Mapping Climate Communication: *http://ecolabsblog.wordpress.com*

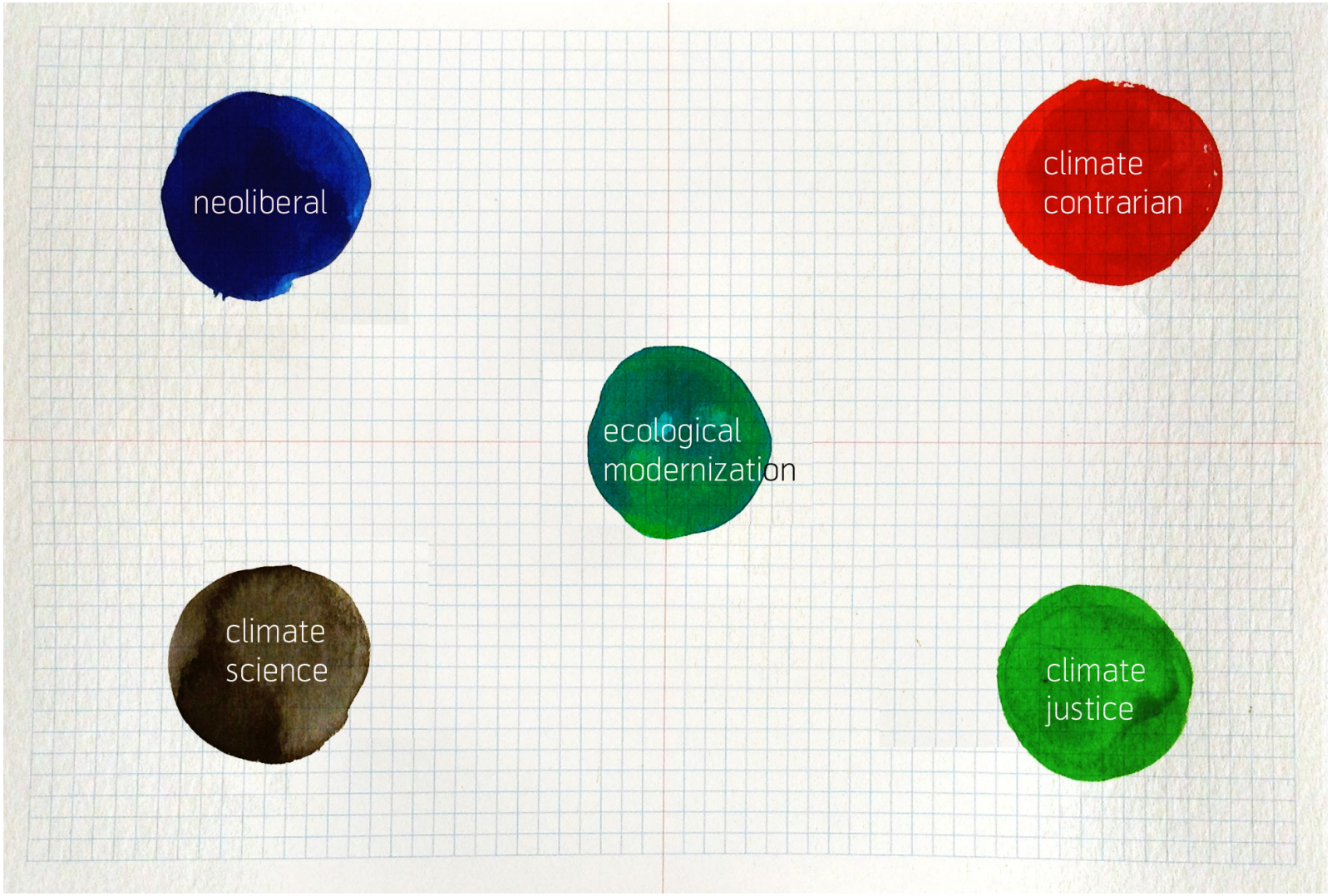

Environmental Discourses
As characterized in the following three texts:
1. John Drysek (2013) The Politics of the Earth.
2. Matthew Nisbet (2014) Disruptive ideas: public intellectuals and their arguments for action on climate change.
3. Damian White, Alan Rudy and Brian Gareau (2015) Environments, Nature and Social Theory – Towards Critical Hybridities.
economic rationalism1
ecomodernist2
ecological modernisation1
free market Prometheans
rational optimists, and Cornucopians3
bright greens3
adminstrative rationalism1
democratic pragmatism1
smart growth reformers2
green political change1
ecological activists2
sustainable development1
green consciousness1
limits environmentalists3
social environmentalists
and possibilists 3



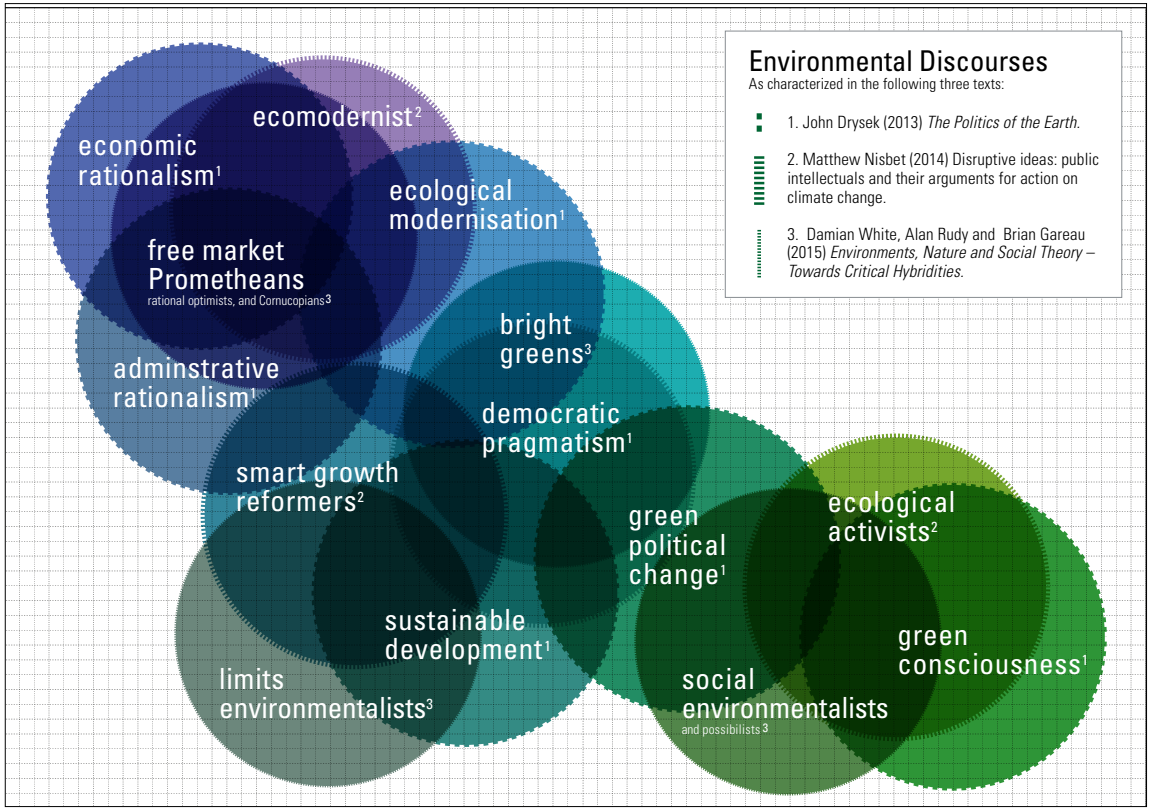
No.1: Climate Timeline: 1960-2014 Discourses, Events and Media Coverage



No.2: Network of Actors: USA, UK and Canadian-based Institutions, Organizations and Individuals Participating in Climate Communication



Mapping Climate Communication: *http://ecolabsblog.wordpress.com*



Climate science: This discourse emerges from physics, chemistry, the atmospheric sciences and the earth sciences. The 97% consensus within science is that warming of the atmosphere and ocean system is unequivocal, associated impacts are occurring at rates unprecedented in the historical record and that these changes are predominately due to human influence.

Climate justice movements see climate change as an ethical problem wherein the greatest impacts are felt by those least responsible for greenhouse gas emissions and also as a consequence of a particular way of organizing economic relations. Advocates demand radical changes in modes of governance to reduce emissions while also addressing issues of social justice. New ways of organizing social relations and the political economy must be created to respond to climate change and issues of social justice.

Ecological modernization holds that climate change can be addressed within the current capitalist system and that low emissions and economic benefits can be achieved with market mechanisms, clean energy and other innovative solutions to climate change. This broad discourse is supported by the vast majority of the actors in the central part of the framework.

Neoliberalism: Herein environmental considerations are subordinated to macroeconomic policy 'imperatives'. Neoliberalism is an ideology and mode of governance that is characterized by privatization, deregulation, financialization and austerity). In practice neoliberalism seeks to mask these dynamics by presenting itself as environmentally conscientious while avoiding action to reduce net emissions. Despite the green rhetoric there is a symbiosis between this discourse and the contrarian discourse, since the lack of regulation enables corporate power grabs and weakens capacities in the public sphere to monitor and regulate polluting activities.

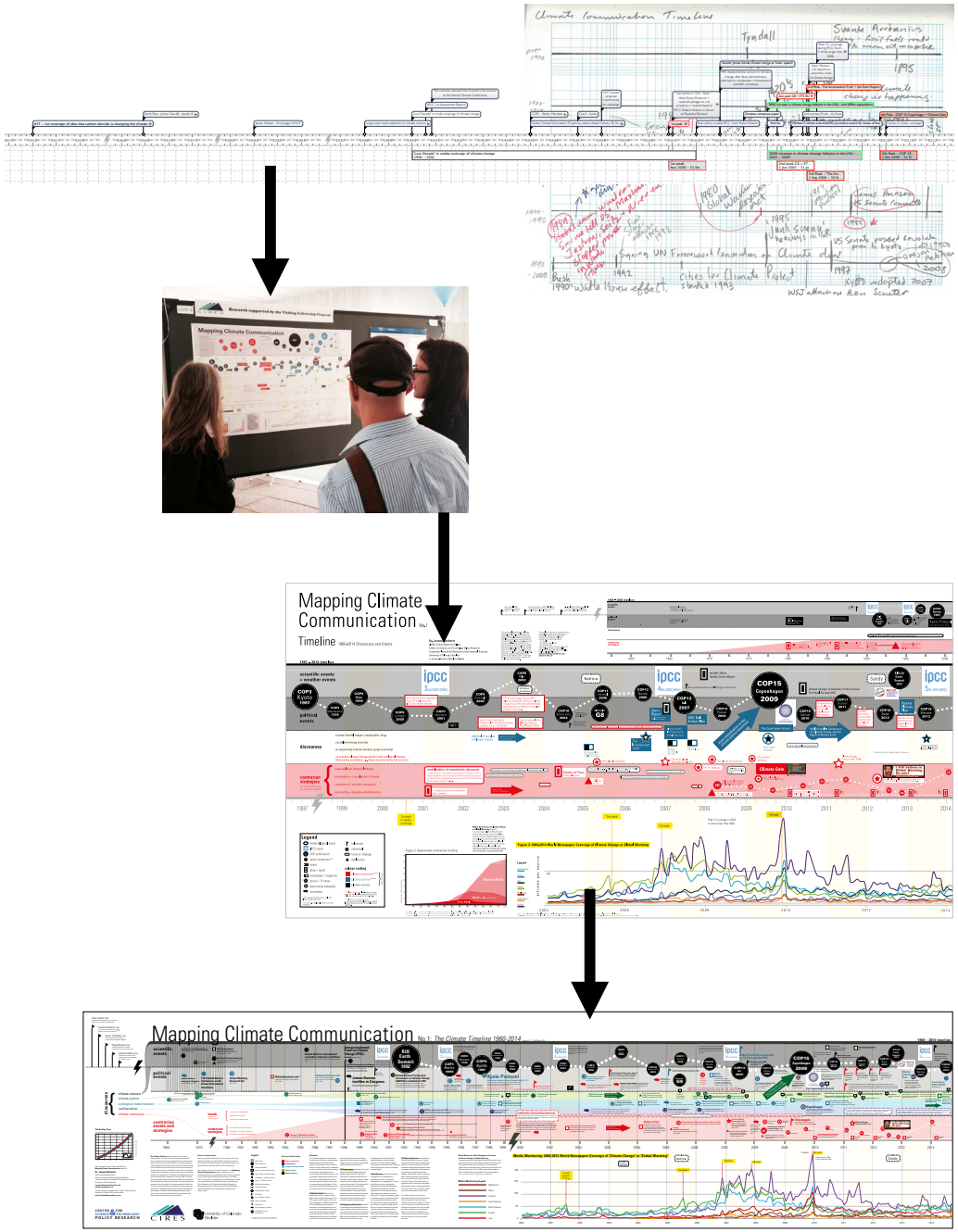
Climate contrarian: Climate contrarians have ideological motives behind their critiques of various dimensions of climate science and the policies directed at lowering emissions. Typically contrarians challenge what they see as a false consensus in climate science. This discourse is promoted by conservative think tanks, climate skeptic bloggers, media outlets, fossil fuel lobbyists, public relations personnel and some politicians, often with financial support from the fossil fuel industry. The radical position, promoted by fossil fuel interests and supporting think tanks, seeks to continue unrestrained use of the Earth's fossil fuel reserves regardless of the consequences to the climate.

No1: Climate Timeline: 1960-2014 Discourses and Events

The ***Climate Timeline*** illustrates the temporal growth of climate communication by mapping historical processes and events that have lead to various ways of understanding climate change.

Objectives:

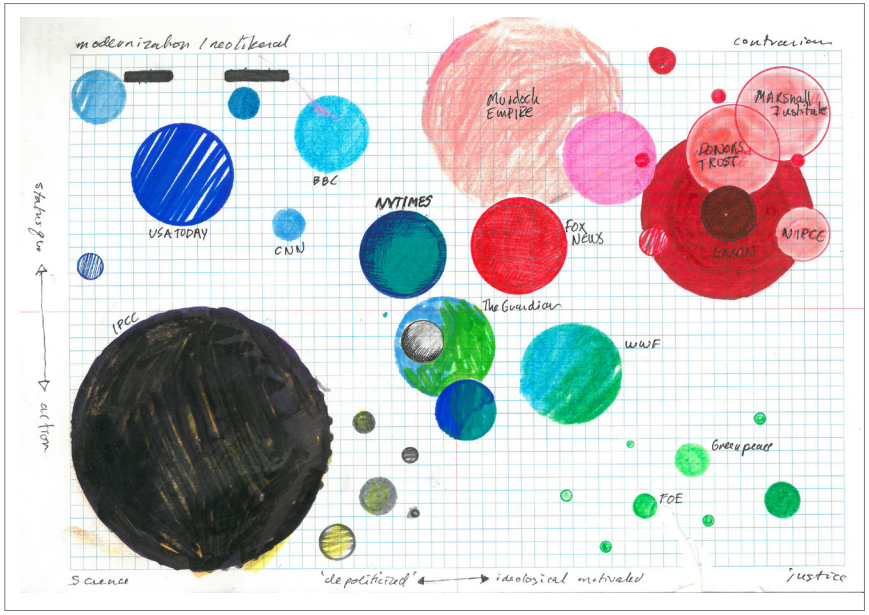
- Display the major milestones in climate science, policy and public awareness over the long term and the short term (54 years).
- Display growth of the climate contrarian movement.
- Display how events correspond to media coverage.
- Display how events are contextualized within five discourses.
- Reveal historical discursive obfuscations by highlighting both what was said and what was done in regard to climate change.

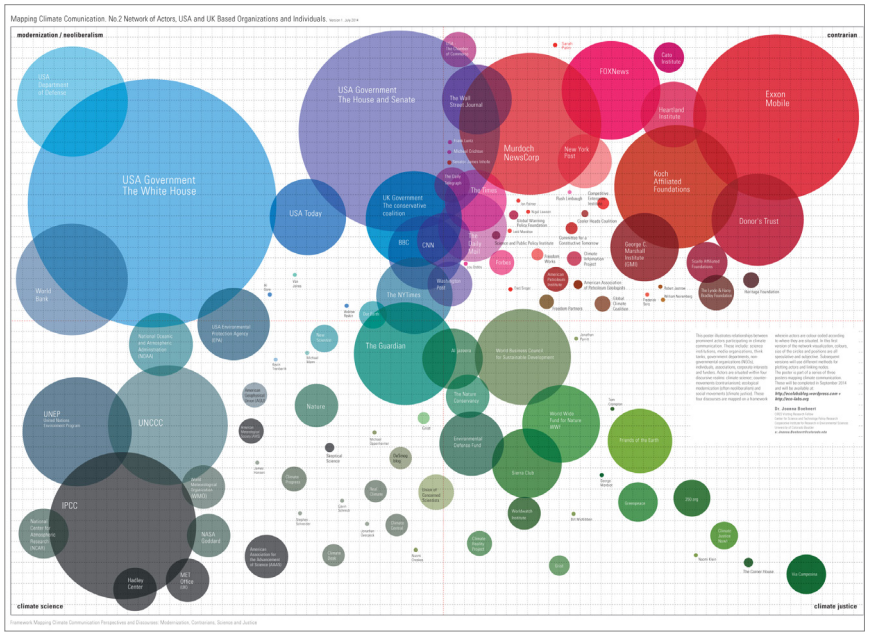


The ***Network of Actors*** illustrates relationships between actors participating in climate communication in Canada, United States and the United Kingdom.

Objectives:

- Display the wide variety of actors in climate comms (cc)
- Display relationship of actors to each other and within five major discourses
- Collect and display information on these actors
- Explore relationships between discourses, especially neoliberalism and ecological modernisation
- Explore the impact of neoliberalism on cc
- Develop the concept of discursive confusion
- Open discursive space for the climate justice discourse





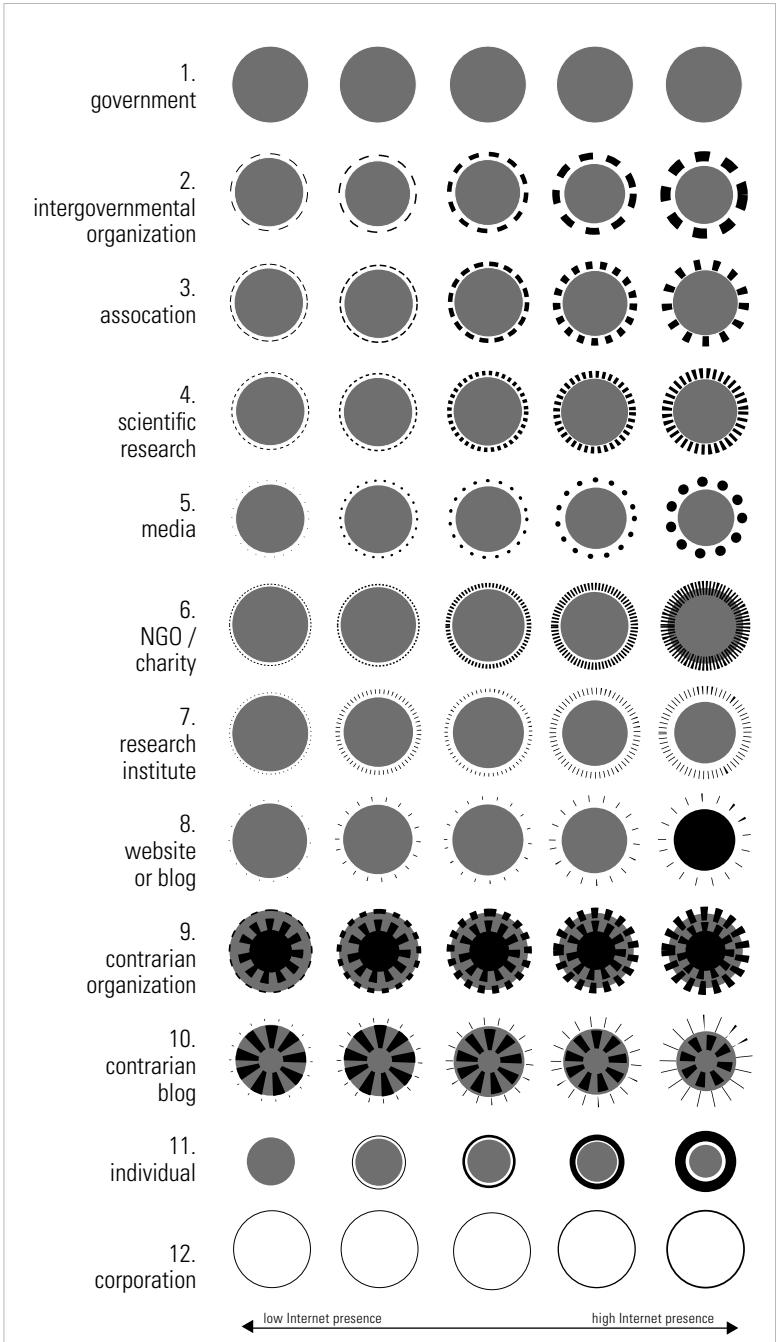
Actors:

1) governments
2) intergovernmental organizations (IGOS)
3) science research institutions
4) media organizations
5) non-governmental organizations / charities (NGOs)
6) associations and societies
7) climate research institutes + think tanks
8) websites / blogs
9) contrarian blogs
10) contrarian organizations
11) individuals
12) corporations

Each node has six variables:

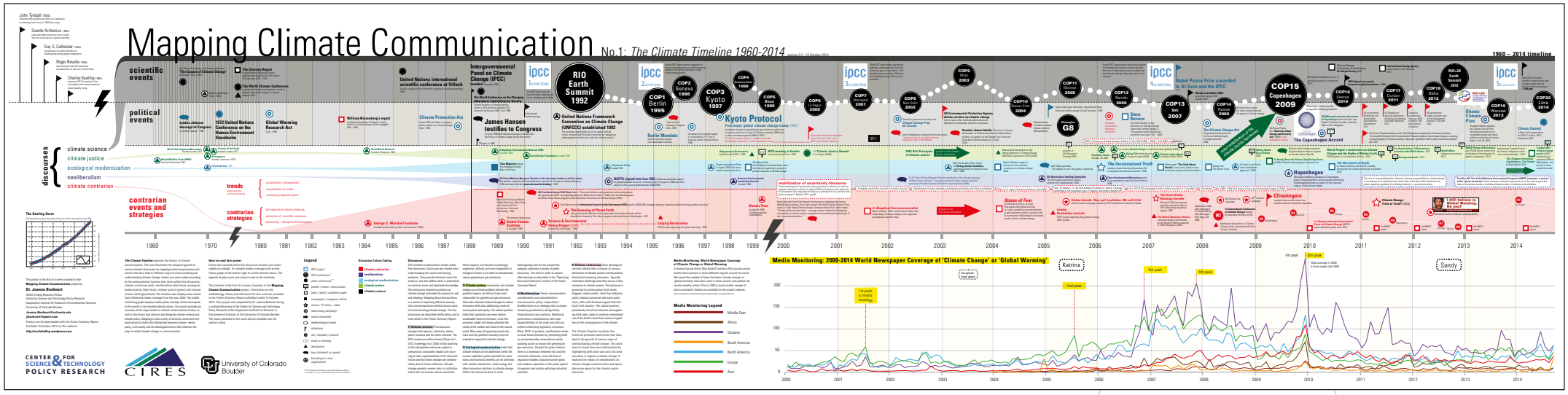
1) name
2) location
3) discursive position: location on framework + color
4) relative influence: size of the circle
5) type of actor: circle circumference line
6) Internet traffic: width of circle circumference line

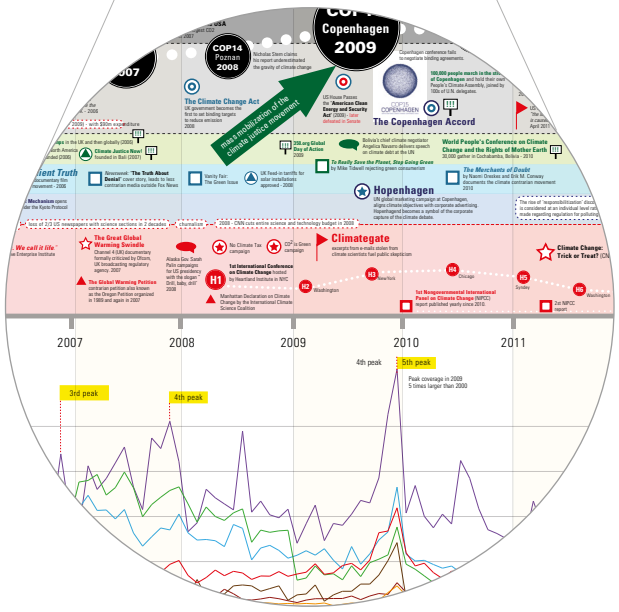
Position on map, size and circumference lines are based on the data in the tables at the bottom of the poster, but are also relative to other local nodes.



Legend: Actor Types and Internet Influence: Coded Circle Nodes

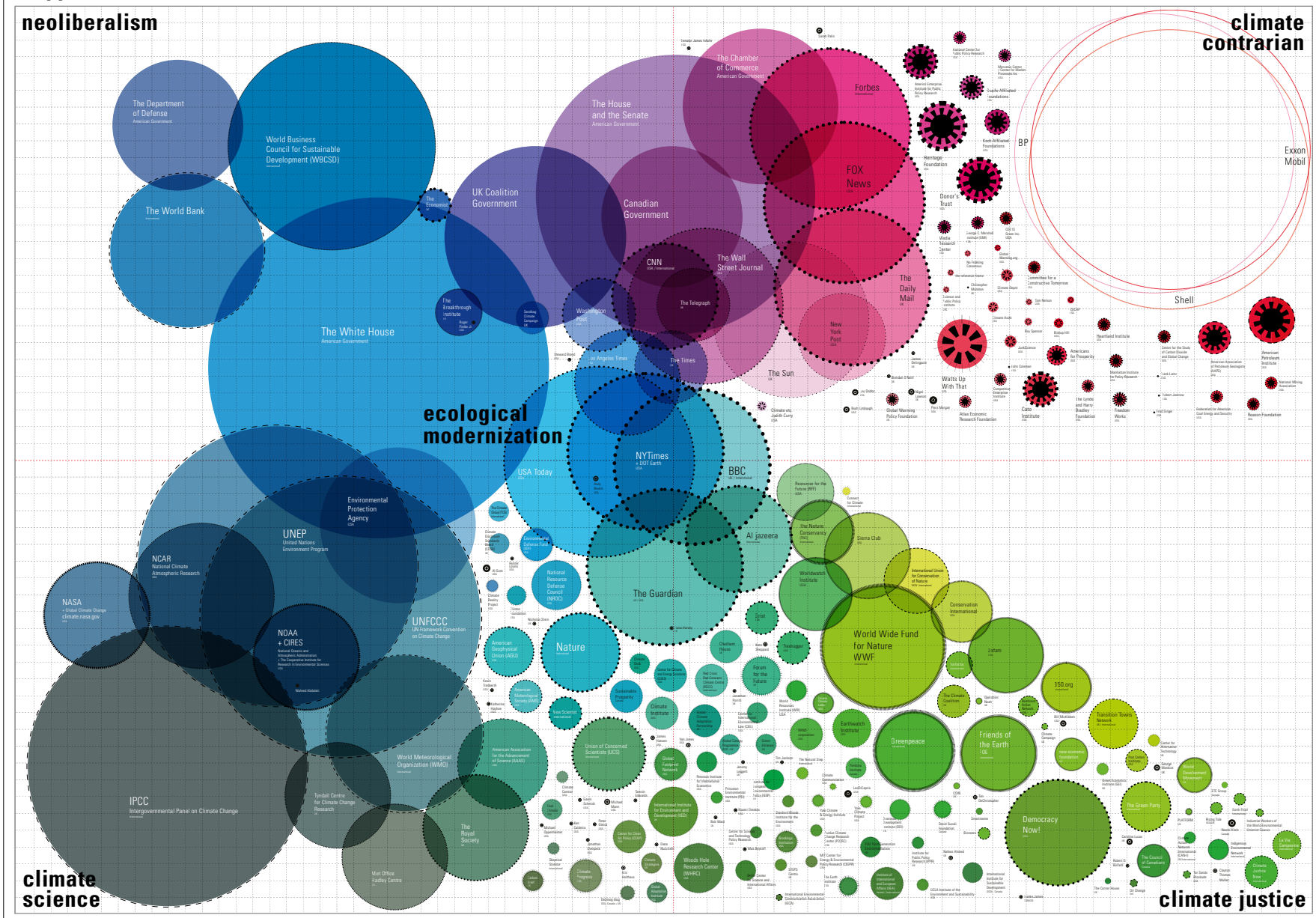
visualizing.org
Login or Register
Home
Visualizations
Data
Challenges
Community
Upload Your Work
Mapping Climate Communication: No.2 Network Of Actors
By ecolabs
climate contrarian
ecological modernization
climate science
climate justice
Mapping Climate Communication: No.2 Network of Actors
By ecolabs
Network of Actors displays relationships between 237 individuals, organizations and institutions participating in climate communication in Canada, United States and the United Kingdom.
The Network of Actors poster illustrates relationships between prominent institutions, organizations and individuals participating in climate communication in the United States, Canada and the United Kingdom. Influential participants (actors) help construct public understanding of both the science and the politics of climate change. By illustrating 237 actors on a discursive framework this map
reveals tensions, alliances and relationships within the complex, contentious
Views: 134525
Posted Oct 17, 2014
Views: 134525
Tools
Data
Poster Summary Report
Mapping Climate Communication
Share
Like
Tweet
Embed
<iframe src="http://www.visualising.org/embedded/417261" width="620" height="450" frameborder="0" scrolling="no" marginheight="0" marginwidth="0"></iframe>
Need help embedding?
Included in Galleries
Visualizing
Environmental
More by ecolabs
Global Money Flows Into and Out of Low and
Mapping Climate Communication: No.1 Climate
Environmental Communication
GGP-2.0: An Audit of Development.


Mapping Climate Communication
No.1: The Climate Timeline 1960-2014
1960 – 2014 timeline
scientific events
political events
discourses
climate science
climate justice
ecological modernization
neoliberalism
climate contrarian
contrarian events and strategies
trends
contrarian strategies
Media Monitoring: 2000-2014 World Newspaper Coverage of 'Climate Change' or 'Global Warming'
Media Monitoring Legend
Middle East
Africa
Oceania
South America
North America
Europe
Asia
CENTER FOR SCIENCE & TECHNOLOGY POLICY RESEARCH
CIRES
University of Colorado Boulder


Copenhagen 2009
COP14 Poznan 2008
The Climate Change Act
The Copenhagen Accord
Hopenhagen
Climategate
2007
2008
2009
2010
2011
3rd peak
4th peak
5th peak

Mapping Climate Communication No2, Network of Actors: USA, UK and Canadian Based Institutions, Organizations and Individuals

Version 2.3, 13 October 2014



Framework mapping climate communication perspectives and discourses: neoliberalism, ecological modernization, climate contrarians, climate science and climate justice

1. government
2. intergovernmental organization
3. assocation
4. scientific research
5. media
6. NGO / charity
7. research institute
8. website or blog
9. contrarian organization
10. contrarian blog
11. individual
12. corporation

low internet presence ... high internet presence

Legend: Actor Types and Internet Influence: Coded Circle Nodes

How to Read this Map

This poster illustrates discursive positions and relationships between prominent institutions, organizations and individuals participating in climate communication in the United States, Canada and the United Kingdom*. Actors mapped here include:

1) governments
2) intergovernment organizations (IGOS)
3) science research institutions
4) media organizations
5) non-governmental organizations / charities (NGOs)
6) associations and societies
7) climate research institutes + think tanks
8) websites / blogs
9) contrarian blogs
10) contrarian organizations
11) individuals
12) corporations

Actors are situated on the framework within five discursive realms: climate science, ecological modernization, neoliberalism, climate contrarianism and climate justice. Nodes are color-coded according to where they are situated on this discursive framework. The four corners are extreme positions relative to discursive norms that currently reproduce the status quo, i.e. unsustainable development with severe risks associated with accelerated climate change.

The twelve types types of actors listed above are coded by circumference lines. Internet traffic is coded by the width of circumference lines. Each node has six variables:

1) name
2) physical location (Canada, USA, UK or an international organization operating in these countries)
3) discursive position: location on framework + colour
4) relative influence: size of the circle
5) type of actor: circle circumference line (see legend)
6) Internet traffic: width of circle circumference line (see legend)

Position on map, size and circumference lines are based on the data in the tables at the bottom of the poster, but are also relative to other local nodes (see the brief methodology section below).

Discourses

Discourses are shared ways understanding the world. Discourses are also concepts that frame a problem. They provide the basic terms for analysis and define what is understood as common sense and legitimate knowledge. The five discourses presented on this poster represent positions on climate change motivated by science (or not) and ideology. Mapping discursive positions is a means of understanding the similarities and differences between various ways of understanding climate change. This map breaks climate discourses into five positions:

1) Climate science: This discourse emerges from physics, chemistry, atmospheric sciences and the earth sciences. The 97% consensus within science (Cook et al., 2013; Anderegg et al. 2010) is that warming of the atmosphere and ocean system is unequivocal, associated impacts are occurring at rates unprecedented in the historical record and that these changes are predominately due to human influence. Climate change presents severe risks to civilization and to the non-human natural world and these impacts will become increasingly expensive, difficult and even impossible to mitigate if action is not taken to dramatically reduce greenhouse gas emissions.

2) Climate justice movements see climate change as an ethical problem wherein the greatest impacts are felt by those least responsible for greenhouse gas emissions. Advocates demand radical changes in modes of governance to reduce emissions while also addressing issues of social justice and equity. The radical position holds that capitalism can never deliver sustainable levels of emission, since this economic model will always prioritize the needs of the market over those of the natural world. Thus new ways of organizing social relations and the political economy must be created to effectively respond to climate change.

3) Ecological modernization holds that climate change can be addressed within the current capitalist system and that low emissions and economic benefits can be achieved with market mechanisms, clean energy and other innovative solutions to climate change. This broad discourse is supported by the vast majority of actors in the central part of the framework (blue, green and grey).

4) Neoliberalism: Hanan environmental considerations are subordinated to macroeconomic policy "imperatives". Neoliberalism is an ideology that is characterized by privatization, deregulation, financialization and austerity. Neoliberal governance simultaneously rolls back responsibilities of the state and rolls out market conforming regulatory incursions (Peck, 2010). In practice, neoliberalism seeks to mask these dynamics by presenting itself as environmentally conscientious while avoiding action to reduce net greenhouse gas emissions. Despite the green rhetoric there is a symbiosis between this and the contrarian discourse, since the lack of regulation enables corporate power grabs and weakens capacities in the public sphere.

5) Climate contrarian have ideological motives behind their critiques of various dimensions of climate science and the policies directed at lowering emissions. Typically contrarians challenge what they see as a false consensus in climate science. This discourse is promoted by conservative think tanks; climate skeptic blog- gers; media outlets; fossil fuel lobbyists, public relations personnel and some politicians, often with financial support from the fossil fuel industry. The radical position, promoted by fossil fuel interests and supporting think tanks, seeks to continue unrestrained use of the Earth's fossil fuel reserves regardless of the consequences to the climate.

Methodology

This method is described in the *Poster Summary Report* along with the theory of this map, information about metrics associated with the actors, reflections and references. Colors, positions, size of the circles and Internet influence reflect data collected (some of which is in the tables). Since different types of actors are associated with different metrics, it was necessary to make many subjective judgments about the relative importance of various ways of measuring impact and the influence of a wide range of institutions, organizations, media outlets and individuals. The poster is an interpretation of this data based on many complex factors.

*** Limitations of this Poster: Scope**

The poster illustrates organizations and individuals active in the United States, Canada and the United Kingdom. The framework work done in the rest of the world, either with a greater focus on climate justice and a much smaller contrarian position, I regret that within this project I could only meticulously map organizations that I know or where I could read the language. It was also impossible to review work from all the organizations that could be mapped within the discursive realms of the framework. If you feel that this map incompletely represents your organization or person, I will take all comments into account on possible following versions. My apologies to all relevant actors who are not on this map. Glossary: there are practical limits to what one map can document.

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Metrics used in these tables and on the map

No.	type	core - metrics	Internet presence*
1	governmental	population	see metrics
2	intergovernmental org	no numerical metrics	Internet presence
3	science research	funding / revenue	Internet presence
4	journal / media	circulation or audience	Internet presence
5	NGO / charity	funding / revenue	Internet presence
6	association	no. of members	Internet presence
7	research institute	funding / revenue	Internet presence
8	website / blog	Alexa rank	Internet presence
9	contrarian blog	Alexa rank	Internet presence
10	contrarian org	funding / revenue	Internet presence
11	individual	no metrics	Internet presence
12	corporation/revenue	revenue 2013	Internet presence

* Internet presence is based on Alexa rating and Twitter followers (if applicable)

** The International Center for Climate Governance (ICCG) ranking of global climate change think tanks. The methodology is published on their website: www.think-tanks.org

*** References will be published in *Poster Summary Report* (September 2014).

CENTER & FOR SCIENCE & TECHNOLOGY POLICY RESEARCH

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http://ecolabsblog.wordpress.com

4

Mapping Degrowth

August – October 2016

Mapping Degrowth

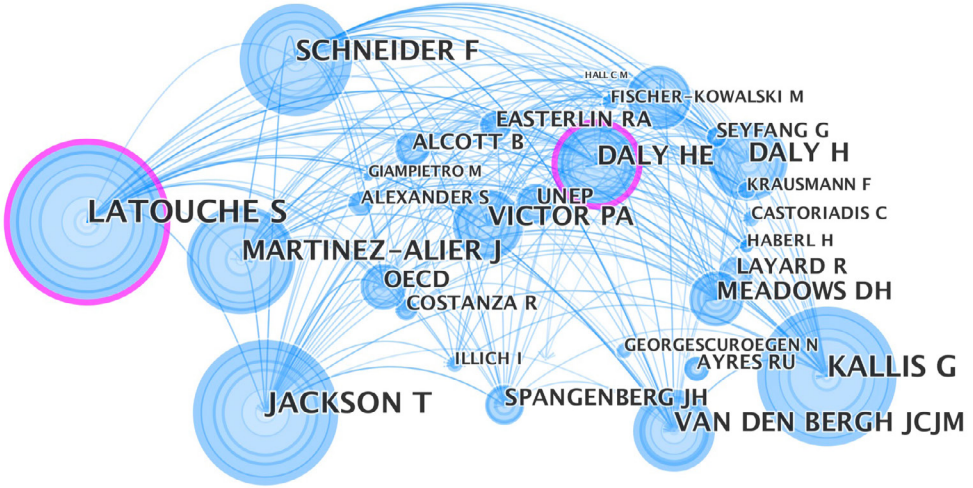
Conceptualising the Degrowth Niche:

An interdisciplinary study using bibliometrics and the multi-level perspective framework to explore the degrowth field. by James Vandeventer 2016

Table 1: The origins of degrowth in key publications

	Critiques of development	Anti-utilitarianism	Ecology/ Environmentalism	Bioeconomics/ ecological economics	Meaning of life and well-being	Democracy	Justice	Steady state economy	Political ecology	Societal metabolism
Latouche (2009)	✔	✔	✔	✔						
Schneider et al (2010)	✔		✔	✔	✔	✔				
Muraca (2013)	✔	✔	✔	✔	✔	✔				
Demaria et al (2013)	✔	✔	✔	✔	✔	✔	✔			
D'Alisa et al (2015)	✔	✔	✔	✔			✔	✔	✔	✔

Figure 12: Author co-citation network – 2008 to 2016 (top 1% of co-citations)



Mapping Degrowth

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James Vandeventer 2016

Figure 10: Article co-citation network – 2008 to 2012 (top 5% of co-citations, threshold > 4)

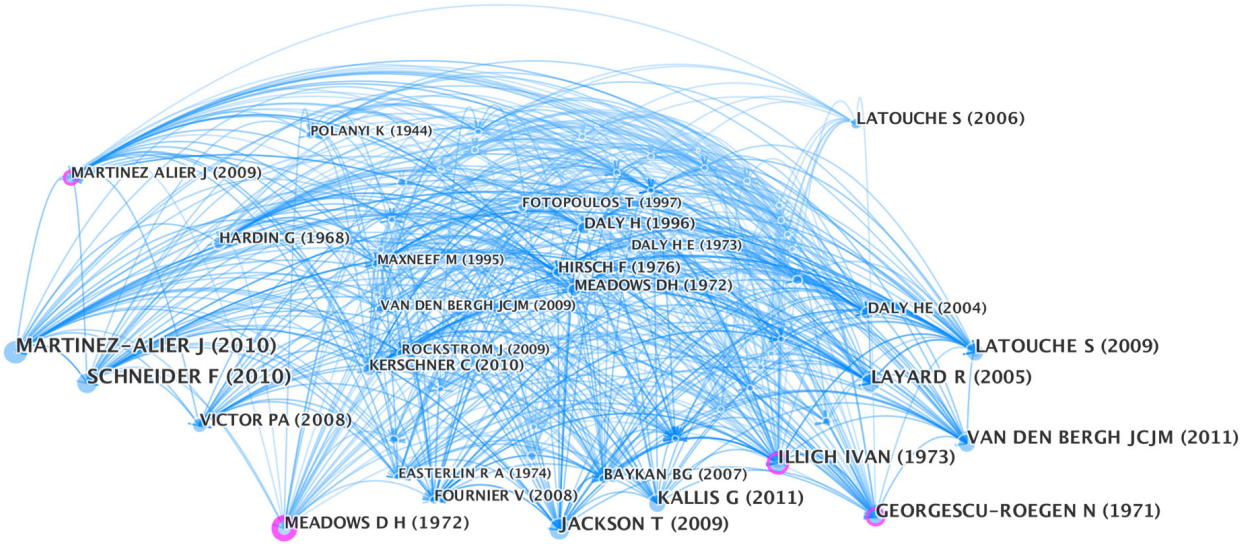
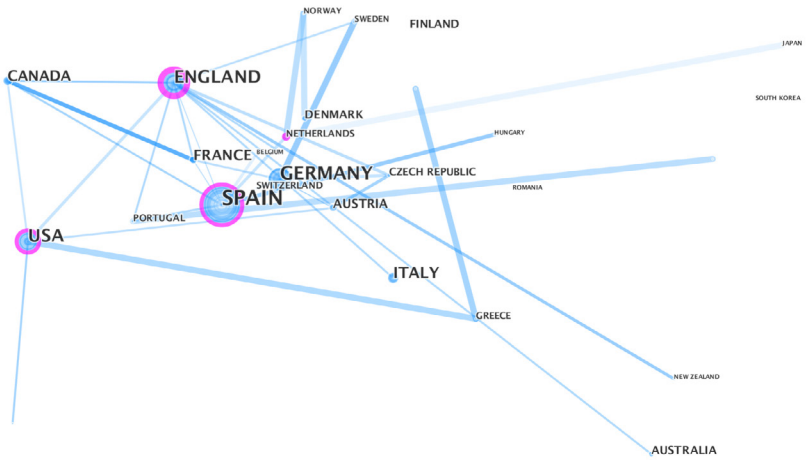
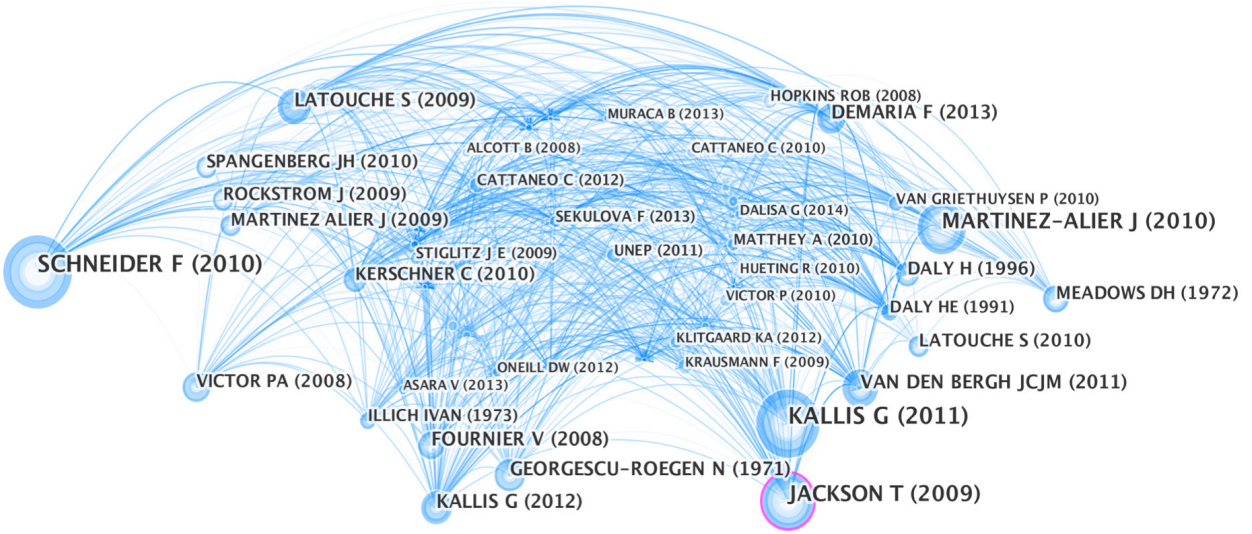


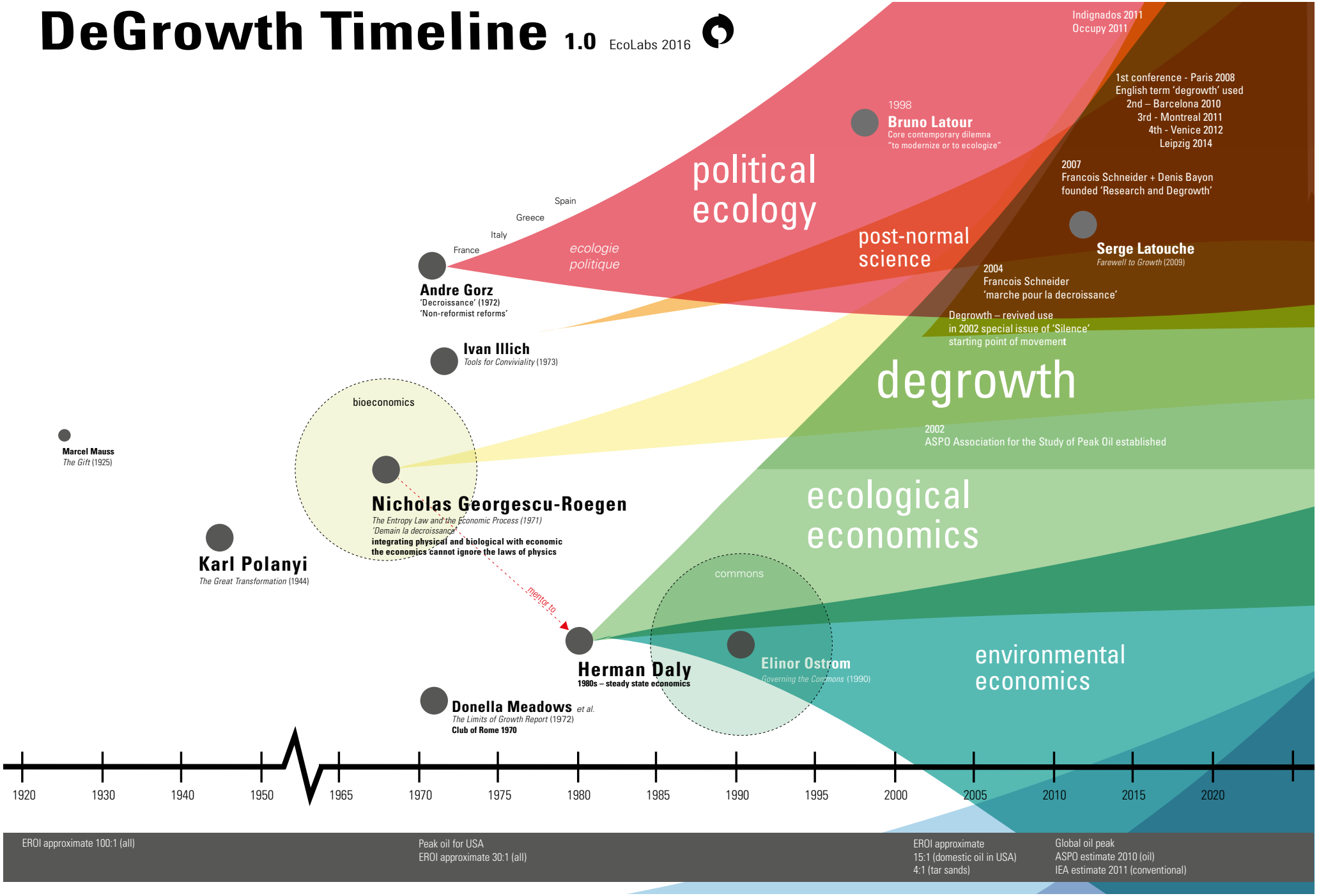
Figure 11: Article co-citation network – 2013 to 2016 (top 5% of co-citations, threshold > 7)

Figure 4: Visualisation of geographic collaborations (2008-2016)

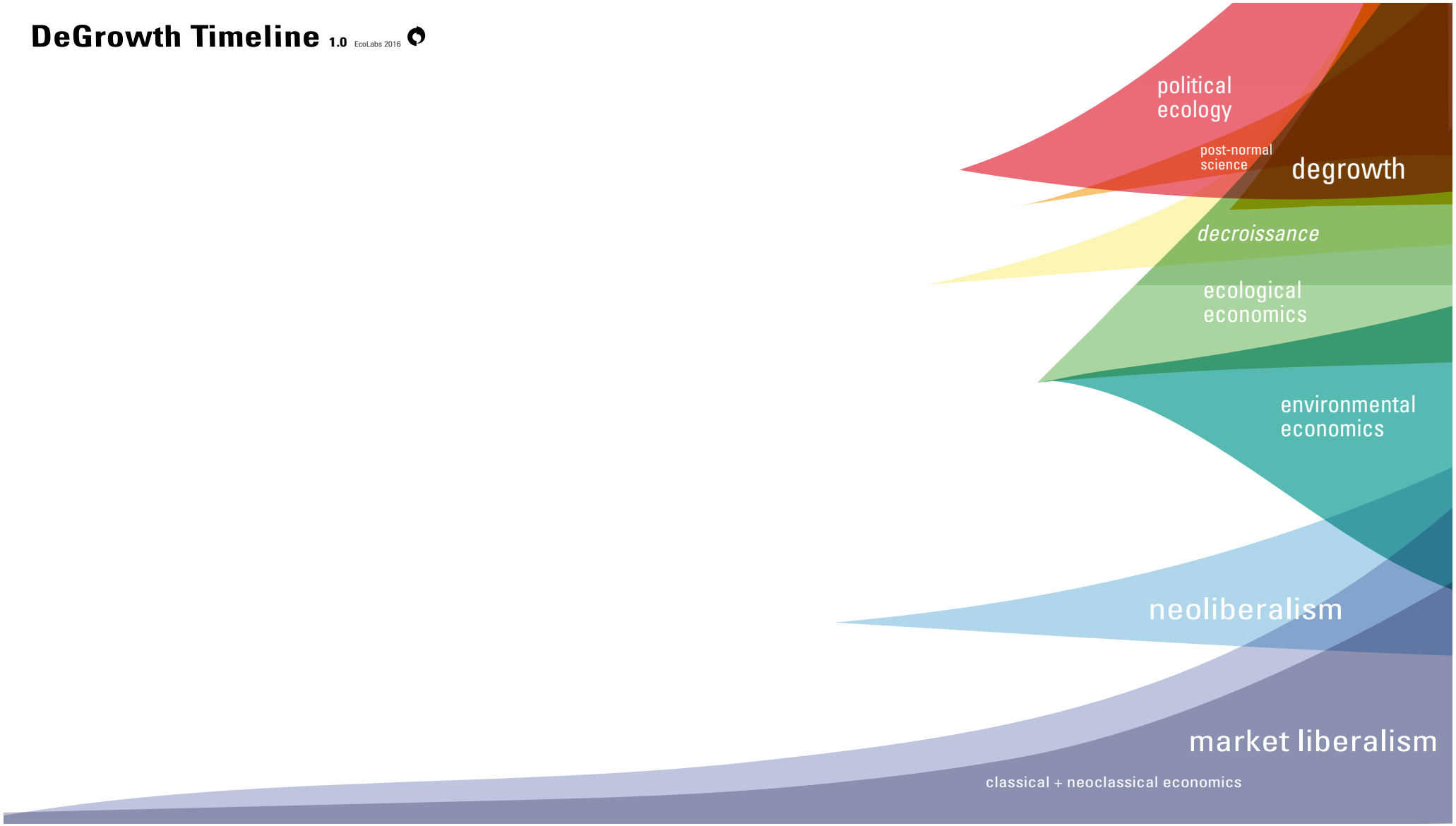




DeGrowth Timeline 1.0 EcoLabs 2016



DeGrowth Timeline 1.0 EcoLabs 2016



Controversy Map: Eco-modernism vs. Degrowth - Seven Conflicts

ECO-MODERNISM		DEGROWTH
urbanisation symbolizes decoupling from nature	**CITIES**	Urbanization **increases** land and resource use.
Modernization liberates people from poverty and agricultural labor.	**MODERNIZATION**	Quality and length of life **do not** depend on modernization.
Material consumption has began to peak in the wealthiest countries.	**PEAKING**	Material consumption **has not** peaked in wealthy countries.
Intensified agriculture protects wild nature	**AGRICULTURE**	Intensified agriculture **does not** spare land.
Nuclear fission can meet all energy demands	**NUCLEAR**	Nuclear energy **cannot** fuel the world.
Societies can decarbonise (ignore the rebound effect)	**SUBSTITUTION**	New technologies typically **add** additional ecological harms
Developed countries are less polluting.	**GROWTH**	Developed countries damage the environment **more**, not less.

Based on Sam Bliss (2016). A Tale of Two Movements: Ecomodernism vs. Degrowth.

EcoLabs 2016

5

Reflections

Reflections:

Implications on three levels:

1. Contribution to the theory and practice of controversy mapping, knowledge visualisation and information design.

2. Contribution to the theory and practice of cross-disciplinary social science collaborations in environmental communication.

3. Contributions to understanding and problems-solving in the areas under investigation.

Reflections 1

1. Contribution to the theory and practice of controversy mapping, knowledge visualisation and information design.

- development of a theory of critical data visualisation (datawash, dark data, digital positivism)
- a critique of how power and ideology are embeded in visualisations of environmental information
- the inverted triangle in information design for complexity
- advocacy for interpretative methods in knowledge visualisation
- the development of the discourse mapping method

Reflections 2

2. Contribution to the theory and practice of cross-disciplinary social science collaborations in environmental communication.

- a design response to visualisation strategies in the social sciences
- advocacy for design methods, design thinking and SOD (Sevaldson 2013) for social science research
- advocacy for knowledge visualisation for social science research as a means of facilitating cross disciplinary collaborations, analysis and knowledge dissemination.
- the development of the visual discourse mapping method

Reflections 3

3. Contributions to understanding and problems-solving in the two areas under investigation:

A) **climate communication**

- development and illustration of the concept of 'discursive confusion' and display of associated problem (illustrating contradictions between rhetoric and action)
- illustration of the neoliberal discourse and contrarian discourse
- display the major milestones in climate communication
- opening of discursive space for the climate justice discourse (& more: see goals and report)

B) **degrowth** - a challenge to ecologically disembedded conventional economic theory *(work in progress - contributions still in development)*

- timeline, controversy map and hierarchy of ideas diagram in development
- initial illustration of major ideas, actors and relevant discourses
- Illustration of alternative economic models that take ecosystems into account

References

Bliss, S. (2016). *A Tale of Two Movements: Ecomodernism vs. Degrowth*. Poster.

Boehnert, J. (2014) *Mapping Climate Communication: Poster Summary Report*. Center for Science and Technology Policy Research, Cooperative Institute for Research in Environmental Sciences, University of Colorado Boulder.

Boehnert, J. (2015) The Politics of Data Visualisation. *Discover Society*. 3 August 2015, 23.

Boehnert, J. (2016) Data Visualisation Does Political Things. In Proceedings to DRS2016, Design+Research+Society: Future Focused Thinking. Brighton, UK June 2016.

Boehnert, J. (2017) *Design, Ecology, Politics*. London: Bloomsbury.

Corby, T. (2015) From un-data to 'un-visualisation, Transforming Data: Creative and Critical Directions in the Arts and Humanities. University of Westminster, 24 October 2015.

D'Ignazio, C. (2015) What would Feminist Data Visualisation Look Like? MIT Center for Civic Media, https://civic.mit.edu/feminist-data-visualization (Accessed 10 March, 2016).

D'Alisa, G., Demaria, F. and Kallis, G. ed. (2014) *Degrowth: A vocabulary for a new era*. London: Routledge.

Dryzek, J.S. (2013) *The Politics of the Earth*. 3rd edition. Oxford: Oxford University Press.

EMAPS, Electronic Maps to Assist Public Science. (2014) *Climaps by Emaps: A Global Issue Atlas of Climate Change Adaptation*. http://climaps.eu/#!/home (Accesssed 15 November 2015).

Logan, R. & Stokes, L. (2004) Collaborate to Compete: Driving Profitability in the Knowledge Economy. Toronto and New York: Wiley.

Logan, R. (2014) Chapter 2: What is Information? Why Is It Relativistic and What Is Its Relationship to Materiality, Meaning and Organization. Toronto: DEMO Publishing.http://demopublishing.com/ book/ what-is-information/chapter-2/ (Accessed 15 November 2015).

Mauri, M. and Ciuccarelli, P. (2016) Designing diagrams for social issues. In Proceedings to DRS2016, Design+Research+Society: Future Focused Thinking. Brighton, UK June 2016.

McCandless, D. (2010) A hierarchy of visual understanding. Information is Beautiful.net. http://www.informationisbeautiful.net/2010/data-information-knowledge-wisdom (Accessed October 11, 2016).

Mosco, V. (2014) *To the Cloud: Big Data in a Turbulent World*. Boulder: Paradigm.

Sevaldson, B. (2013) 'Systems Oriented Design: The emergence and development of a designerly approach to address complexity'. DRS / Cumulus Oslo 2013: 2nd International Conference for Design Research Education Researchers. Oslo, 14-17 May 2013.

Vandeventer, J. (2016). *Conceptualising the Degrowth Niche: An interdisciplinary study using bibliometrics and the multi-level perspective framework to explore the degrowth field*. MA dissertation, University of Edinburgh, August 2016.

Venturini, T., et al. (2014) Climaps by EMAPS in 2 Pages (A Summary For Policymakers and Busy People in General) http://ssrn.com/abstract =2532946 (Accessed November 15, 2015).

Venturini, T., Ricci, D., Mauri, M., Kimbell, L., & Meunier, A. (2015). designing controversies and their publics. *Design Issues*, 31(3), 74–87.

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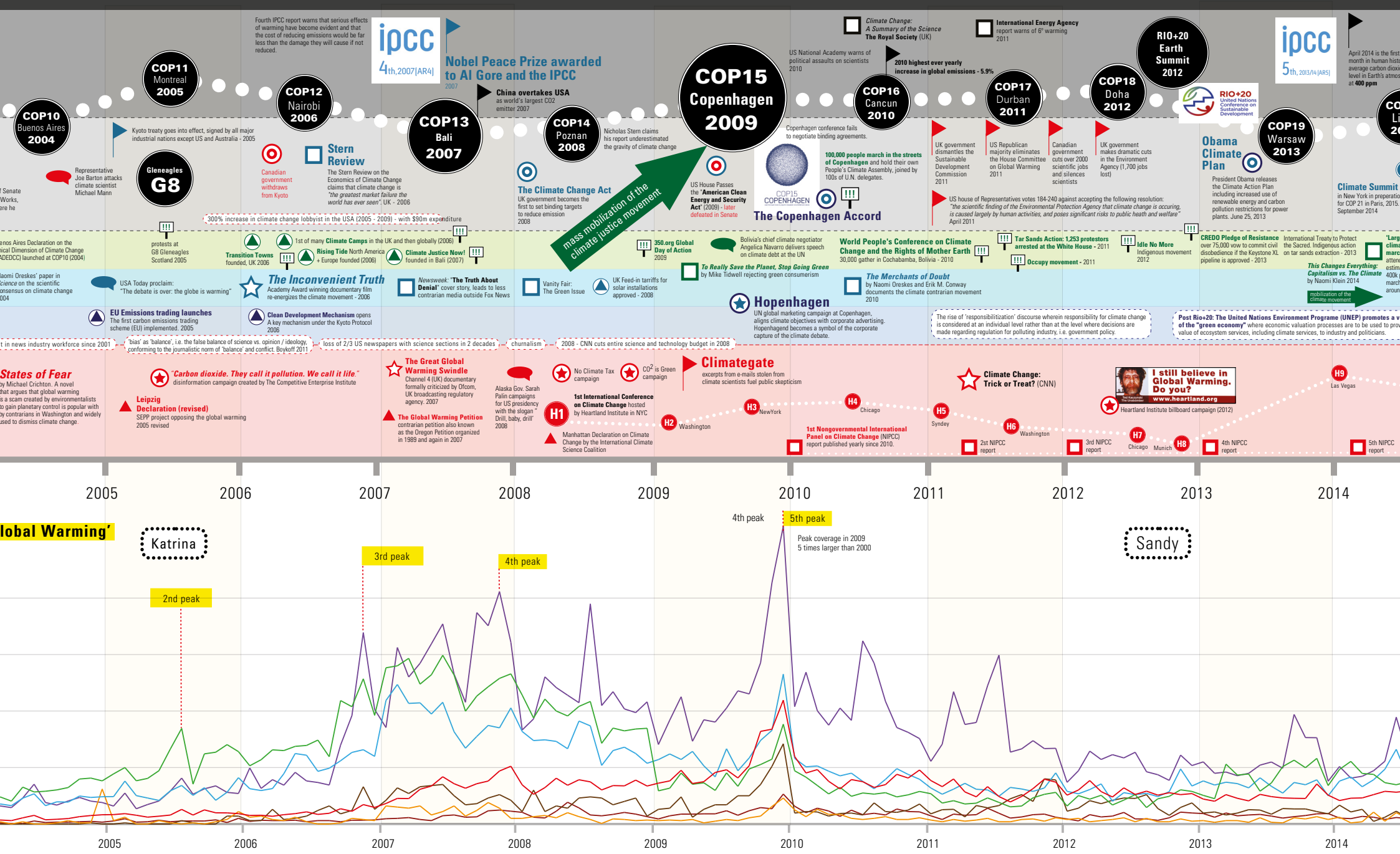

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