

Data Visualization for Web Designers

You Already Know How to do This!

Tom Carden, tom@bloom.io
Web 2.0 Expo, March 29th 2011

Tuesday, March 29, 2011

Hey. If you can read this then I need to switch monitors. Stand by.

Now: <http://bloom.io>

Previously: <http://stamen.com>

Tuesday, March 29, 2011

I'm Tom from Bloom (dot io). Before that I worked at Stamen Design.

A Motivational Talk!

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This is (hopefully) a motivational talk. This might backfire on me :)

My theory is that the skills that are currently unique to data visualization people will eventually become “just” web design.

Not that there won’t be specialists, but that the boundaries will blur and graphical representations of data will become (are) commonplace on everyday web pages.

Not a Portfolio Talk...

... but if it was ...

Tuesday, March 29, 2011

(A confession: the truth is I'm afraid of teaching code in 30 minutes)

So I usually give portfolio talks, sprinkled with a bit of manifesto.

This isn't one of those talks. But briefly, they go like this:



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At Stamen I worked on the Hurricane Tracker for MSNBC

Things we're proud of:

- brushing/linking
- animation
- texture/transparency
- hacking the basemap
- up-to-dateness (manifesto)
- updated thanks to DHS
- illustrates present, past and future

Earl

[more storms ▾](#)

There are no active hurricane advisories.

TROPICAL STORM

Sept. 4, 2010, 11 p.m. EDT

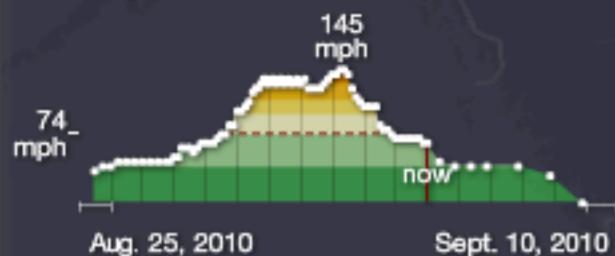
Last updated about 29 weeks ago

Maximum wind speed **65 mph**

Ground speed **46 mph**

Pressure **970**

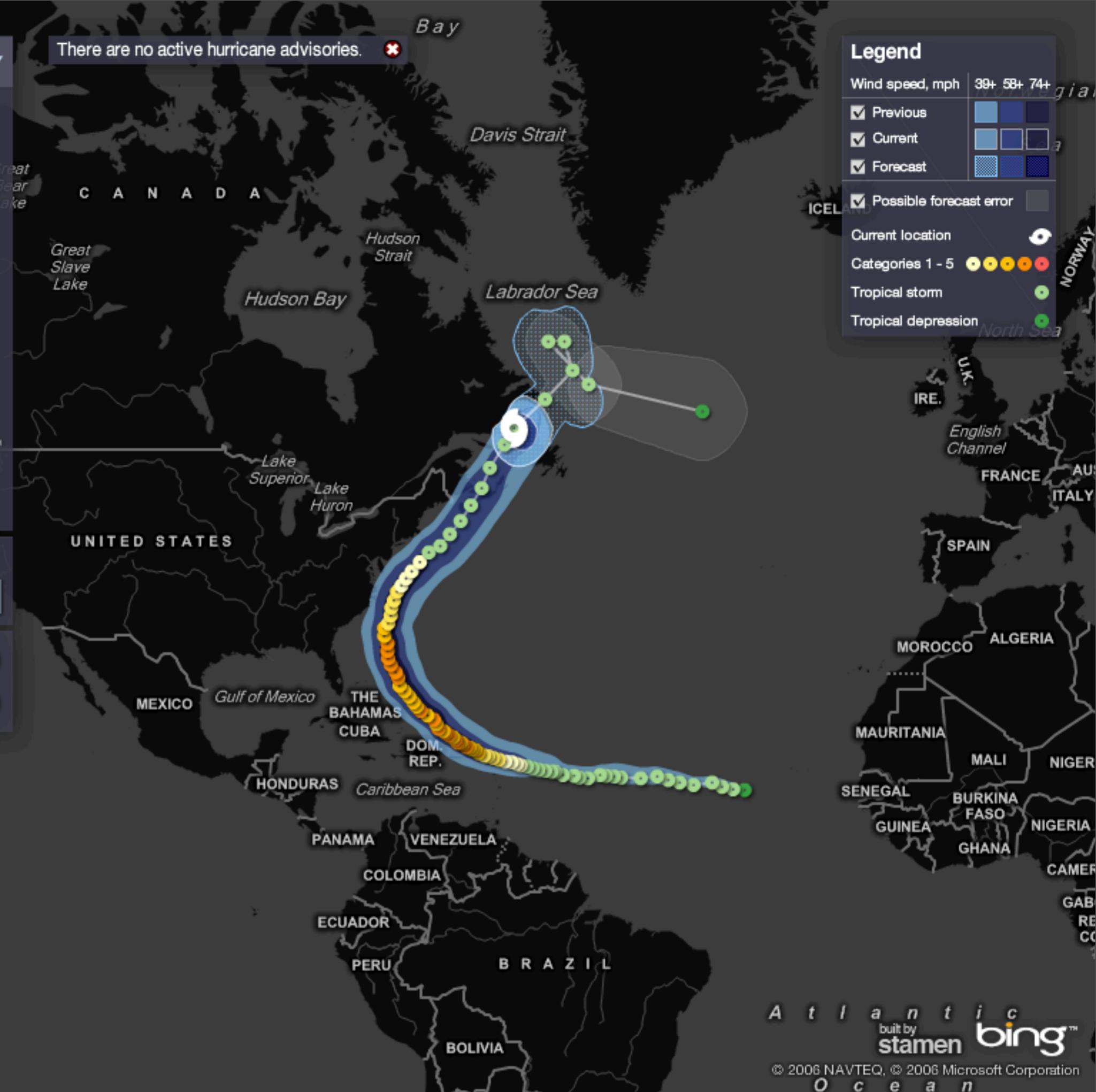
Wind speed chart



Exit full screen to activate search

[Search](#)

- aerial map
 - dark map
 - light map
- [*](#) [↶](#) [↓](#) [↷](#) [-](#)



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This is the initial view, showing Hurricane Earl from September last year.

Each dot along the path represents a known historical position, or a forecast position. The white icon represents the current position.

Earl

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There are no active hurricane advisories.

TROPICAL STORM

Sept. 4, 2010, 11 p.m. EDT

Last updated about 29 weeks ago

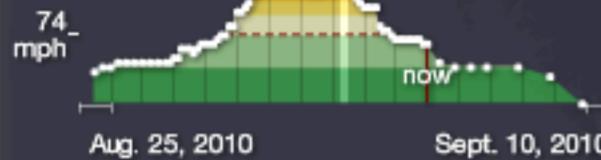
Maximum wind speed **65 mph**

Ground speed **46 mph**

Pressure **970**

Wind speed chart

Sept. 2, 2010 8 a.m. EDT
145mph Category 4 Hurricane



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- aerial map
 - dark map
 - light map
- [*](#) [↶](#) [↓](#) [→](#) [-](#)

Earl

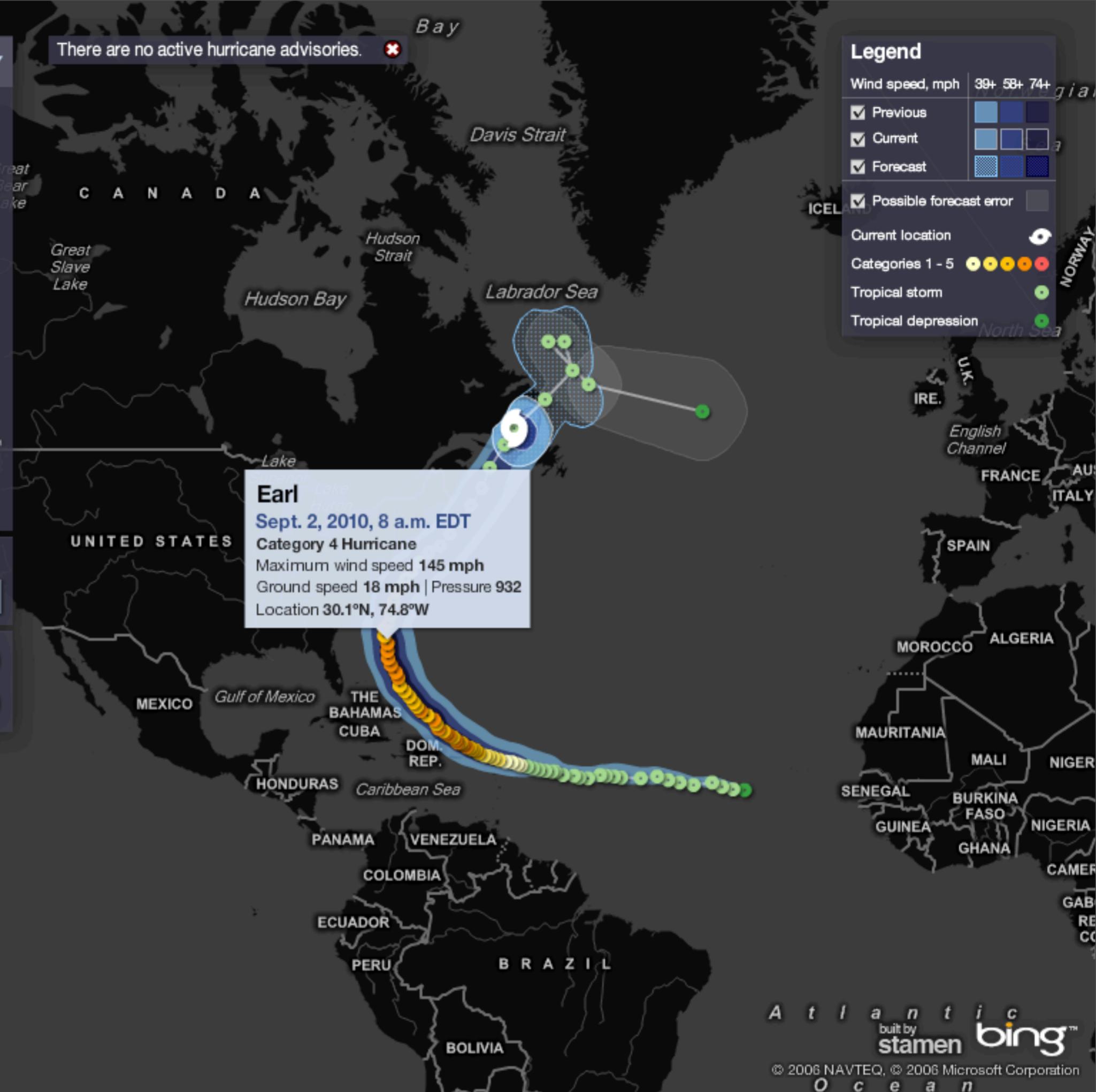
Sept. 2, 2010, 8 a.m. EDT

Category 4 Hurricane

Maximum wind speed **145 mph**

Ground speed **18 mph** | Pressure **932**

Location **30.1°N, 74.8°W**



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Mousing around you see more info. Pretty standard map stuff these days. But you also get highlights in the chart for the corresponding time.

Earl

more storms ▾

TROPICAL STORM

Sept. 4, 2010, 11 p.m. EDT

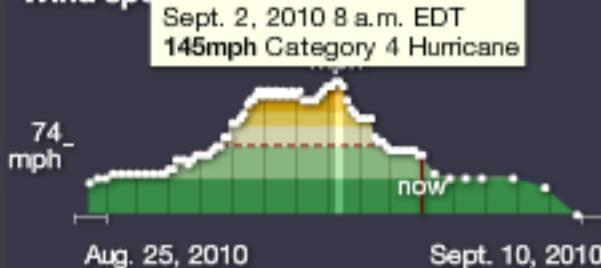
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Pressure **970**

Wind speed chart



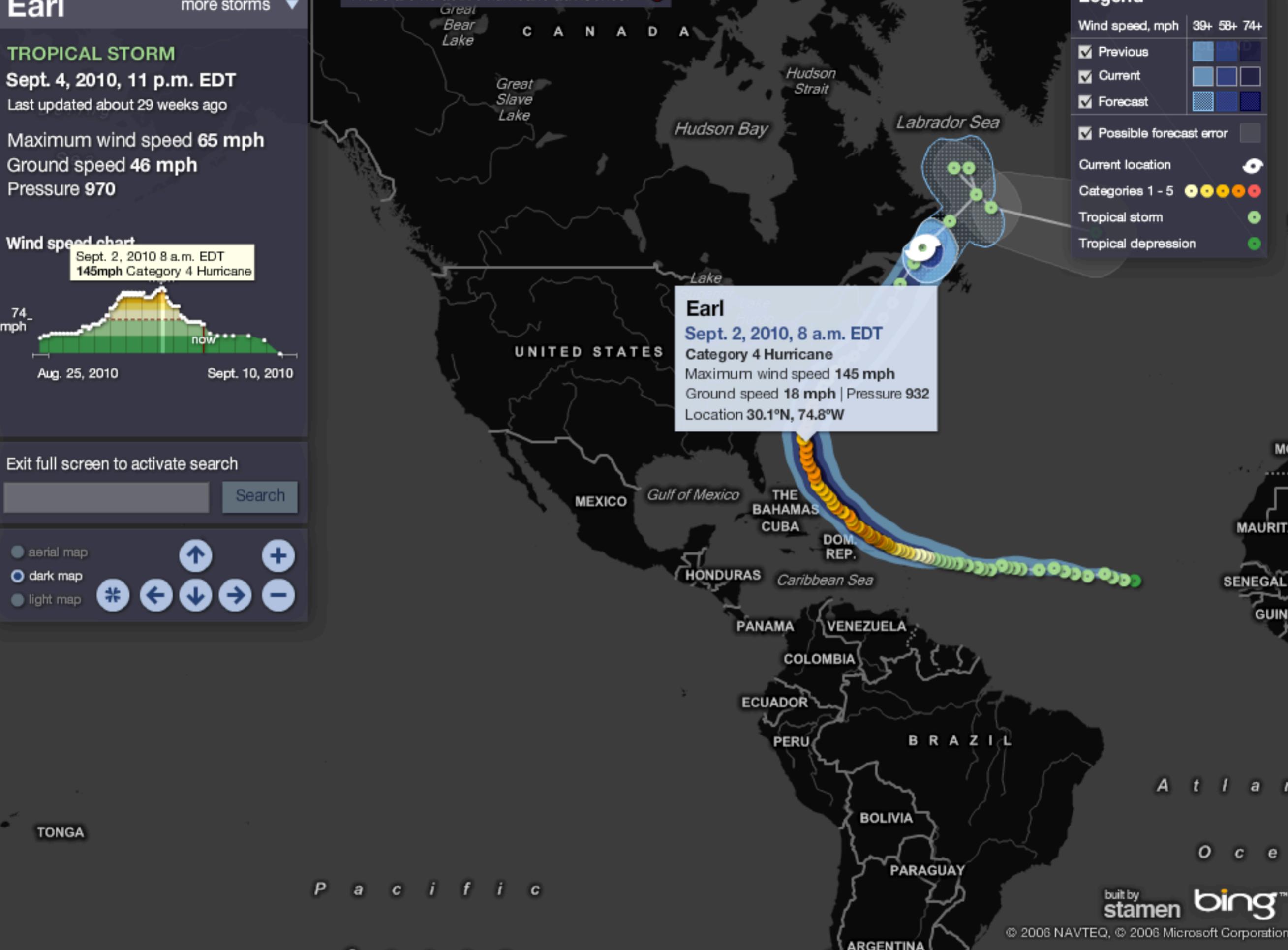
Exit full screen to activate search

Search



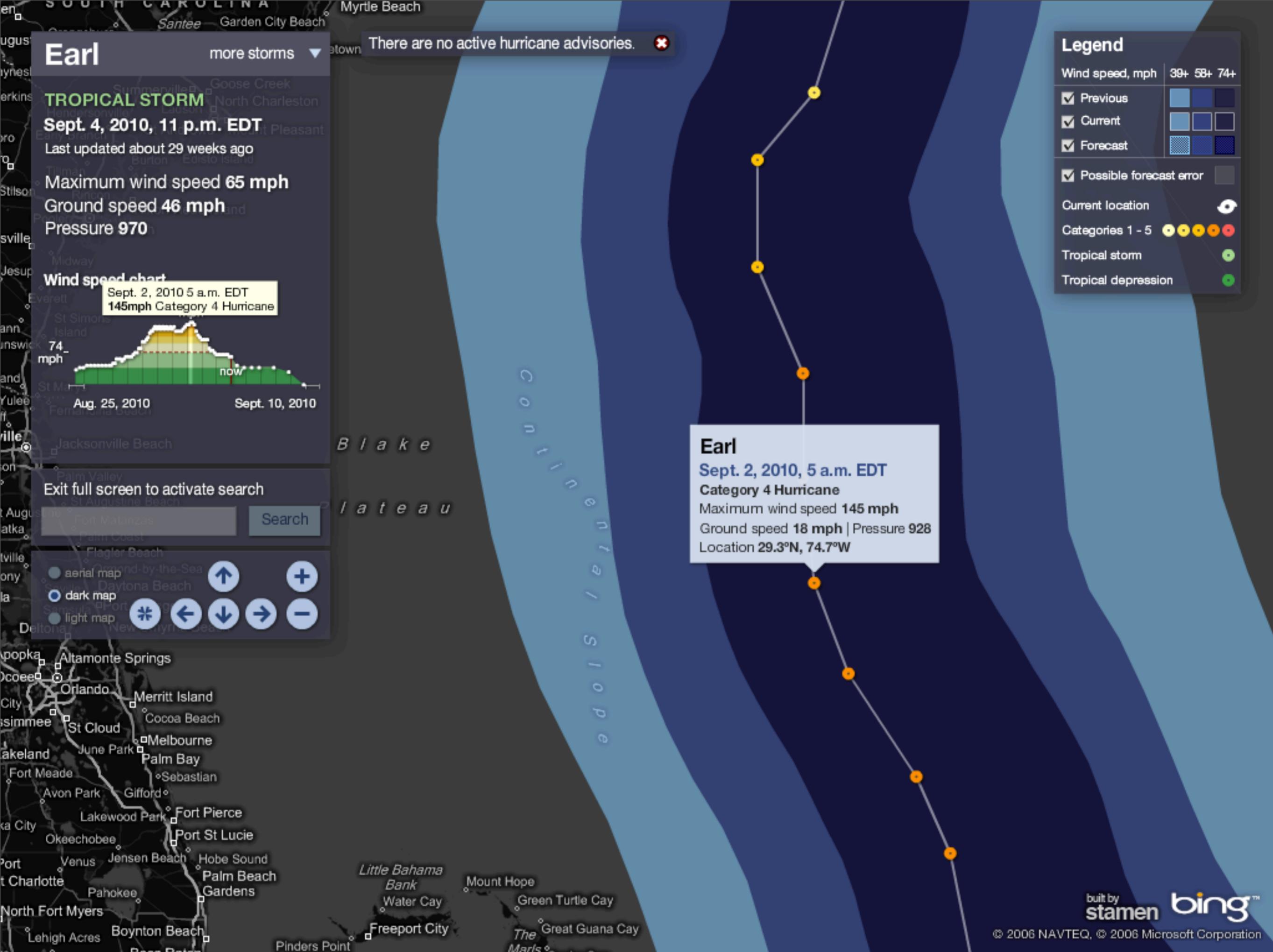
There are no active hurricane advisories. *

Davis Strait



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Clicking the chart or a map point moves the map.



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Zooming in you can get more of a sense of the areas covered. This is where a Google or Bing maps type experience really helps.

Earl

more storms ▾

TROPICAL STORM

Sept. 4, 2010, 11 p.m. EDT

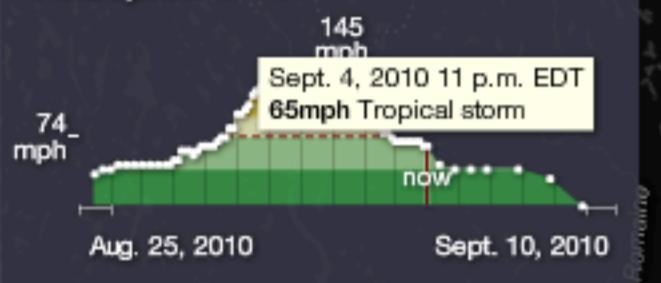
Last updated about 29 weeks ago

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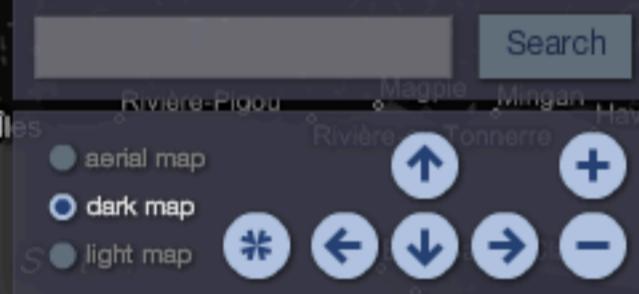
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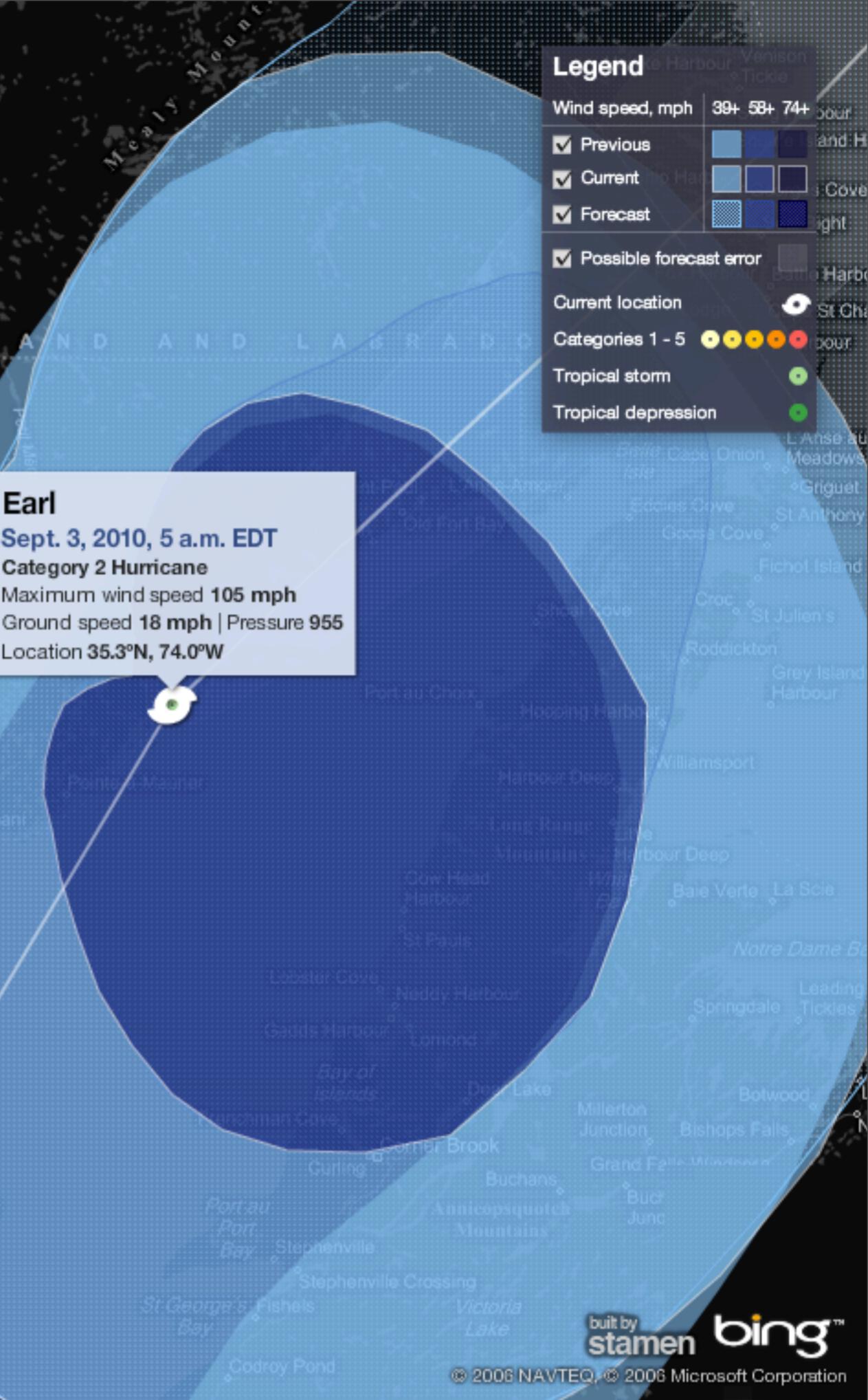
Wind speed chart



Exit full screen to activate search



There are no active hurricane advisories. *



Legend

Wind speed, mph	39+ 58+ 74+
Previous	
Current	
Forecast	
Possible forecast error	
Current location	
Categories 1 - 5	
Tropical storm	
Tropical depression	

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Trying to show the previous, current and forecast positions at the same time was tricky. We went with texture to differentiate but still relied on rollovers to be sure.

Earl

more storms ▾

TROPICAL STORM

Sept. 4, 2010, 11 p.m. EDT

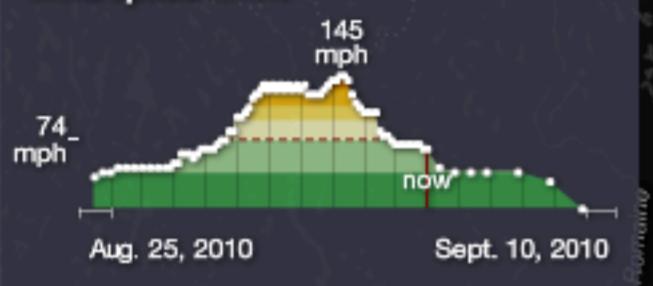
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Search

aerial map

dark map

light map

*

←

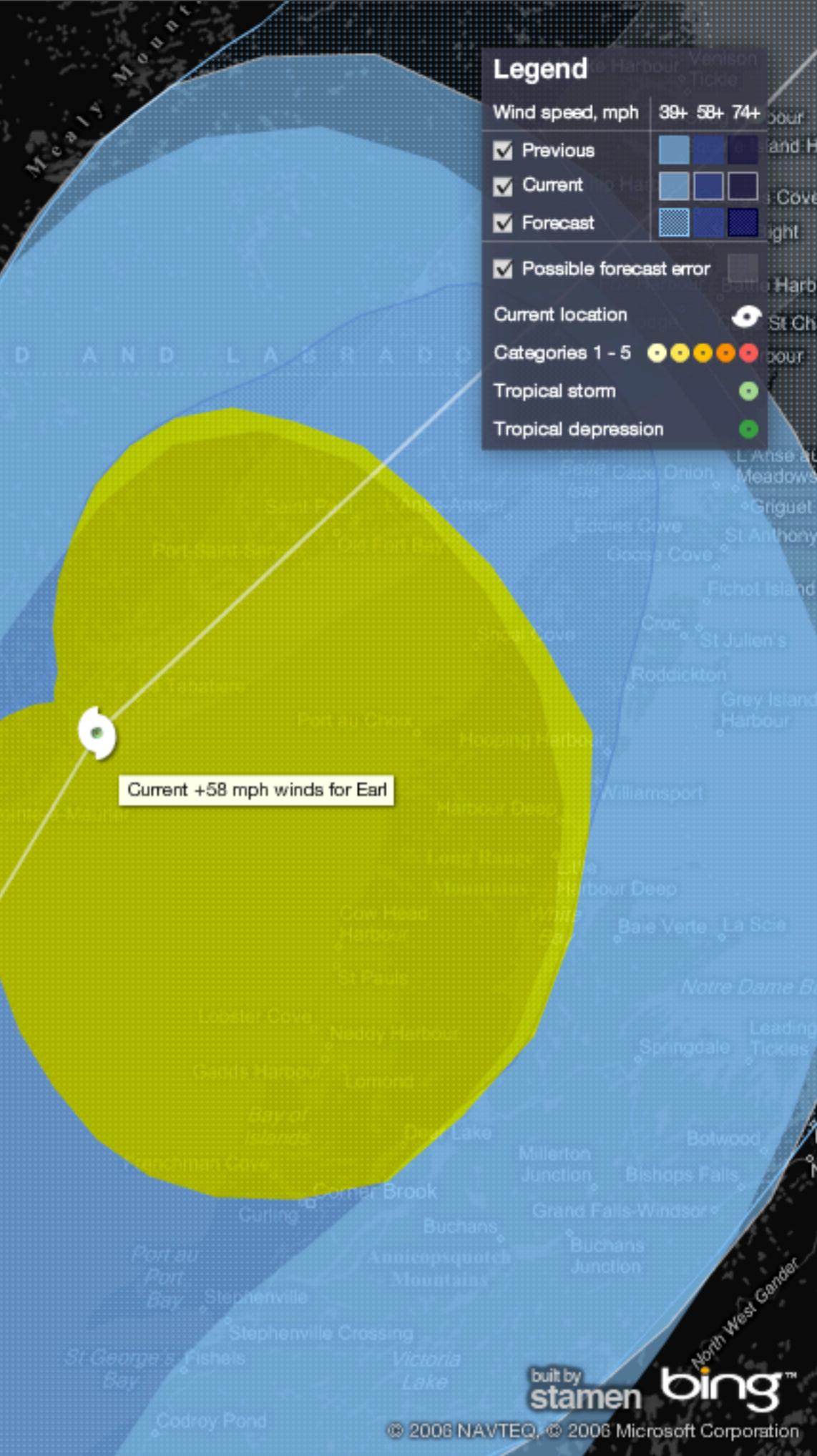
→

+

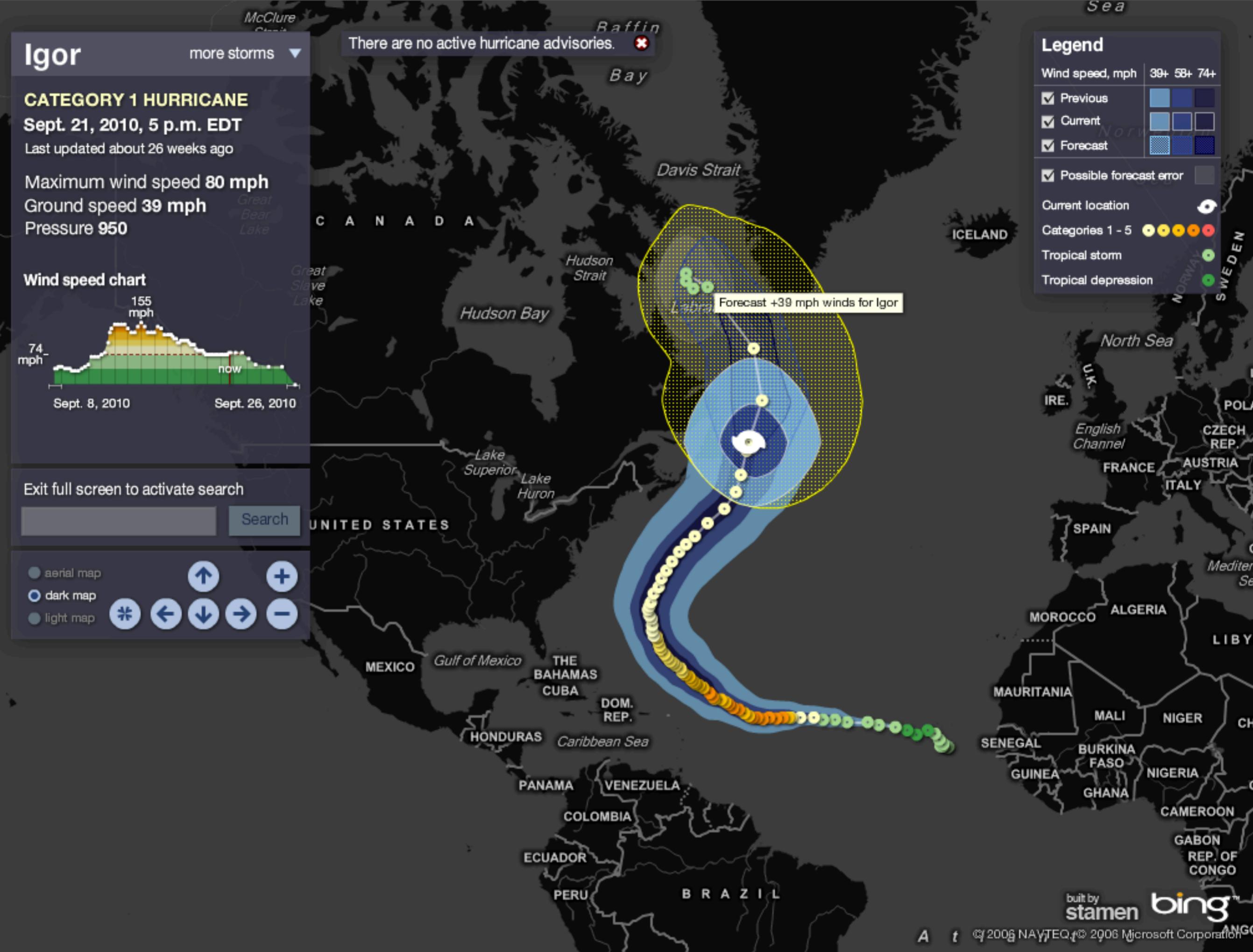
W r e n c e

Rivière-Pigou Magpie Mingan Havre-Saint-Pierre
Rivière-Tonnerre Port-Menier
Jacques Cartier Passage Jupiter Gallois
Martin River Rivière-la-Madeleine Cloridorme Grand-Étang
Murdochville Fox River Penouille Griffin Cove Cap-des-Rosiers
Gaspé Sandy Beach Percé Point St. Peter Grande-Rivière
Chandler Sainte-Adélaïde Carleton Centre Port-Daniel Newport
Caplan Paspébiac Chaleur Bay

There are no active hurricane advisories. *



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This one is Igor. (Clearly) these maps treat the forecast as data that can constantly vary.



Oakland Crimespotting

<http://oakland.crimespotting.org/>

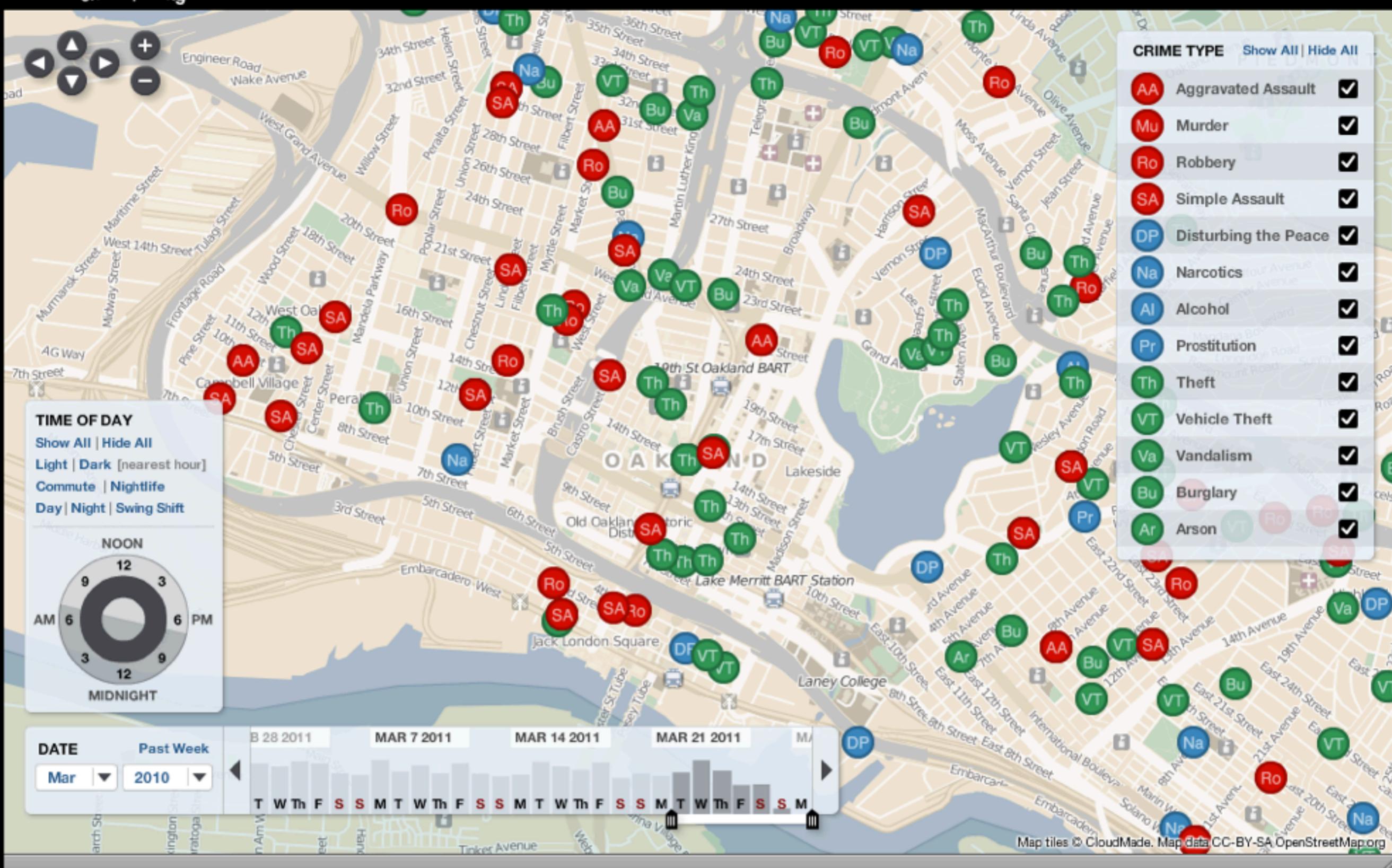


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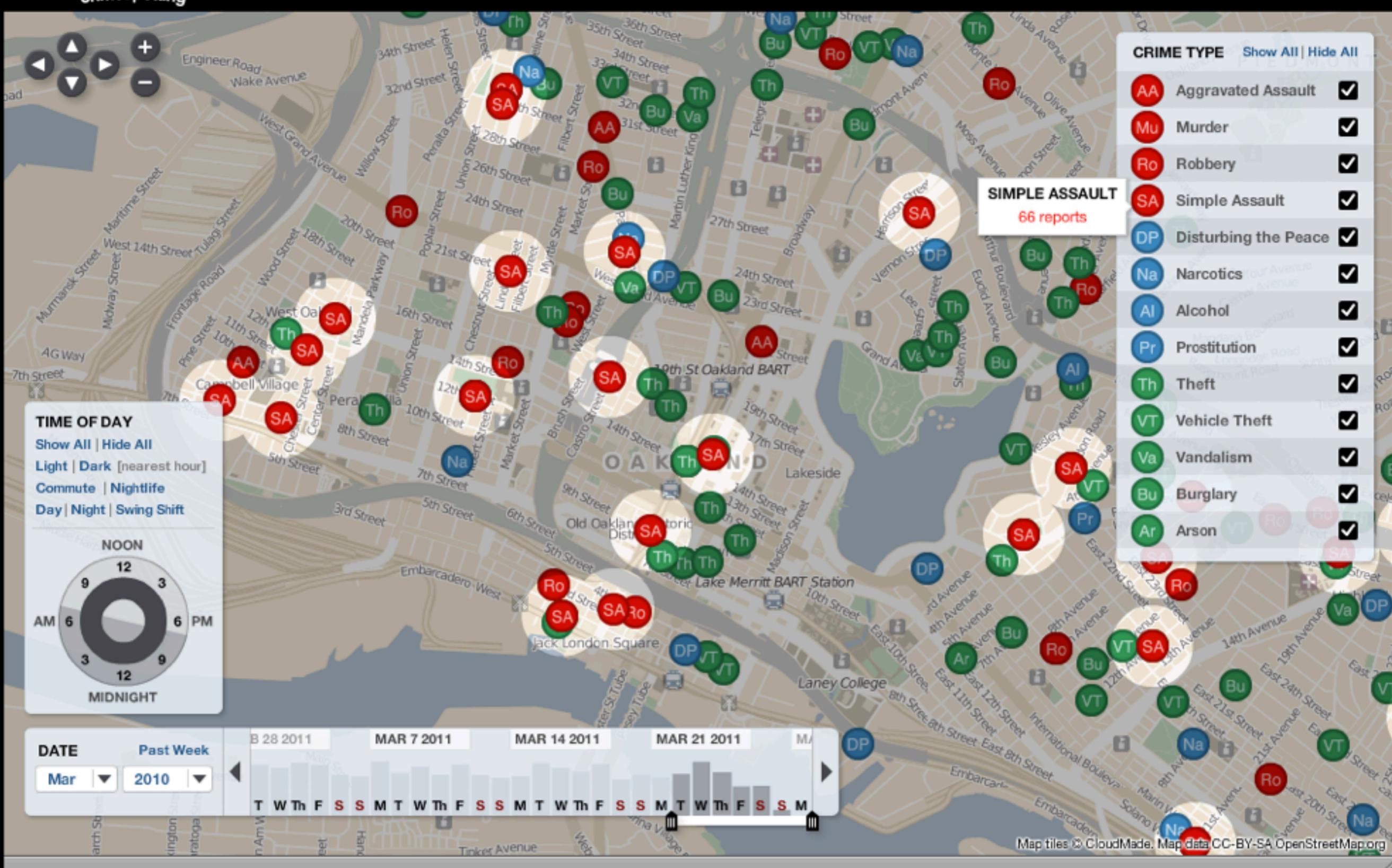
One of the studio's self-initiated projects, Oakland Crimespotting, is quite popular.

Things we're proud of:

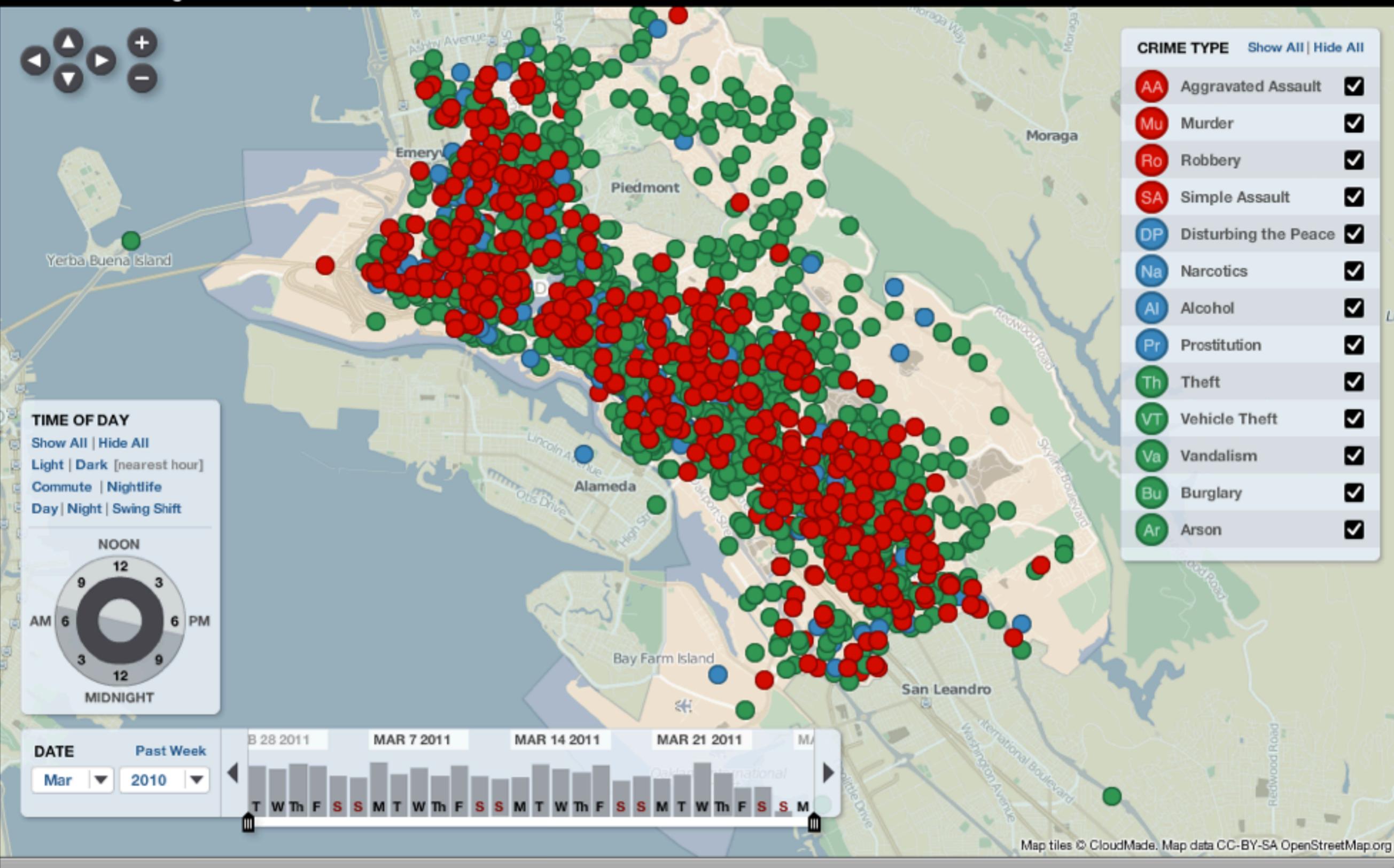
- scraping / "freeing"
- spotlighting
- show everything (manifesto)
- pie of time
- range slider (manifesto)
- permalinks (manifesto)
- special base map
- SF blessing
- hyperlinky labels


[Home](#) [Map](#) [Crime Reports](#) [Police Beats](#) [Alerts](#) [API](#) [About](#) [Feedback](#)


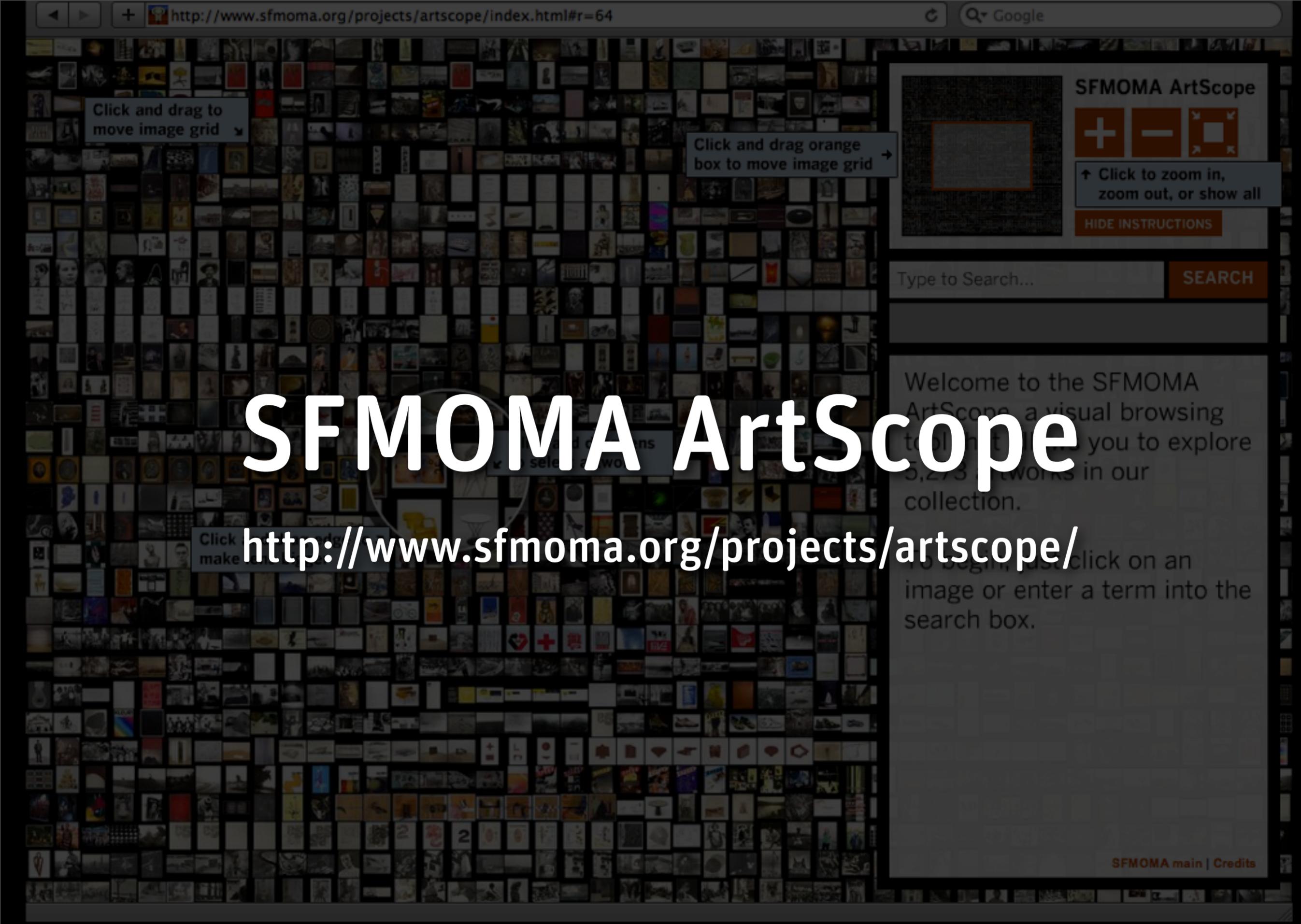
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We also worked with SFMOMA on a piece called ArtScope which is still live on their site.

Things we're proud of:

- show everything (manifesto)
- images easily the most important part of the collection
- search
- serendipity
- immersive
- little flourishes like the zooming behavior
- exposing collection patterns
- e.g. architectural drawings

The screenshot shows the SFMOMA ArtScope interface. On the left is a large grid of small thumbnail images of artworks. Several interactive elements are overlaid on the grid:

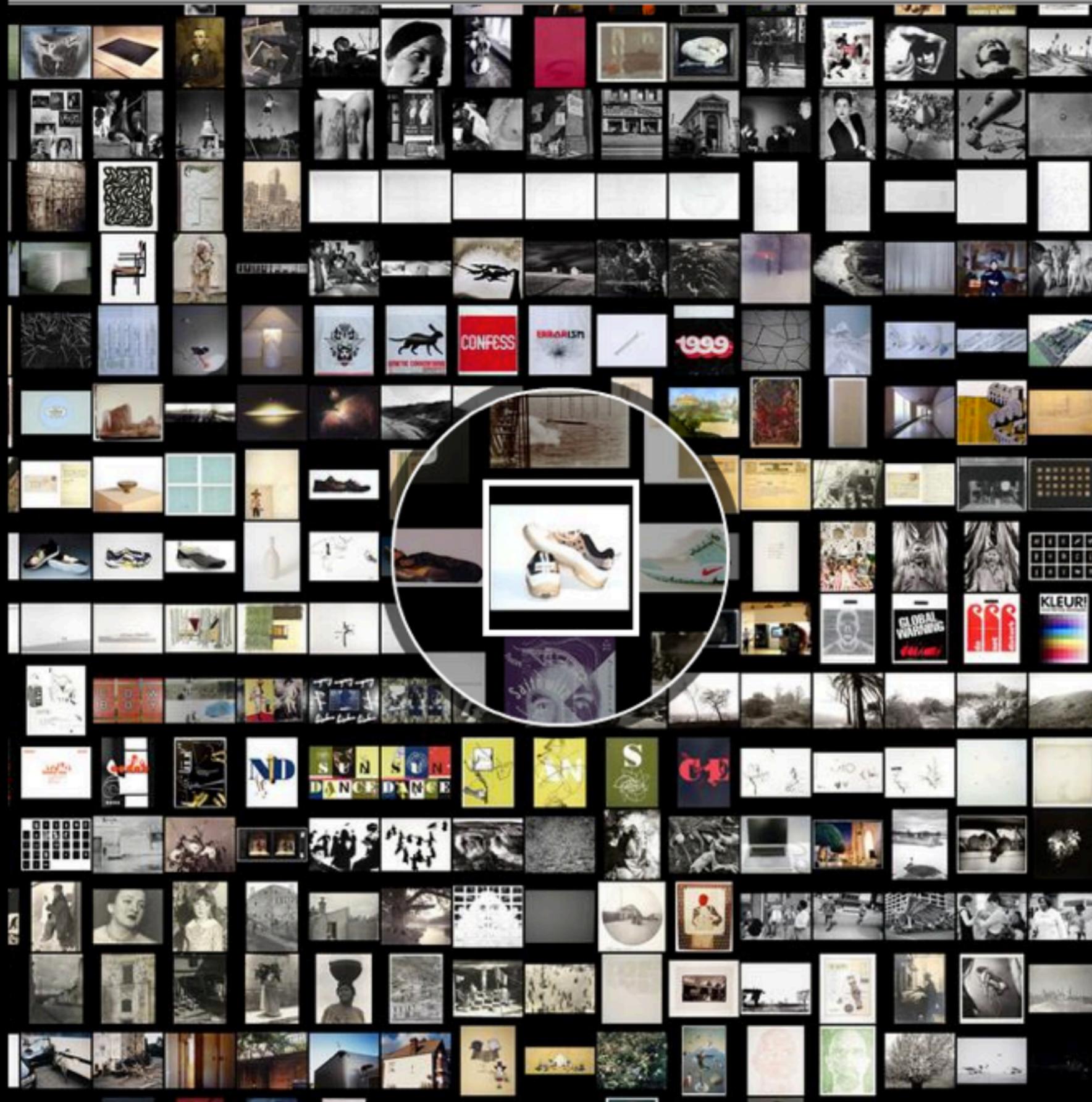
- A white box with a black border at the top left contains the text "Click and drag to move image grid".
- A white box with a black border at the top right contains the text "Click and drag orange box to move image grid" with an arrow pointing to an orange rectangular selection tool.
- A white box with a black border in the center contains the text "Click and drag lens to select artwork" with an arrow pointing to a circular selection tool.
- A white box with a black border at the bottom left contains the text "Click and drag edge to make lens bigger" with an arrow pointing to the circular selection tool's edge.

To the right of the grid, there is a search bar with the placeholder "Type to Search..." and a red "SEARCH" button. Above the search bar is a section titled "SFMOMA ArtScope" with zoom controls (+, -, X) and a link "Click to zoom in, zoom out, or show all". Below the search bar is a "HIDE INSTRUCTIONS" button. A large text area on the right side reads:

Welcome to the SFMOMA ArtScope, a visual browsing tool that allows you to explore 5,273 artworks in our collection.

To begin, just click on an image or enter a term into the search box.

[SFMOMA main](#) | [Credits](#)



SFMOMA ArtScope

+ - X

SHOW INSTRUCTIONS

shoes CLEAR

39 of 52

DKNY
Gear
2000
design object | plastic and fabric

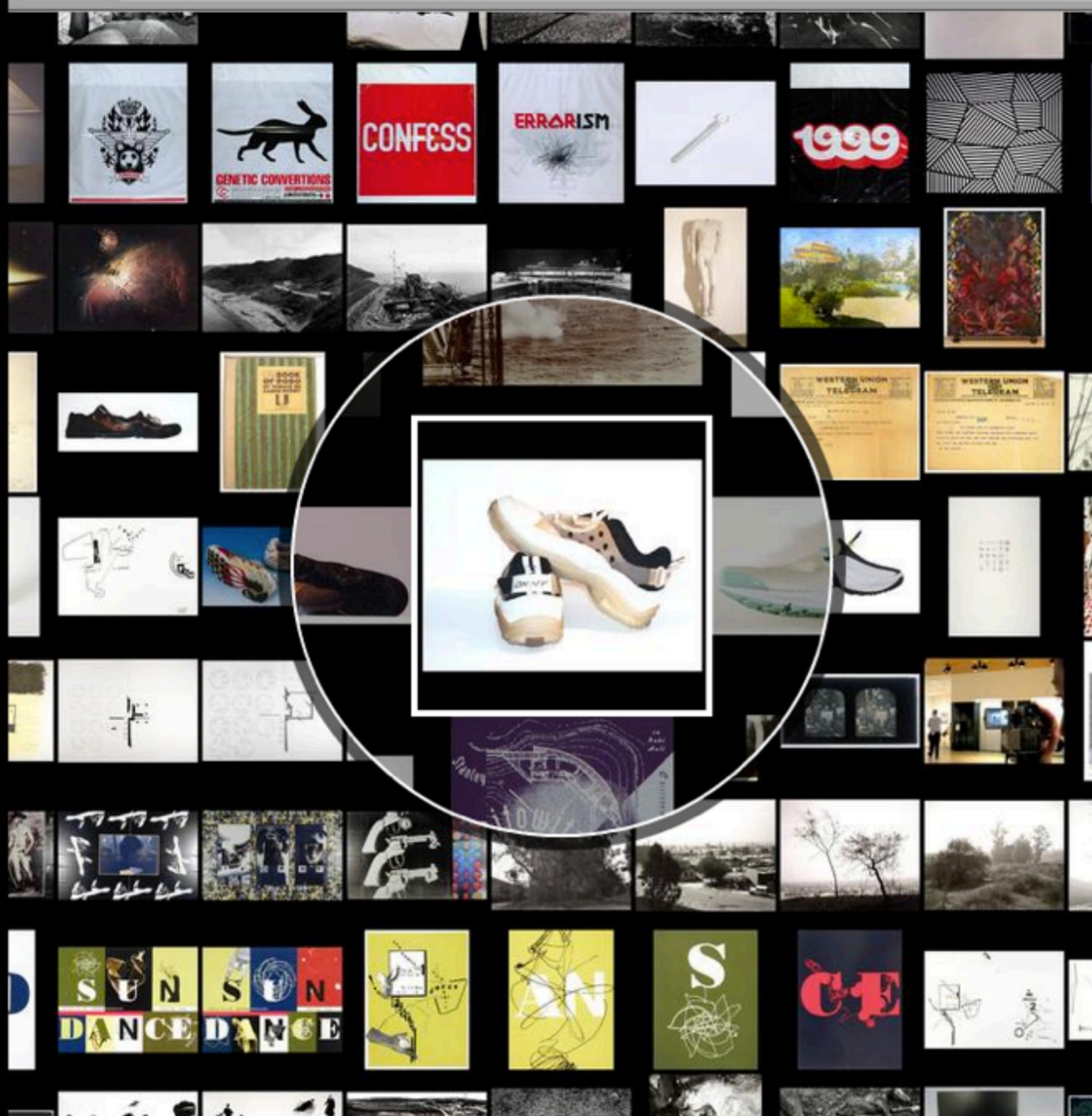
Keywords: KLEUR! KLEUR!
design, shoes, athletic

Acquired 2001
Collection SFMOMA. Gift of the Donna Karan New York Company
© The Donna Karan Company LLC



[SFMOMA main](#) | [Credits](#)

Loading "http://www.sfmoma.org/projects/artscope/index.html#artwork=101458&r=105&zoom=5", completed 923 of 924 items



SFMOMA ArtScope



SHOW INSTRUCTIONS

shoes

CLEAR

39 of 52

DKNY

Gear

2000

design object | plastic and fabric

Keywords:

design, shoes, athletic

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Loading "http://www.sfmoma.org/projects/artscope/index.html#artwork=101458&r=169&zoom=6", completed 855 of 859 items

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SFMOMA ArtScope

Western Union Telegram

SHOW INSTRUCTIONS

shoes **CLEAR**

39 of 52

DKNY

Gear
2000
design object | plastic and fabric

Keywords: design, **shoes**, athletic

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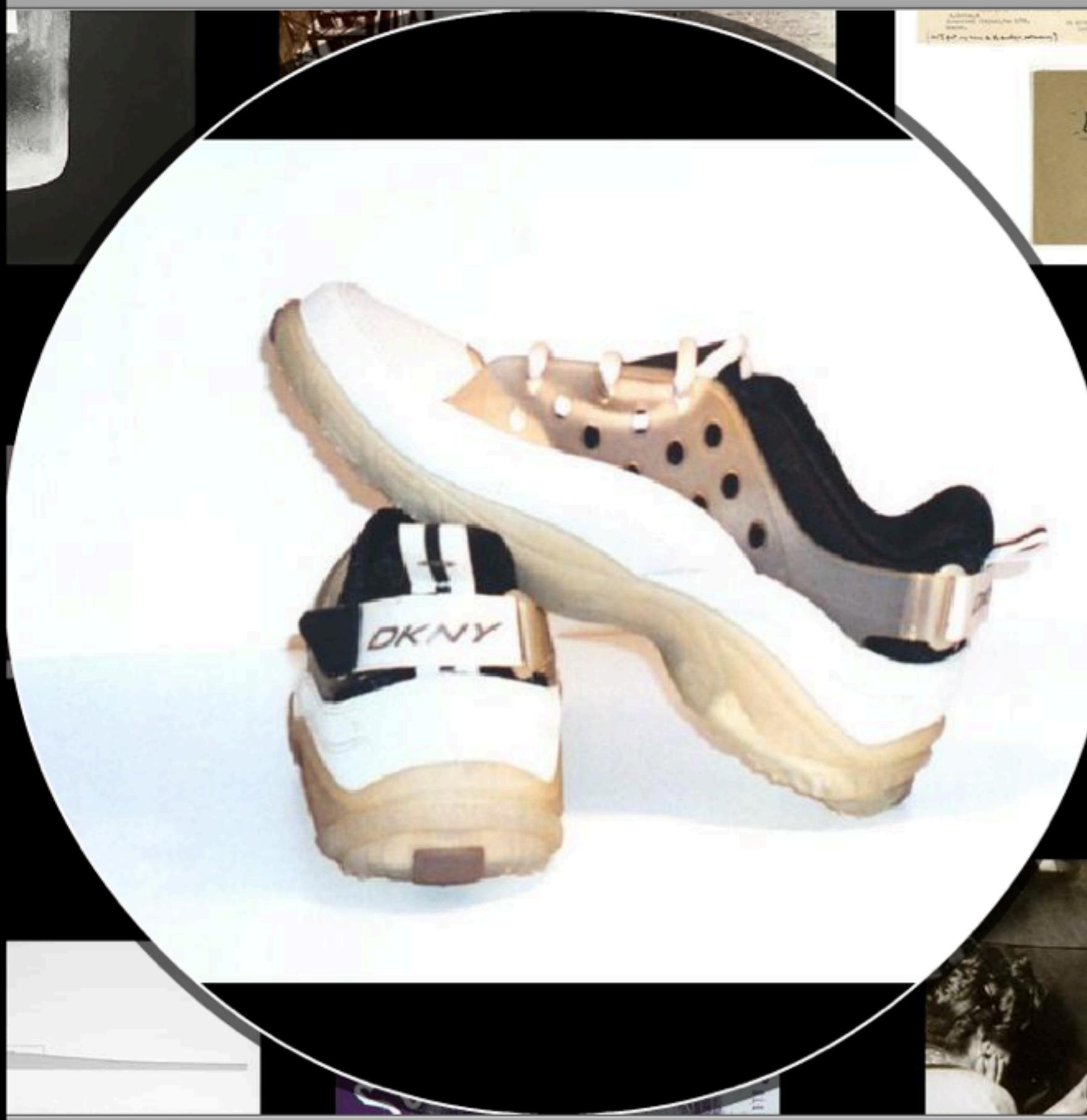
SFMOMA main | Credits

Stanley

Nahl Hall

Loading "http://www.sfmoma.org/projects/artscope/index.html#artwork=101458&r=298&zoom=7", completed 782 of 788 items

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SFMOMA ArtScope

+ **-** **×**

[SHOW INSTRUCTIONS](#)

shoes [CLEAR](#)

39 of 52

DKNY
Gear
2000
design object | plastic and fabric

Keywords:
design, [shoes](#), athletic

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all at Stamen,
with Modest Maps,
as webby as we could

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So that's the kind of work I do (all with my former colleagues at Stamen design). All were built with Modest Maps. All were built in Flash, but it wouldn't necessarily be that way today.

Elsewhere

Tuesday, March 29, 2011

They aren't the only ones doing this kind of work (any more). The New York times has a world-class team building things like this. The Washington Post, Guardian and others do too.

When I moved to San Francisco in 2006, Stamen was practically the only agency available for this kind of work. There were individuals, and there were bigger agencies which occasionally produced similar types of stuff, but Stamen were the only prominent specialists.

I think we'll eventually see these skills become a part of web design, and design in general.

Design Visualization Data Visualization [Edit](#)[Follow Question](#)[Options](#)

★ Who are leading data visualization companies in addition to Stamen Design? [Edit](#)

Stamen is a great tech design studio that has produced things like Crimespotting and Digg Labs. Are there any other firms that are of the same caliber? [Edit](#)

[1 Comment](#) • [Flag Question](#)

Answer Summary

Ben Fry <http://fathom.info> ↗
 BERG <http://bergondon.com> ↗
 Bestiario <http://bestiario.com> ↗
 Catalogtree <http://catalogtree.net> ↗
 Daniel A. Becker <http://daniel-becker.de> ↗
 David McCandless <http://davidmccandless.com> ↗
 Density Design <http://densitydesign.org> ↗
 Designing Analytics <http://designinganalytics.com> ↗
 Envis Precisely <http://envis-precisely.com> ↗
 Field <http://field.io> ↗
 Flink Labs <http://flinklabs.com> ↗
 InfoMotor (San Francisco): <http://www.infomotor.com> ↗
 Interactive Things <http://interactivethings.com> ↗
 Ito World <http://itoworld.com> ↗
 Jer Thorp <http://blprnt.com> ↗
 JESS3 <http://jess3.com> ↗
 Juice Analytics <http://juiceanalytics.com> ↗
 Manuel Lima <http://mslima.com> ↗
 Marcos Weskamp <http://marumushi.com> ↗
 MonsterSwell <http://monsterswell.com> ↗
 Moritz Stefaner <http://moritz.stefaner.eu> ↗
 Nicholas Felton <http://feltron.com> ↗
 Periscopic <http://periscopic.com> ↗
 Pitch Interactive <http://pitchinteractive.com> ↗
 Seed Media (New York): <http://seedmediagroup.com> ↗
 Shiftcontrol Studios <http://shiftcontrol.dk> ↗
 Stefanie Posavec <http://itsbeenreal.co.uk> ↗
 Taco Labs <http://blog.tacolab.com> ↗

Agency Explosion!

<http://qr.ae/npjy>

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[Who are today's leading thought leaders in design?](#)

[What are the biggest industries in the world and which companies have largest marketshare within each?](#)

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Question Stats

Latest activity Feb 10, 2011.

This question has been viewed 1272 times; it has 1 monitor with 24236 topic followers.

69 people are following this question.



Loading "http://www.quora.com/Who-are-leading-data-visualization-companies-in-addition-to-Stamen-Design", completed 7 of 8 items

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Agencies like Fathom, JESS3, (etc) are offering these services now too.

<http://www.quora.com/Who-are-leading-data-visualization-companies-in-addition-to-Stamen-Design>

30+ agencies listed so far “in addition to Stamen Design” – a huge validation for my former colleagues; never a bad thing to have competition!

Design Visualization Data Visualization [Edit](#)[Follow Question](#)[Options](#)

★ Who are leading data visualization companies in addition to Stamen Design? [Edit](#)

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 Envis Precisely <http://envis-precisely.com> ↗
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 Seed Media (New York): <http://seedmediagroup.com> ↗
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 Stefanie Posavec <http://itsbeenreal.co.uk> ↗
 Taco Labs <http://bloq.tacolab.com> ↗

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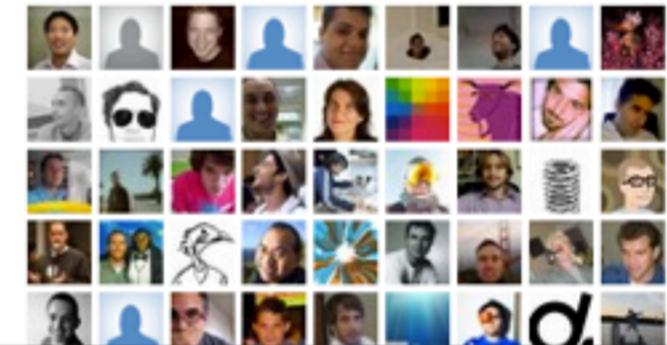
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Blog Explosion!

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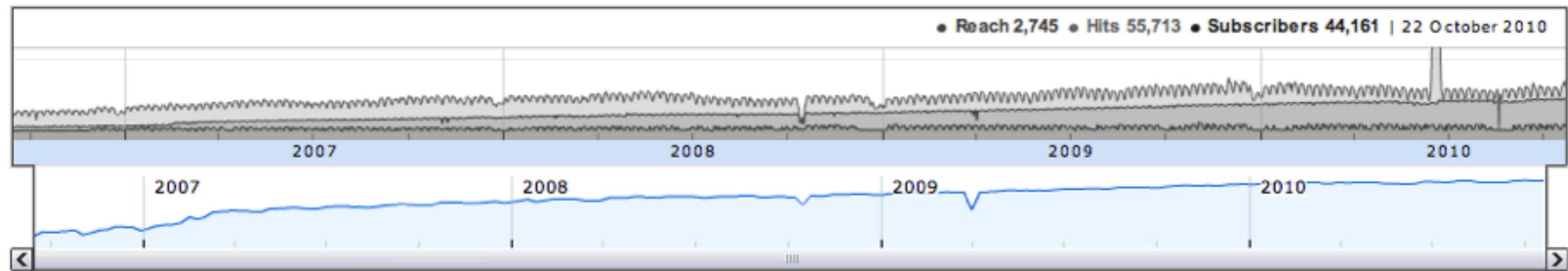
There are also tons of blogs in this space, but a few stand out as really capturing the breadth and depth of the work that's out there...



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Andrew Vande Moere's <http://infosthetics.com>

(apologies for the second article – it's hard to be a fan and a critic!)

visual complexity

Search the VC database:

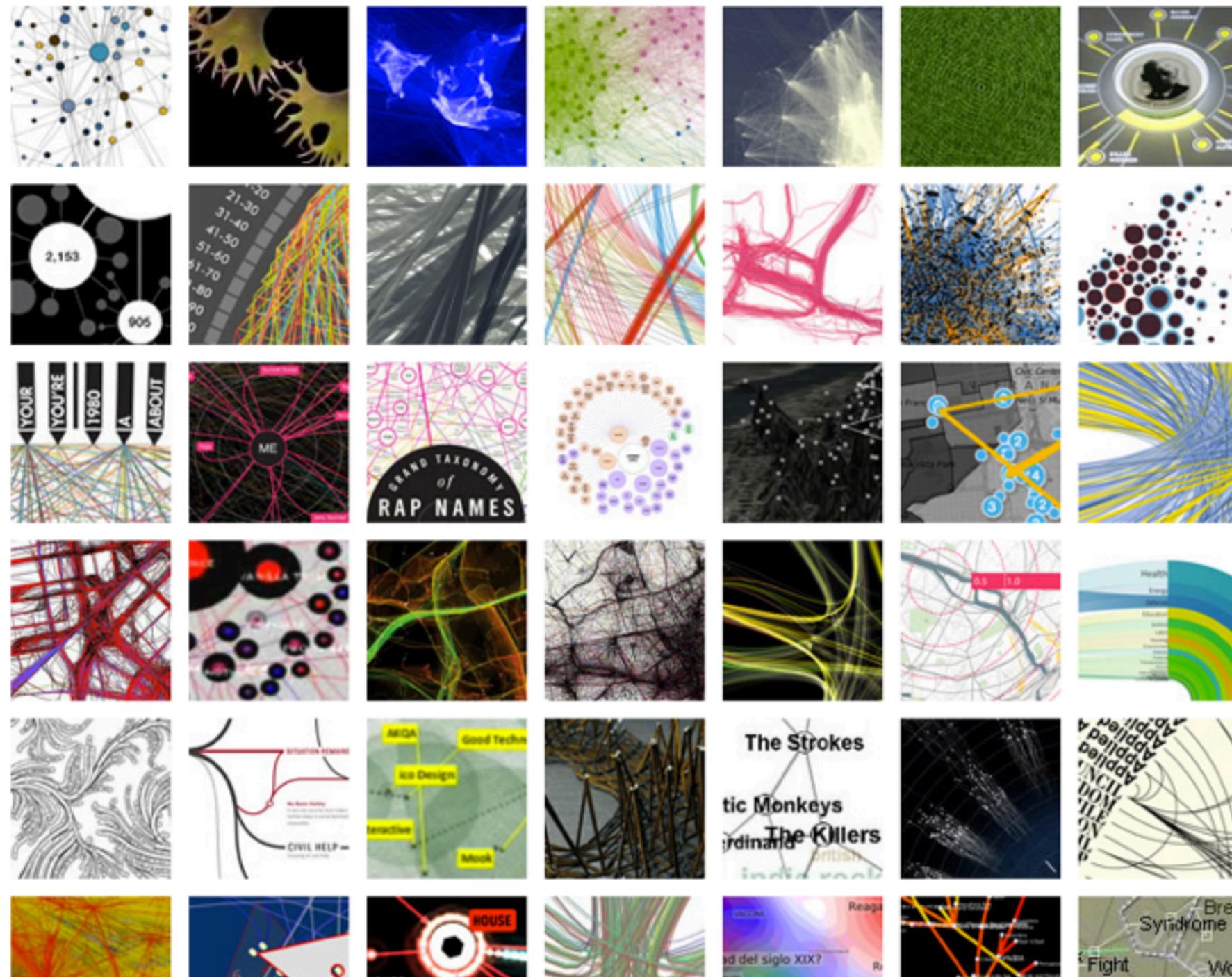
— HEAD
GENÈVE

Media Design MA Program -
Electronic publishing
Powered by influAds

Latest Projects:



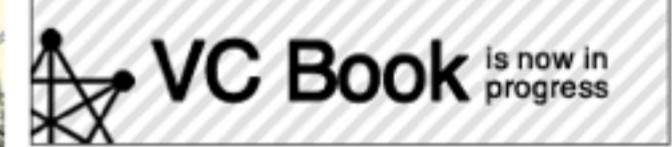
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VisualComplexity.com takes many hours of research and curation. You can support the effort with a small [donation](#).

Loading "http://www.visualcomplexity.com/vc/", completed 126 of 129 items

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<http://visualcomplexity.com>

Manuel Lima gets a bit more theoretical/taxonomical with his collection. Has a book coming soon.

Every river system mapped in World of Rivers

Mar 28, 2011 to [Mapping](#) | [Share on Twitter](#)



The annual Malofiej awards, for top graphics in journalism, were handed out last week. The best map of 2010 went to National Geographic for the [World of Rivers](#). Every river system in the world was mapped and scaled by annual discharge.

We live on a planet covered by water, but more than 97 percent is salty, and nearly 2 percent is locked up in snow and ice. That leaves less than one percent to grow our crops, cool our power plants, and supply drinking and bathing water for households.

[Showing everything doesn't always work with so much data, but it does in](#)

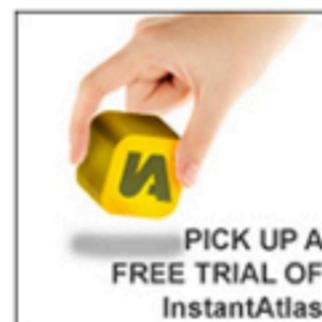
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Interact with
Your Data
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Before

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ABOUT

FlowingData is the visualization and statistics site of [Nathan Yau](#). I highlight how designers, programmers, and statisticians are putting data to good use. This is my playground.

[Like](#) 4K

LATEST TWEETS

RT @feltron: this might be good: <http://t.co/AKkL44a> #

Every river system mapped in World of Rivers
<http://datafl.ws/19z> #

Think Quarterly from Google UK is on data
<http://datafl.ws/19y> #

Open-source Data Science Toolkit <http://datafl.ws/19x> #

Anatomy of a cupcake
<http://datafl.ws/19w> #

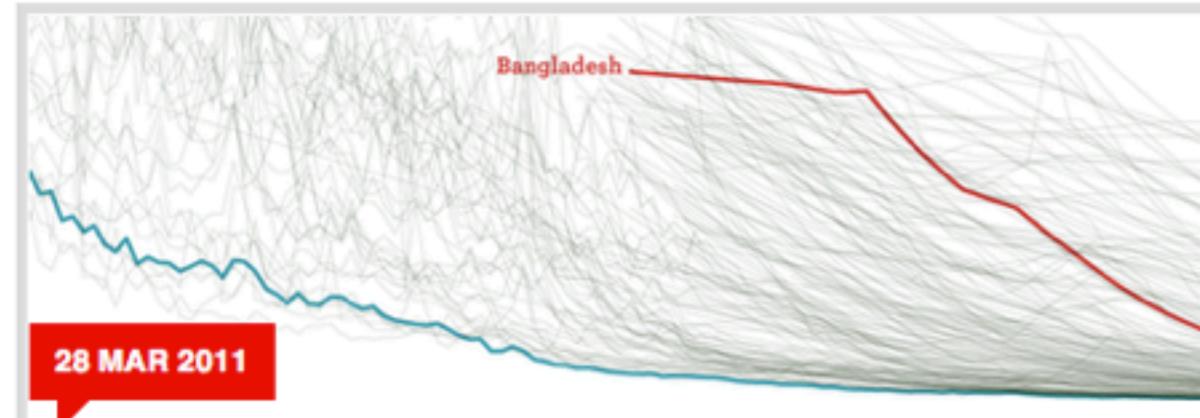
Follow [@flowingdata](#).

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Nathan Yau at <http://flowingdata.com>, also has a forthcoming book



LATEST



Remixing Rosling

For an article about Sweden's most famous statistician Hans Rosling in Google's "Think Quarterly" Magazine, Moritz Stefaner has remixed two of the famous Gapminder bubble graphics. [Read more](#)

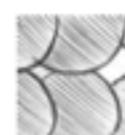
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[24 MAR 2011](#) [INSIDE, OPINIONS](#) [INTERACTIVE THINGS, PRINT, PROCESS](#)

SPOTLIGHT



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24 Mar 2011
Inside



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Events



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7 Retweets



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Tuesday, March 29, 2011

<http://datavisualization.ch>

Benjamin also curates the visualization part of the Flipboard app.

(note the cameo from Gapminder/Hans Rosling too)

NYTimes Interactive

Tuesday, March 29, 2011

And no talk about dataviz would be complete without a mention of the NYTimes Interactive group – in a class of their own?

A Peek Into Netflix Queues

Examine Netflix rental patterns, neighborhood by neighborhood, in a dozen cities. Some titles with distinct patterns are [Mad Men](#), [Obsessed](#) and [Last Chance Harvey](#). [Comments \(135\)](#)

100 titles that were frequently rented from Netflix in 2009

[Previous](#) [Next](#) [Most rented](#) [Least rented](#)

Change how movies are sorted

[Most rented](#) [Alphabetical](#) [By metascore](#)

Milk

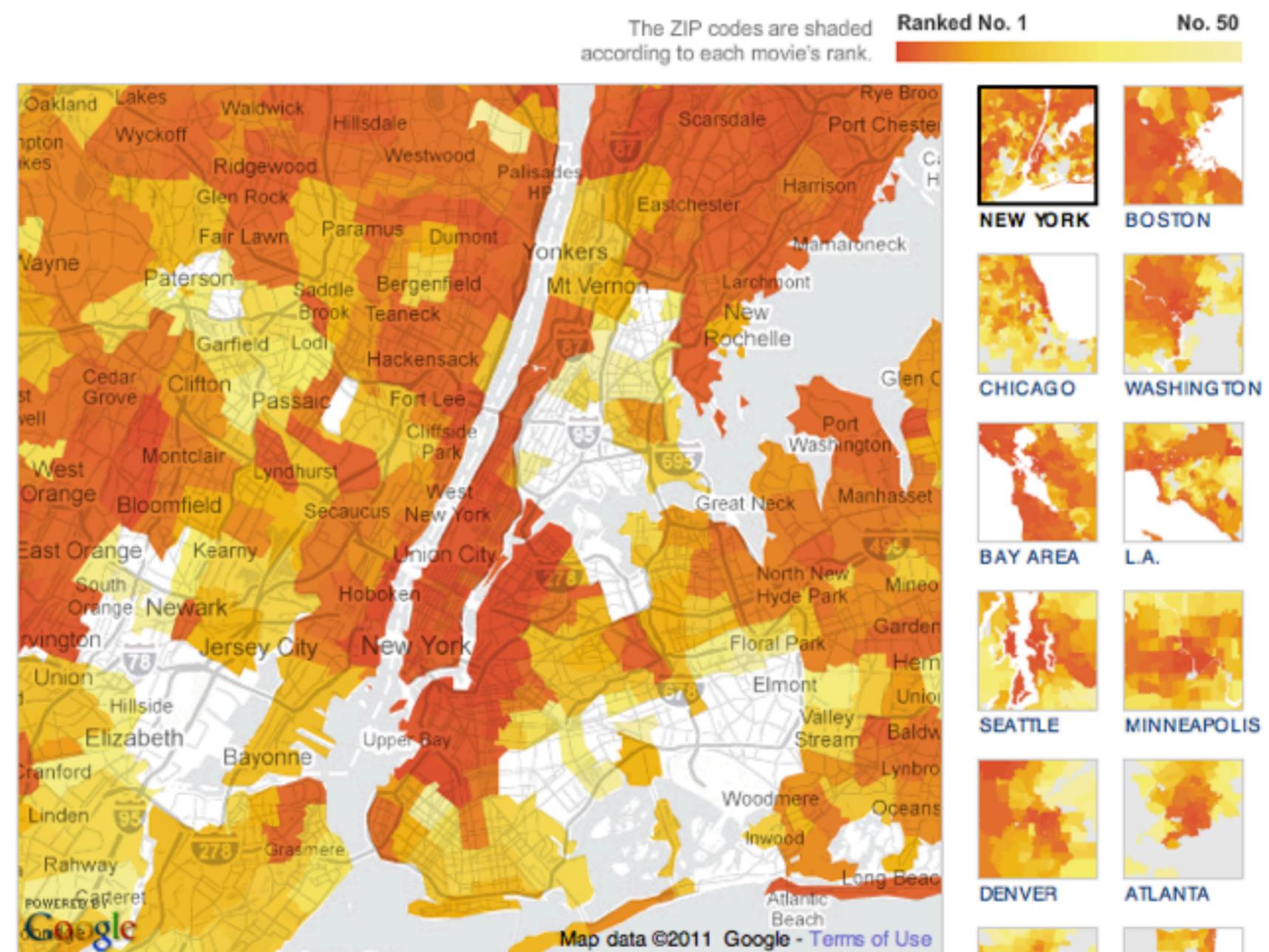


84

Metacritic score
100=loved by critics, 0=hated

One of the first scenes in "Milk" is of a pick-up in a New York subway station. It's 1970, and an insurance executive in a suit and tie catches sight of a beautiful, scruffy younger man — the phrase "angel-headed hipster" comes to mind — and banters with him on the stairs. The mood of the moment, which ends up with the two men eating birthday cake in bed, is casual and sexy, and its flirtatious playfulness is somewhat disarming, given our expectation of a serious and important movie grounded in historical events. "Milk," directed by Gus Van Sant from a script by Dustin Lance Black, is certainly such a film, but it manages to evade many of the traps and compromises of the period biopic with a grace and tenacity worthy of its title character.

[Read Rest of NYT Review »](#)



Sources: Netflix provided data on the top 50 rentals in 2009 in each ZIP code. Titles are listed in the approximate order of popularity across selected metropolitan areas. Metascores are from metacritic.com.

Loading "http://www.nytimes.com/interactive/2010/01/10/nyregion/20100110-netflix-map.html", completed 51 of 52 items

Tuesday, March 29, 2011

<http://www.nytimes.com/interactive/2010/01/10/nyregion/20100110-netflix-map.html>

February 23, 2008

[SIGN IN TO E-MAIL OR SAVE THIS](#)

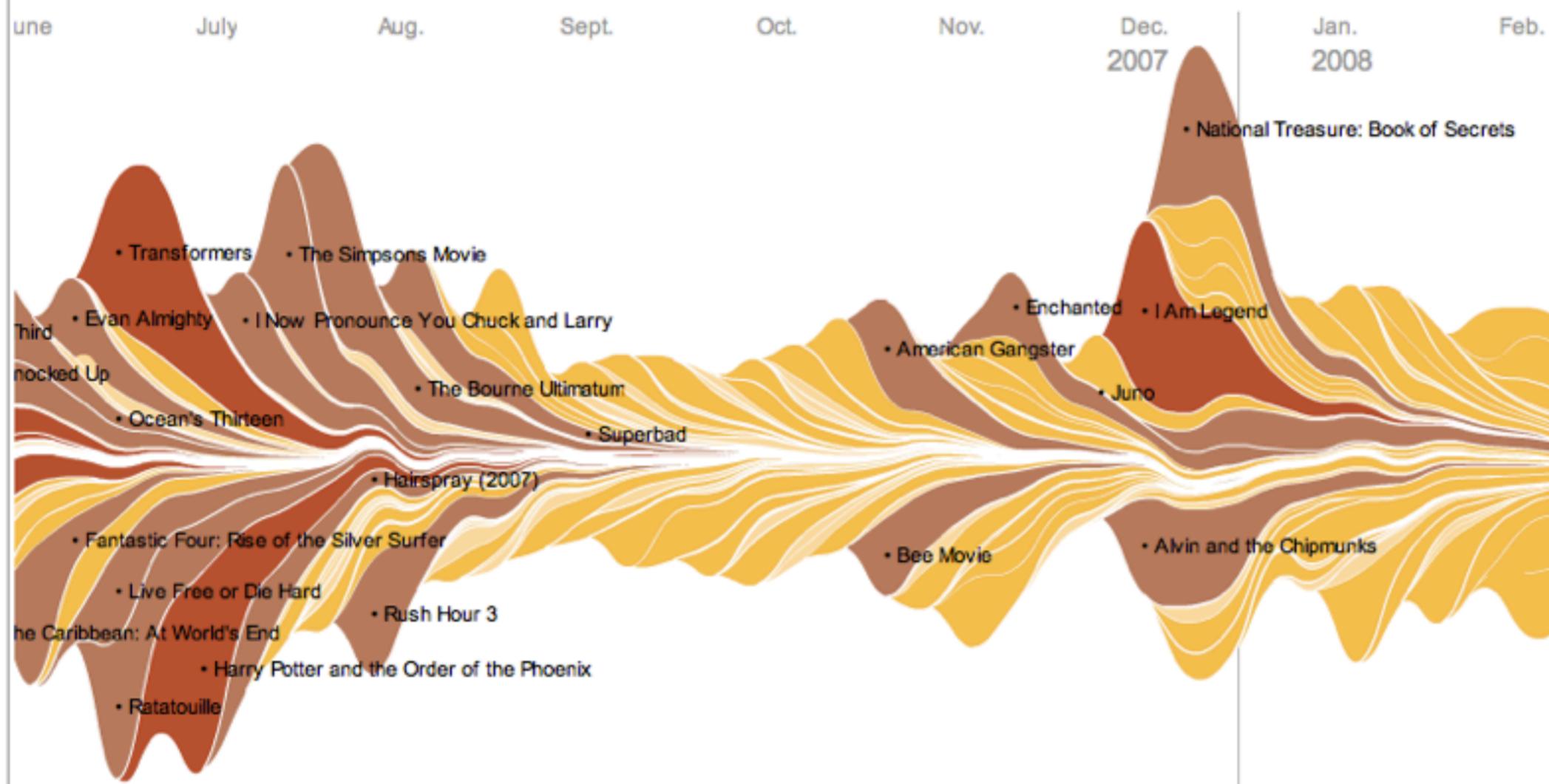
FEEDBACK

The Ebb and Flow of Movies: Box Office Receipts 1986 — 2008

Summer blockbusters and holiday hits make up the bulk of box office revenue each year, while contenders for the Oscars tend to attract smaller audiences that build over time. Here's a look at how movies have fared at the box office, after adjusting for inflation.

Find Movie

Go

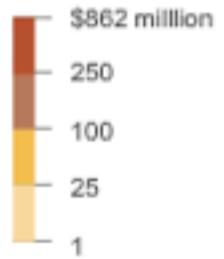


Each shape shows how one film did at the box office.

↑ Height
shows weekly box office revenue
↓

← Width →
shows longevity

The area of the shape (and its color) corresponds to the film's total domestic gross, through Feb. 21



Sources: Baseline StudioSystems; Box Office Mojo

Mathew Bloch, Lee Byron, Shan Carter and Amanda Cox

Tuesday, March 29, 2011

http://www.nytimes.com/interactive/2008/02/23/movies/20080223_REVENUE_GRAPHIC.html

The Streamgraph here, by Lee Byron (now at Facebook) is a great example of a kind of data visualization that at first glance appears to be overly-aesthetic. But there are trade-offs with all data viz formats and this one chooses to emphasise smoothness over absolute readability. A conventional stacked graph might be clearer but it would be at the expense of data density and also result in much steeper lines that would be harder to read.

Byron's paper with Martin Wattenberg is well worth a look: <http://www.leebyron.com/else/streamgraph/>

The New York Times

Mapping America: Every City, Every Block

Find something interesting? Share this view on [Twitter](#) or [Facebook](#)

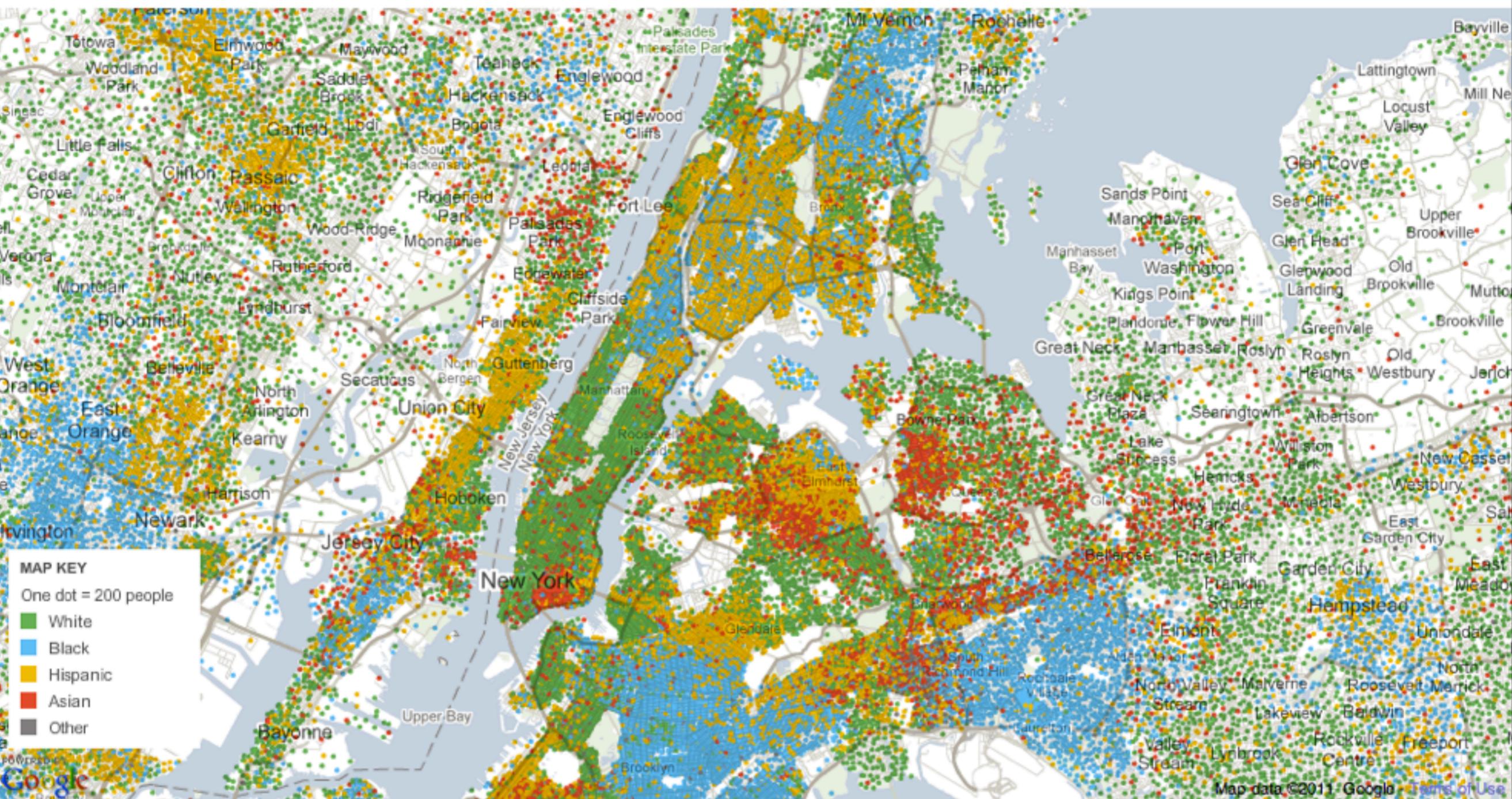
Browse local data from the Census Bureau's American Community Survey, based on samples from 2005 to 2009. Because these figures are based on samples, they are subject to a margin of error, particularly in places with a low population, and are best regarded as estimates.

Distribution of racial and ethnic groups

[View More Maps](#)

Address, ZIP code or city

Go

By MATTHEW BLOCH, SHAN CARTER and ALAN McLEAN | Source: 2005–9 American Community Survey, Census Bureau; [socialexplorer.com](#)

Note: Dots are evenly distributed across each Census tract or county. Dollar amounts are adjusted for inflation.

Tuesday, March 29, 2011

<http://projects.nytimes.com/census/2010/explorer>

(note this one was somewhat controversial because although dot maps are stunning and effective they are also hard to do correctly in less-densely populated areas – caveat dotter!)

Art Appreciation Class

<http://gapminder.org/world>

Tuesday, March 29, 2011

[Should be around 10 minutes :)]

The next part of this talk (the not-a-portfolio part) is something new I'm trying.

I'm going to do a kind of art appreciation session. I want to talk about Gapminder. It's not new and I didn't make it, but I'm a fan. I hope that's OK.

I think that some of the things that make work impressive to designers or developers don't always come across to the general public. But if you show somebody something you think is great, they almost always get it.

demo

wish me luck or it will be a very short talk

Tuesday, March 29, 2011

<http://gapminder.org/world> – not a big demo, just a quick overview of what it is and a run through of an animation (the assumption is everyone has seen the TED talk or can watch it later)



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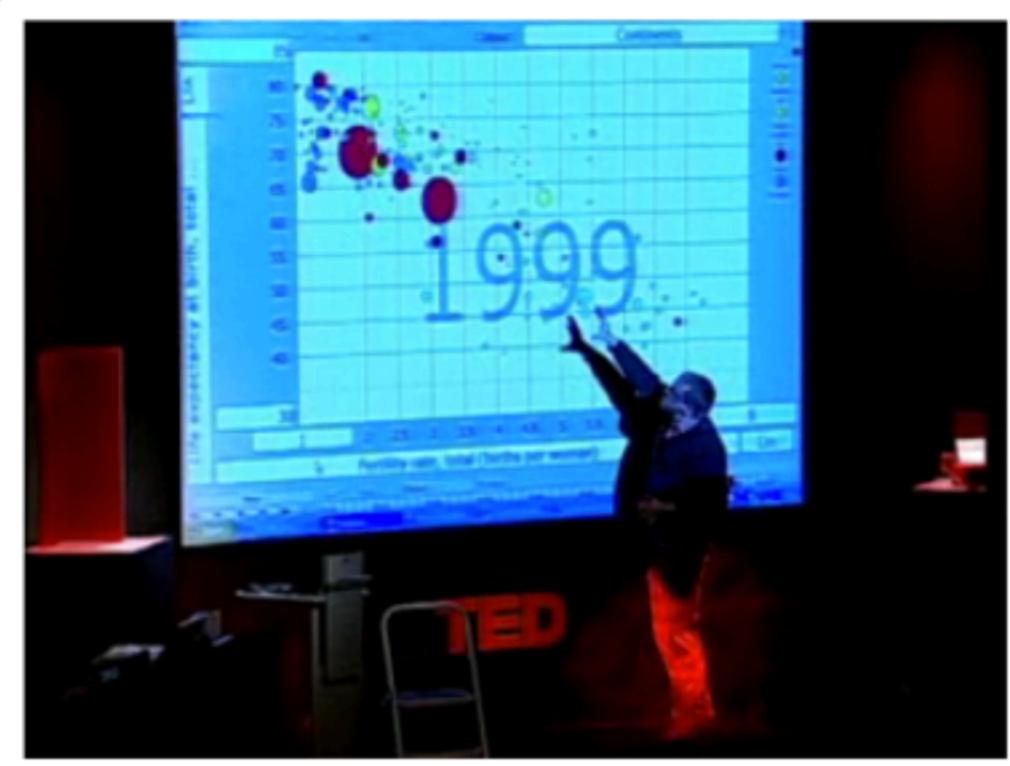
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TALKS

Hans Rosling shows the best stats you've ever seen

TED2006, Filmed Feb 2006; Posted Jun 2006



Subtitles Available In: 44 languages [Off]

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04:47 | 19:53 Share Rate

About this talk

[Open interactive transcript »](#)

You've never seen data presented like this. With the drama and urgency of a sportscaster, statistics guru Hans Rosling debunks myths about the so-called "developing world."

About Hans Rosling

In Hans Rosling's hands, data sings. Global trends in health and economics come to vivid life. And the big picture of global development—with some surprisingly good news—snaps into sharp focus. [Full bio and more links](#)

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What to watch next



TED2007
 Hans Rosling's new insights
 on poverty
 18:57 Posted: Jun 2007

Rated:
 Jaw-dropping Inspiring

Tuesday, March 29, 2011

You probably know the work from Hans Rosling's talks. If you haven't seen them, be sure to watch them later. Especially the sword swallowing one!

He doesn't seem to use the web version of the software but most of the same features are available online.

http://www.ted.com/talks/hans_rosling_shows_the_best_stats_you_ve_ever_seen.html



bbc hans rosling

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360p

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4,069,685



Uploaded by BBC on Nov 26, 2010

More about this programme: <http://www.bbc.co.uk/programmes/b00wgq0l>

Hans Rosling's famous lectures combine enormous quantities of public data

[Show more](#)

12,283 likes, 93 dislikes

Song by: 200

Top Comments

This is unquestionably the greatest example of how to make raw data sexy that I've ever seen

mjvbulldogboy 1 month ago 60

Loading "http://www.youtube.com/watch?v=jbkSRLYSojo", completed 24 of 26 items (1 error)

Suggestions



Should You Drink Eight Cups Of Water Per Day? -...

by BBC
69,539 views

4 People You Wouldn't Say 'Hmm...Sorry' To - Ho...

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Othello - The Stephen K Amos Show - BBC Two

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9,655 views

Sean Lock, On People Who Complain About TV - Th...

by BBC
24,404 views

Just Tell Me One Thing - Burnistoun, Series 2 p...

by BBC
302 views

Cuban Punch-Up - The Boys who Fought for Castro...

by BBC
797 views

On Set with Tameka Empson - EastEnders - BBC One

Tuesday, March 29, 2011

Here he is reprising the talk for the BBC's Joy of Stats: <http://www.youtube.com/watch?v=jbkSRLYSojo>



bbc hans rosling

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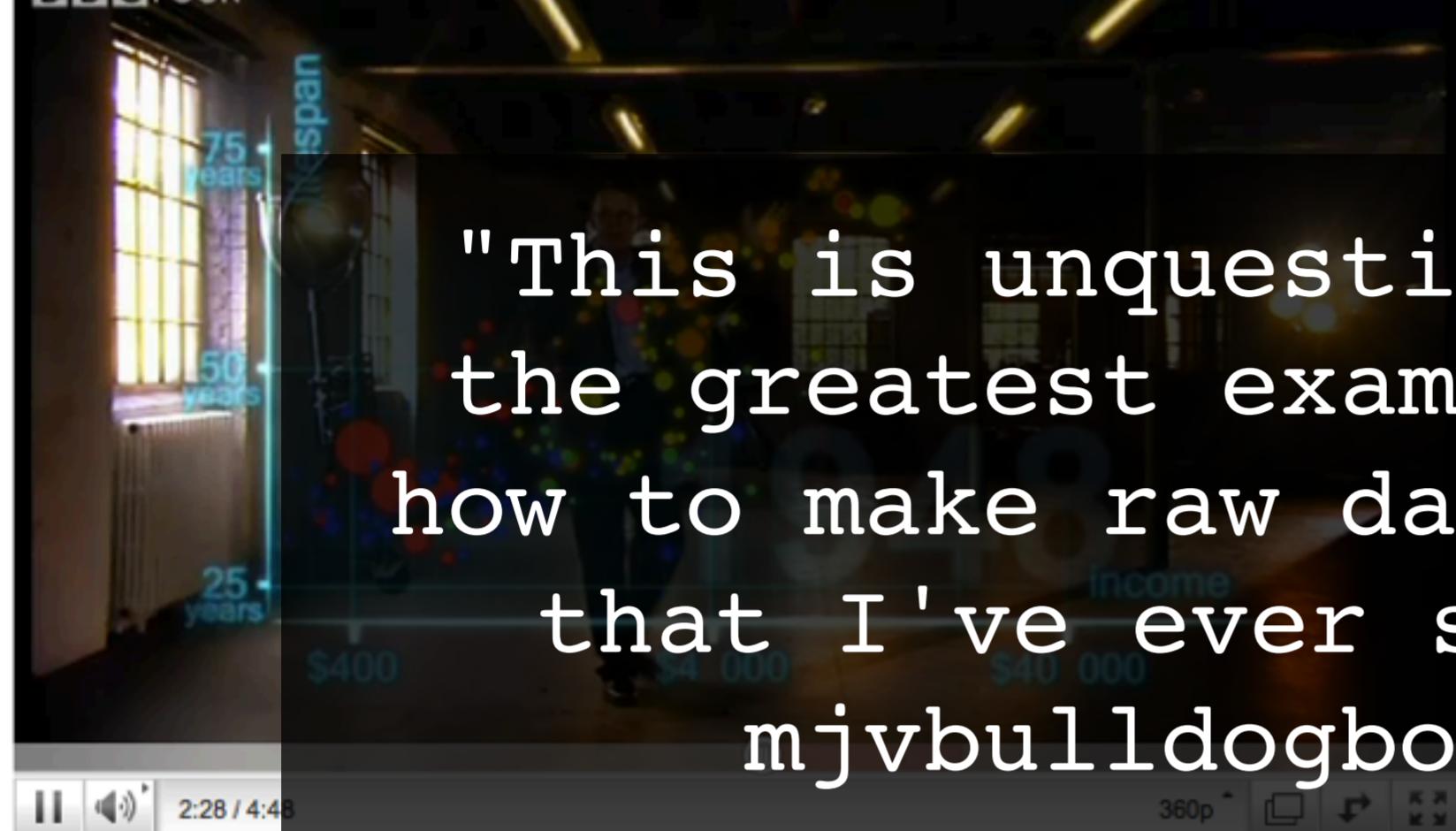
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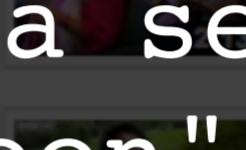
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Suggest A Hack >

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Interactive Data Module with the Kinect

Vote This Hack:



Posted on 03/14/2011

**Interactive Data Module with the Kinect**

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Kinect and Interactive Ebook Reader

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28. Mar, 2011 - 0 comments

Kinect and Volumetric 3d Display – Lumarca

28. Mar, 2011 - 0 comments

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It's recently spawned a fun imitation by Yves Quemener who does the augmented reality part for real:

<http://www.kinecthacks.com/interactive-data-module-with-the-kinect/>

28 MAR 2011

BENJAMIN WIEDERKEHR

SHOWCASES

GOOGLE, PRINT, TIMELINE

Remixing Rosling

For an article about Sweden's most famous statistician Hans Rosling in Google's "Think Quarterly" Magazine, **Moritz Stefaner** has remixed two of the famous Gapminder bubble graphics. The project was commissioned by **The Church of London**, the creative minds behind the limited-edition book and the companion website.

About Think Quarterly

The publication is curated by Google UK and is aimed at Google's partners and advertisers. Nonetheless, the well written content makes the first issue a good read for all folks interested in how data is re-shaping business.

In a world of accelerating change, we all need time to reflect. Think Quarterly is a breathing space in a busy world. It's a place to take time out and consider what's happening and why it matters. Our first issue is dedicated to Data – amongst a morass of information, how can you find the magic metrics that will help transform your business? We hope that you find inspiration, insights, and more, in Think Quarterly.

The visualizations

Fertility and life expectancy is a condensed, and static version of one of Gapminder's famous animated "worm" graphics. Among others, it shows how Vietnam is today on the same level as the US in 1980 with respect to the fertility rate and life expectancy. Scaling the diameters of the circles according to the years, and then connecting them, induces a sense of motion over time, even in this static image.



Loading "http://datavizualization.ch/showcases/remixing-rosling". completed 35 of 37 items

Tuesday, March 29, 2011

And as further evidence of how influential the work is, a tribute by another dataviz practitioner Moritz Stefaner covered at datavizualization.ch yesterday.

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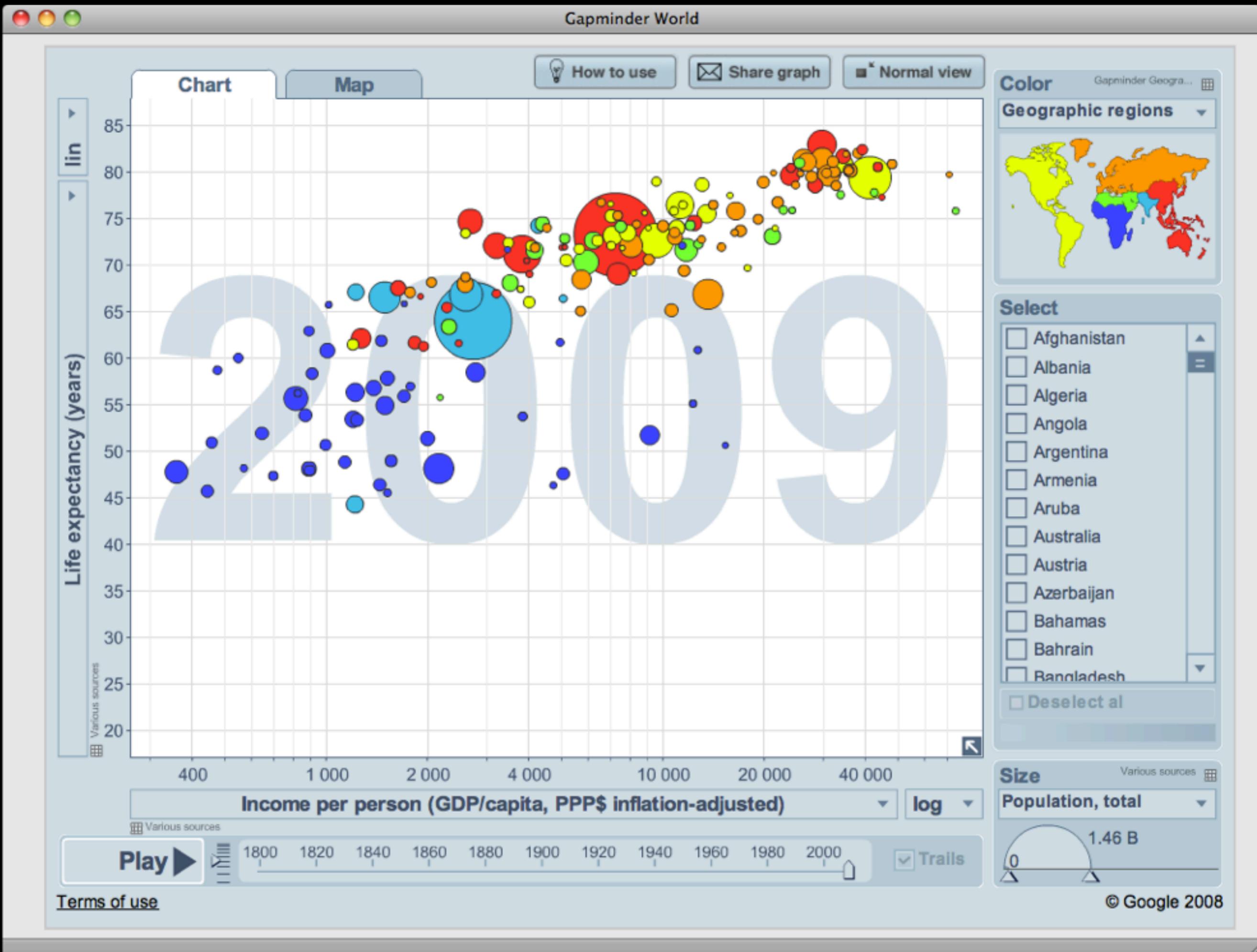


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Here's the site. Really iconic stuff, this. That year back there, so obvious you don't notice it!

Google bought the Trendalyzer tool (but not Hans) and made it available in Google Spreadsheets and the visualization API. Others have cloned it, but not always successfully. [Note: the open/public data scene around this is way too big to do justice to here, so I'll try to concentrate on the UI & design aspects of the work.]

It's hugely entertaining and informative to see Hans Rosling explain history using the tool. At first this made me think Gapminder needed Hans to work successfully (just like Minard's famous map might need Edward Tufte's explanation to work successfully too).

Gapminder World Guide

www.gapminder.org/world

(updated March, 2010)

Y-axis

Click here to select indicators for the y-axis.

Name of country

Hover mouse pointer over bubble to reveal the name.

Sources

For information about the sources, click the small text next to the axis.

Play / Stop

Click Play/Stop to control the animation. (How the graph changes over time.)

Chart / Map

Select between Chart view and Map view.

How to use

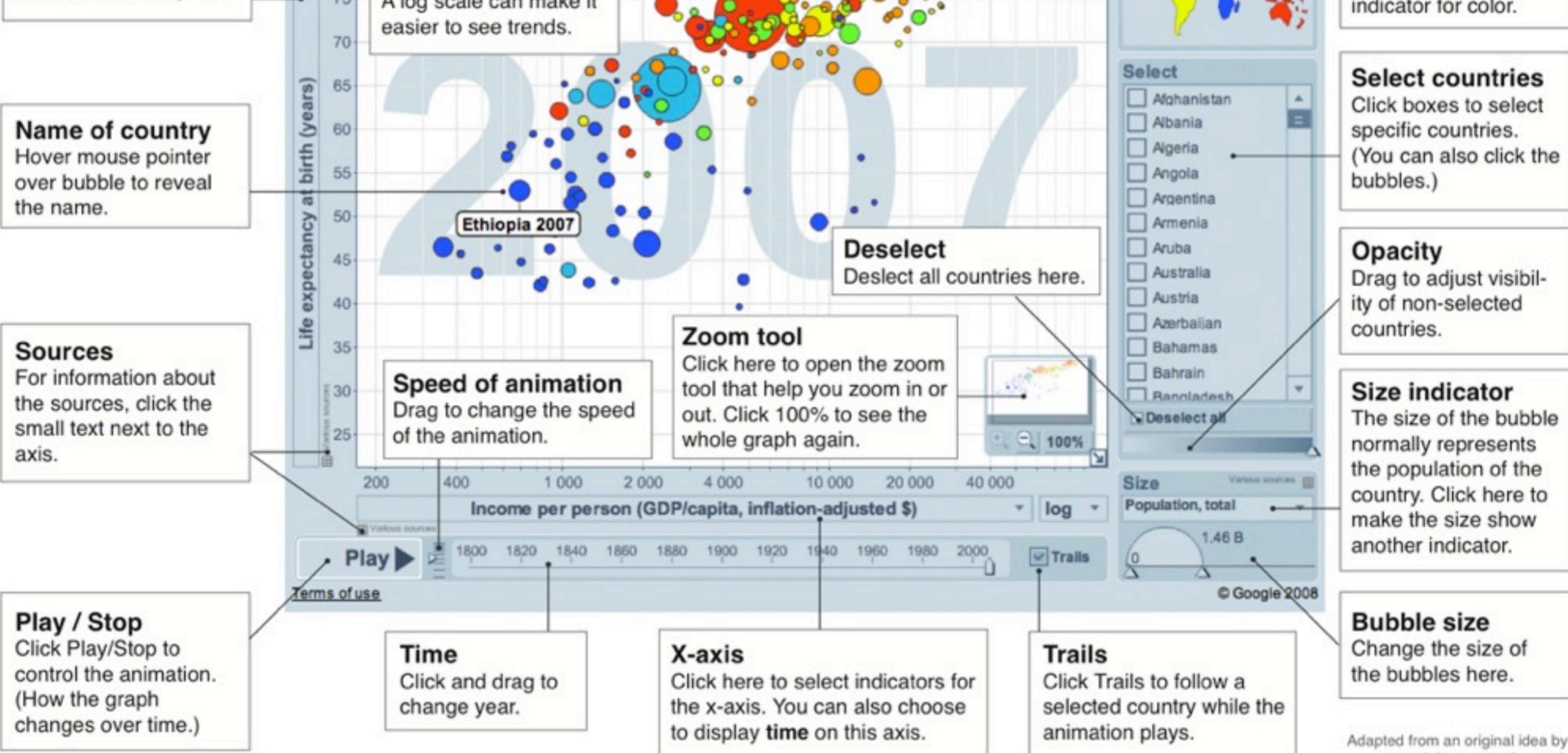
Click to open video tutorial about the interactive functions.

Share graph

Creates a short URL to the graph you've created. Share it with friends.

Full screen

Click to toggle full-screen. Graph will cover the whole screen. ("Lecture mode")



Adapted from an original idea by www.juicygeography.co.uk

Tuesday, March 29, 2011

There's a PDF linked from the side of the tool. If you've got a laptop open feel free to grab it. Look at all those tool tips! Because there's a lot going on.

I used to think that Gapminder was about showing and telling but not about exploring and finding things out for yourself. I was wrong! I recently re-acquainted myself with it and found a wealth of subtle details that make it successful, accessible and robust information visualization tool (fun for one or more players – age 5 and up!) No wonder Google bought it!

http://www.gapminder.org/GapminderMedia/wp-uploads/tutorial/Gapminder_World_Guide.pdf

Five Variables!

- Size: population (selectable)
- X-axis: GDP (selectable)
- Y-axis: life expectancy (selectable)
- Color: regions (selectable , does ranges)
- Time: the magic happens here!

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I don't usually do bullet points, but this is practically a spec for your next visualization project so bear with me...

Five Great Features!

- Play/Stop: a slider is an animation!
- Speed (don't get lost/bored)
- Sources: credits, methodology and data sheets (Google Spreadsheets)
- Share: make a shortlink (e.g. for Twitter)
- Full screen: very helpful today

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play/stop
speed control
source links
share with a shortlink
full screen

More User Control!

- **Opacity:** when highlighting specific countries
- **Zoom tool:** Google Maps style mini-map
- **Trails:** watch selected countries move
- **Bubble size:** finely tuned, but adjustable
- **Lin/Log scale:** make the long tail legible

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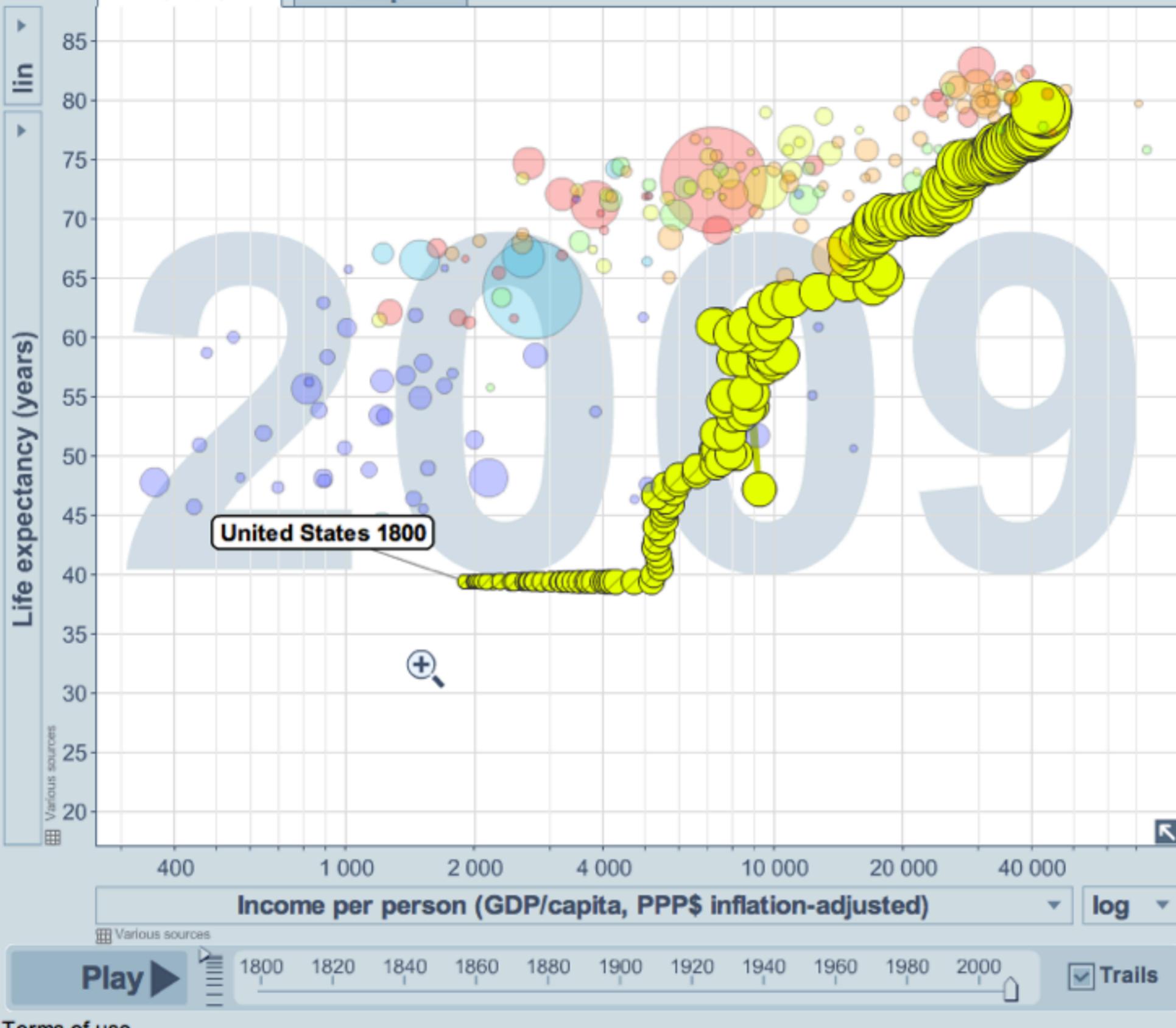
opacity
zoom controls
trails!
bubble size
lin/log scale: proper stats.

Chart**Map**

How to use

Share graph

Normal view

**Color**

Gapminder Geogra...

Geographic regions**Select**

- Afghanistan
 - Albania
 - Algeria
 - Angola
 - Argentina
 - Armenia
 - Aruba
 - Australia
 - Austria
 - Azerbaijan
 - Bahamas
 - Bahrain
 - Bangladesh
- Deselect all

Size

Various sources

Population, total

© Google 2008

Tuesday, March 29, 2011

Here's the path of the US from 1800 to 2009. Note that every country ends up with a higher life expectancy than the US had back then.

Some people doubt how meaningful the GDP stuff is but who would argue with longer lives?

There's More!

- Full “brushing and linking” with mouse:
 - e.g. mini region map: highlight regions
 - e.g. checkbox list: highlight countries
- Interpolation (not extrapolation)
 - interpolated data is marked

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brushing and linking is the academic term for highlighting subsets of things and syncing the highlights across different views

the interpolation is careful and considered, and marked in the charts

there isn't extrapolation – a careful detail. It's OK to guess what happened between 1920 and 1930 but it's harder to figure out what happened in 1910 if you only have later data.

There's More!

- this is a big “join” across data sets
- URL updates with interaction
- axes animate when zooming
 - axes have good choice of labels
- researched groups across political changes (e.g. former Yugoslavia)

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The “join” isn’t trivial but you can put everything in one table for the Google Visualization API version of Gapminder.

URLs update – e.g. swfaddress, really simple history, html5 pushState

recent papers on axis labeling

-- e.g. <http://www.justintalbot.com/research/axis-labeling/>

there’s a Gapminder paper on research methods that’s worth reading too: <http://www.gapminder.org/documentation/documentation/gapdoc003.pdf>

And!

- There's a map I don't have time to talk about in depth
- And apart from Hans' talks, there's a video walk-through. Phew!
- This is hard to do right at all, let alone in one screen...

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There's a whole map tab I haven't covered yet.

And a video walkthrough.

How does it all work...?

How to get there from here?

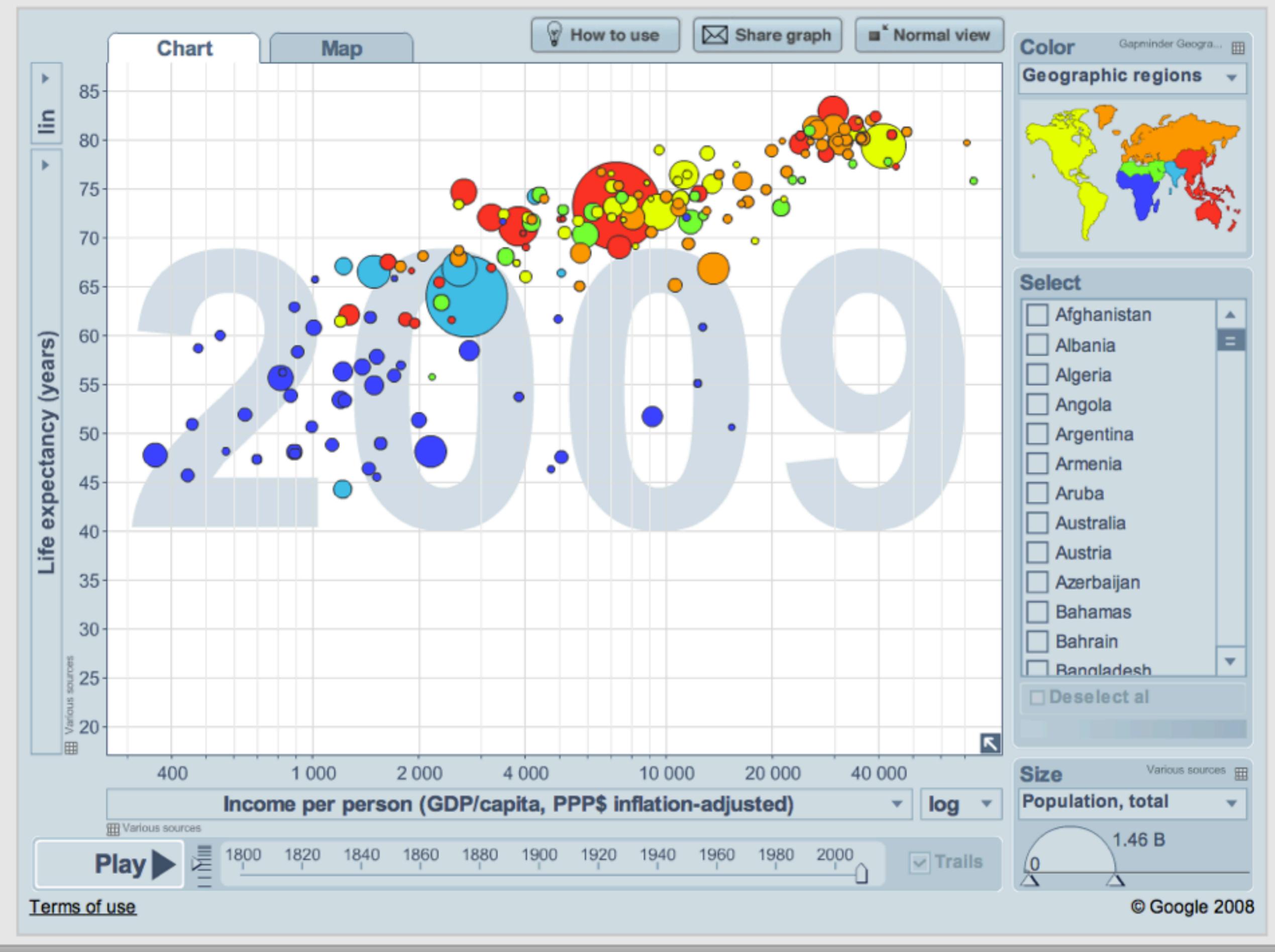
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[20 mins?!]

So this is where the bar is set in 2011. [Set by The New York Times, Stamen, Google Maps and Trendalyzer, among many others].

It's hard to recreate all this in other tools, even excellent ones like Tableau or R:
<http://www.thedatastudio.co.uk/blog/the-data-studio-blog/andy-cotgreave/joy-of-six-gapminder>

How do you get there online?

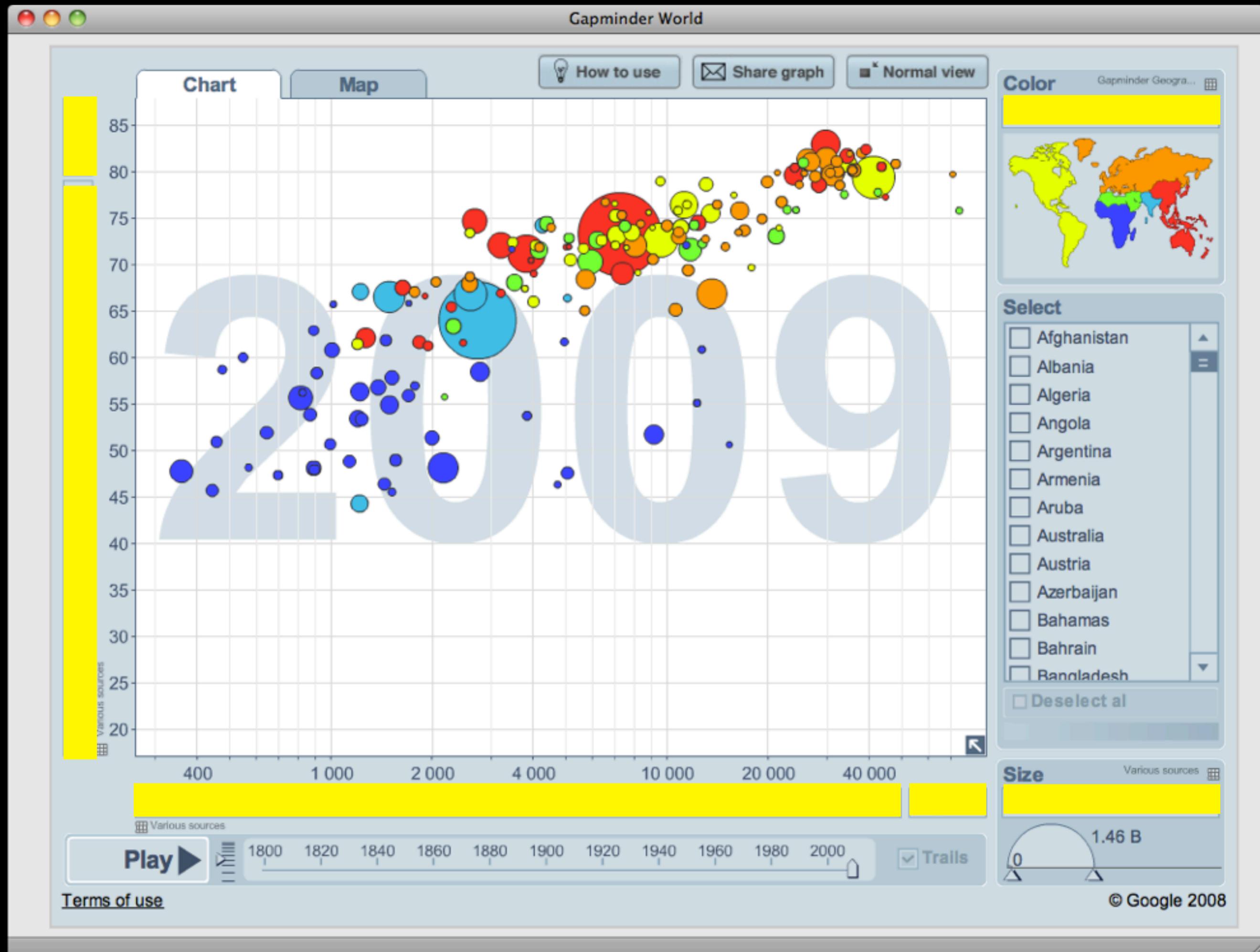


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So how would you make this? What do these features look like in HTML?

[assuming you're convinced you want these things in HTML]

Let's deconstruct the UI side of things a little bit...



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This is going to be a bit Monty Python “what did the Romans ever do for us”, but I’ll continue...

6 dropdown select boxes

Chart**Map**

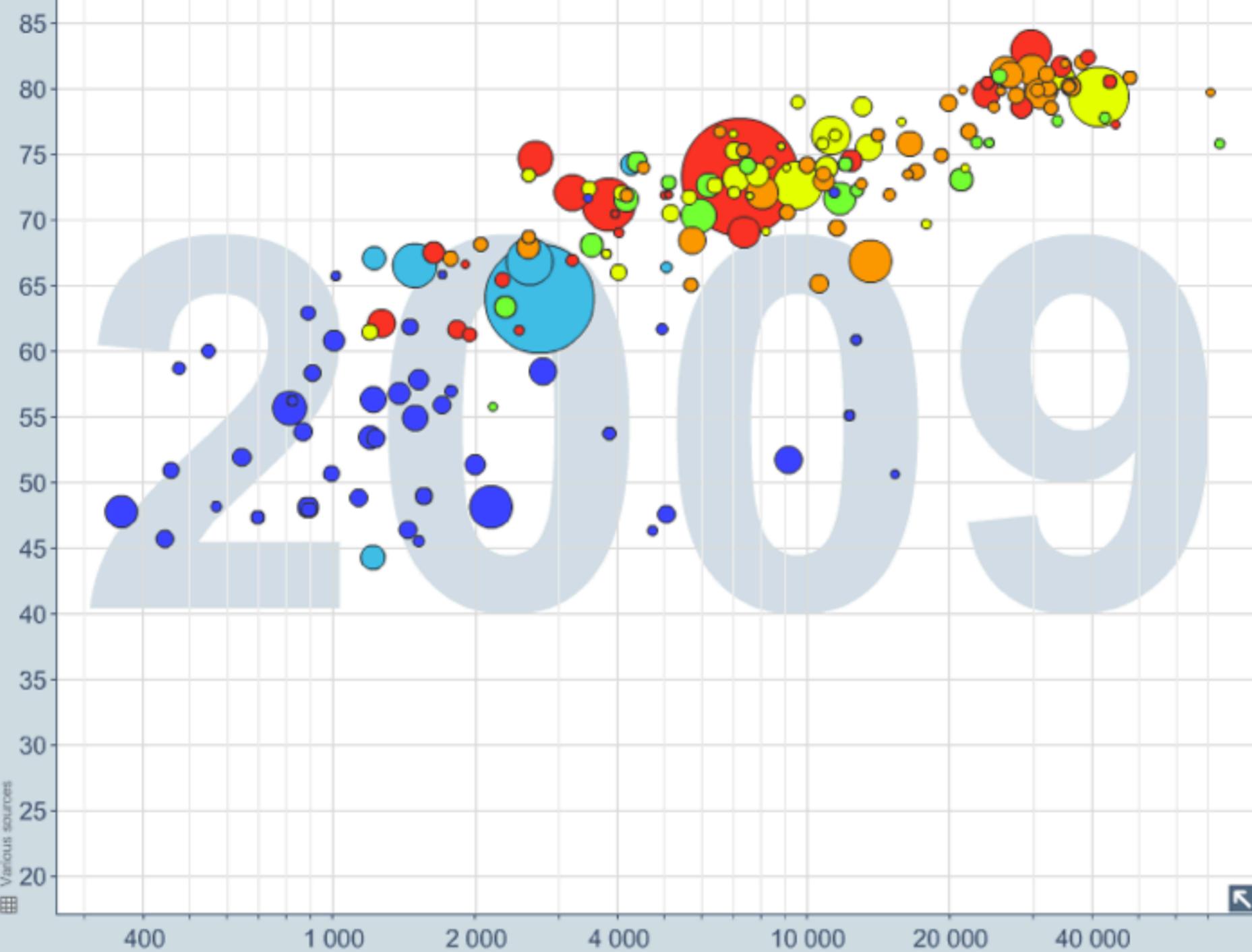
How to use

Share graph

Normal view

Lin ▾

Life expectancy (years)



Income per person (GDP/capita, PPP\$ inflation-adjusted)

log

Various sources

Play ►

1800 1820 1840 1860 1880 1900 1920 1940 1960 1980 2000

0 1.46 B

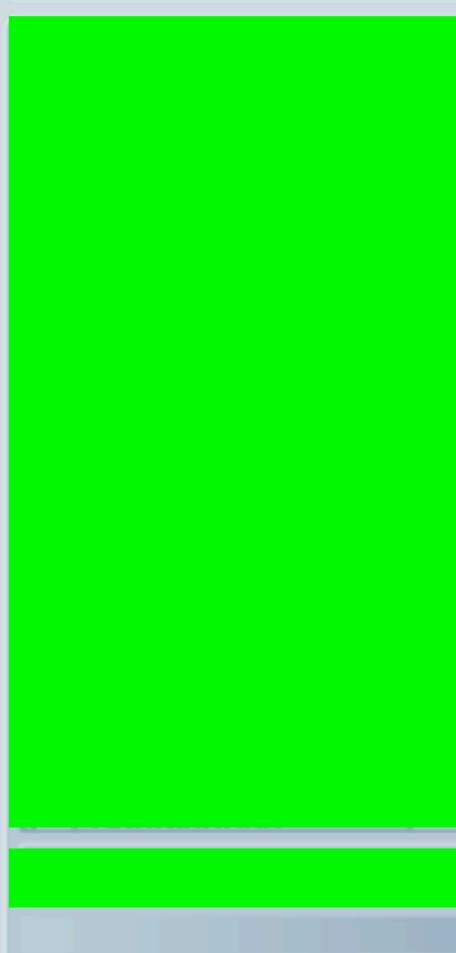
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Color

Gapminder Geogra...

Geographic regions

**Size**

Various sources

Population, total



Tuesday, March 29, 2011

200 checkboxes with labels, in a scrolling list
+ 2 other checkboxes

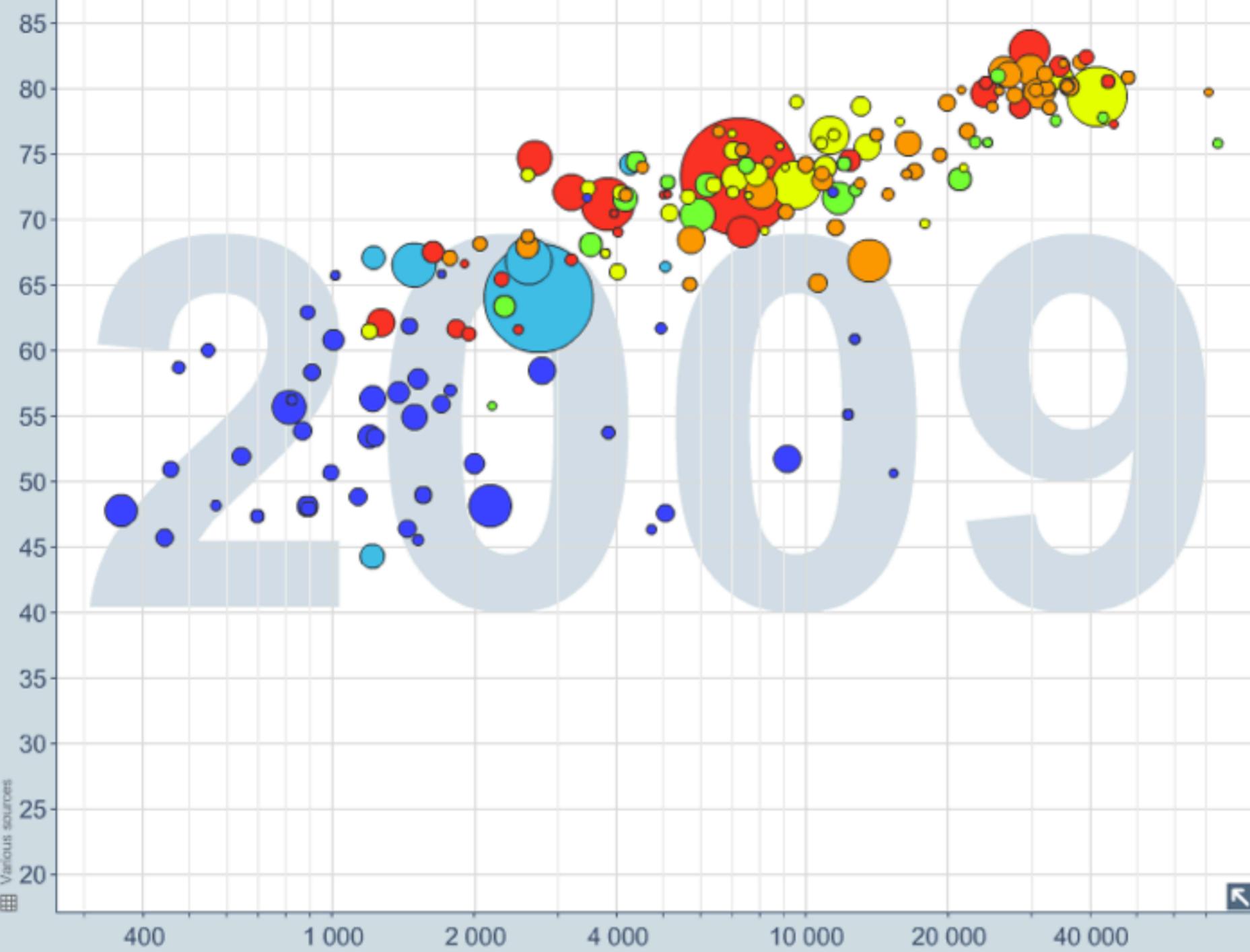
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Play ➤

1800 1820 1840 1860 1880 1900 1920 1940 1960 1980 2000

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Color

Gapminder Geogra...

Geographic regions



Select

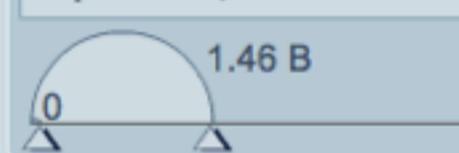
- Afghanistan
- Albania
- Algeria
- Angola
- Argentina
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- Aruba
- Australia
- Austria
- Azerbaijan
- Bahamas
- Bahrain
- Bangladesh

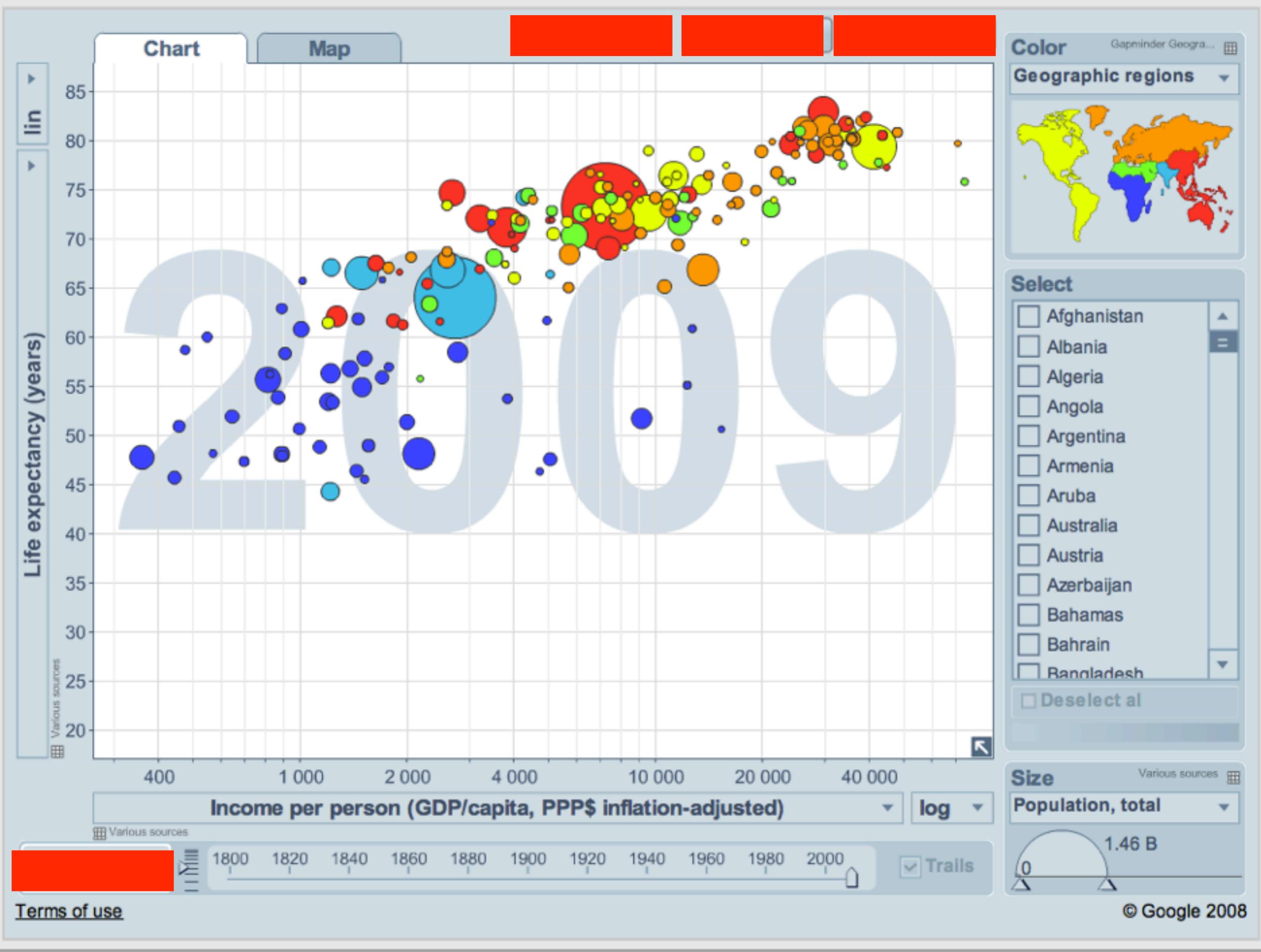
 Deselect all

Size

Various sources

Population, total





Tuesday, March 29, 2011

4 buttons

Chart**Map**

How to use

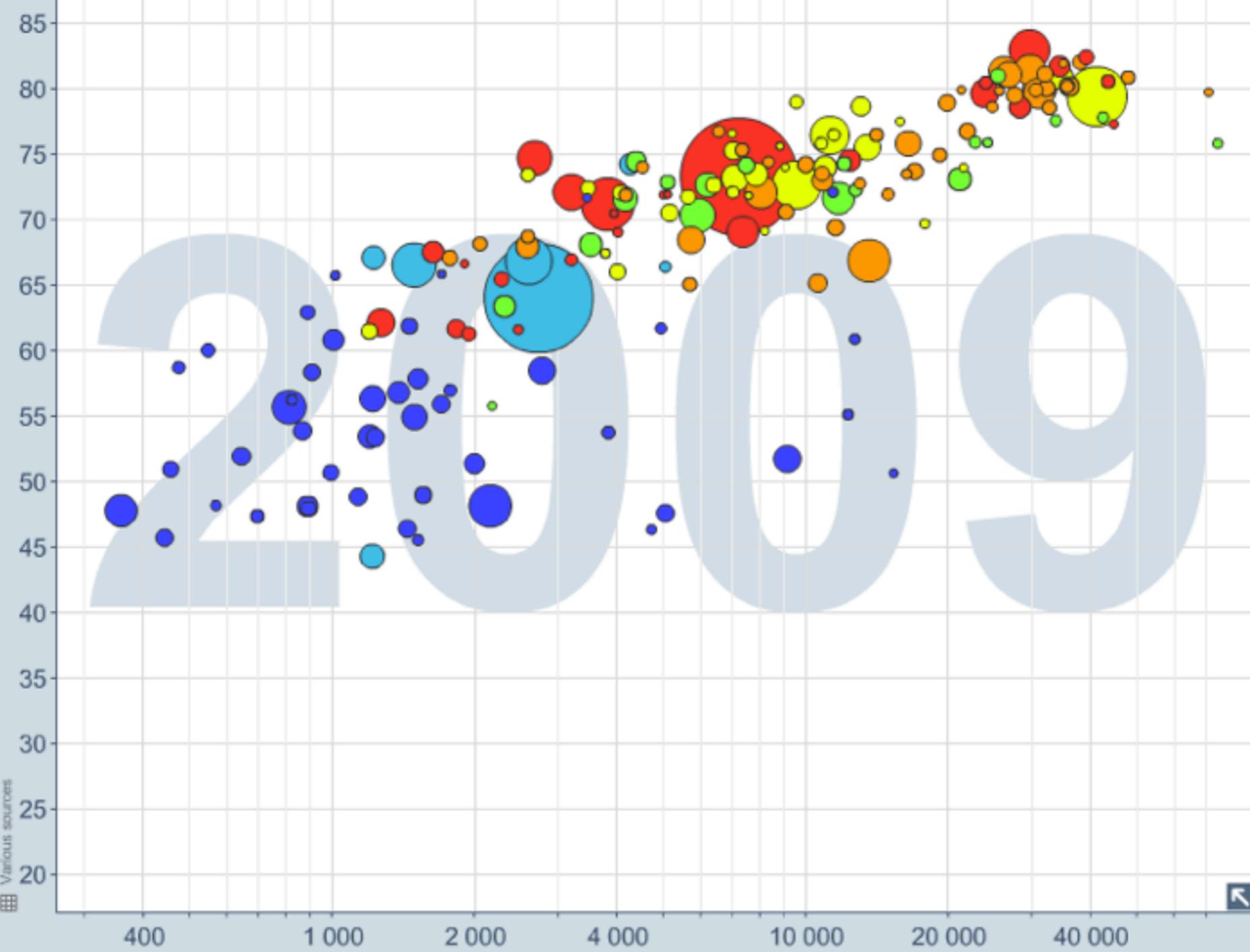
Share graph

Normal view

lin ▾

▶

Life expectancy (years)



Various sources

Income per person (GDP/capita, PPP\$ inflation-adjusted)

log

Various sources

Play ➤

1800 1820 1840 1860 1880 1900 1920 1940 1960 1980 2000

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Various sources

Select

- Afghanistan
- Albania
- Algeria
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- Argentina
- Armenia
- Aruba
- Australia
- Austria
- Azerbaijan
- Bahamas
- Bahrain
- Bangladesh

 Deselect all**Size**

Various sources

Population, total

1.46 B

© Google 2008

Color

Gapminder Geogra...

Geographic regions

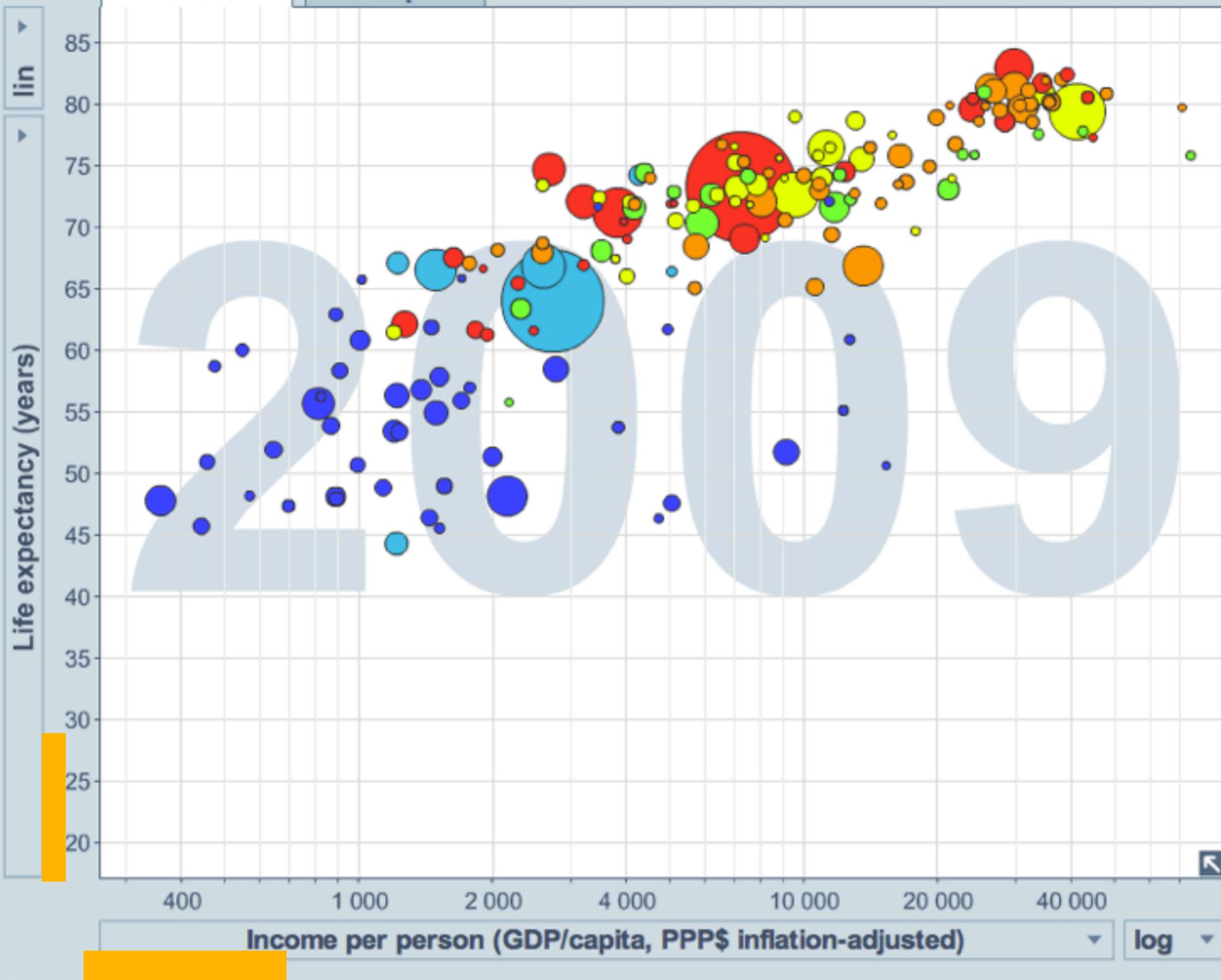


Chart**Map**

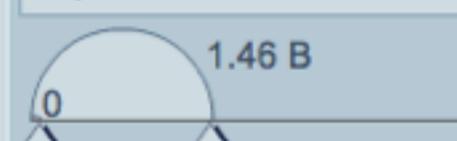
How to use

Share graph

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**Color****Geographic regions****Select**

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- Bangladesh

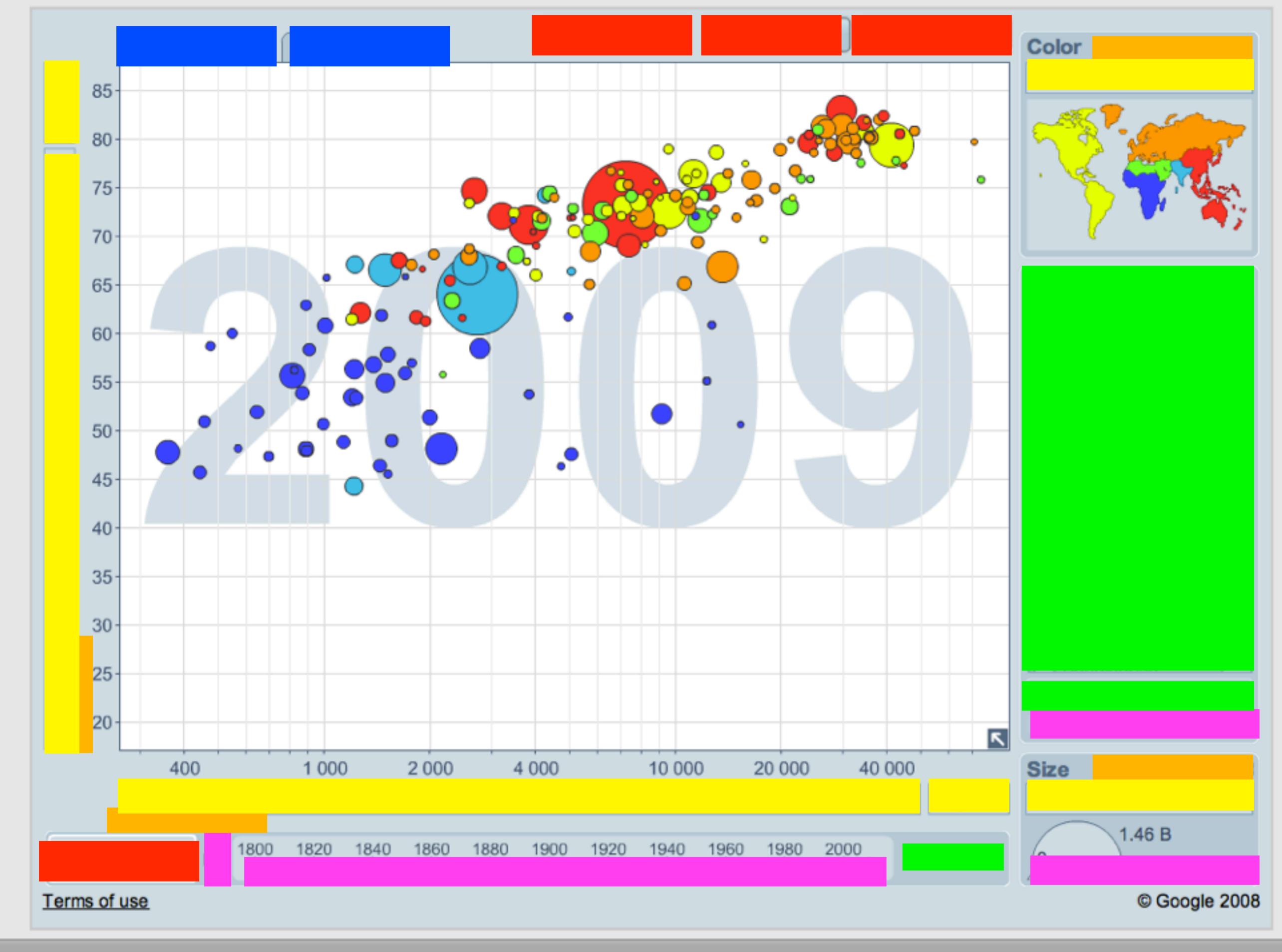
 Deselect all**Size****Population, total**

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4 x 2 hyperlinks



Tuesday, March 29, 2011

So those are all the things you already know how to do!

Dropdowns, checkboxes, labels, scrolling lists, tabs, buttons, sliders, hyperlinks.

The map can be done with an image map (remember those?) which only leaves the chart, scales and the little circle slider graphic.

Back a bit!

Did he just say “sliders are easy”?

Tuesday, March 29, 2011

Yes. These are the things other programmers wish were as easy as they are in HTML.

NUMBERS AS SLIDERS

Spinboxes are not the only way to represent numeric input. You've probably also seen "slider" controls that look like this:



Test type="range" for yourself.

You can now have slider controls in your web forms, too. The markup looks eerily similar to spinbox controls:

~ *The spitting image*

```
<input type="range"  
      min="0"  
      max="10"  
      step="2"  
      value="6">
```

All the available attributes are the same as type="number" – min, max, step, value – and they mean the same thing. The only difference is the user interface. Instead of a field for typing, browsers are expected to render type="range" as a slider control. Safari, Chrome, and Opera all do this. (Sadly, the iPhone renders it as a simple text box. It doesn't even optimize its on-screen keyboard for numeric input.) All other browsers simply treat the field as type="text", so there's no reason you can't start using it immediately.

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Here's the relevant section from Mark Pilgrim's excellent online book "Dive Into HTML5":
<http://diveintohtml5.org/forms.html#type-range>

You want `<input type="range">` and there are libraries to make this work everywhere. Search for "unobtrusive polyfill" of course :)

e.g. <http://www.frequency-decoder.com/2010/11/18/unobtrusive-slider-control-html5-input-range-polyfill>

[Download](#)[Demos & Documentation](#)[Themes](#)[Development](#)[Support](#)

jQuery UI provides abstractions for low-level interaction and animation, advanced effects and high-level, themeable widgets, built on top of the jQuery JavaScript Library, that you can use to build highly interactive web applications.

[Download jQuery UI](#)[Build custom download](#)

Stable (1.8.11: jQuery 1.3.2+)
Legacy (1.7.3: jQuery 1.3+)



Rich effects and UI widgets

jQuery UI features low-level effect and interaction API's (like drag and drop) as well as full-featured and highly configurable ready-to-use widgets. Supports IE 6.0+, Firefox 3+, Safari 3.1+, Opera 9.6+ and Google Chrome.

[Browse all effects & widgets](#)

Powerful theme framework

Unique CSS framework, ThemeRoller tool and theme gallery makes creating a custom look and feel for your application fast and easy.

- [Explore the theme gallery](#)
- [Design a custom theme](#)

Flexible & easy to learn

Leverages the power of jQuery, making it easy to start right away with detailed documentation, tutorials and a vibrant community.

- [Get started](#)
- [View documentation](#)
- [Join the discussion](#)

Recent activity

jQuery UI 1.8 adds position, button, autocomplete, new widget factory, lighter core.
[What's new](#)

Help us design future plugins
[Planning wiki](#)

Developer links

- [Latest dev bundle \(1.8.11\)](#)
- [Fork jQuery UI on GitHub](#)
- [Google CDN for jQuery UI](#)
- [Development status](#)
- [Development & planning wiki](#)

Books about jQuery UI



jQuery UI 1.7: The User Interface Library for jQuery
Dan Wellman

[Buy Now](#)

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And then there's always a library like jQuery UI, or YUI, or Dojo, or Qooxdoo, or UKI.

I'm not that big on frameworks, so I'm biased towards minimally invasive helper libraries like jQuery over weightier options like Cappuccino or Sproutcore, but those are very powerful for the right task.

"Aristo" for jQuery UI!

This page demonstrates all available components of the jQuery UI port of "Aristo". jQuery and jQuery UI are pulled from the Google CDN. More information can be found at the original [blog post](#).

Autocomplete

Countries:

UI Button

<DIV> Button Button

Icon Buttons

↗ Left Icon

↗ Left & Right Icons ▾

Button Toggle

Choice 1 Choice 2 Choice 3

Horizontal Slider

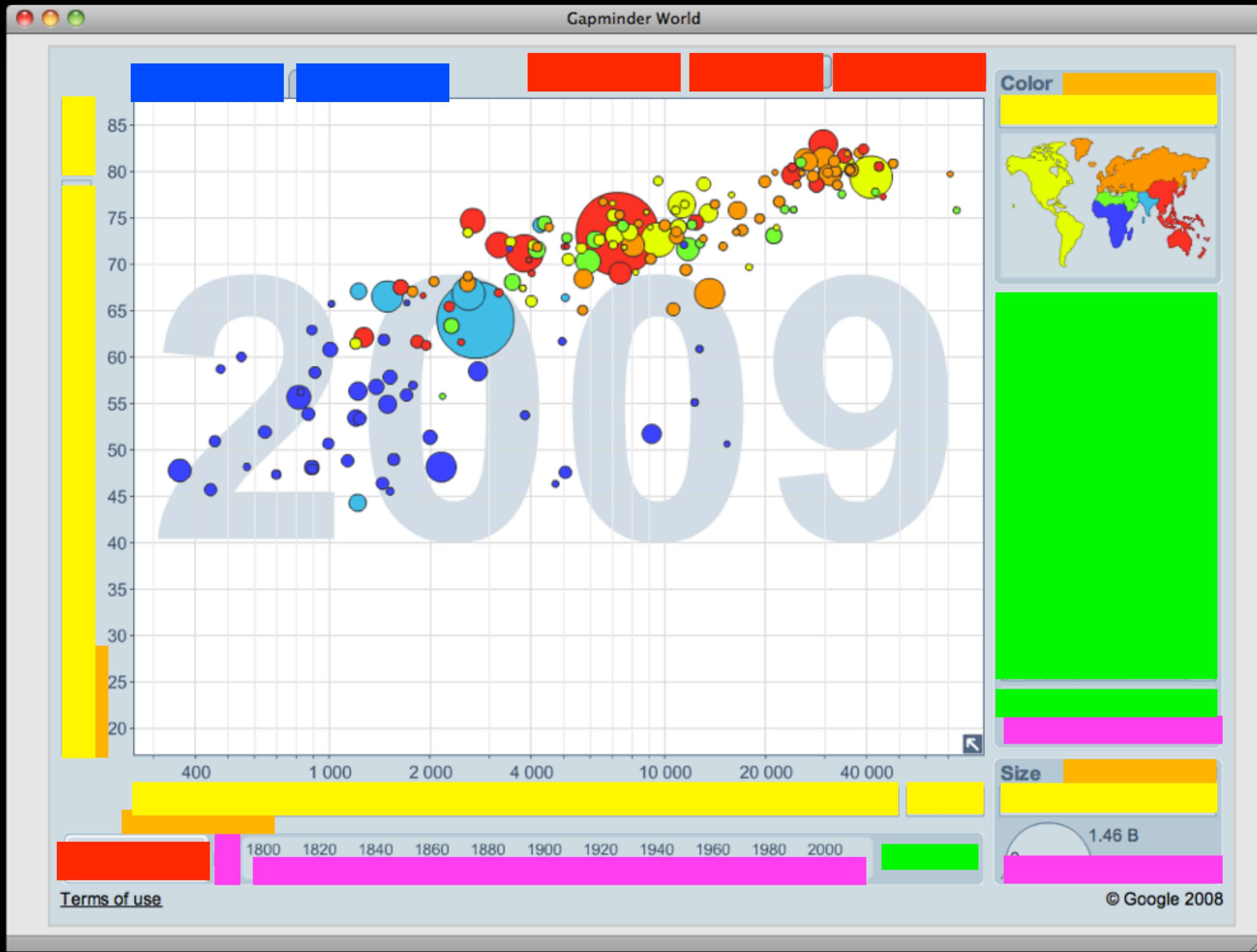


Vertical Slider



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And whether you like Cappuccino or not, 280 North's CC-licensed contribution of their "Aristo" UI design is huge: <https://github.com/280north/aristo> – here it is being adapted for jQuery UI, much more stylish than the defaults and clearer too.



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So we're back to just the chart/scales and map. Not trivial by any means, but much easier to imagine -

The little map is baked into the Flash – practically the only hard-coded thing in gapminder – but it could be re-done with an HTML image map (remember those?)

Let's assume for a moment that you can draw circles. The only tricky things remaining are the scales...

To appear in an IEEE VGTC sponsored conference proceedings

An Extension of Wilkinson's Algorithm for Positioning Tick Labels on Axes

Justin Talbot, Sharon Lin, and Pat Hanrahan (Updated October 27, 2010)

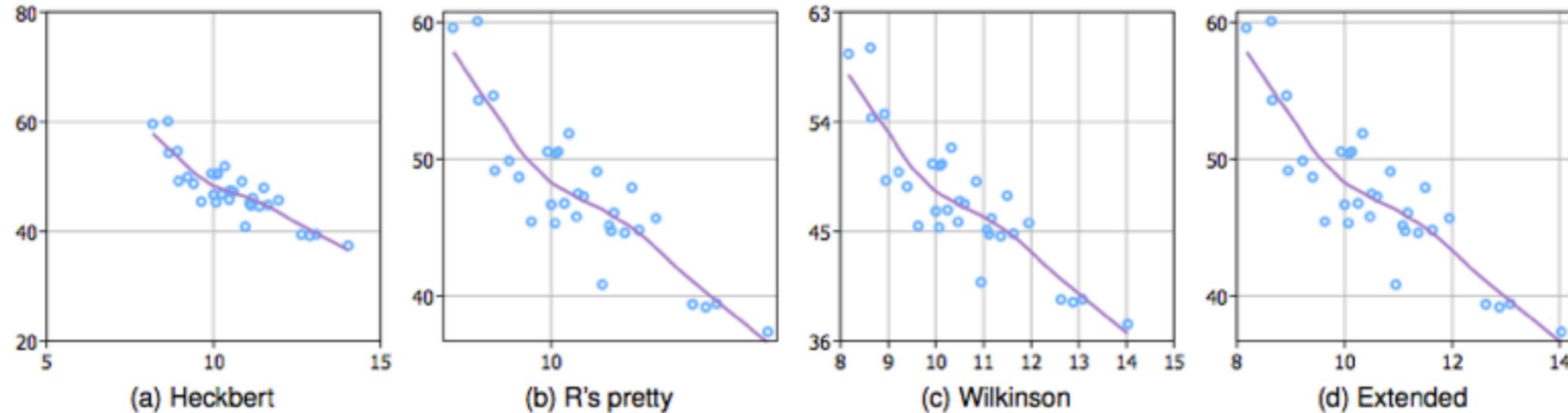


Fig. 1. Comparison of axis labeling algorithms. Our extension of Wilkinson's optimization approach produces nice labelings while maintaining good visual density of the labels and coverage of the data.

Abstract—The non-data components of a visualization, such as axes and legends, can often be just as important as the data itself. They provide contextual information essential to interpreting the data. In this paper, we describe an automated system for choosing positions and labels for axis tick marks. Our system extends Wilkinson's optimization-based labeling approach [11] to create a more robust, full-featured axis labeler. We define an expanded space of axis labelings by automatically generating additional nice numbers as needed and by permitting the extreme labels to occur inside the data range. These changes provide flexibility in problematic cases, without degrading quality elsewhere. We also propose an additional optimization criterion, *legibility*, which allows us to simultaneously optimize over label formatting, font size, and orientation. To solve this revised optimization problem, we describe the optimization function and an efficient search algorithm. Finally, we compare our method to previous work using both quantitative and qualitative metrics. This paper is a good example of how ideas from automated graphic design can be applied to information visualization.

Index Terms—Axis labeling, nice numbers.



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Research by Justin Talbot to improve “nice” axis labeling algorithms:
<http://www.justintalbot.com/research/axis-labeling/>

Don't underestimate academia for solving real problems with visualization design. Two good lists of papers:

<http://fellinlovewithdata.com/guides/7-classic-foundational-vis-papers>

<http://visualizeit.wordpress.com/2009/06/05/seminal-information-visualization-papers/>

This kind of work is built into libraries like Protopis. (The nice thing about Protopis' scale objects is that they are helper functions for scaling from data domain to screen pixel dimensions too.)

So how do you draw the chart? One more step first – I've overlooked data!

Data comes from URLs

- GDP per capita:

[http://spreadsheets.google.com/pub?
key=phAwcNAVuyj1jiMAkmq1iMg](http://spreadsheets.google.com/pub?key=phAwcNAVuyj1jiMAkmq1iMg)

- Life expectancy at birth:

[http://spreadsheets.google.com/pub?
key=phAwcNAVuyj2tPLxKvvnNPA](http://spreadsheets.google.com/pub?key=phAwcNAVuyj2tPLxKvvnNPA)

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[of course, I know data comes from research :)]

But this is where Gapminder is linking to...

Data comes from URLs

- Population:

[http://spreadsheets.google.com/pub?
key=phAwcNAVuyjOXOoBL_n5tAQ](http://spreadsheets.google.com/pub?key=phAwcNAVuyjOXOoBL_n5tAQ)

- Regions:

[http://spreadsheets.google.com/pub?
key=OAiggpTwMDcgocGhUNG13anZFdUdC
dGRmMVplTzdfUFE&gid=1](http://spreadsheets.google.com/pub?key=OAiggpTwMDcgocGhUNG13anZFdUdCdGRmMVplTzdfUFE&gid=1)

for CSV from published
Google Spreadsheets, append
&output=csv to the URL

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Now everyone can contribute to your mashup...

... so long as you can proxy and parse CSV :)

loading data is as easy as

```
$.get('mydata.csv',
function(csv) { ... }
```

... parsing is a bit
trickier

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And this is where my motivational talk might fall a bit short...



RandomEtc / mind-gapper-js

[Admin](#)
[Unwatch](#)
[Fork](#)
[Pull Request](#)
[2](#) [1](#)
[Source](#)
[Commits](#)
[Network](#)
[Pull Requests \(0\)](#)
[Fork Queue](#)
[Graphs](#)
[Branch: master](#)
[Switch Branches \(2\)](#) [Switch Tags \(0\)](#) [Branch List](#)

Picking apart <http://www.gapminder.org/world/> and rebuilding it in Javascript. — [Read more](#)
<http://randometc.github.com/mind-gapper-js/>
[Downloads](#)
[SSH](#) [HTTP](#) [Git Read-Only](#) <git@github.com:RandomEtc/mind-gapper-js.git>

 This URL has **Read+Write** access

adding little map for region colour coding



RandomEtc (author)

March 19, 2011

commit d36e9e1aec06e395190

tree 5941d996ca64afe1b08c

parent f74737f0ffd37a4df7af

[mind-gapper-js /](#)

name	age	message	history
data/	March 19, 2011	moved csvs to data folder [RandomEtc]	
map/	March 19, 2011	adding little map for region colour coding [RandomEtc]	
LICENSE	March 18, 2011	BSD license, updated README with extra data files [RandomEtc]	
README	March 18, 2011	more readme notes [RandomEtc]	
html5slider.js	March 18, 2011	firefox slider, more styling and credits, inter... [RandomEtc]	
index.html	March 19, 2011	adding little map for region colour coding [RandomEtc]	

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... except that github is marvellous!

I made a start at sketching all this out here:

<http://randometc.github.com/mind-gapper-js/>

Code here:

<https://github.com/RandomEtc/mind-gapper-js>

Confession: like all good programmers I have a strong blend of laziness, impatience and hubris. I looked at Gapminder and thought "I can write that in a day". I was wrong and it was a bit too ambitious for today's talk!

But...
<canvas> code is ugly!
SVG is hard!

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[30 mins!]

Actually I don't believe this, but many people disagree with me.

Excanvas and SVGWeb for IE/Flash can both help compatibility without resorting to new APIs, but some people choose to write libraries for cross-platform support anyway, and they're quite useful:



a port of the Processing Visualization Language

[home](#)[exhibition](#)[reference](#)[learning](#)[download](#)[community](#)[blog](#)[view source](#)

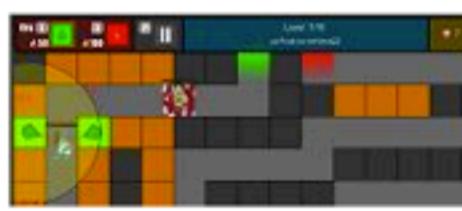
About Processing.js



Fizz by Bloom



Letter-pairs Analysis by Martin Ignacio Bereciartua



Gif Tower Defense by Daniel Arellano Aliaga

Processing.js is the sister project of the popular [Processing](#) visual programming language, designed for the web. Processing.js makes your data visualizations, digital art, interactive animations, educational graphs, video games, etc. work using web standards and without any plug-ins. You write code using the Processing language, include it in your web page, and Processing.js does the rest. It's not magic, but almost.

Originally developed by [Ben Fry](#) and [Casey Reas](#), Processing started as an open source programming language based on Java to help the electronic arts and visual design communities learn the basics of computer programming in a visual context. Processing.js takes this to the next level, allowing Processing code to be run by any HTML5 compatible browser, including current versions of Firefox, Safari, Chrome, Opera, and even the upcoming Internet Explorer 9. Processing.js brings the best of visual programming to the web, both for Processing and web developers.

Everything you need to work with Processing.js is here. You can [download](#) the most recent version of Processing.js, read Quick Start Guides for [Processing Developers](#) or [JavaScript Developers](#), learn about the Processing language, consult the [Reference](#), and of course view many existing [demos](#) that use Processing.js. You can also get [involved](#) with the Processing and Processing.js communities, both of which are active and looking for new users and developers.

Whether you're an advanced Processing developer or completely new, whether you're a pro with web technologies or just getting started, Processing.js bridges the gap between these two powerful technologies.

Processing is Example



Downloads

- Download the latest version of Processing.js!



Articles

- Quick Start - JavaScript Developer
- Quick Start - Processing Developer
- Native Processing Reference



Community

- Dev. Community on IRC
- Lighthouse Bug Tracking
- Processing.js GitHub Repo
- Open Source @ Seneca
- Processing.js on Twitter
- Processing.js Google Group
- Community Credits



Raphaël—JavaScript Library

What is it?

Raphaël is a small JavaScript library that should simplify your work with vector graphics on the web. If you want to create your own specific chart or image crop and rotate widget, for example, you can achieve it simply and easily with this library.

Raphaël ['ræfərɛl] uses the SVG W3C Recommendation and VML as a base for creating graphics. This means every graphical object you create is also a DOM object, so you can attach JavaScript event handlers or modify them later. Raphaël's goal is to provide an adapter that will make drawing vector art compatible cross-browser and easy.

Raphaël currently supports Firefox 3.0+, Safari 3.0+, Chrome 5.0+, Opera 9.5+ and Internet Explorer 6.0+.

How to use it?

Download and include `raphael.js` into your HTML page, then use it as simple as:

```
// Creates canvas 320 × 200 at 10, 50
var paper = Raphael(10, 50, 320, 200);

// Creates circle at x = 50, y = 40, with radius 10
paper.circle(50, 40, 10);
```



[Download v. 1.5.2 \(60 Kb\)](#)

Our recommendation is to GZIP it. It will help to reduce file size to 20 Kb. You can download [uncompressed source \(153 Kb\)](#) as well.



[Documentation](#)



[Discussion Group](#)



[IRC Channel](#)

#raphael.js at irc.freenode.net



[Twitter](#)



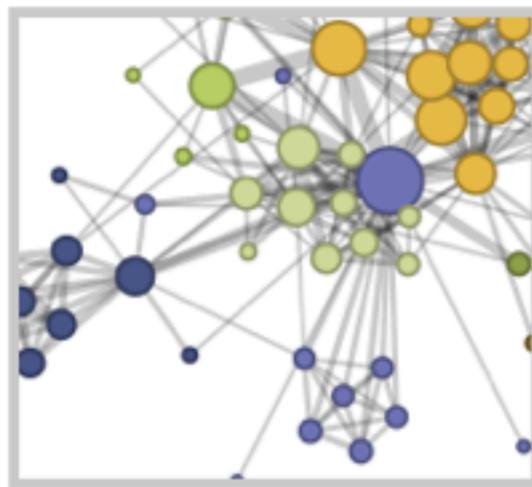
[Free Icons](#)



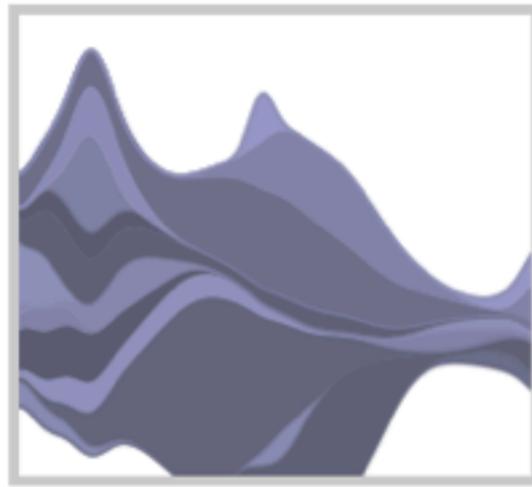
[Donate](#)



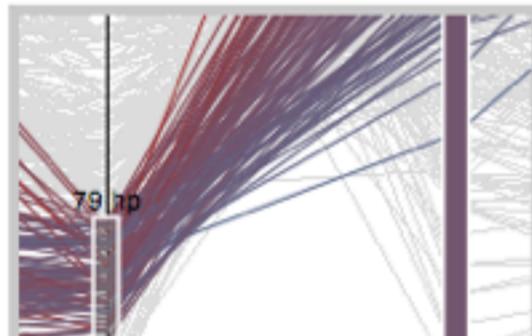
[gRaphaël—Charting Plugin](#)

Gallery

Force-Directed Layout



Streamgraphs

**Protopis****A GRAPHICAL APPROACH TO VISUALIZATION**

Protopis composes custom views of data with simple marks such as [bars](#) and [dots](#). Unlike low-level graphics libraries that quickly become tedious for visualization, Protopis defines marks through dynamic properties that encode data, allowing [inheritance](#), [scales](#) and [layouts](#) to simplify construction.

Protopis is free and open-source, provided under the [BSD License](#). It uses JavaScript and [SVG](#) for web-native visualizations; no plugin required (though you will need a modern web browser)! Although programming experience is helpful, Protopis is mostly declarative and designed to be learned [by example](#).

This project is led by [Mike Bostock](#) and [Jeff Heer](#) of the [Stanford Visualization Group](#), with significant help from [Vadim Ogievetsky](#). We welcome your [contributions](#) and suggestions.

[Download Protopis 3.2 »](#)

protopis-3.2.zip (881 KB)

Updates

May 28, 2010 - ZOMG! Release 3.2 is finally available! Enjoy the powerful new layouts and the variety of new examples in the gallery. We've also moved from SVN to [Gitorious](#) to make it easier for you to participate in development!

October 1, 2009 - Release 3.1 is available, including minor bug fixes. We've also spruced up the home page and examples gallery in anticipation of [VisWeek 2009](#).

September 19, 2009 - Release 3.0 is available, including major performance improvements, bug fixes, and handy utilities such as scales and layouts. We've also moved all the documentation to the wiki so that we can more easily keep it up-to-date. New tutorials, examples, and documentation are available, and more is on the way.

July 16, 2009 - Release 2.6 is available, including ~2,800 lines of API documentation and numerous bug fixes.

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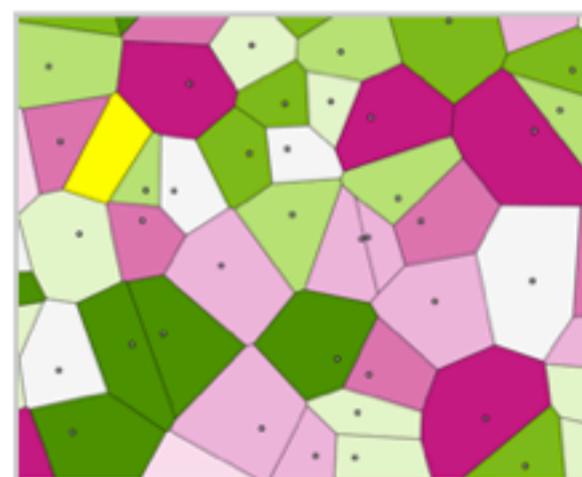
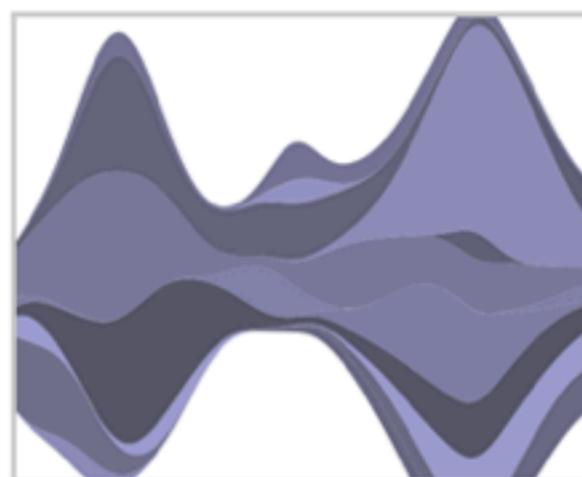
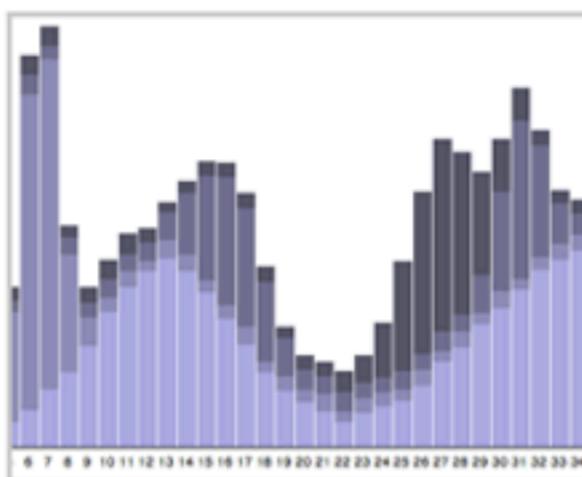
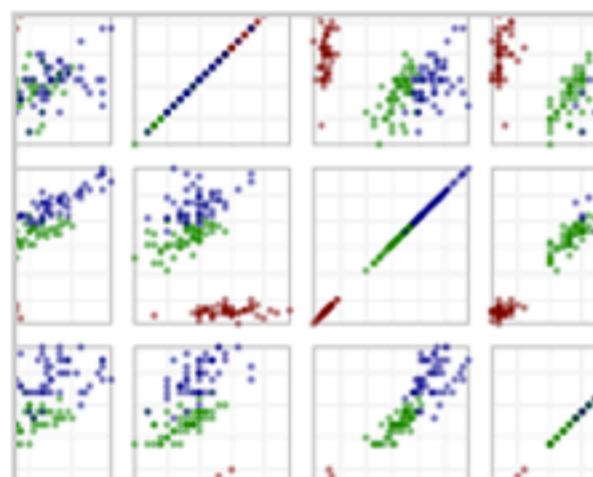
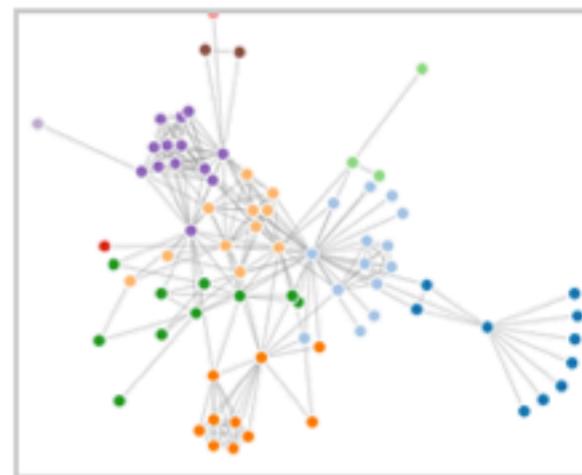
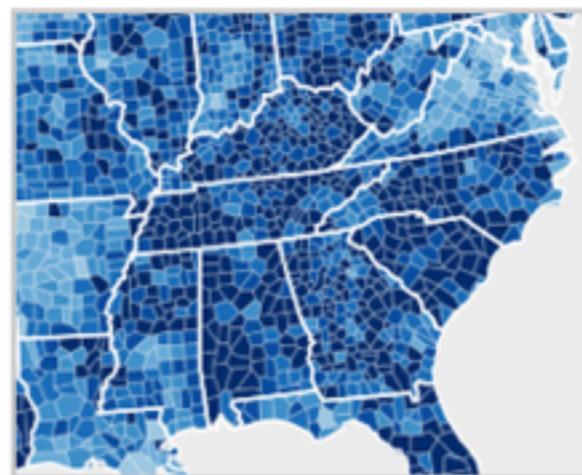
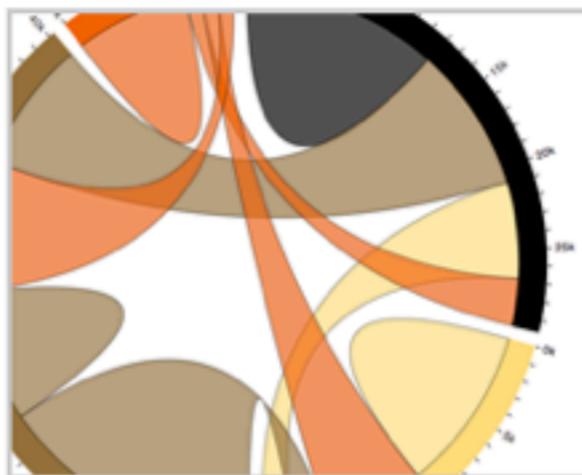
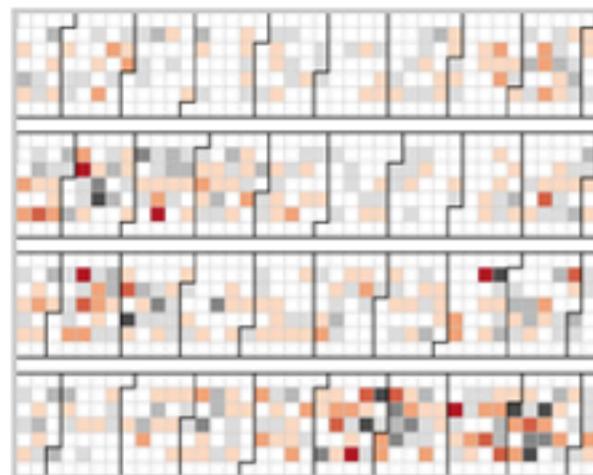
<http://protovis.org>

[NB:- I hear that people are adapting protovis to VML or using SVGWeb for IE compatibility, that's great!]

d3.js

Data-Driven Documents

D3.js is a small, [free](#) JavaScript library for manipulating documents based on data.



[Selections](#)
[Dynamic Properties](#)
[Enter and Exit](#)
[Transformation, not Representation](#)
[Transitions](#)
[Subselections](#)
[Data Keys](#)
[Modules](#)

D3 allows you to bind arbitrary data to a Document Object Model (DOM), and then apply data-driven transformations to the document. As a trivial example, you can use D3 to generate a basic HTML table from an array of numbers. Or, use the same data to create an interactive SVG bar chart with smooth transitions and interaction.

D3 is not a traditional visualization framework. Rather than provide a monolithic system with all the features anyone may ever need, D3 solves only the crux of the problem: efficient manipulation of documents based on data. This gives D3 extraordinary flexibility, exposing the full capabilities of underlying technologies such as [CSS3](#), [HTML5](#) and [SVG](#). It avoids learning a new intermediate proprietary representation. With minimal overhead, D3 is extremely fast, supporting large datasets and dynamic behaviors for interaction and animation. And, for those common needs, D3's functional style allows code reuse through a diverse collection of optional modules.

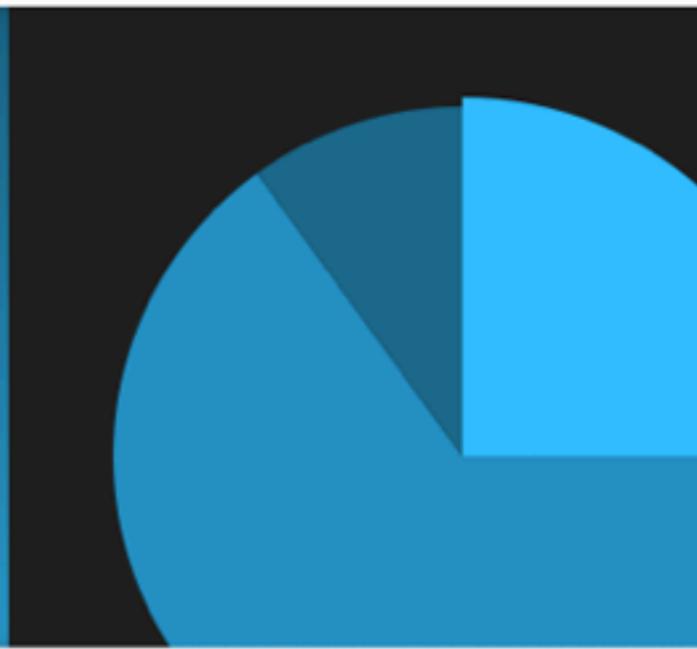
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<http://mbostock.github.com/d3>

promising adaptation of the best of protovis and the best of jquery, but requires more hands-on knowledge of HTML/SVG/etc than other vis frameworks.

Canvas drawing made easy

oCanvas is a JavaScript library intended to make development with HTML5 Canvas easier. Instead of working with pixels, you work with objects. It's very straightforward and easy to get started with. Please have a look at the examples to see just how easy it is.

[VIEW DEMOS & EXAMPLES](#)


Download oCanvas

Current release: 1.0

PRODUCTION 15 kB minified

DEVELOPMENT 144 kB

For the complete source separated into files, check out the [GitHub page](#).

Example

oCanvas can be used for a lot of things, one of them being charts. This is an example of how a pie chart can be generated for the percentages defined in the variable `data`. Moving over the pieces will make the piece larger and clicking the pieces will make them animate.

```
var canvas = oCanvas.create({
  canvas: "#canvas",
  background: "#222",
  fps: 60
});

var data = [25, 65, 10];

var prototype = canvas.display.arc({
  x: canvas.width / 2,
  y: canvas.height / 2,
  radius: 75,
```

[CODE](#)
[OUTPUT](#)

[Fork me on GitHub](#)

a javascript library for working with the html5 canvas element



EaselJS v0.3.2 released: v0.3.2 fixes a few bugs and adds support for mouseover and mouseout events. We've also released v0.1 of Zoë - a handy tool for exporting EaselJS sprite sheets from Flash swf animations. [Learn about Zoë here.](#)

The new Canvas element in HTML5 is powerful, but it can be difficult to work with. It has no internal concept of discrete display elements, so you are required to manage updates manually. The Easel Javascript library provides a retained graphics mode for canvas including a full, hierarchical display list, a core interaction model, and helper classes to make working with Canvas much easier.

examples: [game](#), [sparkles](#), [drag & drop](#), [localToGlobal](#), [globalToLocal](#), [sprites](#), [graphics](#), [bar graph](#)

For an example of EaselJS being used in a large-scale project, see [Pirates Love Daisies](#), which uses EaselJS v0.1 to manage and render the game board.

links: [downloads](#), [API docs](#), [GitHub repo](#), [bugbase](#), [wiki](#), [google group](#), [Zoe animation exporter](#)

EaselJS was built by [gskinner.com](#), and is released under the MIT license, which means you can use it freely for almost any purpose (including commercial projects). Credit is appreciated where appropriate, but it is not a requirement.

EaselJS is currently in alpha. We will be making significant improvements to the library, samples, and documentation over the coming weeks. Please be aware that this may necessitate changes to the existing API. If you'd like to contribute, please visit the [GitHub repository](#) for the project.

Tuesday, March 29, 2011

<http://easeljs.com/>

Thanks

and hopefully lots of time for questions!

Tuesday, March 29, 2011

Find me online <http://twitter.com/databloom> or <http://bloom.io>