

VISUALIZATION AND INFOGRAPHICS

Content, projects, syllabus

Mars Exploration Rover: Misión a Marte

[Portada](#) [La misión](#) [El Mars](#)

Estructura

El vehículo, de 185 kg de peso, tiene una vida útil de 90 días martianos (un poco más largos que los de la Tierra). Puede avanzar 100 metros por jornada. Puesto que su batería se alimenta de luz solar, sólo está operativo durante el día.

- Cámaras panorámicas y de navegación
- Antenas
- Mastil
- Cámera doble frontal (detección de obstáculos)
- Panel solar
- Cuerpo Contiene la batería y el ordenador central
- Brasó meccanico articulado
- Instrumentos de análisis

Fuente: NASA / Agencia Krebs-Pinto-Gutiérrez / Alberto Cairo e-mail

Esgrima

[Portada](#) [Introducción](#) [Materiales](#) [Equipo](#) [Manuelas](#) [Historia](#)

El área y las reglas básicas

El primer combatiente que consiga 5 tocados en las rondas preliminares y 15 tocados en la eliminación directa gana el combate.

Los combatientes están conectados a los marcadores eléctricos. Tocques válidos o no válidos hacen que se enciendan diferentes luces.

Juez

Marcador

Relé Alarga o acorta el cable

Zona colorada Sirve para que el combatiente sepa que se aproxima al límite del área. Salir del área anota un toque al oponente.

Piso

La pista elevada facilita la visita de los espectadores y los jueces.

Fuente: AAC Black London / Fencing (Brian Pines) / Krebs-Alberto Cairo e-mail

El calamar gigante

[Portada](#) [El animal](#) [Habitat y distribución](#) [Comparativa de longitudes](#)

El calamar gigante

El Architeuthis es el invertebrado más grande que existe. Sigue vivir a grandes profundidades, por lo que nunca se lo ha observado en su hábitat natural. Todos los estudios que se han realizado sobre él se han hecho a partir de restos.

Longitud total Hasta 20 m (aprox.)

Longitud del cuerpo 3-8 m (aprox.)

Longitud de los tentáculos de alimentación Hasta 15 m (aprox.)

Fuente: Smithsonian Inst. / giantquidder.com / Génisis-Alberto Cairo e-mail

Cassini-Huygens: cita con Saturno

[Portada](#) [La misión](#) [Saturno](#)

Sonda Cassini

El proyecto Cassini comenzó a gestarse en 1982 como misión que complementaría observaciones terrestres (de sondas Voyager o del Hubble).

Peso total con combustible 5.712 kg

Peso sin combustible 2.135 kg

Peso de sonda Huygens 350 kg

Recorrido hasta Saturno 3.200 mil. km

Lanzamiento 15 octubre 1997

Llegada 1 julio 2004

Misión Huygens en Titán 24 diciembre 2004

Duración de la misión principal 4 años

Coste de la misión 3.000 mill. de \$

Fuente: NASA / Space.com / Ilustración propia Génisis-Alberto Cairo e-mail

Los portaaviones clase 'Nimitz'

[Portada](#) [Datos](#) [Estructura](#) [Despegue](#) [Aterrizaje](#) [RADAR](#)

Estructura del buque

Los portaaviones clase 'Nimitz' tienen un puente de más de 12 pisos (unos 40 metros). Su casco está dividido en diversas cubiertas de carga, de búnkeres, etc.

Radar de seguimiento de misiles, de exploración aérea, etc.

Radar de exploración de superficie

Cables de frenado

Radar principal de exploración aérea

Ascensor

Ascensor

Ascensor

Batería misiles 'Sea Sparrow'

Despegue

Ascensor

Ascensor

Batería misiles 'Sea Sparrow'

Aterrizaje

Sistema óptico de aterrizaje

Mk. 15. Cañón antisubmarino

Fuente: Fanart / US Navy / Nasa/Reuter/Gutiérrez-Alberto Cairo e-mail

Masacre en Madrid

[Portada](#) [Introducción](#) [Atocha](#) [El Piso](#) [Santa Eugenia](#)

7 explosiones en Atocha

En la vía 2, un C-1, esperaba para salir con destino a Alcobendas. El tren que se dirigía a Chamartín (línea C-1) estaba en la entrada de la estación en el momento del atentado.

Calle de Arganzuela

Barrio de Atocha

O/ Méndez Álvaro

Antigua Estación de Atocha

Terminal AVE

Paseo Infanta Isabel

C/ Alfonso XIII

Avda. Ciudad de Barcelona

Glorieta Carlos V

Fuente: Ilustración propia / Génisis-Alberto Cairo e-mail

La presa de las Tres Gargantas

[Portada](#) [El río](#) [Construcción](#) [La presa](#)

Potencia instalada 18 MW

Potencia instalada del embalse 17.680

Potencia hidroeléctrica instalada en España (2001) 18.060

Capacidad del embalse Millones de litros

Capacidad del embalse 39.300.000

Costo anual de agua en hogares españoles 4.300.000

Altura máxima 185m

Centra hidroeléctrica

Canal de paso de barcos

Ventilador

Centra hidroeléctrica

Longitud 2.858 m

Fuente: Agencia / Ilustración propia / Génisis-Alberto Cairo e-mail

Tiro con arco

[Portada](#) [Arco y flechas](#) [Diana y tiroseño](#) [Disparo](#) [Practica tu postura](#)

Disparo

El arquero debe controlar con total precisión sus movimientos. En cada disparo repite exactamente los del anterior. Además de los accesorios mostrados, se permite el uso de sujetaflechas y salvajerazos (pero).

Vista izquierda

Vista derecha

La flecha debe sujetarse entre el índice y el medio.

Ductiles

Debe alcanzarse el punto de anclaje con un tensado firme. Sigue deteniendo el tensado al alcanzar la comisura del labio.

FUEN(TE): Manual de tiro con arco (Tutor) / Sports (Fimby) / Génisis-Alberto Cairo e-mail

Tiroteo en Ciudad Lineal

[Portada](#) [Los hechos](#)

El tiroteo

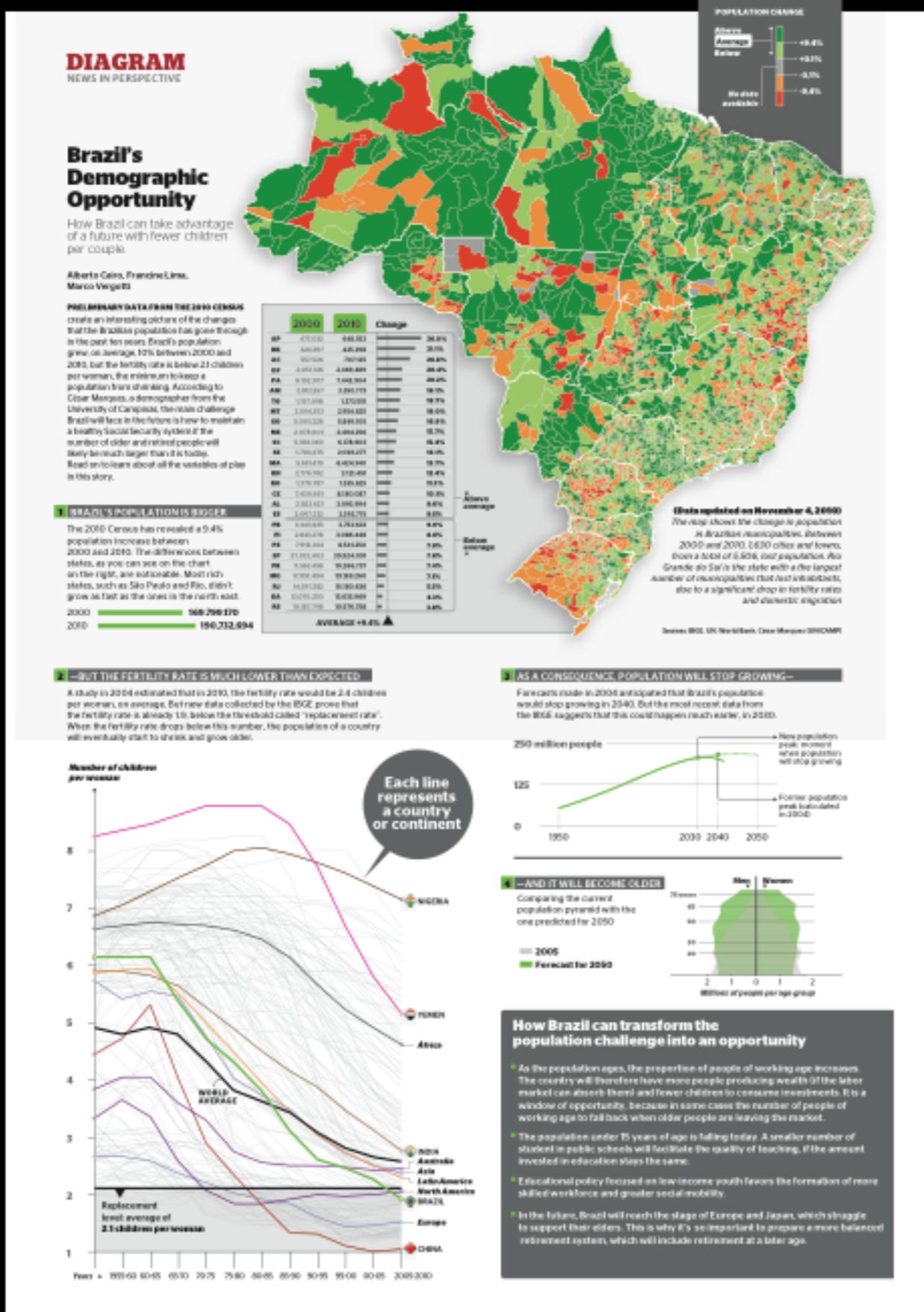
El primer sicario se sitúa tras las víctimas y les dispara tres rifladas con su Kalashnikov (la policía ha recogido más de 50 casquillos de bala). Uno de los hombres sobrevive a los primeros disparos, pero el asesino lo remata en el suelo. Según algunos testigos, una de las víctimas intentó repeler la agresión con una pistola, pero no pudo disparar.

Calle del Jardín número 34

Primer asesino

Fuente: Ilustración propia / Génisis-Alberto Cairo / Martín Zafra e-mail

Editora Globo, Época magazine (Brazil) 2010-2011



WHY THIS CLASS?

The skills of the educated person

http://www.jstor.org/stable/40567805?seq=1#page_scan_tab_contents

The skills of the educated person

Literacy

http://www.jstor.org/stable/40567805?seq=1#page_scan_tab_contents

The skills of the educated person

Literacy Articulacy

http://www.jstor.org/stable/40567805?seq=1#page_scan_tab_contents

The skills of the educated person

Literacy
Articulacy
Numeracy

http://www.jstor.org/stable/40567805?seq=1#page_scan_tab_contents

The skills of the educated person

Literacy
Articulacy
Numeracy
Graphicacy

http://www.jstor.org/stable/40567805?seq=1#page_scan_tab_contents

VISUALIZATION IS A USEFUL TOOL



Find studies, reports, data and more:

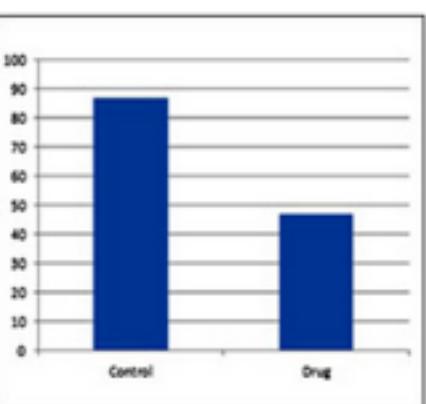
keyword



ADS, PUBLIC OPINION, PUBLIC HEALTH

How “scientific” graphs and formulas can increase the persuasiveness of advertising media

Last updated: December 3, 2014



“New and improved!” is the oldest line in the advertising book, but it’s a book that has gotten plenty crowded in recent years. Once restricted to blazingly obvious banner ads, online advertisers now track users’ behavior and slip promotions into search results, Twitter feeds, and Facebook pages. Traditional ads have been joined by “native advertising,” which is designed to look like editorial content, and its ability to deceive consumers has received pointed attention from the Federal Trade Commission.

Whether ads are on broadcast media, in print, or online, their effectiveness has been the subject of substantial academic research. A 2013 study published in *Political Communication* found that for political advertising, most persuasion effects are short-lived, particularly with state and local elections. A 2011 study from the University of Toronto and MIT found that increasing online ad visibility could improve viewer interest, but could also backfire. “Contextually targeted” ads were found to increase a viewer’s interest more than highly visible ones, but tended to be less memorable.

These are not minor questions given the immense amount of money spent on advertising — a projected \$182 billion in the United States alone in 2015. A fast-growing segment is direct-to-consumer advertising by pharmaceutical companies. According to a 2014 University of Pennsylvania study, pharmaceutical companies spent \$3 billion on consumer advertising in 2012 — more than 20 times what they spent on clinical trials. Such ads often feature claims about the drugs’ effectiveness in an attempt to influence consumer decisions, often about subjects about which they had little understanding.

FULL TEXT OF STUDY



Blinded with Science:
Trivial Graphs and
Formulas Increase Ad
Persuasiveness and
Belief in Product
Efficacy

Research Findings

Feedback

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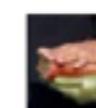
Duration of political
advertising and its
effects on voters



Negative political ads
and the 2012
campaign ad wars



Counterframing
effects and varying
political messages



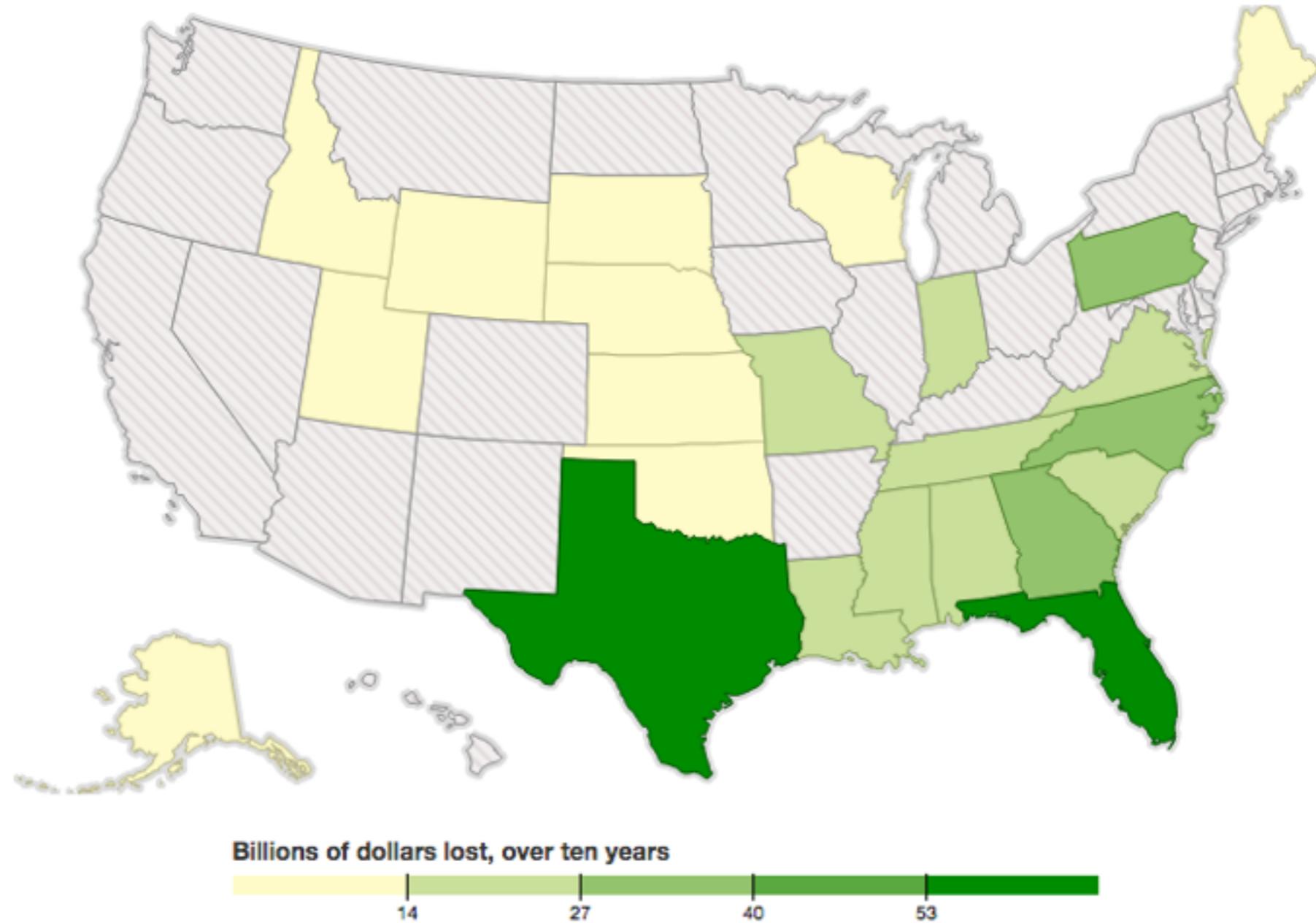
2012 National Study
of Confidence in
Leadership

OTHER DATABASES

You don't need to be a great programmer, artist, or designer to create quite decent charts and maps

Leaving Money on the Table

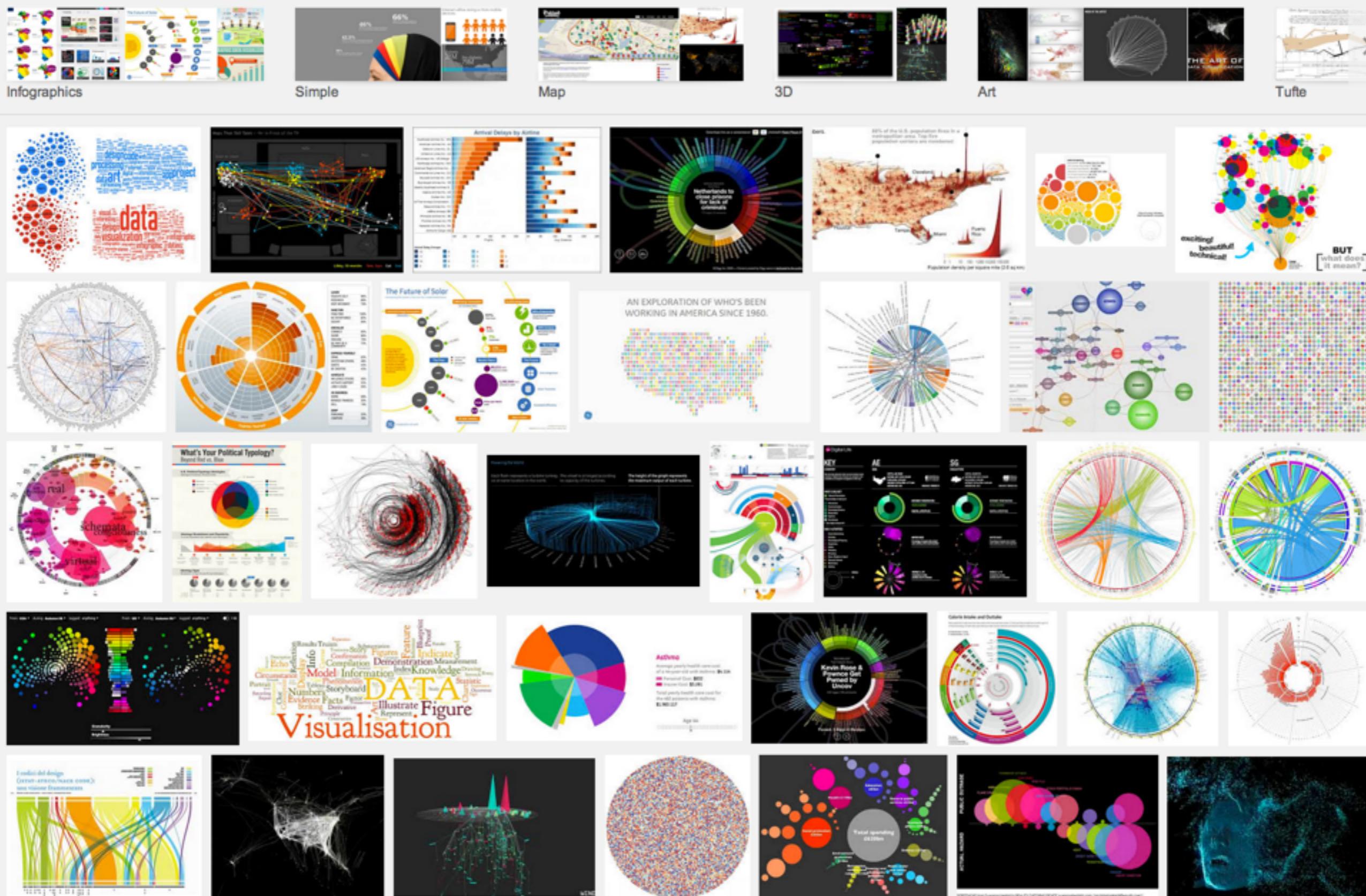
The amount of federal funds, in billions, that 24 states lost by refusing to expand Medicaid



Created with [Datawrapper](#)

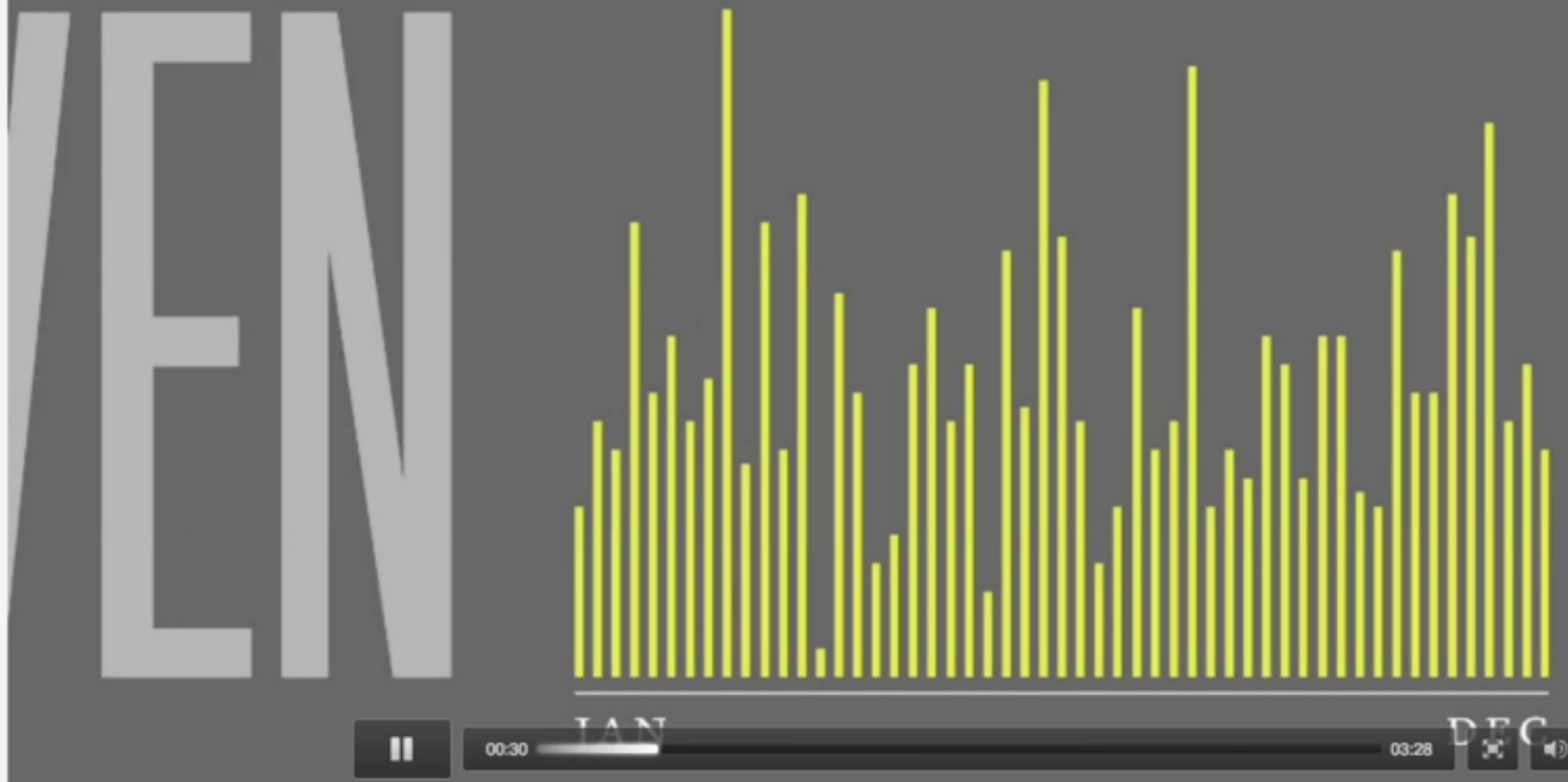
Source: [Urban Institute](#), [Get the data](#)

About 3,020,000 results (0.21 seconds)





SOCIAL DRINKS BY WEEK

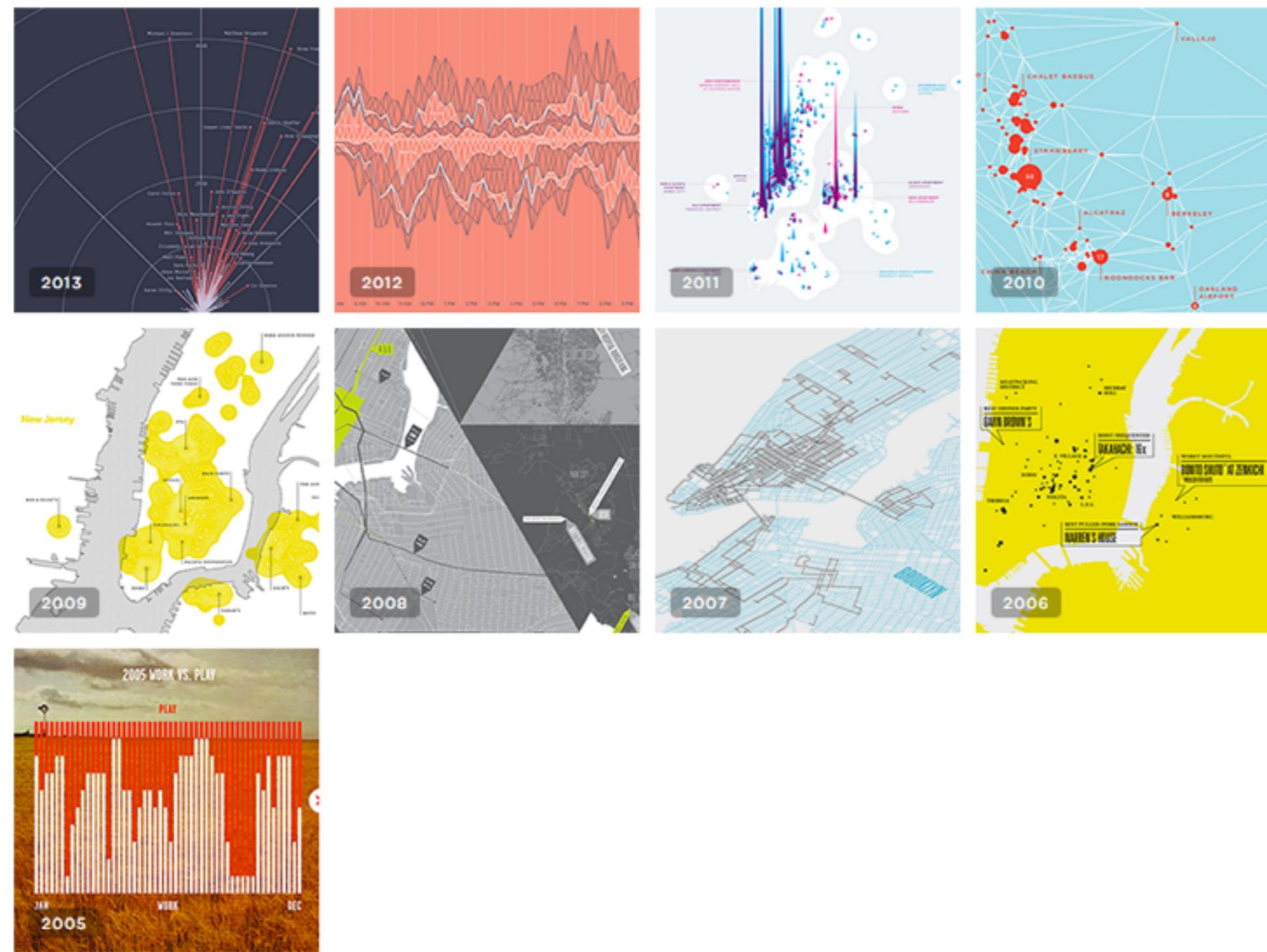


TECHNOLOGY

Nicholas Felton: A Quantified Life

<http://www.nytimes.com/video/technology/100000003050767/nicholas-felton-a-quantified-life.html>

ACURA >UNLOCK THE THRILL OF THE TLX



<http://feltron.com/>

SUPER SWIMMERS

SAVE YOUR BREATH
Some animals that live in the water don't have gills, so they have to hold their breath as they swim. But who can last the longest underwater?

Harbour seal	5 minutes
Dolphin	8 minutes
Walrus	10 minutes
Human	22 minutes*
Northern elephant seal	30 minutes
Alligator	2 hours

PACKED LIKE SARDINES

The sardine run is one of the biggest seasonal migrations of fish. They swim near the African coast. They schools can be up to 8.5 miles/13.6 kilometers long, 1 mile/1.6 kilometers wide and are visible from space.

The shoaling fish respond to the position of their neighbours, trying not to get too close to others and keeping far enough away from others.

THE SQUID AND THE WHALE SHARK
A giant squid reaches up to 18 metres/59 feet long.

30

* This is the longest time ever recorded for a human being. The average time a human can hold their breath is only around 1 minute.

THE HUMAN SKELETON

The 206 bones in your body connect together to make up your skeleton. Every bone has its own job; some provide protection to your organs, whilst others make it possible to move.

EAR

You have three bones in your body. These are in your middle ear, in your ear canal and in your inner ear system. That connects signals to the brain. It is just 1.5 cm long - the size of a grain of rice.

SKULL

There are 22 bones in your skull altogether. Your skull is made up of two sets of bones: your face at the front of your head and the rest of the brain. These protect your brain and are made up of eight flat bones.

SHOULDER

Your clavicle (or collarbone) connects with your scapula (or shoulder blade) to make your shoulder bone, which your arm hangs from.

SPINE

Your spine is made up from a column of 33 bones called vertebrae, which protect your spinal cord and help you stand upright.

FACE

You have 16 bones in your face, including your forehead, nose, jawbone, your chin bone and the bones that meet them.

COCCYX

You've inherited your coccyx from your primitive ancestors that is the remains of your tail bone.

RIBS

You've got 12 pairs of ribs.

These protect your vital organs, including your lungs and your heart.

HANDS & FEET

More than half the bones you have in your body are found in your hands and feet. They are both formed in the same shape, which allows them to rotate your hand and forearm by more than 180 degrees.

ARMS

Your upper and lower arms are connected at your elbow by your humerus bone and when your elbow bends, which allows your arm to rotate by more than 180 degrees.

HANDS

You have 27 bones in each hand, with three phalanges in each of your fingers and seven in your thumb. These attach to two metacarpals in your hand, which connect to the carpal bones in your wrist.

PELVIS

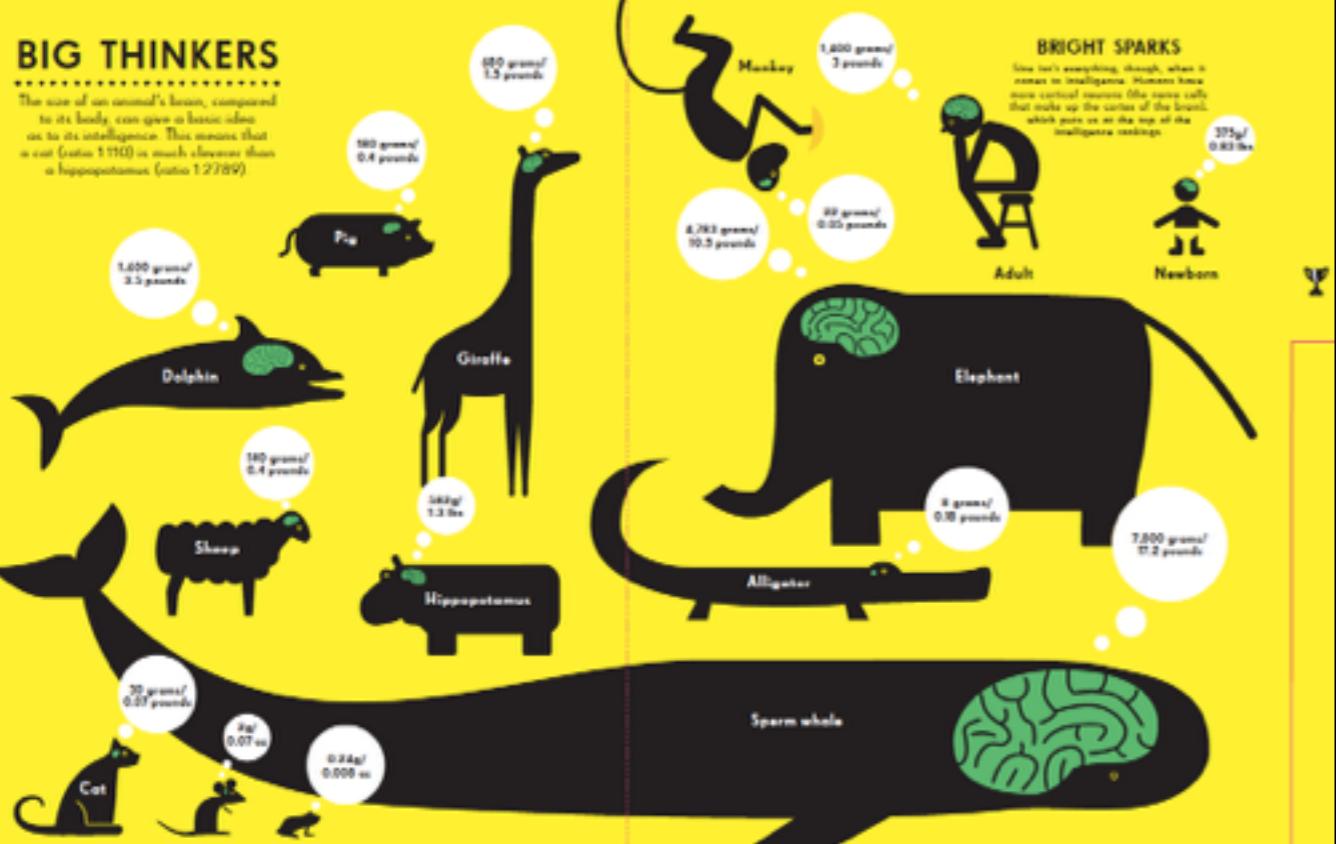
The bones in your pelvis are joined to your spine in your body. They form a basin made up of five fused vertebrae in the lower part of the spine. A woman's pelvis is shallower and wider than a man's, making it possible for a baby to pass through when she gives birth.

LEGS

The bones in your legs are the longest in your body. Their purpose for locomotion is to move the ends of the bones that meet them. Bones in both legs have knee joints, three undeveloped lots of cartilage which make their legs more flexible.

BIG THINKERS

The size of an animal's brain, compared to its body, can give a better idea as to its intelligence. This means that a cat (ratio 1.110) is much cleverer than a hippopotamus (ratio 1.2789).



34

35

Simon Rogers

<http://www.thefunctionalart.com/2014/03/infographics-for-children-simon-rogers.html>

63

BIEBER vs. BIEBER

When Justin Bieber burst onto the scene in 2009, he was an uncontroversial, shaggy-haired, prepubescent 15-year-old. He'd been discovered on YouTube by some big music stars, and with his debut single 'One Time,' he was, for a brief moment, a shining example of young Canadian talent. The Stratford, Ont., -raised singer quickly became the most famous person on the planet. Since his humble beginnings, Bieber sold out a Madison Square Garden concert in 22 minutes, amassed nearly three billion YouTube views, sold more than 15 million albums worldwide, and became the focus of intense public scrutiny. From 'Baby' to 'Boyfriend,' mop-hair to gel-hair; purple hoodie to leather, dog tag to gas mask, the evolution of Bieber from 'cuddly' to 'gnarly' in these short four years has gripped the world.

Which Bieber do you prefer?

CUDDLY 2009 BIEBER

JUSTIN'S BEGINNINGS

Cuddly Biebs used to bunk before he made it big, pocketing US\$150-\$200 a day during Stratford's summer tourist season, a princely sum for a 12-year-old kid bet peanuts compared to the US\$100-a-minute (asleep or awake) he makes now.

Bieber's big splurge, as a wee lad, was saving up his busker-nickels to take his mom to Disney World to meet Mickey and the gang. Now it's Los Cabos, Mexico, and wild nights with Selena Gomez in Vegas.

Bieber's childhood neighbour was a kindly senior named Agnes. The pretty people on the far side of his backyard hedge in Calabasas, Calif., include Jennifer Lopez and the Kardashians.

Justin took his first ever date to King's Buffet, where it's all you can eat for \$6.99. At the Mint Leaf, in London in 2011, the Biebs filled his belly, if not his heart, with Indian cuisine, at \$60 a plate.

Cuddly Bieber's first album release party was at Stratford's City Hall, a nice enough spot, but garishly public compared to the Sons of Essex, in NYC. Where he rented out the whole place last summer, partying with 75 of his "closest friends," eating "truffle" grilled cheese, toasting the success of his titanic hit 'Believe.'

It used to be just a boy, and a yappy lapdog dog named Sammy. In recent years, Bieber's animal menagerie has almost grown with the addition of a Russian dwarf hamster (since deceased) and white-headed Capuchin monkey (since seized by German authorities).



Height: 150cm
Weight: 50kg
Inseam: 61cm

Hair: The shaggy swoop, always with a head flick to re-position the bangs, is the 'flaw' of popstar haircuts—the quintessential Bieber 'do. Legions of 13-year-old boys unwillingly became lookalikes in 2009, enduring nicknames and catcalls like 'Juster' and 'Bieber.' Look #1 will be etched on the star's tombstone, despite his many failed efforts to erase it from the public conscience.

Piercings: Justin got his left ear pierced at age nine, but a few million more paid attention when he showed off matching left and right diamond studs in 2011.

Dog tag: He's quoted as saying, "A fan actually gave it to me. It was someone very special to them that had passed away in the war and this was his dog tag. I wear it for the fans."

Jackets: Bieber's recent proclivity for leather jackets surfaced most notably at the 2013 Billboard Music Awards, where he was also boozed by the audience. Donning the single-sleeve bomber jacket with a 'Bieber Air' logo, the faux pilot made everyone wish for the days when he just wore the regular clothes his mom chose.

Jewellery: The bling around Bieber's neck usually outshines the bling around his wrists. But the star's diamond-cut bracelets and gold Daytona watches at least outshine Cuddly Bieber's tame selection.

This bit: Cummerbund? Apron? We at the Post clearly have no idea what this bit is. Justin?

Hands in pockets: Either an expression of disinterest, brattiness, or a PR fashion tip taken too far, Bieber's hands-in-pockets look has a long history.

Pants: As his voice lowered, so did the crotch of his 'droopy-popper' pants. 2009's straightforward denim jeans became 2013's leather homage to b-boys and '70s rock. And his rear end must be getting cold.

Dog: Despite rumours to the contrary, Justin's dog Sam is alive and well.

Monkey: German authorities confiscated Bieber's pet monkey Mally at the airport when it was found to be without the required paperwork.

Shoes: High-top sneakers have always been a part of the Biebs' wardrobe. They signify a youthfulness and athleticism that he has displayed in the past (Bieber isn't a bad little basketball player!). The sneakers could also come in handy if he needs to run from the cops.

GNARLY 2013 BIEBER

JUSTIN'S TATTOOS

1. Stratford Coalition - Jan. 2012. Left shoulder blade, ice hockey logo from his days watching with his grandfather.

2. Roman numerals - Jan. 2013. Right collarbone

3. Crown - Sept. 2012. Left side of chest.

4. Yeshua - April 2011. Left ribcage. Got matching tattoo with Dad.

5. Tiger - April 2013. Left bicep.

6. Music - July 2012. Inside right forearm. Japanese symbol for 'music.'

7. Believe - June 2012. Inside left forearm. His latest album is called 'Believe.'

8. Owl - Oct. 2012. Left arm.

9. Seagull - March 2010. Left stomach near hip. Dad and uncle have same tattoo.

10. Chi - Feb. 2013. Left arm. Greek alphabet character is abbreviation for 'Christ.'

11. Carp - April 2013. Left arm. Known to symbolize good luck.

12. Angel - April 2013. Left forearm. It was rumoured it represents his old flame Selena Gomez.

13. Jesus Christ - 2012. Left calf. Bieber is a faithful Christian lad.

14. Praying hands - March 2012. Left calf. Bieber has a song called 'Pray.' Roses added in Dec. 2012

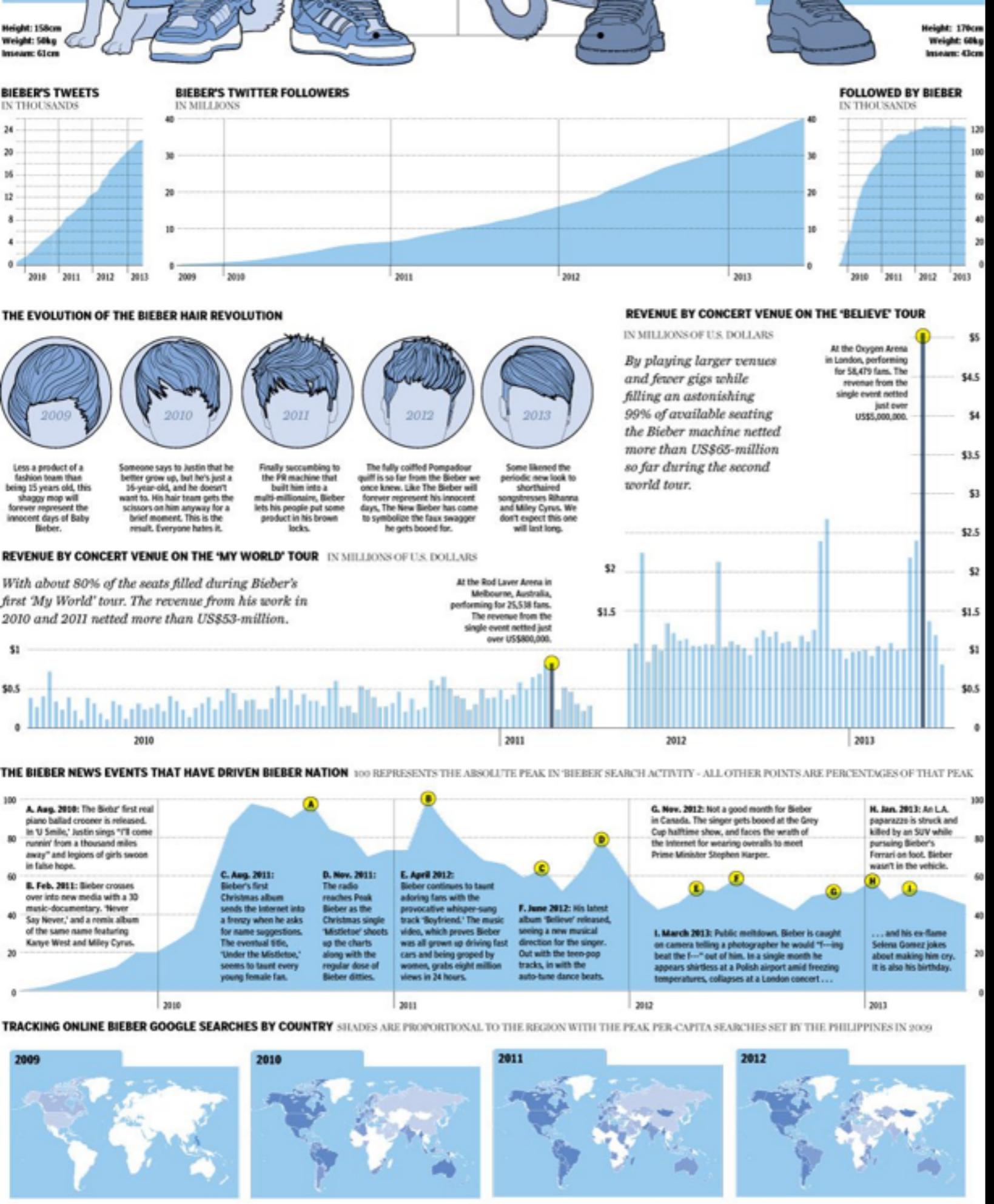
National Post

Richard Johnson

@newsillustrator:

"A low point in my infographic career."

<http://news.nationalpost.com/2013/06/07/graphic-bieber-versus-bieber-who-will-win/>



National Post

Richard Johnson

@newsillustrator:

"A low point in my infographic career."

<http://news.nationalpost.com/2013/06/07/graphic-bieber-versus-bieber-who-will-win/>

Infographics and visualizations are everywhere in part because tools are easier to use and more accessible than ever. Even non-designers can create effective visualizations



tableau public

SEARCH go

HOW IT WORKS see the magic happen

GALLERY see what others visualized

COMMUNITY join the conversation

DOWNLOAD Tableau Public

Data in. Brilliance out.
Visualize and share your data in minutes—for free.

PLAY

Introducing Tableau Public 8.1 get it now ▶

Tale of 100 by Christian Chabot

Are You Ready For Some Football? by Brett McMurphy

Recession Job Growth by Anthony Calabrese

view more

The screenshot shows the Tableau Public website homepage. It features a large banner with a woman's face and the tagline 'Data in. Brilliance out.' Below the banner, there are sections for 'HOW IT WORKS', 'GALLERY', 'COMMUNITY', and a 'DOWNLOAD' button. A prominent 'PLAY' button is located next to a small visualization. At the bottom, there are three featured visualizations: 'Tale of 100' by Christian Chabot, 'Are You Ready For Some Football?' by Brett McMurphy, and 'Recession Job Growth' by Anthony Calabrese. A 'view more' link is also present.

<http://www.thefunctionalart.com/2014/08/my-first-tableau-interactive.html>

All these tools are amazing

But they pose a challenge:
Becoming software-driven.
Forgetting what the goal of a
good visualization should be

Be wary of default options...

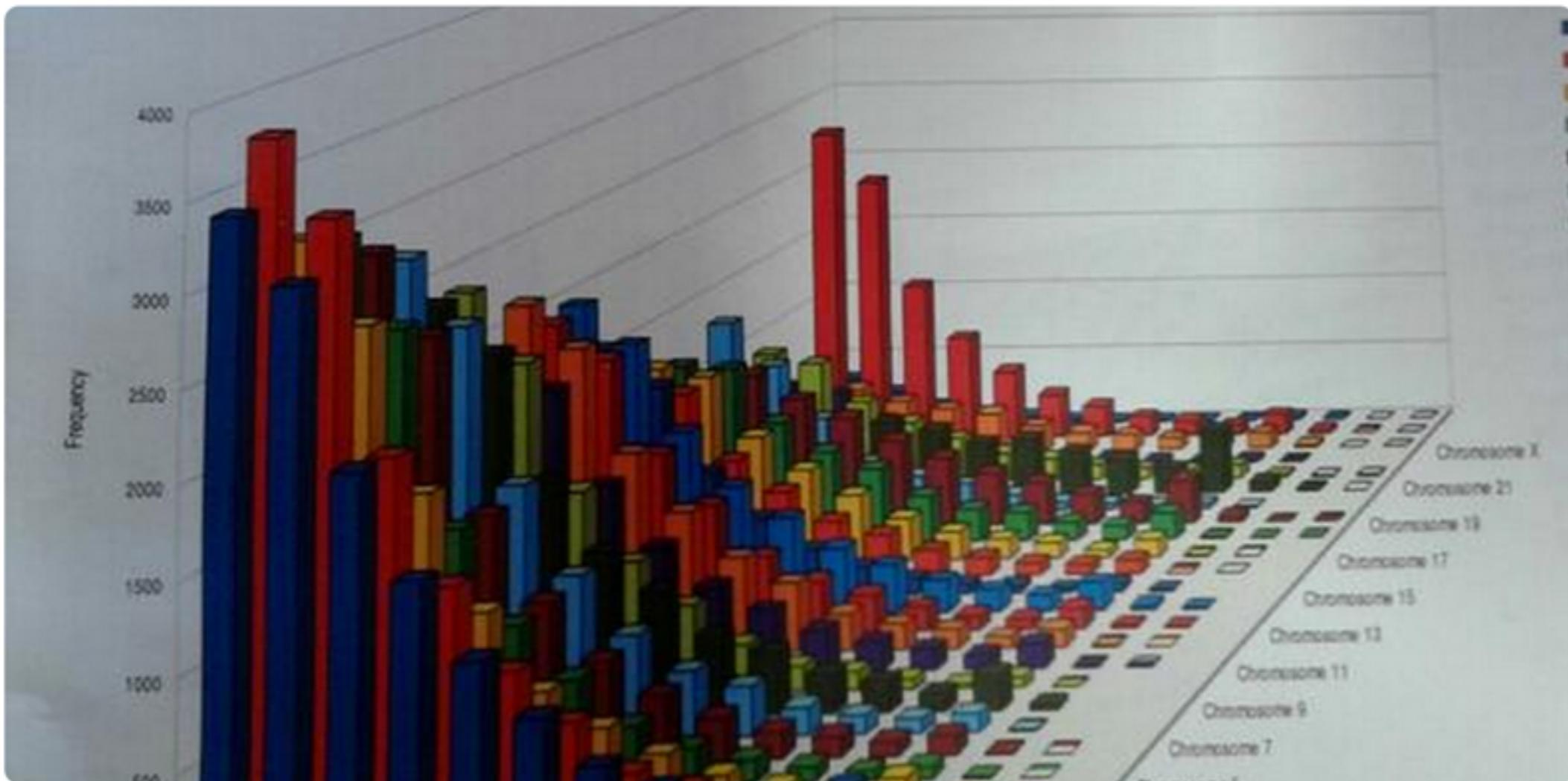


Retweeted by Jeffrey Shaffer



Chris Cole @drchriscole · Jul 10

Please forgive me, I was young and was tempted by the [#excel](#) chart wizard [#dataviz](#)

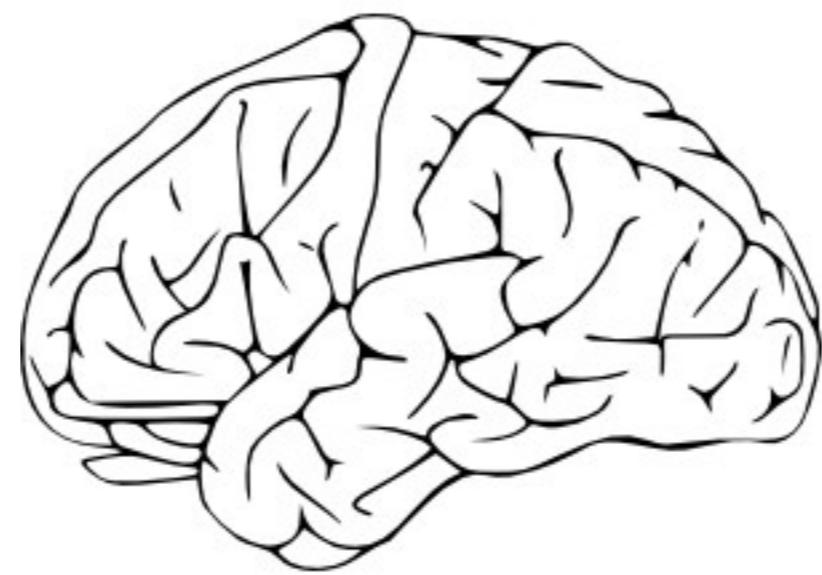


48

44



Good graphics don't depend just on this



But on this

Diagram

NEWS IN PERSPECTIVE

Giants Of The Ocean

Giant waves can be a threat to civil navigation and construction in the sea. Is Brazil prepared?

Gerson Mora, Alberto Cairo, Rodrigo Cunha, Eliseu Barreira Júnior

The Images of the CLELIA II cruiser being hit by 30-foot tall waves near Antarctica have been broadcast by TV stations all over the world. That footage is impressive but it hardly represents an exception to what happens in the sea.

In her book *The Wave*, which will be released in Brazil this week, American journalist Susan Casey talks about "freak waves" or "rogue waves", giant masses of water that suddenly appear in the middle of the ocean, and that are one of the most serious dangers to civil navigation and construction.

On average, they sink one medium-sized or large ship per week. Coastal waves can also be huge. The highest recorded wave devastated Lituya Bay, in Alaska, in 1858. Unleashed by a strong earthquake, the wave was 1,600 feet tall. In this graphic you will learn why waves appear, how they work, and what resources Brazil is investing in understanding them better.

A threat for oil platforms and civil navigation

The illustration below is a scale representation of a 100-foot tall wave about to hit a Petrobras oil platform.



GIANT WAVES IN BRAZIL

Brazil doesn't keep a centralized record of giant waves in national waters. But Petrobras, the public oil company, takes them into consideration when it builds extraction platforms.

Campos Basin



Mathematical models have predicted that waves during a storm can reach an average of 26 feet with a maximum of 40 feet.

Santos Basin



Simulations developed in 2010 have predicted that the maximum height of a wave in Santos (never observed) is 67 feet.

WAVE SIMULATOR



The Polytechnic School of the University of São Paulo (Poli-USP), using funding from Petrobras, opened a lab to study giant waves in December 2009. The main element in the laboratory is a 36-foot wide and 13-foot deep pool for simulating giant wave patterns. The waves are generated by 148 rubber flaps, attached to small engines and controlled by a computer.

SOURCES: *The Wave* (Susan Casey), Poli-USP, BBC Science and Nature

HOW COASTAL GIANT WAVES WORK

Waves are energy traveling through water. They are created by wind blowing on the ocean surface. The stronger the wind, and the longer it blows, the larger the waves it produces. That's why waves are more common and bigger where storms are frequent.

1 When the wind blows, it creates friction with the sea. Water begins to rotate in the same direction as the air. Waves are the result of the deformation of water surface.

2 The longer the wind blows, the bigger the area of the water surface that can be pushed by that same wind.

3 This cycle goes on as long as the wind keeps blowing: the stronger the wind, and the longer it lasts, the bigger the waves that it will generate.

4 When waves get closer to the coast, they are slowed by the submarine relief. Also, the currents that flow near the bottom of the sea start moving up.

5 As the first waves that reach the coast are slower than the ones that come after them, the latter start piling up over the former.

6 The swell of the wave is produced by faster waves running over slower ones, when they are close to the coast.



HOW FREAK WAVES WORK

'Freak' or 'rogue' waves are giant waves that appear in the middle of the sea. They are very dangerous due to their unpredictability. Recent research has identified three different factors that influence their likelihood.



A Regions where storms are common, such as the North Atlantic, are also the ones where freak waves appear with higher frequency. The strong winds that stir those waters are a key factor.



B Submarine relief is another factor. Shallow waters in the North Sea, between the UK and Scandinavia, are prone to freak waves for the same reason that big waves appear in coastal areas.



C The confluence of warm and cold currents (see map on the right) creates dynamics that make giant waves more likely.

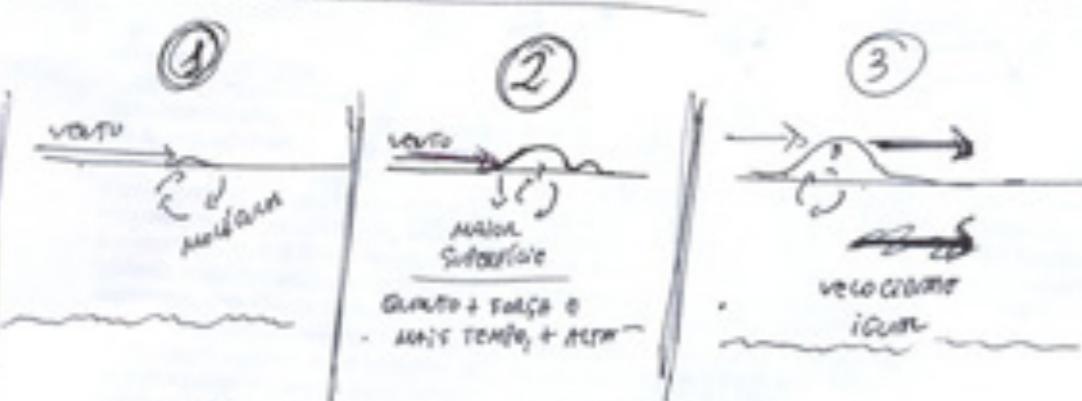


Frequency and height of freak waves
← Lower → Higher

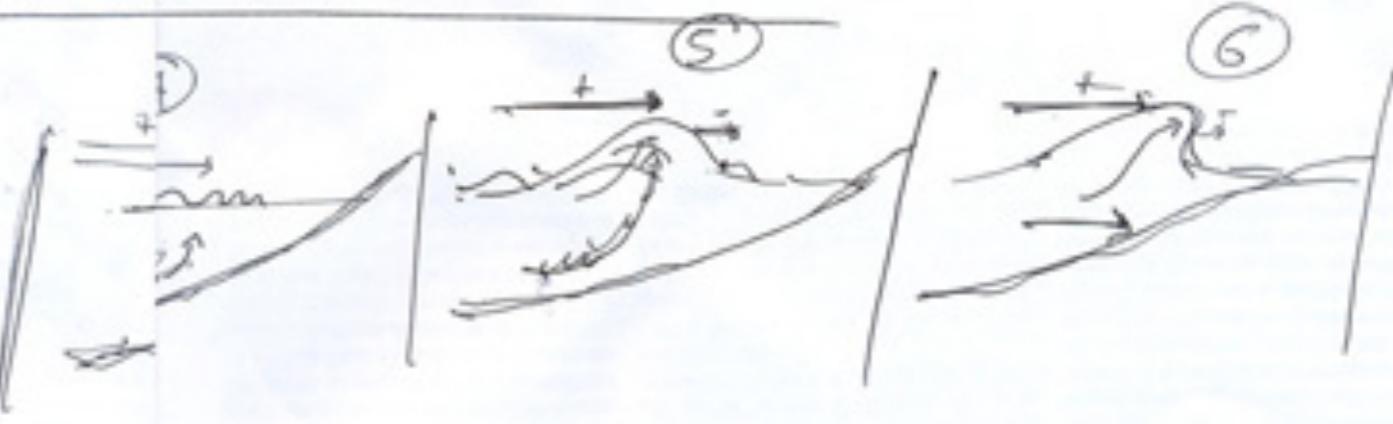
Freak waves are more common in regions near the Poles. They are also frequent in South African national waters. In that area, the Agulhas Current meets cold water that is pushed from the South Pole by strong winds.

Fórmula

- WIND DURATION
- FONDO: SUPERFÍCIE QUE VIENTO ATRAVESSA



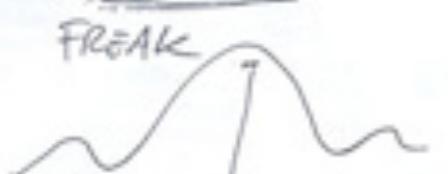
SEGUIMIENTO DE TSUNAMIS, MAS....



TORNADOS TÉCNICOS NO
MARE: ONDAS
FLUENTES

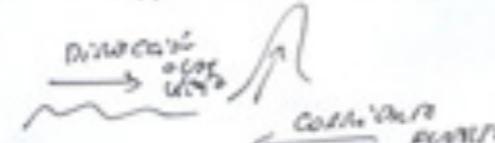
TORNADOS "MINIATURA" OLAS CON ENERGIA

VAGALHÃO
SWELL
ONDAS APERTURADAS
ROGUE WAVE → ONDAS DEL MAR // IMPROBABLES



wave part
is much longer
than its period....

2 X LONGER THAN
THE SUM OF
THE THREE THIRD
OF WHICH IS
A REEF



INTERFERENCIAS
INTERFERENCES

CONDICIONES DE ODEO
UBRAR A ODEO A TSUNAMIS
CON ODEO

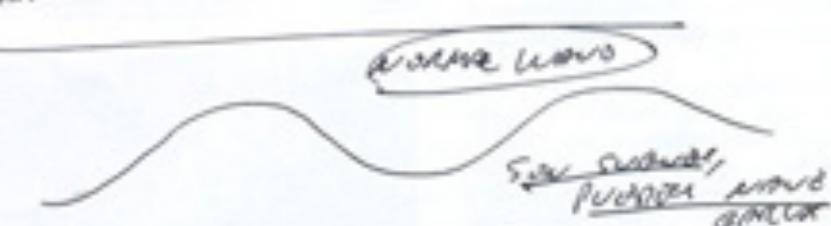
INTERFERENCIAS

FRONTE
WILCO WATT.

ESTA SELEVA

COMBUSTIBLE AGUA
SUELTA FONDO E ONDAS QUE SOBREN
A PROFUNDIDAD, MINUTOS POR VIENTO.

INTERFERENCIAS



COMO SI PRECIO
LA PARED.



AUGMENTO:
+ CALOR → + VIENTO
+ ONDAS

9 JULIO
1958

BAHIA DE LISBOA

PP. 851.
EXTREMO PINTA: 270 METROS
ONDA 530 METROS.

Primeiro Plano

Diagrama

A NOTÍCIA EM PERSPECTIVA

Ondas gigantes accum zzril irilit eugiat autem ver illit

Ent am, vullaorem nullam dolor incing ex eu bla commolo rerostrud tem veliquate vero

Assinatura

PALAVRA CHAVE Sonho de surfistas e pesadelo de pescadores ao longo da história, as ondas gigantes são o foco de A Onda, o livro da jornalista americana Susan Casey, recentemente lançado no Brasil pela editora Zahar. Casey chama de "extremas" a estas muralhas de água de mais de 30 metros que avançam com velocidade de um avião e que são capazes de partir pela metade navios cargueiros e por em perigo estações petroíferas. Também descreve o irresistível fascínio que elas exercem sobre esportistas, cientistas e navegantes, que não desistem de procura-las e entender os mecanismos naturais que as geram.

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Riusto eritis nulput lurerat am adigna facin henim dolorpero



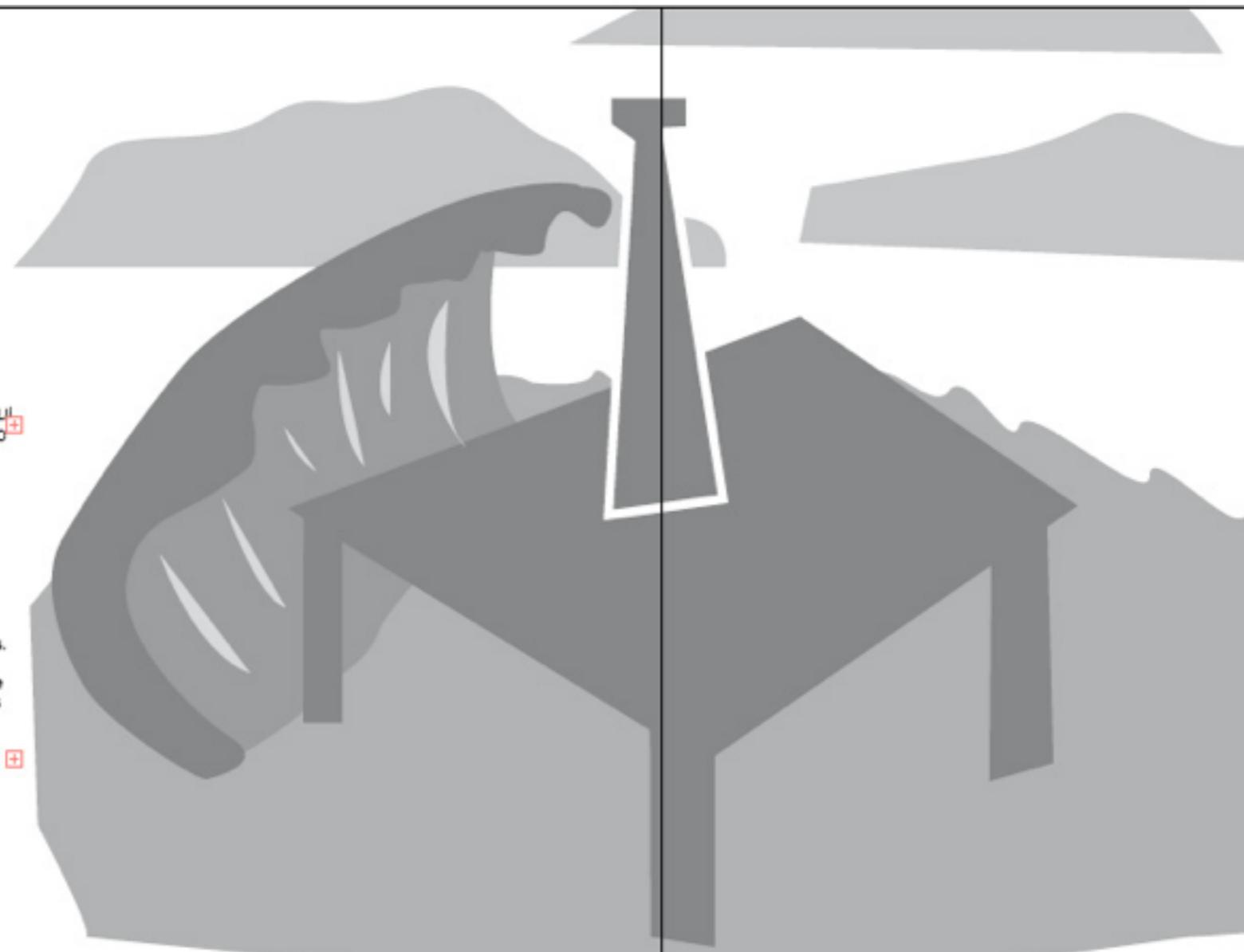
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Quismodo lorperin utpat, quis incipuscll inim veriuscip ex ea faccummy nonsed et nulputat, sim doloreet wissi. Glam nostrud magna acidunt vel

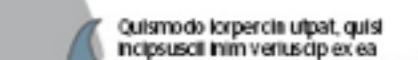
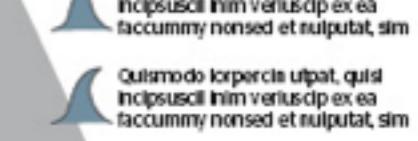
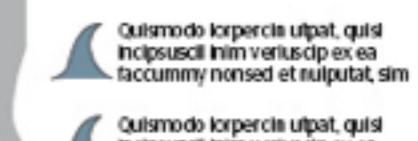
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Ondas aberrantes

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Ondas aberrantes

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10 20 30 40

Diagram

NEWS IN PERSPECTIVE

Giants Of The Ocean

Giant waves can be a threat to civil navigation and construction in the sea. Is Brazil prepared?

Gerson Mora, Alberto Cairo, Rodrigo Cunha, Eliseu Barreira Júnior

The Images of the CLELIA II cruiser being hit by 30-foot tall waves near Antarctica have been broadcast by TV stations all over the world. That footage is impressive but it hardly represents an exception to what happens in the sea.

In her book *The Wave*, which will be released in Brazil this week, American journalist Susan Casey talks about "freak waves" or "rogue waves", giant masses of water that suddenly appear in the middle of the ocean, and that are one of the most serious dangers to civil navigation and construction.

On average, they sink one medium-sized or large ship per week. Coastal waves can also be huge. The highest recorded wave devastated Lituya Bay, in Alaska, in 1858. Unleashed by a strong earthquake, the wave was 1,600 feet tall. In this graphic you will learn why waves appear, how they work, and what resources Brazil is investing in understanding them better.

A threat for oil platforms and civil navigation

The illustration below is a scale representation of a 100-foot tall wave about to hit a Petrobras oil platform.



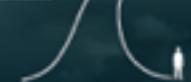
GIANT WAVES IN BRAZIL

Brazil doesn't keep a centralized record of giant waves in national waters. But Petrobras, the public oil company, takes them into consideration when it builds extraction platforms.

Campos Basin



Santos Basin



Mathematical models have predicted that waves during a storm can reach an average of 26 feet with a maximum of 40 feet.

Simulations developed in 2010 have predicted that the maximum height of a wave in Santos (never observed) is 67 feet.

WAVE SIMULATOR



The Polytechnic School of the University of São Paulo (Poli-USP), using funding from Petrobras, opened a lab to study giant waves in December 2009. The main element in the laboratory is a 36-foot wide and 13-foot deep pool for simulating giant wave patterns. The waves are generated by 148 rubber flaps, attached to small engines and controlled by a computer.

SOURCES: *The Wave* (Susan Casey), Poli-USP, BBC Science and Nature

HOW COASTAL GIANT WAVES WORK

Waves are energy traveling through water. They are created by wind blowing on the ocean surface. The stronger the wind, and the longer it blows, the larger the waves it produces. That's why waves are more common and bigger where storms are frequent.

1 When the wind blows, it creates friction with the sea. Water begins to rotate in the same direction as the air. Waves are the result of the deformation of water surface.

2 The longer the wind blows, the bigger the area of the water surface that can be pushed by that same wind.

3 This cycle goes on as long as the wind keeps blowing: the stronger the wind, and the longer it lasts, the bigger the waves that it will generate.

4 When waves get closer to the coast, they are slowed by the submarine relief. Also, the currents that flow near the bottom of the sea start moving up.

5 As the first waves that reach the coast are slower than the ones that come after them, the latter start piling up over the former.

6 The swell of the wave is produced by faster waves running over slower ones, when they are close to the coast.



HOW FREAK WAVES WORK

'Freak' or 'rogue' waves are giant waves that appear in the middle of the sea. They are very dangerous due to their unpredictability. Recent research has identified three different factors that influence their likelihood.



A Regions where storms are common, such as the North Atlantic, are also the ones where freak waves appear with higher frequency. The strong winds that stir those waters are a key factor.



B Submarine relief is another factor. Shallow waters in the North Sea, between the UK and Scandinavia, are prone to freak waves for the same reason that big waves appear in coastal areas.



C The confluence of warm and cold currents (see map on the right) creates dynamics that make giant waves more likely.



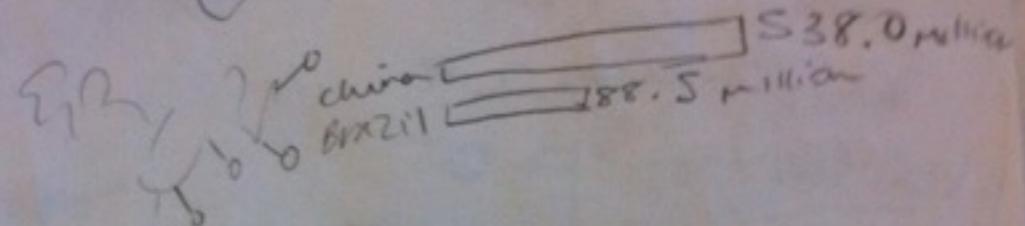
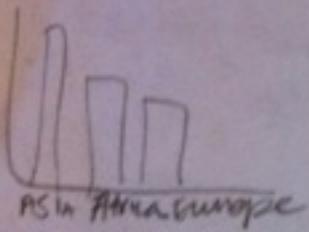
Frequency and height of freak waves
← Lower → Higher

Freak waves are more common in regions near the Poles. They are also frequent in South African national waters. In that area, the Agulhas Current meets cold water that is pushed from the South Pole by strong winds.

HEADLINE (CHINA) (INTRO)

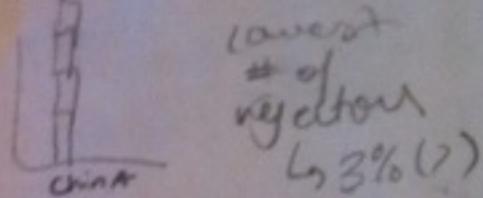
INTERNET
USER'S
DATA

MAP OF
ASIA



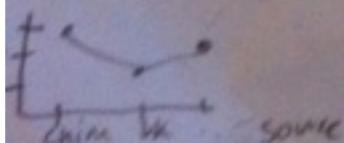
E-commerce
by segments

china breakdown
(slide 7)



80% buy online

not only are they buying the most on the internet, they're also utilizing M-platform media to do so



a trend that has been growing in the past years & other countries, w/ China still in the lead
(slide 10)

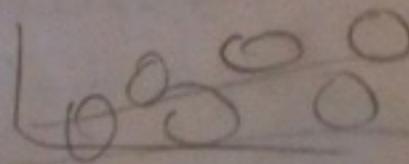
china
SK
UK
USA

or dot graph I or graph on slide 11

PRODUCTS (new)
(slide 23)

OR
ONLINE PURCHASE
VS RESEARCH

AND China is not buying impulsively, they're doing their research too (slide 27)



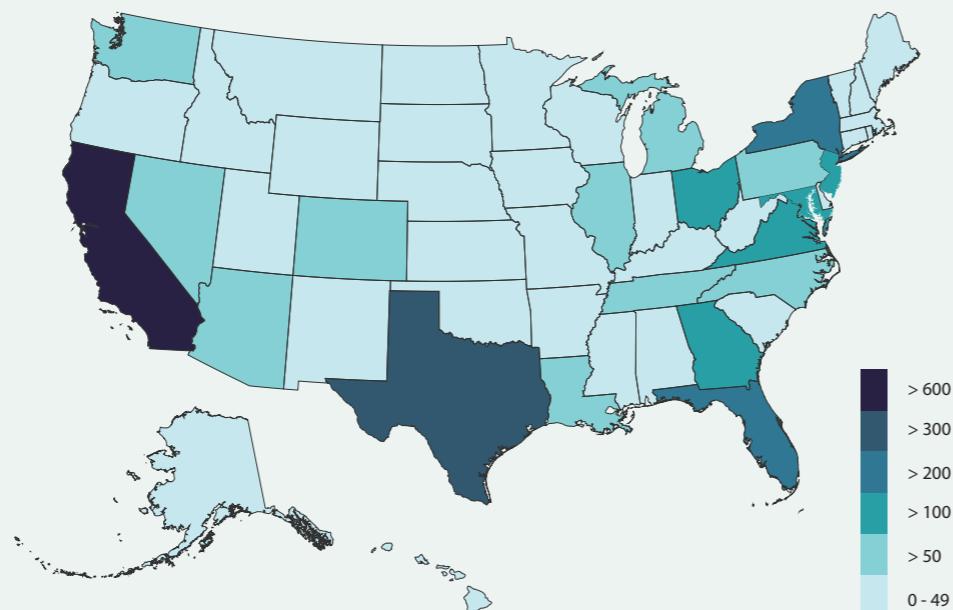
Examples of projects

Slavery: Global. Profitable. Thriving.

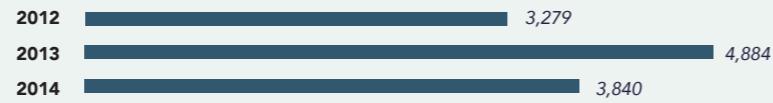
In 2012, the International Labour Organization estimated that over 20.9 million victims of human trafficking existed globally. The modern-day slave trade fuels a massive underground economy, generating billions of dollars in profit by exploiting millions of women, children, and men around the world on a daily basis. The most common forms of human trafficking include sexual exploitation, labor exploitation, and trafficking for organ harvesting.

While international and regional organizations are working to combat the buying, selling, and renting of individuals, the trade still thrives all around us undetected in restaurants, farms, hotels, and homes. |

In the United States | The map below shows the number of human trafficking cases detected by the National Human Trafficking Resource Center per state in 2014 as of September 30, 2014

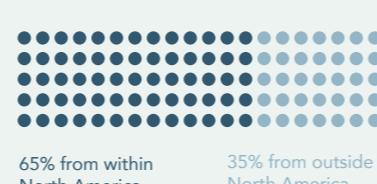
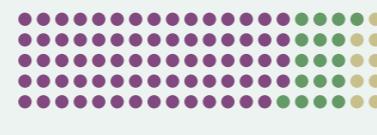
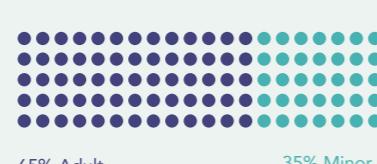
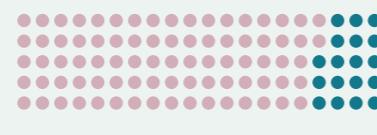


Total Cases in U.S. by Year

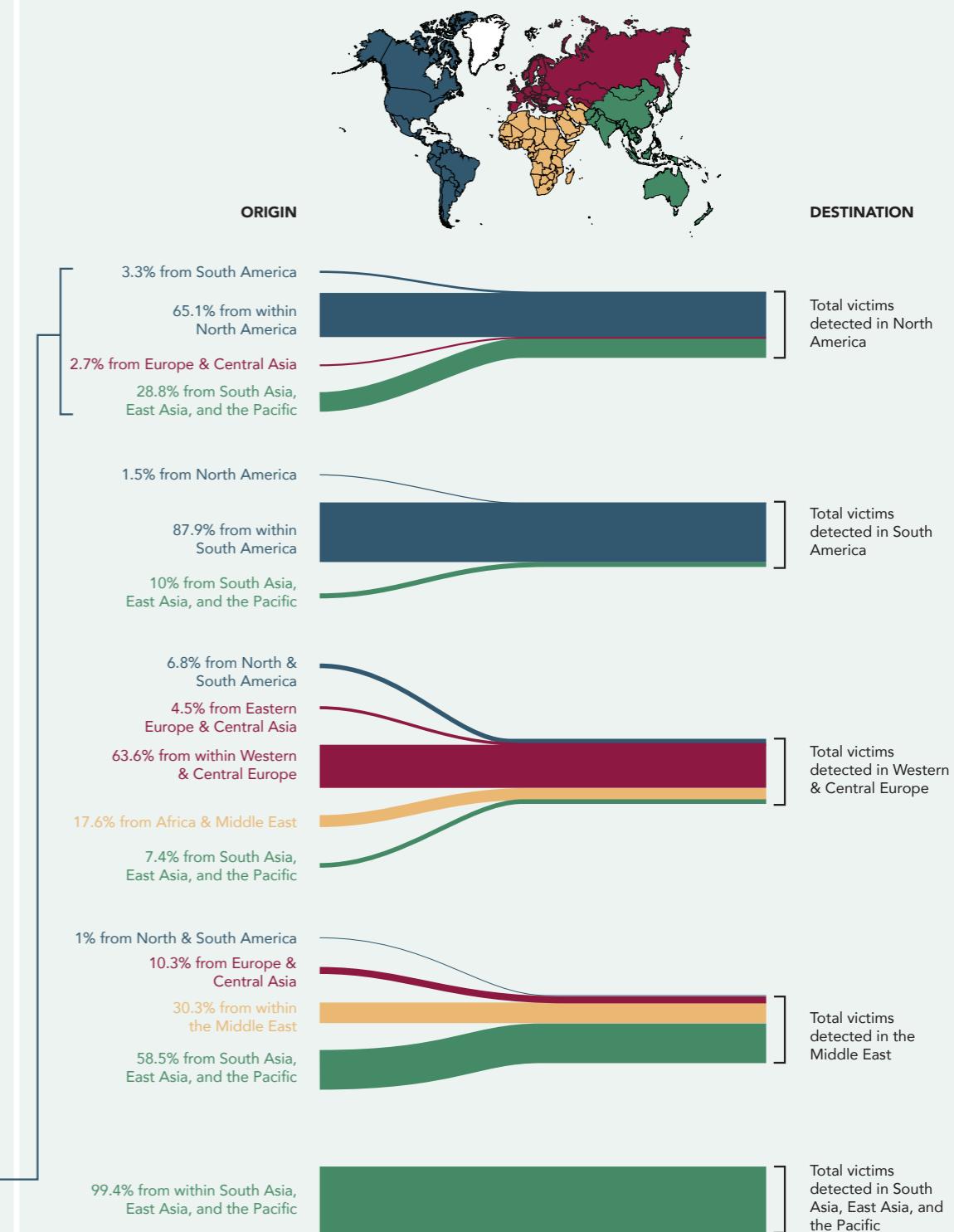


Who They Are |

Gender, Age, Nationality of the victims detected and the type of human trafficking they were forced into



The Global Flow of Human Traffic | Human trafficking is a global crime that leaves no region of the planet untouched, and while many victims are bought and sold within their home regions, many others are transported across country borders and overseas.

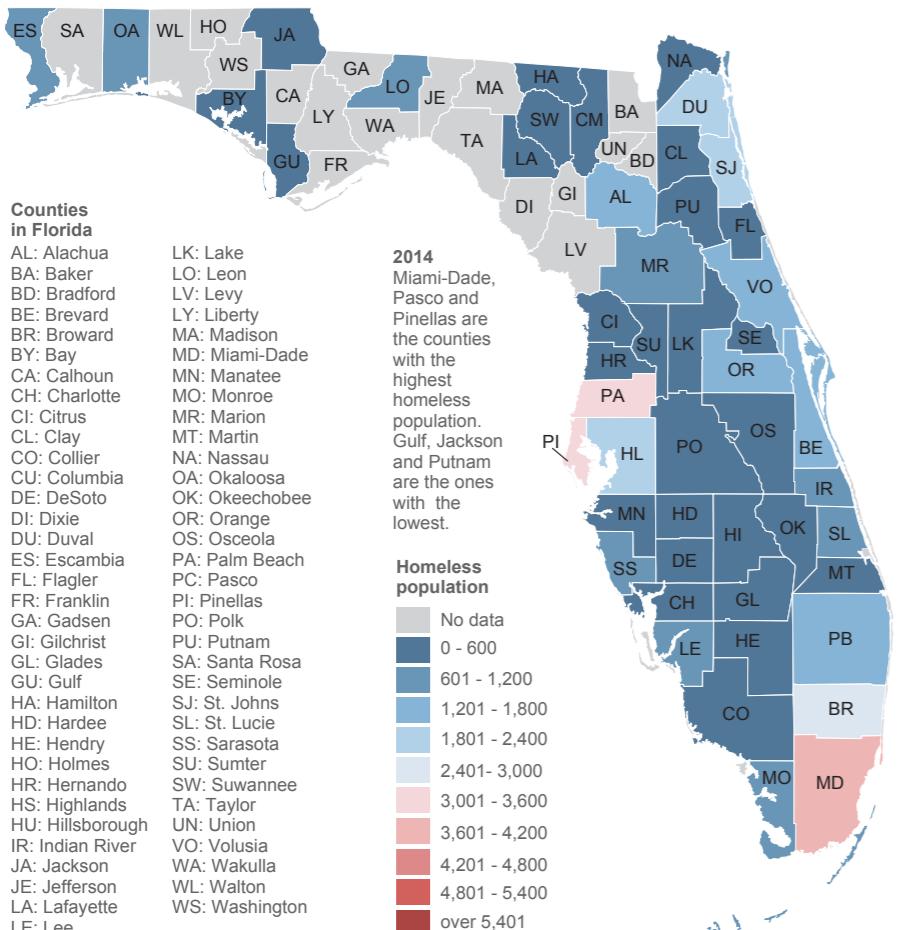


IN THE SHADOWS

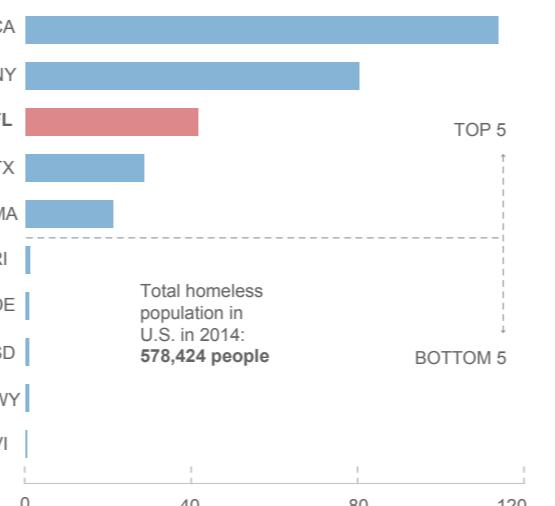
In Florida, more than 40,000 people are homeless. The Sunshine State is among the top five states with the largest number of homeless people in the US. However, Florida's homeless population has declined fifty percent in the past 10 years.

SOURCES: Department of Housing & Human Development, Council of Homelessness, Bureau of Labour Statistics, Office of Economic & Demographic Research

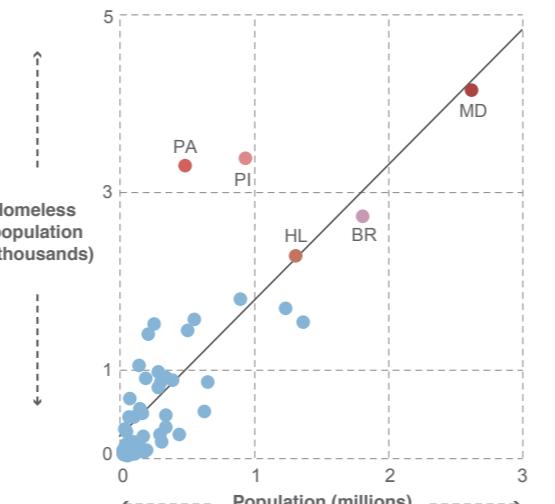
RESEARCH AND GRAPHIC: Luis Melgar



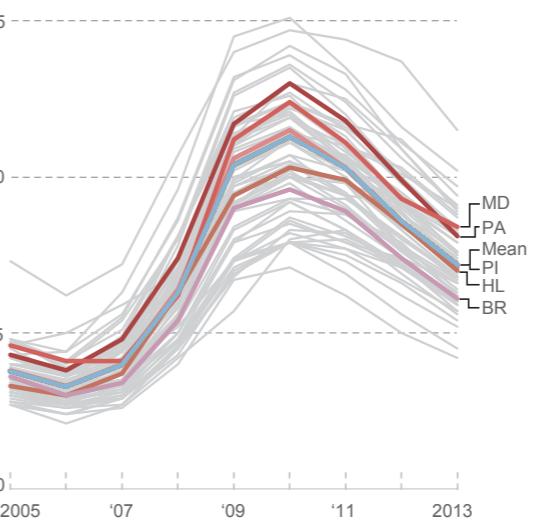
HOMELESSNESS IN THE U.S. (by state, in thousands)



POPULATION AND HOMELESSNESS (by county in 2014)



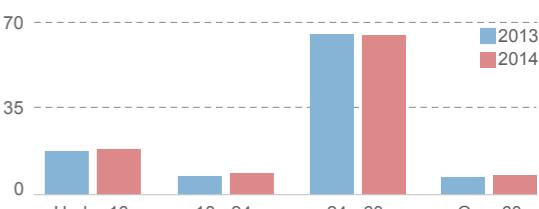
UNEMPLOYMENT BY COUNTY (as percentage)



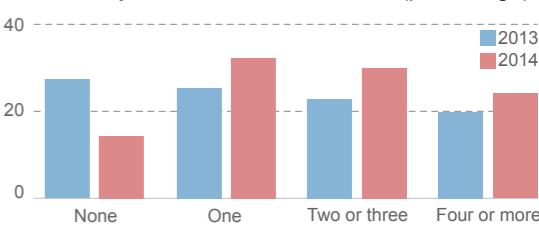
PROFILE OF HOMELESS IN FLORIDA

Thirty-five percent of homeless in the state this year are women. Thirty-four percent are Black or African American and 14% are military veterans.

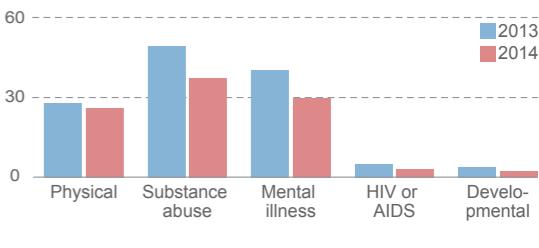
Age of homeless people (percentage)



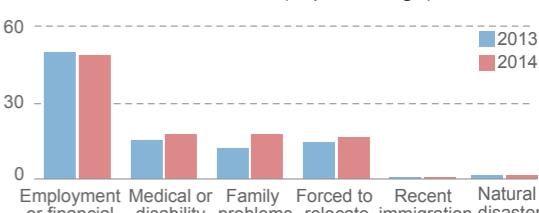
Previous episodes of homelessness (percentage)



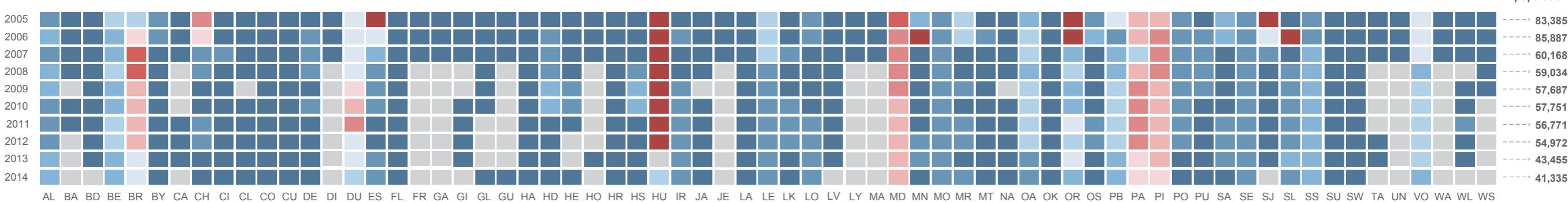
People with disabling conditions (percentage)



Causes of homelessness (in percentage)



HOMELESS PEOPLE BY COUNTY (from 2005 to 2014)



In the pursuit of science

The Genomic Sciences Building, located in the old Bell Tower parking lot, opens in January 2010 after years of planning. The \$80 million building is part of UNC-CH's plan to be a leader in science research.

Peer Institutions

Before building, UNC-CH identified four peer institutions in the natural sciences. All have programs or centers specifically for genomic research.

University of California, Berkeley: Center for Integrative Genomics
 University of Washington: Genome Center
 University of Wisconsin, Madison: Genome Center of Wisconsin
 University of Michigan: Michigan Center for Genomics & Public Health



Building structure

Designed by the architects also in charge of creating the second World Trade Center in New York City, the five-story Genomic Sciences Building was built with sustainability in mind.

Levels

Greenhouse

- Access from ground level

Research

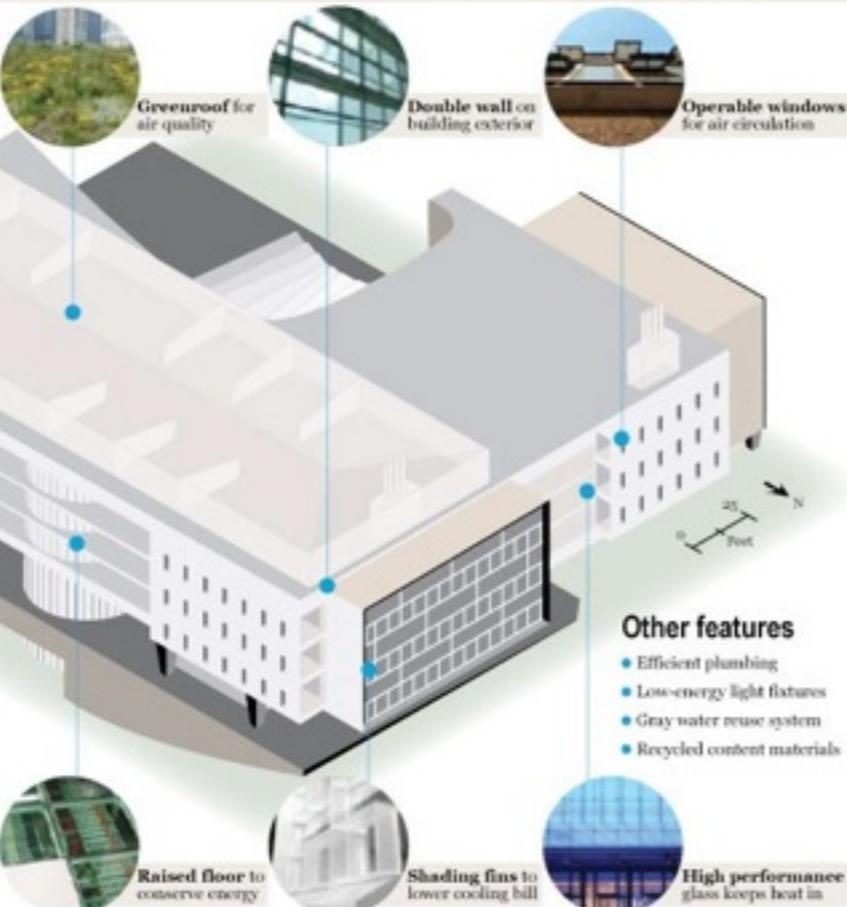
- Floors 2-4
- Laboratories

Ground

- Cafe
- Lobby

Academic

- Lecture halls
- Seminar rooms



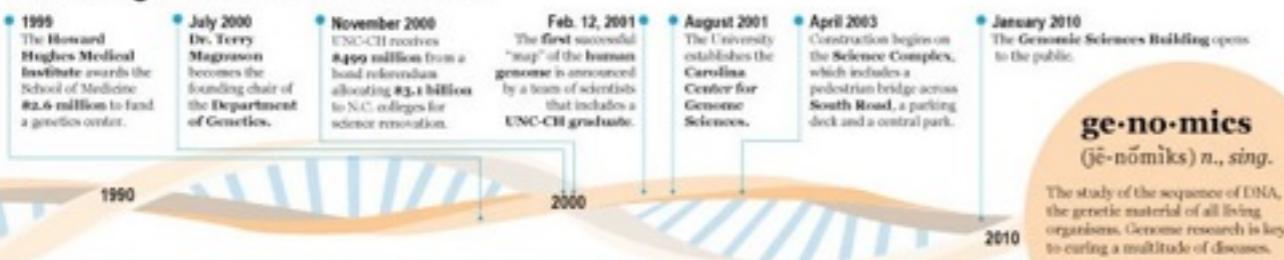
Programs offered

- Bioinformatics
- Cell biology/microscopy imaging
- Bioanalytical and combinatorial chemistries
- Genomic model organisms and plant genomics

Development

Design Committee Chair: Dr. Joseph Kleber, Biology
 Project Manager: Bill McCraw, Facilities Planning
 Skidmore, Owings & Merrill, LLP

UNC-CH genetic research timeline



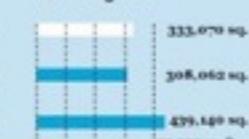
A look at the new Science Complex buildings

New developments

Estimated cost



Building size



Seating potential in classrooms

	500-seat	300-seat	200-seat	150-seat	75-seat	50-seat	25-seat
1	0	2	0	0	4	0	0
0	1	0	1	6	0	Several	0
1	0	2	0	0	0	8	4

SOURCES: Preliminary Design Review, Sept. 2006/Triangle Business Journal, July 2004/Faculty Council Minutes, Feb. 1999/Dr. J. Kleber/www.unc.edu/genome/amsource.html

GRAPHIC: Rebecca Rolfe

The Ica Earthquake

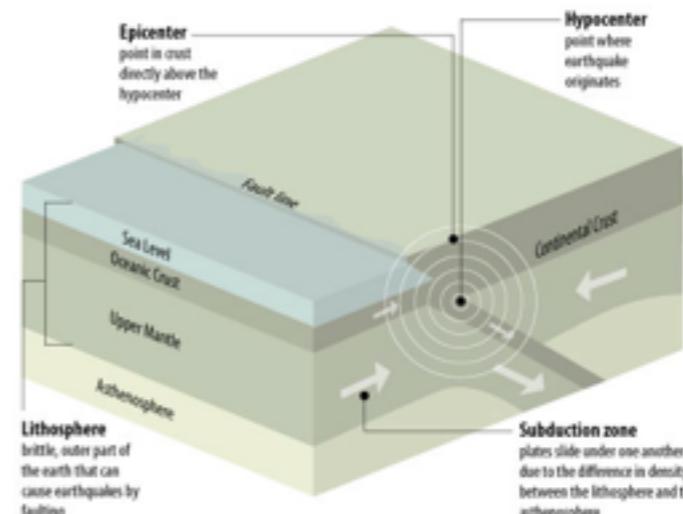
On August 15, 2007, a magnitude 7.9 earthquake hit the Ica Region of the central coast of Peru, killing over 500 people and injuring over 1000. The quake was one in a long history of seismic disturbances, due to Peru's location at the boundary between the Nazca and South American tectonic plates. The plates are converging at a rate of 3.1 inches per year, with the South American moving up and over, or subducting, the Nazca.

THE CAUSE

The Ica Earthquake occurred near the plate boundary at a *thrust fault*, which is a fracture in the earth along which continental crust (in this case) is moving up and over oceanic crust.



Rocks broke and slipped along the fault, releasing energy in the form of heat, movement at the fault, and seismic waves, which caused shaking & damage as far as hundreds of kilometers away.



THE QUAKE'S DESTRUCTION

The city of Pisco was most affected by the quake. Almost all of the deaths occurred there and about 80% of the city was destroyed.



Survivors in Pisco amidst the ruins.



PERU'S RECENT HIGH-MAGNITUDE QUAKES

Magnitude, or the amount of energy that an earthquake releases, is most commonly measured by the Richter scale. Each whole number increase in magnitude represents a 10x increase in amplitude and a 32x increase in energy released.

Earthquakes of magnitudes less than 3 are generally not felt, and those greater than 9 are devastating to areas across several thousand miles.

	DATE	MAGNITUDE	FATALITIES
1	Nov. 10, 1946	7.3	1,400
2	May 31, 1970	7.9	66,000
3	June 23, 2001	8.4	138
4	Sept. 25, 2005	7.5	5
5	Aug. 15, 2007	7.9	519

PLATE TECTONICS

The Earth's lithosphere, which contains the crust and some mantle, is divided into 52 tectonic plates that move in different directions due to convection currents in the part of the mantle called the asthenosphere.



Plate boundaries are categorized as divergent, transform, or convergent (like the boundary between the Nazca & South American plates).



The energy built up between these moving plates can cause not only earthquakes, but also volcanism and the formation of topographic features such as, in Peru, the Peru-Chile trench and the Andes mountains.



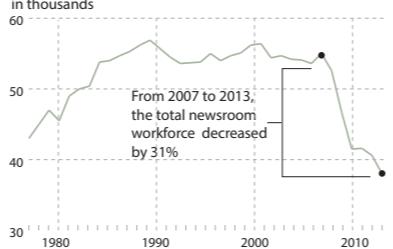
SOURCES: USGS, Wikipedia, BBC, Earthquakes Canada

AJICIA PARLAPIANO

Minority Representation in the Media Halts as Newsrooms Shrink

In 2013, the number of people employed in a newsroom was smaller than it has been in 35 years. Although the minority population in the newsrooms of America has not shrunk dramatically, it is far from representative of the US. The American Society of News Editors set a goal for all newspapers to represent minorities proportionally to the population of the US by 2025. With the minority population in the US at 36.5% and quickly growing, the media is far from reaching its goal. It is important for newspapers to represent their community because that's how the most accurate, meaningful news is told.

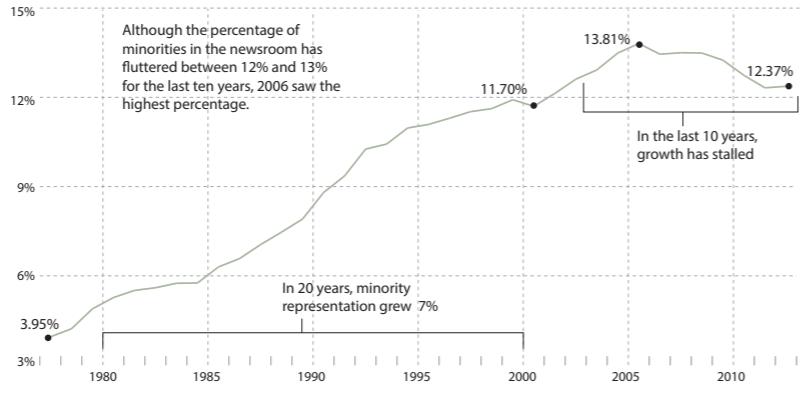
Total workforce in the newsroom



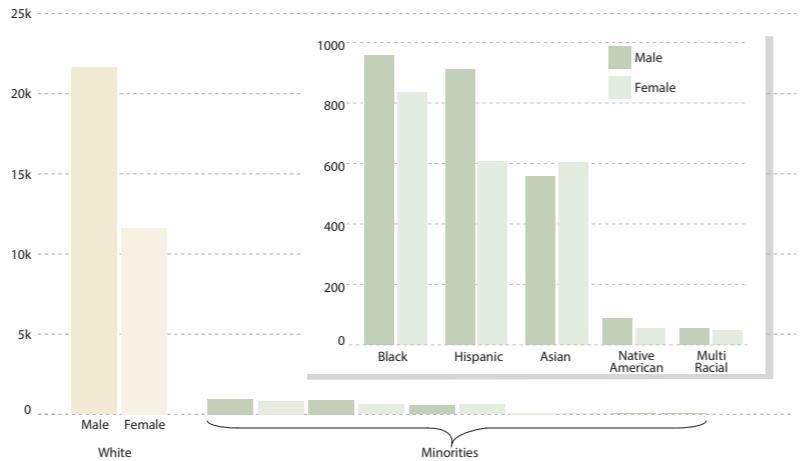
Minorities are Underrepresented



Percentage of Minorities in the Newsroom from 1978 to 2013

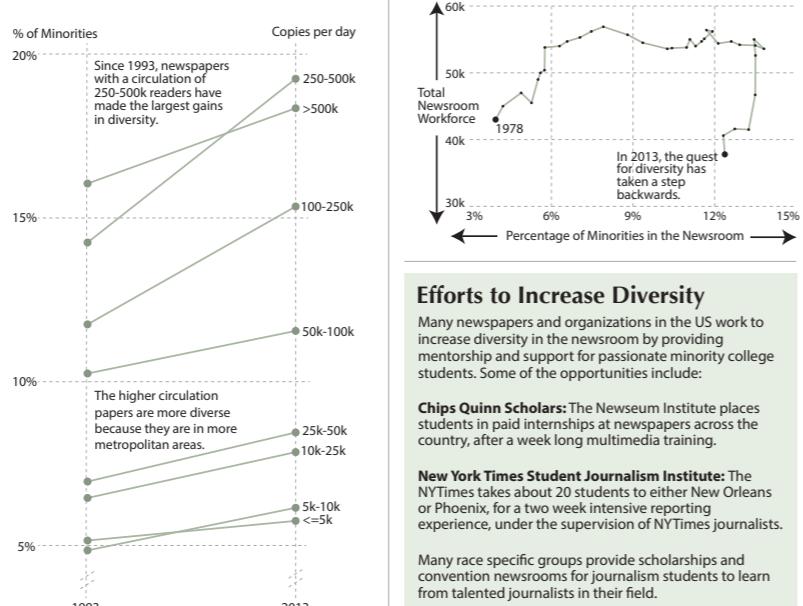


Race and Gender Distribution in America's Newsrooms (2013)



Change in the Last 10 Years

Each line represents a different distribution level



Efforts to Increase Diversity

Many newspapers and organizations in the US work to increase diversity in the newsroom by providing mentorship and support for passionate minority college students. Some of the opportunities include:

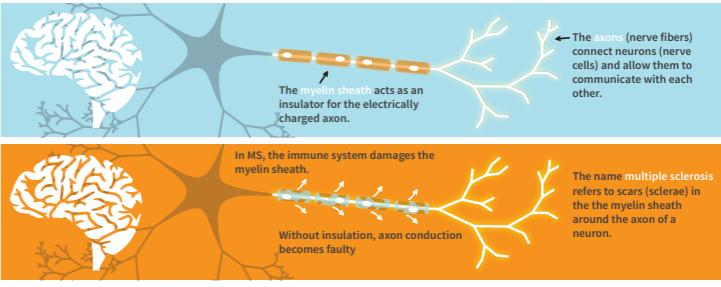
Chips Quinn Scholars: The Newseum Institute places students in paid internships at newspapers across the country, after a week long multimedia training.

New York Times Student Journalism Institute: The NYTimes takes about 20 students to either New Orleans or Phoenix, for a two week intensive reporting experience, under the supervision of NYTimes journalists.

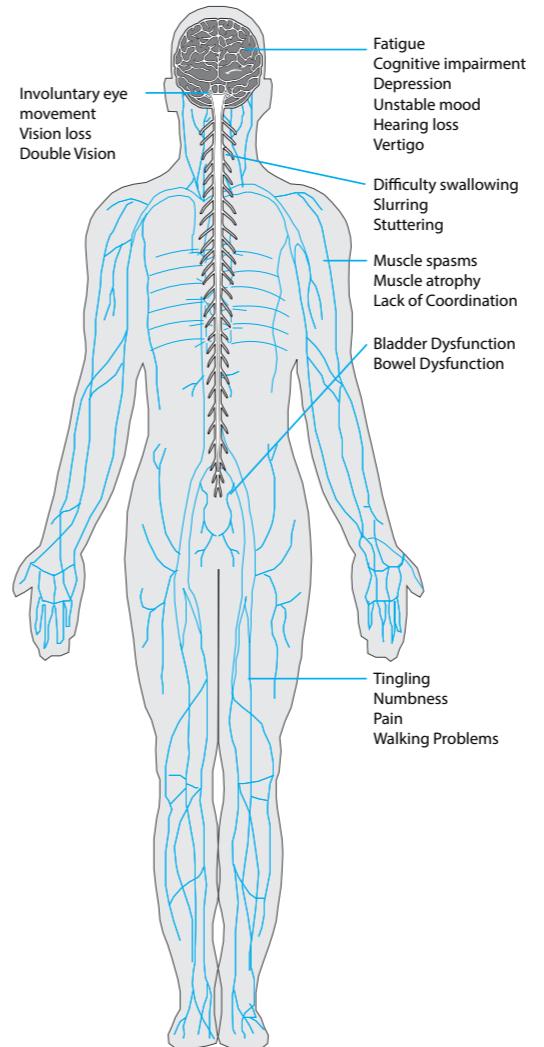
Many race specific groups provide scholarships and convention newsrooms for journalism students to learn from talented journalists in their field.

(MS)

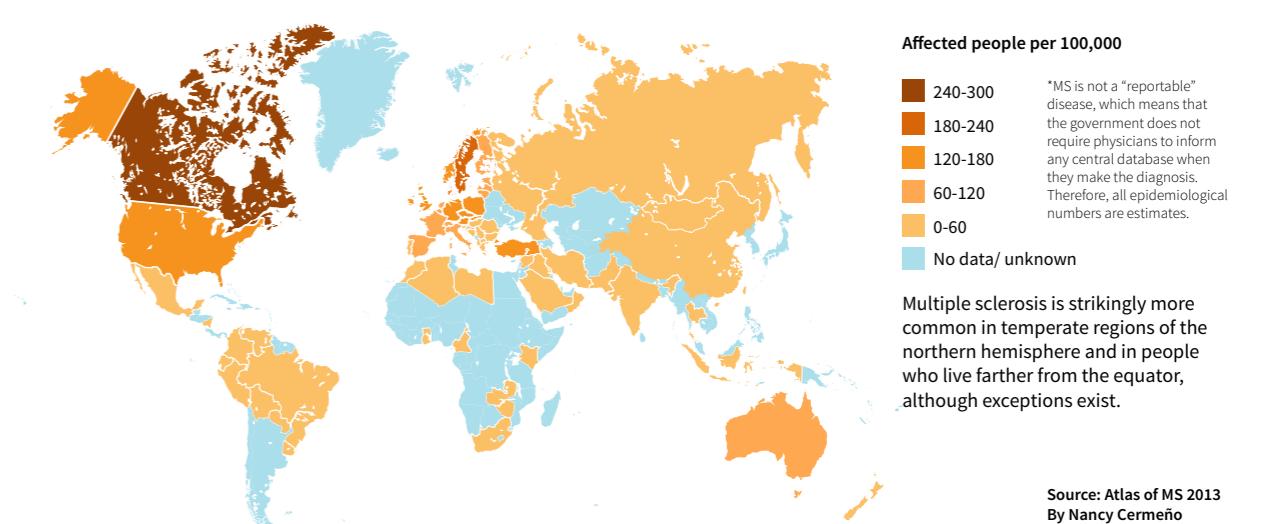
Multiple Sclerosis affects 2.3 million people worldwide. It is when the body's immune system starts to attack the coating of nerve fibers damaging the central nervous system. People diagnosed with MS have the same life expectancy as the general population. About 400,000 people in the United States are living with MS. It is typically diagnosed between ages 20 and 40, but it can start years before the first symptoms appear. Current treatments include: disease-modifying drugs, physical and occupational therapy, exercise and rest to ease symptoms and delay the disease's progression.



Common Symptoms



Prevalence of MS



Source: Atlas of MS 2013
By Nancy Cermeño

Visualization can have multiple purposes and use different styles

GENERAL COLLECTIONS

<http://www.scmp.com/infographics>
<http://newsvis.org/>
<http://www.smallmeans.com/new-york-times-infographics/>
<http://visualoop.com/> (Main page)
<https://www.pinterest.com/visualoop/> (Main page)
<http://dadaviz.com>
<http://tribunographics.tumblr.com/>
<http://postgraphics.tumblr.com/>
<https://www.pinterest.com/visualoop/malofiej-22-infographic-awards/>
<https://www.pinterest.com/visualoop/malofiej-21-infographic-awards/>
<https://www.pinterest.com/visualoop/this-is-visual-journalism/>

INTERACTIVE EXPLORATORY TOOLS

<http://graphics.wsj.com/health-care-explorer/>
<http://urbanobservatory.org/>
<http://www.periscopic.com/#/our-work/visualizing-economic-inequality> and <http://inequality.is/>
<http://www.nytimes.com/interactive/2012/05/13/business/student-debt-at-colleges-and-universities.html>
<http://www.nytimes.com/interactive/2010/01/10/nyregion/20100110-netflix-map.html?ref=multimedia>
<http://www.nytimes.com/interactive/2009/07/31/business/20080801-metrics-graphic.html?ref=multimedia>

GRAPHICS+STORY or INTEGRATED STORYTELLING

<http://geotheory.co.uk/blog/2014/05/21/long-narratives/>
<http://mic.com/articles/91685/the-dots-on-this-map-reveal-the-recession-in-america-that-no-one-is-talking-about>
<http://www.nytimes.com/2014/06/24/upshot/the-reality-of-student-debt-is-different-from-the-cliches.html>
<http://www.nytimes.com/interactive/2014/upshot/mapping-the-spread-of-drought-across-the-us.html>
<http://www.washingtonpost.com/wp-srv/special/sports/leagues-of-the-world-cup/>
<http://www.nytimes.com/interactive/2014/06/05/upshot/how-the-recession-reshaped-the-economy-in-255-charts.html?module=Search&mabReward=relbias%3As>

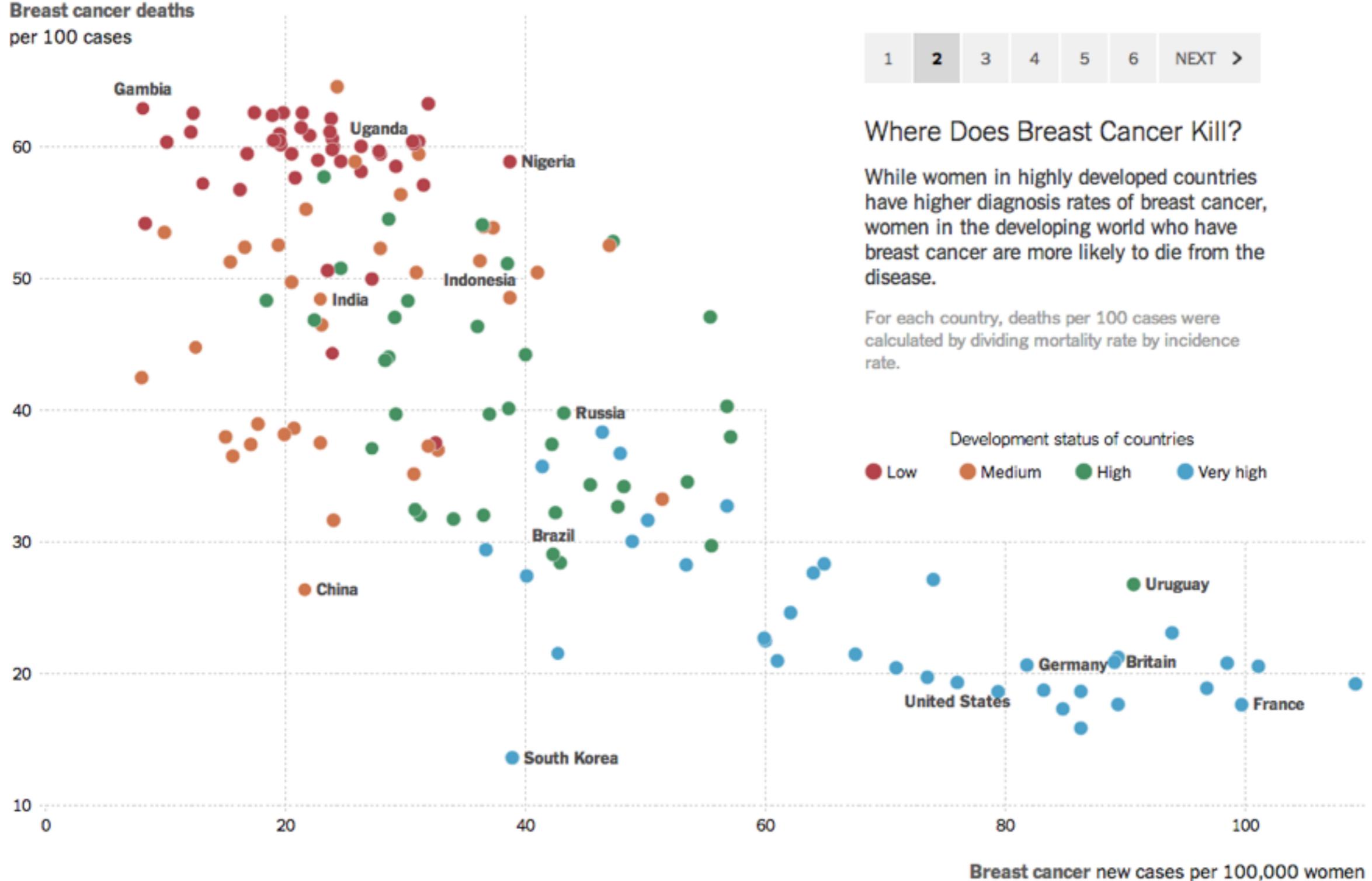
SIMPLE STEP-BY-STEP STORYTELLING

<http://www.nytimes.com/interactive/2013/02/04/science/girls-lead-in-science-exam-but-not-in-the-united-states.html>
<http://www.nytimes.com/interactive/2013/05/07/education/college-admissions-gap.html>

<https://www.dropbox.com/sh/wgp6iuf9fvzn6z4/AADg6YI8wUnyArNSMowHSQERa?dl=0>

It can be simple,—

Breast cancer deaths
per 100 cases



—It can be useful,—

Surging Seas

Sea level rise analysis by CLIMATE CO₂ CENTRAL

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List: Cities | Counties

Water level +5ft

Things below +5ft in
Miami, Florida

Population 82,539 20.7%
Homes 46,144 25.1%
Acres 4,564 20.1%

Over 1 in 6 chance sea level rise +
storm surge + tide will overtop
+5ft by 2070 at nearest flood risk
indicator site: [Vaca Key - Florida
Bay](#), 92.4 miles away. ⓘ

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sealevel.climatecentral.org

designed by Stamen

—it can also be creative—

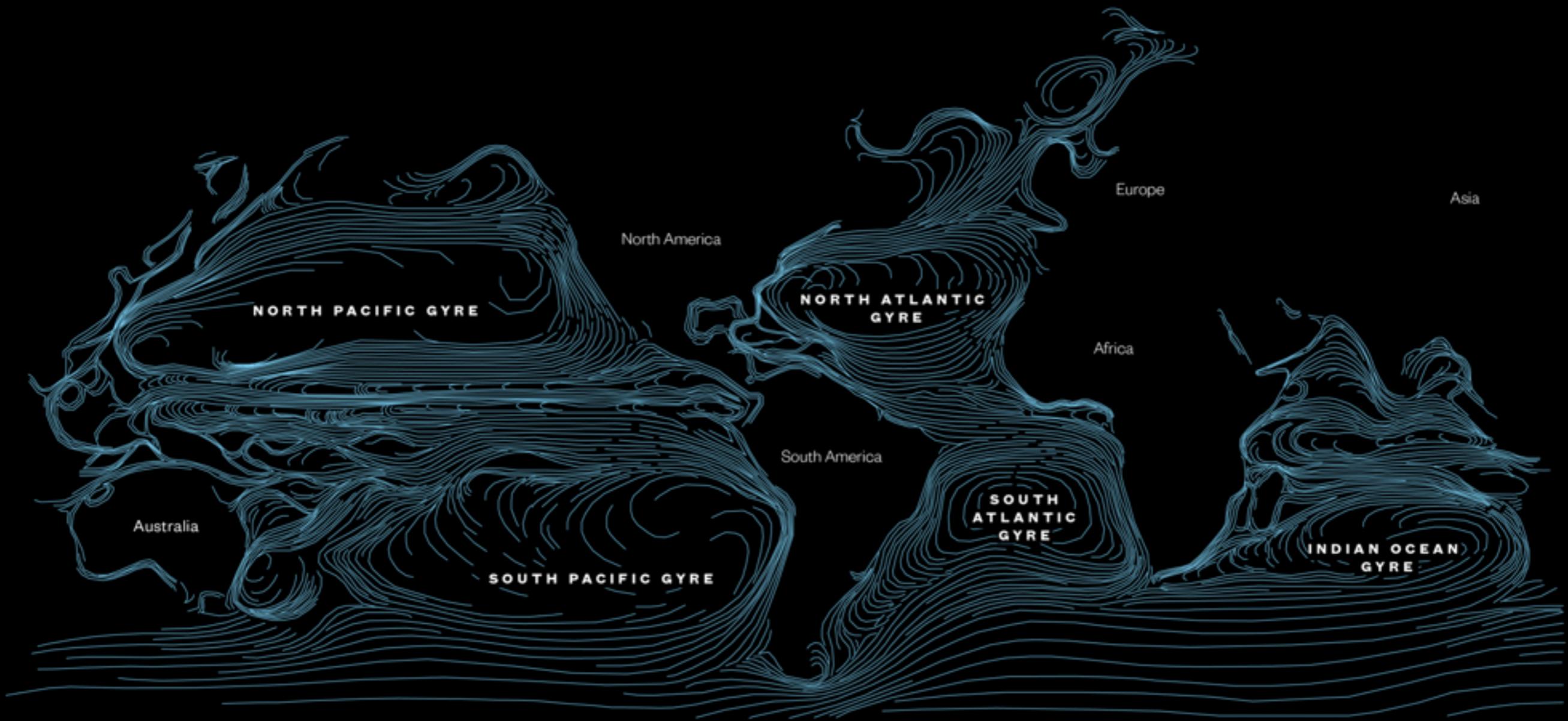


<http://thecolorsofmotion.com/>

<http://thenextweb.com/shareables/2014/08/23/colors-motion-interactive-visualization-movie-color/>

<http://charlieclarkdesign.com/>

—and it can even be poetic



<https://medium.com/matter/the-terrifying-true-story-of-the-garbage-that-could-kill-the-whole-human-race-b17eebd6d54>

Related visualizations

<http://earth.nullschool.net/>

<http://hint.fm/wind/>

Let's go to the syllabus