

Megaregions

The United States of America, or just a bunch of 'megaregions'?
An alternative view of the economic geography of the United States

A research story, by Alasdair Rae
@undertheradar

Stats, Maps n Pix

Sunday, 7 May 2017

General Election 2015: the view from second place

In my last [blog post](#) I shared a shapefile with the current UK constituency boundaries, which included a lot of other data. One of the variables included was who came second in the 2015 UK General Election. I thought it would be interesting to map this and also include a couple of widgets using the new [Builder tools](#) in CARTO (formerly CartoDB). I wanted to do this because I knew UKIP came second in 120 constituencies and I wanted to see where. I also wanted to post an [interactive version](#) of the data from my shapefile so people could explore it themselves. The first map below shows who came second in each constituency in 2015 and if you click an area you'll get more information - winner, MP, and so on. Using the widgets below you can then select by winning party and margin of victory, should you want to quickly identify marginal seats, for example.



www.statsmapsnpix.com

Who am I?

gonnaemapit.com

a Scottish map blog

Alasdair Rae



About

I work in the Department of Urban Studies and Planning at the University of Sheffield in the UK. This blog features posts about statistics, maps and images. [Click for more info.](#)

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ORDER OF RESULTS IN 2015

LAB

22:48

HOUGHTON AND SUNDERLAND SOUTH

#GE2015

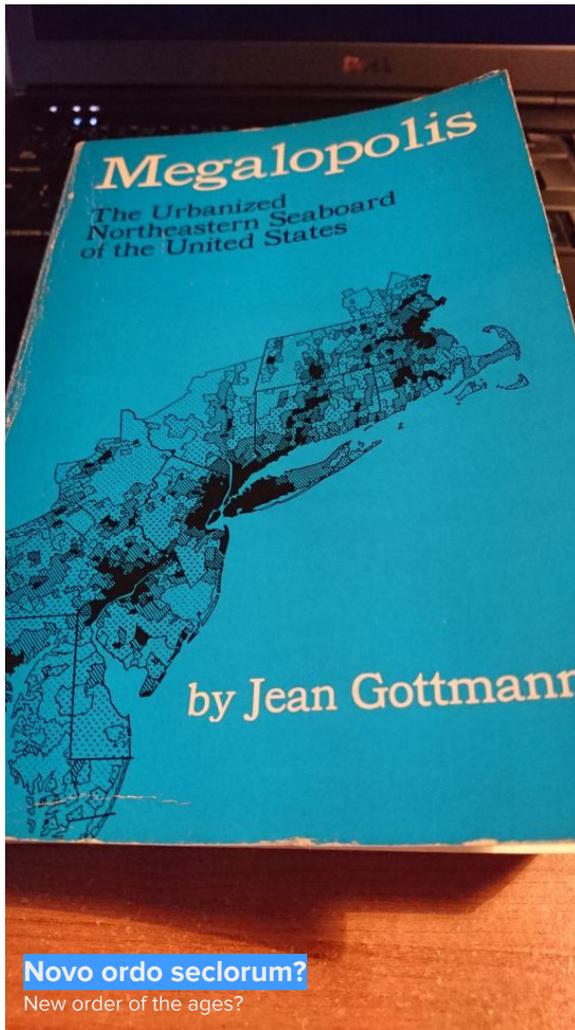
ALASDAIR RAE



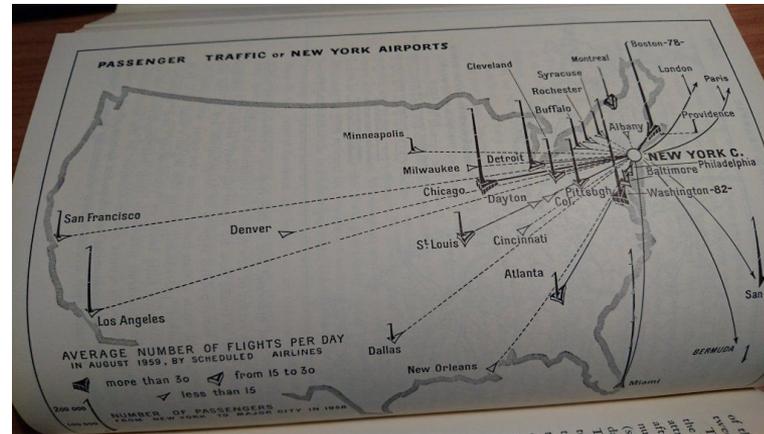
In the next 40 minutes or so

1. A bit of background to the study
2. A few words on open access, and why it made a difference here
3. The power of maps
- 4. US megaregions project**
5. Tropicana Field and the bobblehead

Background



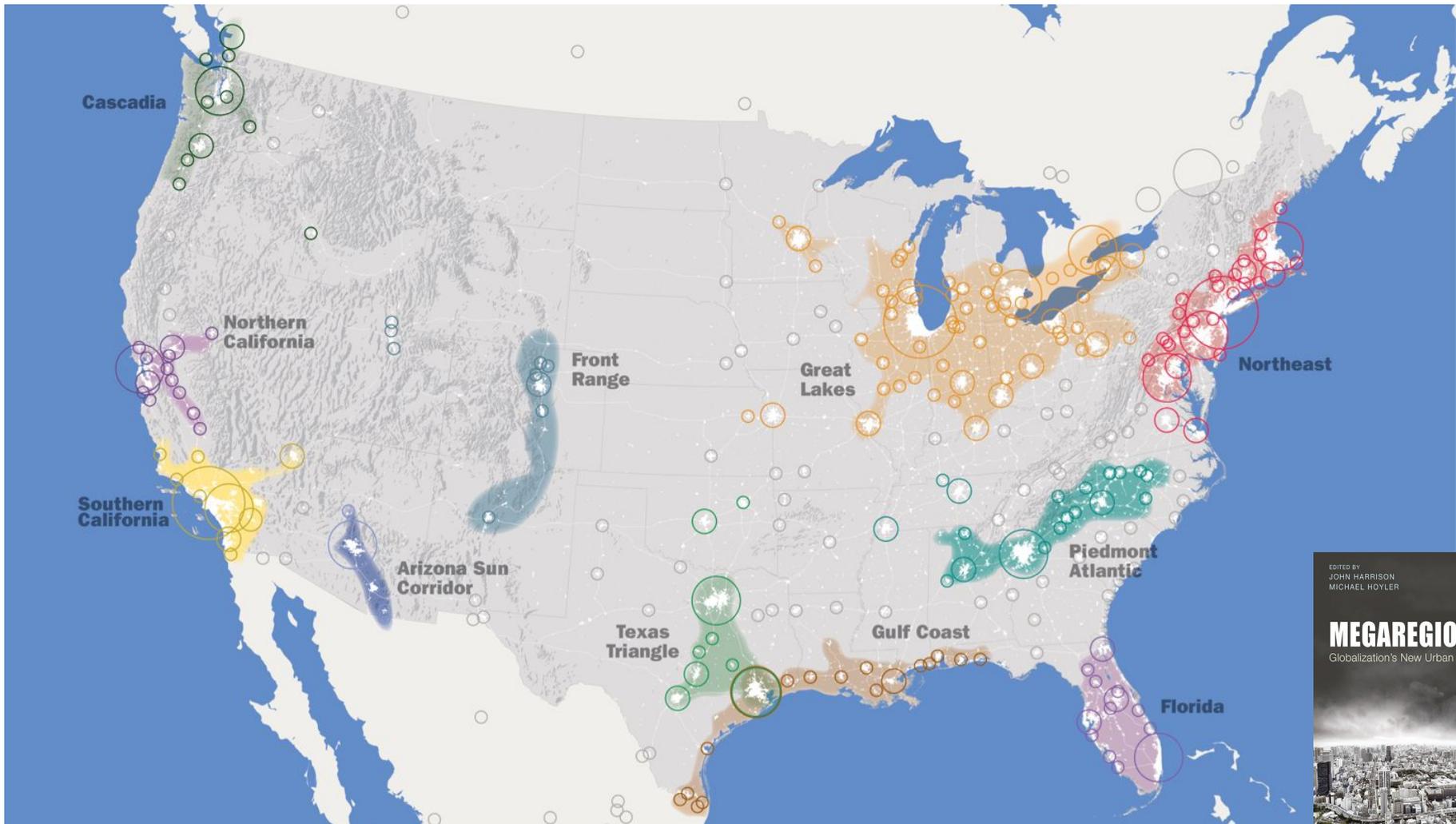
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ORDO SECLORUM 777

are rooted in a deep transforma-
They are not determined in other
, and yet the element of imitation

bility upon the present inhabitants
ways they may be rightly proud
ver, be mindful of the long-range
tate those wealthier, more power-



EDITED BY
JOHN HARRISON
MICHAEL HOYLER



MEGAREGIONS

Globalization's New Urban Form?



Megaregions and Multi-Jurisdictional Planning



What Are Megaregions?

[FHWA → Planning](#)

Megaregion Case Studies

Specific Issues Involving Megaregions

Quarterly Workgroup

Reports & Resources

Planning Frameworks & Examples

<<

Contacts

For more information, please contact:

- James Garland
- Supin Yoder
- Brandon Buckner

Megaregions



Megaregions are a group of geographic locations and/or areas that are combined because of similar characteristics and mutual interest. Since our roadway system crosses many jurisdictional boundaries, transportation is inherently Megaregional. Things like air pollution, freight movements, and road safety don't stop at political boundaries but planning often does. Therefore, planning at the Megaregional scale provides an approach to address new emerging challenges, and take advantage of the opportunities that arise around large metropolitan centers and their surrounding areas, connected by existing environmental, economic, cultural, and infrastructure relationships.

Megaregions present a new perspective that captures the economic, political and spatial level at which planning can be conducted in order to respond to the challenges of agglomerations of economic activity and population. It also recognizes the new context in which large-scale regions exist—one of global economic and environmental issues taking place on a larger scale.

Megaregions offer flexible frameworks to harmonize transportation with quality of life, economic opportunity, and environmental sustainability. Megaregions are the infrastructure and economic footprint in the global economy. Megaregions provide a sustainable future through multi-scalar, cross-boundary solutions. Megaregions allow us to think globally, coordinate regionally and act locally. (Ross, 2009)



Example map

Megaregions

What are Megaregions?

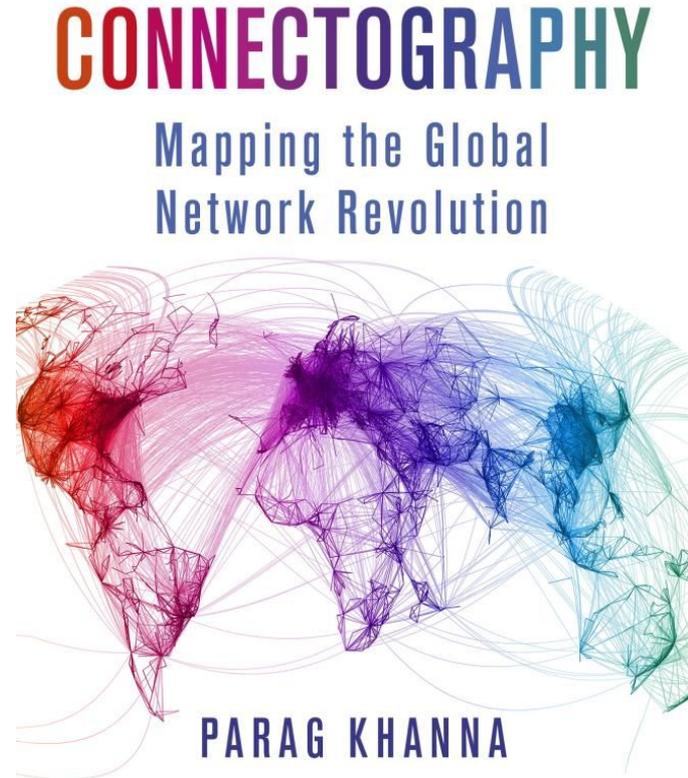
Megaregions are characterized as a network of urban clusters and their surrounding areas, and infrastructure relationships. This section introduces the megaregion concept and identifies megaregions in the United States.

- [Lyons, 2012. The Challenge of Transportation Planning for Megaregions](#)
- [Ross et al., 2011. Megaregions: Literature Review of Organizational Structures and Financing the Implications for Megaregion Transportation Planning in the U.S.](#)
- [Hagler, 2009. Defining US Megaregions](#) 
- [Lang, 2009. The Cascadia Corridor](#)
-  Ross et al., 2009. Delineating Existing and Emerging Megaregions (*not online, hard copy*)
- [Ross et al., 2008. Megaregions: Literature Review of the Implications for U.S.](#) 
- [Infrastructure Investment and Transportation Planning](#)  (Ross '08)
- [Ross et al., 2008. Proceedings of the Megaregions and Transportation Symposium](#) 
- [RPA, 2007. The Healdsburg Research Seminar on Megaregions](#) 
- [Lang and Dhavale, 2005. Beyond Megalopolis](#) 

'Parag Khanna has vision'
NASSIM NICHOLAS TALEB

Based on what?

“To be more charitable than Morozov, I would say there is a thin and interesting essay nestled inside the **enormous pile of fluff** that is “Connectography.”



Our question

Everyone talks about the 'economic geography' of places, and also of 'megaregions' but how can we systematically define them? Can we?

Open access

Why you should embrace open access

- People will find your work
- People can read your work
- It's a nice thing to do
- It's a good thing to do
- It's the right thing to do
- It'll look bad if you don't
- People will share back
- You will find it helpful
- Others will find it helpful
- **But be careful, people might read it**

Is our work really like this?
No, mostly not. But it
shouldn't all be locked
away either





490

Views

6

CrossRef citations

20

Altmetric

Articles

Online Housing Search and the Geography of Submarkets

Alasdair Rae

Pages 453-472 | Received 19 Dec 2012, Accepted 02 Oct 2014, Published online: 17 Nov 2014

Download citation <http://dx.doi.org/10.1080/02673037.2014.974142>

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Abstract

The importance of search behaviour has long been recognised in the study of housing markets, but research in this area has frequently been hampered by lack of data. In many nations, the vast majority of initial housing search queries are now conducted online and the data this generates could, in theory, provide us with better insights into how

Hmm. Let
me think
about it.

Or purchase it*

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Issue Purchase

30 days access for GBP 130.00

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* Local tax will be added as applicable

EVERYONE 'facing shifting landscape on publishing'

Latest EUA doctoral council chair says open science very much on his agenda for the role

December 7, 2016



By [Holly Else](#)

Twitter: [@HollyElse](#)



The impact of sharing supplementary datasets and speaking outside the echo chamber

Alasdair Rae, The University of Sheffield



Key Points

- **Go the extra mile**
Any additional information you can share is valuable.
- **Break the echo chamber**
Sharing your data encourages conversations outside the echo chamber.
- **Sharing data now can save time**
People don't have to request to see the data.

Pre-publication

I work in the Department of Urban Studies and Planning at the University of Sheffield.

I've published a few things about flow-mapping. In 2015, I began a piece of analysis looking at census travel to work data in the U.S. I started to get stuck into an origin-destination dataset of commuting flows between about 74,000 census tracts in the U.S.

So, I published the data on Dropbox and I put the working paper on the White Rose Repository at The University of Sheffield. After that, Garrett

So we did that about five times. On the fifth run, we got a result that made the most sense. We submitted a paper to PLOS ONE in July 2016 and it went online in November.

Post-publication

I'm also an editor of an Open Access journal, *Regional Studies, Regional Science*. I was familiar with the Open Access and sharing infrastructure, so I thought we should do it properly. I spoke to Jez, our Research Data Manager at The University of Sheffield, and said we should get it all on the [data portal](#), [ORDA](#), and [repository, WRR0](#). We also

Why are we here?

1. Not really sure what to do with our lives?
2. Want to change the world?

The answers to these questions should have some bearing on how, where and when we publish

**The power of
maps**

Reminder: Wales exists (so does New Zealand)



BBC NEWS **LIVE** **BBC NEWS CHANNEL**

Last Updated: Tuesday, 5 October, 2004, 16:49 GMT 17:49 UK
E-mail this to a friend Printable version

Eurocrats leave Wales off EU map

A bureaucratic blunder has left Wales off a map of Europe on the cover of a prestigious EU reference book.



The Eurostat Statistical Compendium has all the facts and figures on Europe.

All EU member states, and the rest of Britain, are accurately represented on the cover - but Wales has disappeared and been replaced by the Irish Sea.

A line was drawn from Chester to the Severn Estuary, roughly along the English border, but to the west there is nothing until the Irish coast.

Welsh First Minister Rhodri Morgan laughed it off, describing it as a "computer-generated image that has clearly gone wrong."

Mr Morgan - who headed the European Commission office in Wales in the 1980s - said: "Are we somehow going to refuse to accept Objective One money from Europe because of this terrible slight on Wales?"

“ They will certainly know that we exist now and it won't happen again ”
Glensy Kinnock MEP

"I don't think we're actually going to do that. It's the way we use European money that's important.

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World Maps Without New Zealand

It's not a very important country most of the time

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The Trump Organization spans at least 20 countries

Many, like Turkey and the Philippines, are central to U.S. security interests.



“The President Likes Maps”

This is one thing most of us have in common with The President of the United States.

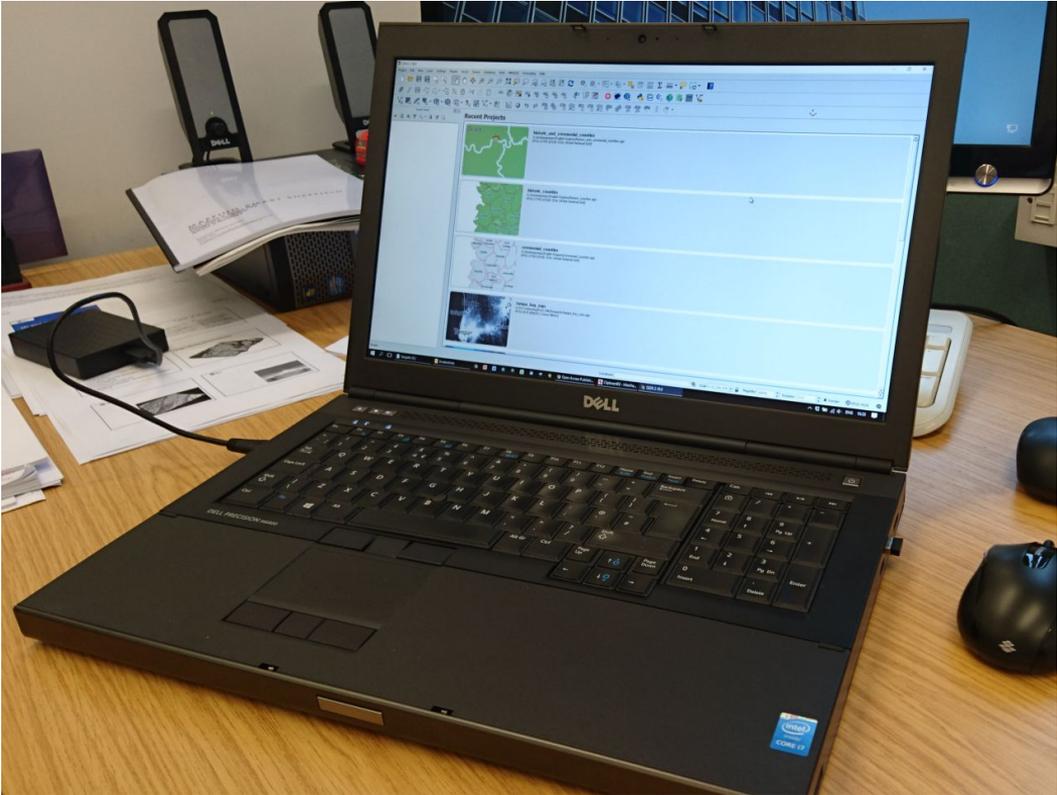
Possibly the only thing.



US

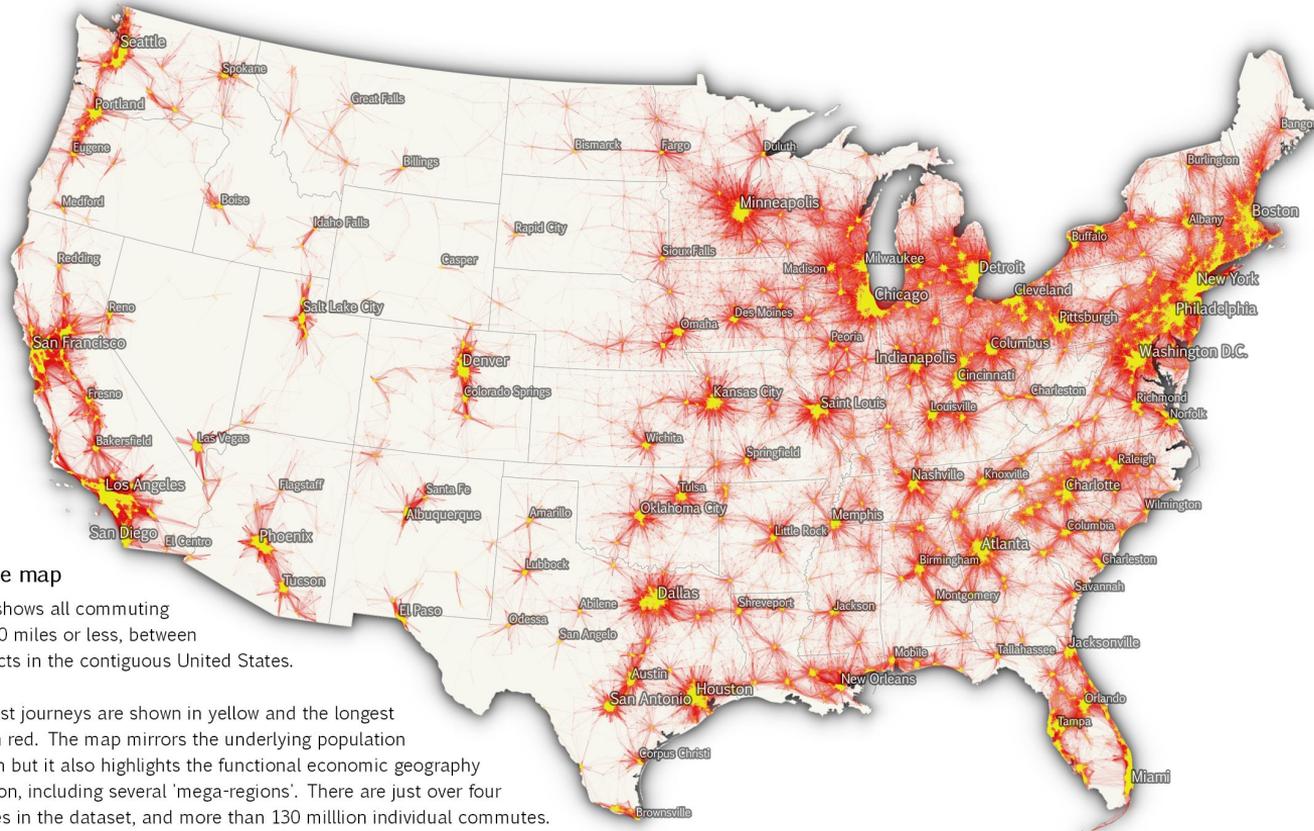
Megaregions

Pic of my very heavy laptop aka The MegaMonster



The American Commute

A functional economic geography of the United States



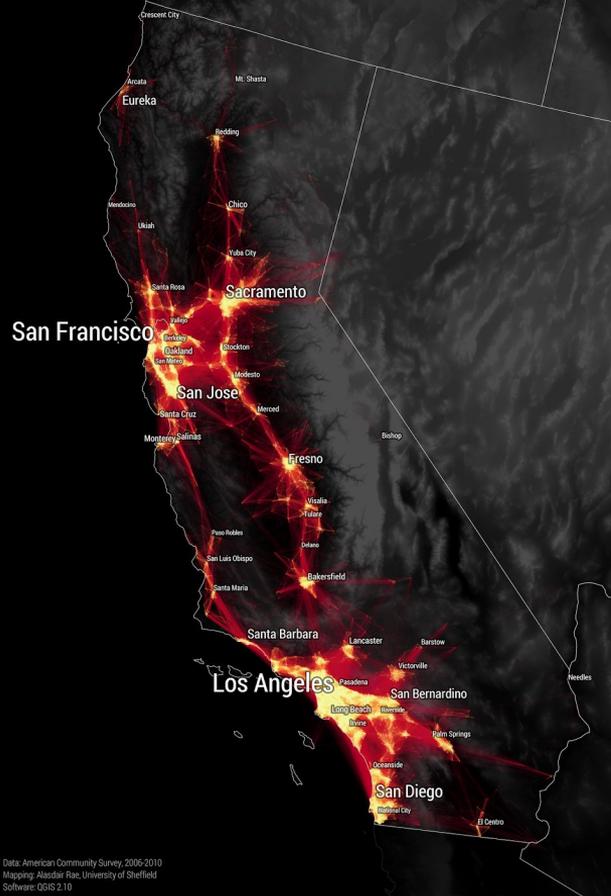
About the map

This map shows all commuting links of 100 miles or less, between census tracts in the contiguous United States.

The shortest journeys are shown in yellow and the longest journeys in red. The map mirrors the underlying population distribution but it also highlights the functional economic geography of the nation, including several 'mega-regions'. There are just over four million lines in the dataset, and more than 130 million individual commutes.

The American Commute

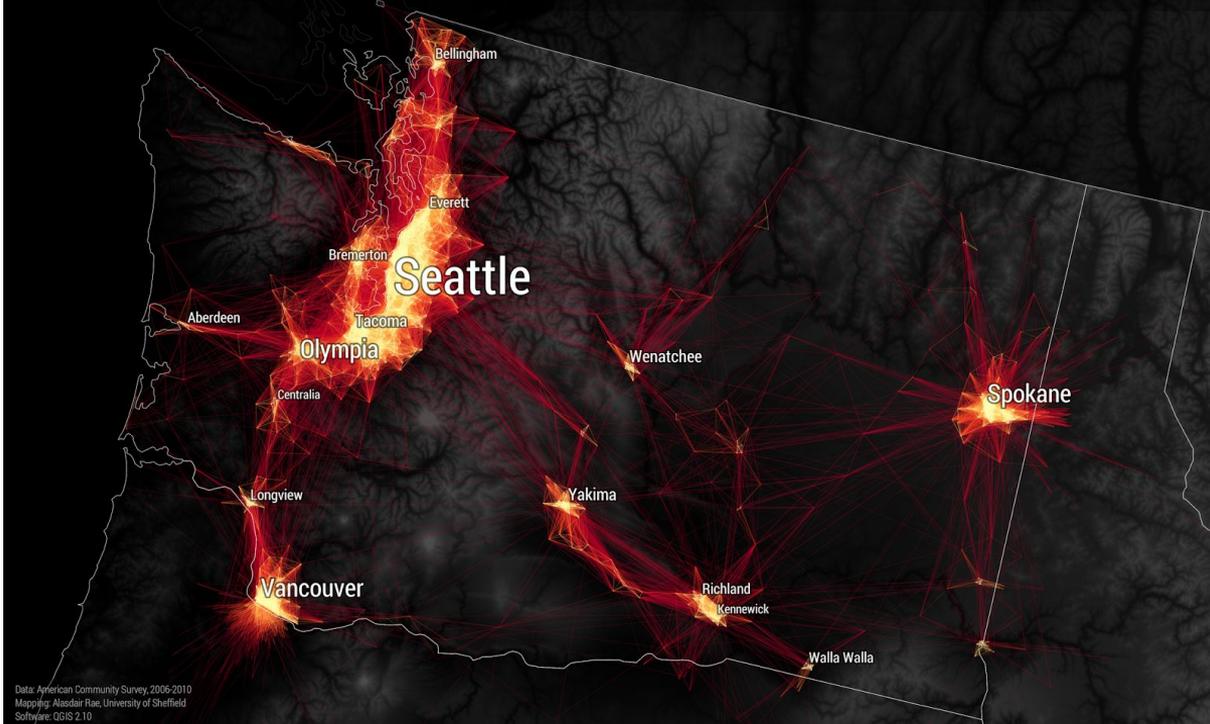
Tract to tract commutes of less than 200 miles in California



Data: American Community Survey, 2006-2010
Mapping: Alasdair Rae, University of Sheffield
Software: QGIS 2.10

The American Commute

Tract to tract commutes of less than 200 miles in Washington



Data: American Community Survey, 2006-2010
Mapping: Alasdair Rae, University of Sheffield
Software: QGIS 2.10

Working paper and data



This is an author produced version of *Mapping the American Commute: from mega-regions to mega commutes*.

White Rose Research Online URL for this paper:
<http://eprints.whiterose.ac.uk/89361/>

Monograph:

Rae, A.J. (2015) *Mapping the American Commute: from mega-regions to mega commutes*. Working Paper. Department of Urban Studies & Planning, University of Sheffield (Unpublished)

released and this release included tract-to-tract flows. However, this is where data volume problems first arise (one of the three Vs of 'big data'). There were 74,134 census tracts in United States in 2010. These tracts produce a potential interaction matrix of 5,495,849,956 cells but, unsurprisingly, most cells contain zeros and the actual number of connected census tracts is 4,156,426. However, dealing with this volume of data is far from trivial so the Federal Highway Administration provides a very useful tutorial for users on how to explore and analyse the data using Microsoft Access (FHA, 2015). The dataset contains the following columns:

ACS tract-to-tract commuting data

1. Residence state FIPS code*
2. Residence county FIPS code
3. Residence tract FIPS code
4. Workplace state FIPS code
5. Workplace county FIPS code
6. Workplace tract FIPS code
7. Estimated commuters
8. Margin of error

*This is a unique Federal Information Processing Standard code for each geographic unit in the United States and territories. These individual codes can then be used to create a unique identifier for each census tract.

For the ACS 2006-2010 tract-to-tract product used herein, there is no data on different modes of travel, though this could be a very

available from the United States Census Bureau and also contains population data from the 2010 Census for each tract. The workflow from original dataset to United States tract-to-tract commuter flow map is described below. There are an almost endless number of potential workflows but this approach was simple and effective on a Dell Precision M6800 workstation with 32GB of RAM and i7 processor running 64-bit Windows 7.

Flow map workflow from original database to shapefile

1. Open the original tract-to-tract database file in Microsoft Access and then export to Dbase format.
2. Import the Dbase file into QGIS 2.8 (open source geographic information system software). Concatenate the state, county and tract FIPS code to create a unique state-county-tract FIPS code for each origin and destination.
3. Import data file containing the latitude and longitude of census tract centers of population. Concatenate the state, county and tract FIPS code to create a new state-county-tract FIPS code for each point.
4. Perform two joins, each based on the unique FIPS code for each census tract. These joins result in a dataset

Blog and CityMetric pieces

Date: August 2015



under the raedar

archived content

FRIDAY, 28 AUGUST 2015

Mapping the American Commute

Update, 20 September 2015: scroll to the bottom of the post if you want to download the data.

One of my summer projects this year has been attempting to map the American commute, following earlier work on a similar subject. Put simply, I've attempted to put together a map which shows commuting connections between locations in the contiguous United States, using the most fine-grained data I could find. Some of the results of this went into a recent piece in [WIRED](#), and also [CityMetric](#), and the larger piece of work it's based on is part of on-going research into the best ways of mapping commuting flows. The main images are below, followed by some more technical information. For now, all you need to know is that these images show commuting connections of 100 miles or less between Census tracts in the lower 48 states. You'll have to forgive me if your city isn't labelled!

The American Commute

A functional economic geography of the United States



ABOUT ME



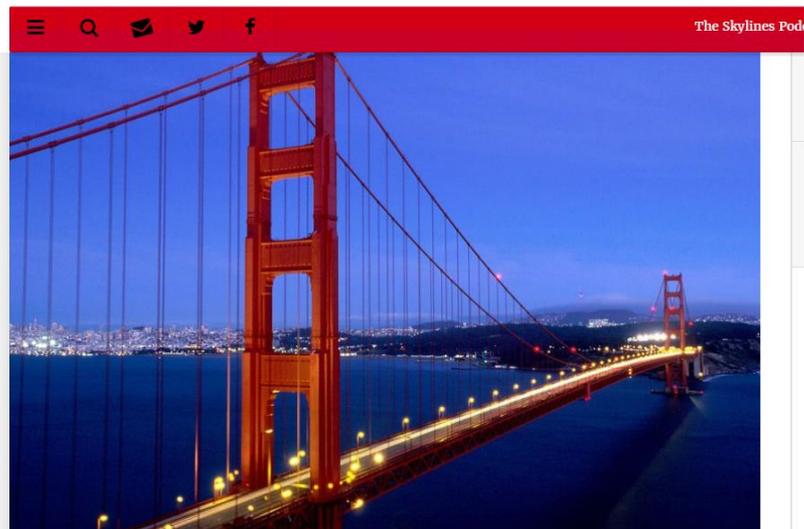
ALASDAIR RAE

This blog featured data, maps and stories related to my research between 2008 and 2015. I've decided to move on to other things, but I'll leave all content as it is now in case anyone is interested. The focus was normally on things to do with cities, GIS and spatial data analysis. If you want to use any of the material on here just ask, as I'm generally okay with it.

[VIEW MY COMPLETE PROFILE](#)

BLOG ARCHIVE

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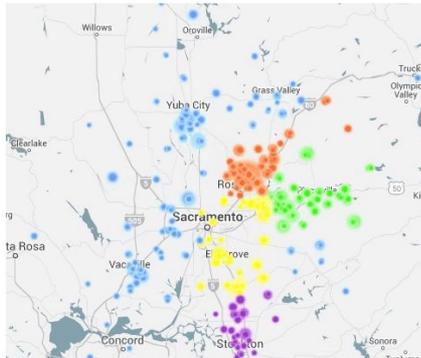
The Golden Gate Bridge, San Francisco Bay. Image: Justin Sullivan/Getty.

Dr Alasdair Rae is a senior lecturer in the geography department of the University of Sheffield.

I've recently been writing and thinking about polycentric urban regions: partly because I'm interested in how places connect (or not) for one of my research projects, and partly because I've been experimenting with ways to map the connections between places in polycentric urban regions.

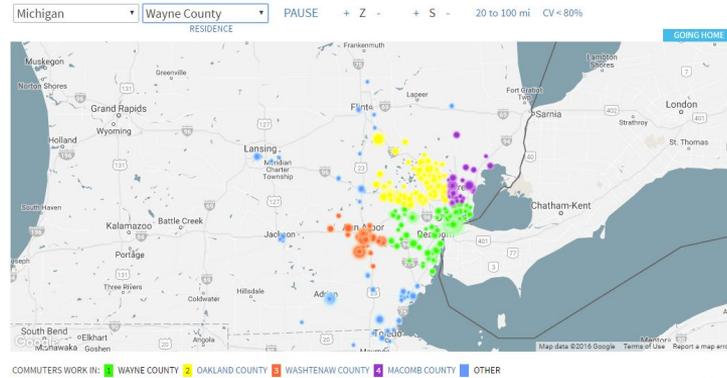
Mark Evans piece - amazing work

I LIKE BIG BYTES



COMMUTE MAP

COPY LINK TO CLIPBOARD



Commuter flows for workers who live in Wayne County, Michigan in 226 unique census tracts, traveling between 20 miles and 100 miles, with CV < 80%.

12,123 TOTAL ESTIMATED COMMUTERS ACROSS 474 INDIVIDUAL TRACT-TRACT FLOWS

Rank	County Name	Commuter Workers	Median WCommute	Commuter Residents	Median RCommute	Your Selected Commuters	% This County	% Selected County
1	Wayne County, MI	747,630	8.5	701,619	7.6	5,113	0.7%	42.2%
2	Oakland County, MI	656,227	9.0	564,957	8.2	3,655	0.6%	30.1%
	Washtenaw County							

This really is amazing:

<http://bigbytes.mobyus.com/commute.aspx>

Garrett's blog piece



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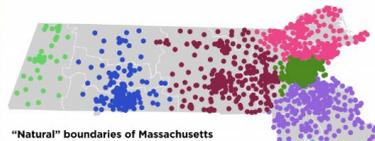
Keeping it together

Today is my birthday, so I decided to take a day off from my usual work—writing a dissertation about the production of place that tries to examine the same basic question from a very different perspective. In the dissertation, I'm primarily interested in how people came to see parts of the world as "single" places, and I try to emphasize how the recognition of a "single" place and the characters in my story turned to empirical studies of social, economic, and ecological interconnectedness to make by a substantive web of relations. I'm highly skeptical that you can ever make the case for unit areas in empirical and geographic cohesion are too high for the production of unit landscapes to be a disinterested administrative exercise. But the suggestions about how human communities are materially interrelated in space.

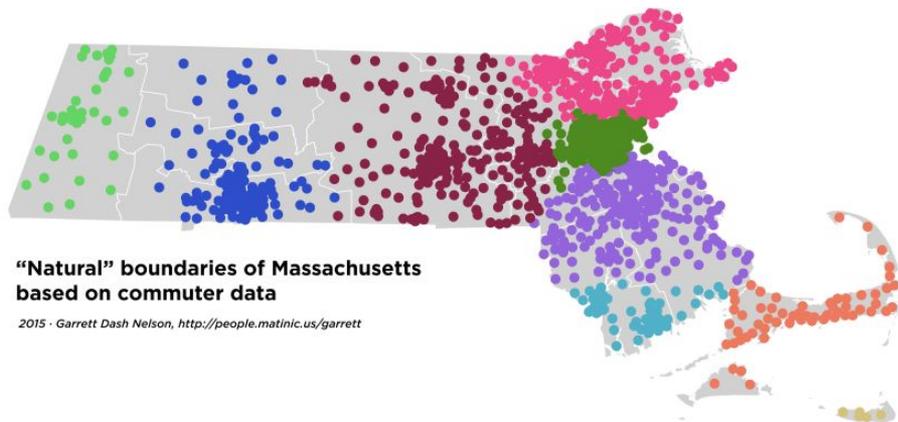
Last month, the geographer Alasdair Rae published a wonderful working paper on American "mega-regions" based on a project he's working on that's based on the observation that commuting patterns sketch out "how the places where people live are related to each other at a fairly fine-grained level." As part of the project, Rae made the massive data set available online.

Rae's project offers a striking visual representation of how "mega-regions" are visible across some of the U.S.'s largest cities and subjected it to an algorithmic detection of community borders, rather than merely relying on the human eye to pick out boundaries. The software developed by Stanislav Sobolevsky, Riccardo Campari, Alexander Belyi, and Carlo Ratti at the MIT SenseGlobe Lab.

It took a fair amount of data wrangling in Python, SQLite, and QGIS to get all of the different software working together to limit the analysis to the 102,221 commute entries from Rae's database which had both their origin and destination points. I also had to see whether community-detection patterns would emerge at a much smaller scale than the national level. When I finally managed to get the data, it split Massachusetts up into nine communities, with an optimality score of 0.568038. Here's what that looks like when plotted back onto a map:



"Natural" boundaries of Massachusetts

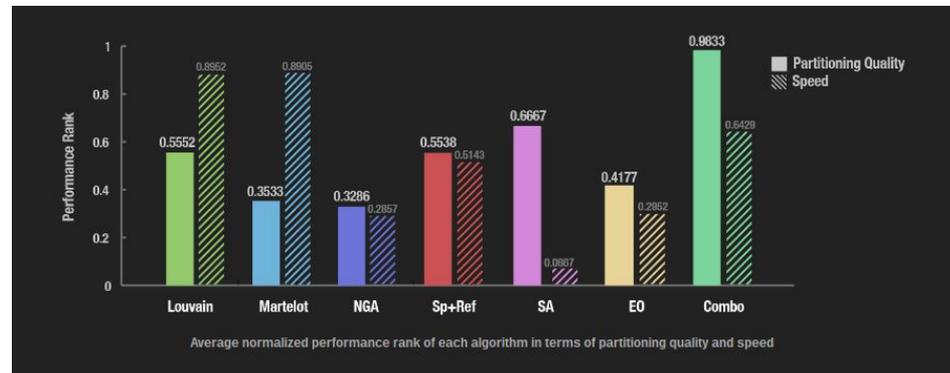
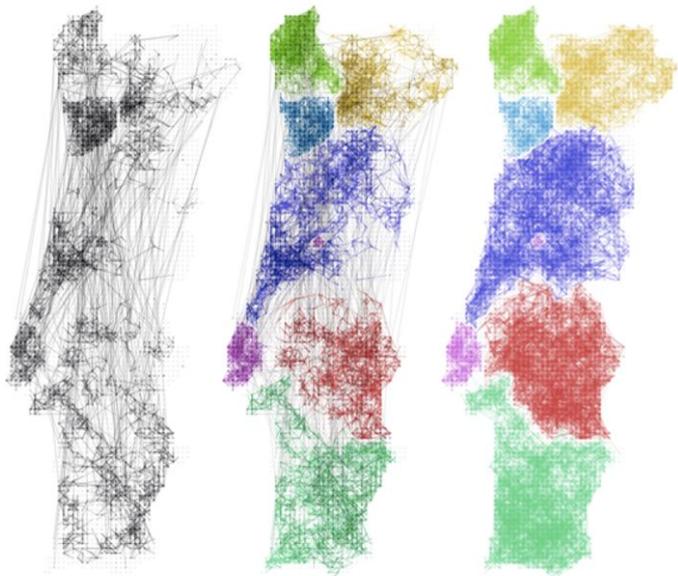


"Natural" boundaries of Massachusetts based on commuter data

2015 · Garrett Dash Nelson, <http://people.matinic.us/garrett>

Date: 12 October 2015

Combo (Sobolevsky et al., MIT)



[Download source code of Combo for modularity optimization](#)

Community detection is key to understanding the structure of complex networks, and ultimately extracting useful information from them. Applications are diverse: from healthcare to regional geography, from human interactions and mobility to economics. In this paper we present a novel search strategy for the optimization of various objective functions for community detection purposes [S. Sobolevsky, R. Campari, A. Belyi, and C. Ratti "General optimization technique for high-quality community detection in complex networks" Phys. Rev. E 90, 012811 2014]. Existing search strategies take one of the following steps to evolve starting partitions: merging two communities, splitting a community into two, or moving nodes between two distinct communities. The proposed algorithm compounds all three actions. After selecting an initial partition made of a single community, the following steps are iterated as long as the iteration results in an

DEPARTMENT OF
Geography



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PEOPLE



Garrett G. D. Nelson

Postdoctoral Fellow, Society of Fellows

I am a historical geographer who is interested in the ways that social change and landscape change are intertwined. My work focuses on how human communities make choices about transforming and managing the shared places in which they live, and, in turn, how those same places structure the formation of communities, states, and social groups. In particular, I am interested in the many themes which come together in the field of planning—concerns about justice, equality, aesthetics, ecology, and administration—and how these are related to the spatial pattern of human life on the earth's surface. In addition to explaining the historical formation of landscapes and societies, these lines of inquiry also help to frame contemporary questions about how to make decisions about people and places.

[show more]

Personal Website



AREAS OF EXPERTISE

The Paper

- Written collaboratively in Google Docs, files on Dropbox
- Cloud computing in AWS (about \$20 per run)
- Several iterations (5 main ones)
- A good few maps
- Targeted big OA journal with quick turnaround
- Several Skype chats
- Submitted summer 2016
- Published 30 Nov 2016 (OA often faster as well)

An Economic Geography of the United States: From Commutes to Megaregions

Garrett Dash Nelson  Alasdair Rae  

Published: November 30, 2016 • <https://doi.org/10.1371/journal.pone.0166083>

93

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Introduction

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Data and Methods

Results

Reflecting upon Visual and Algorithmic Approaches

Conclusion

Author Contributions

References

Abstract

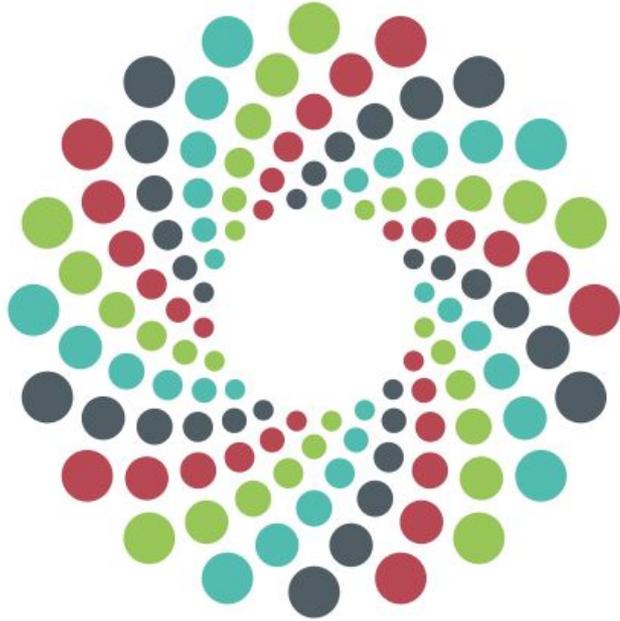
The emergence in the United States of large-scale "megaregions" centered on major metropolitan areas is a phenomenon often taken for granted in both scholarly studies and popular accounts of contemporary economic geography. This paper uses a data set of more than 4,000,000 commuter flows as the basis for an empirical approach to the identification of such megaregions. We compare a method which uses a visual heuristic for understanding areal aggregation to a method which uses a computational partitioning algorithm, and we reflect upon the strengths and limitations of both. We discuss how choices about input parameters and scale of analysis can lead to different results, and stress the importance of comparing computational results with "common sense" interpretations of geographic coherence. The results provide a new perspective on the functional economic geography of the United States from a megaregion perspective, and shed light on the old geographic problem of the division of space into areal units.

Included in the
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PLOS ONE 10 Year
Anniversary: Datasets

ADVERTISEMENT

Data Availability: The data are available at the following Figshare link:
<https://doi.org/10.15131/shef.data.4110156>. Link to all Figs in high resolution:
<https://www.dropbox.com/sh/tmqry68m80tg8dz/AAAZBaEJxYWcZniBeZnlbWMLa?dl=0>.



.NET

commutes.net (83.83 MB)



ARCHIVE

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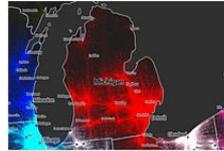


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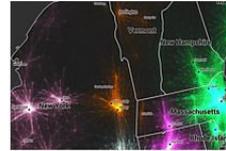
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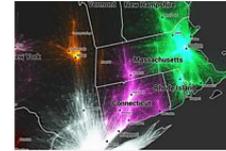
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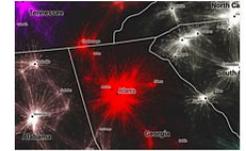
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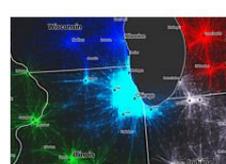


map_6.png (11.27 MB)



map_8.png (9.26 MB)

view



map_9.png (12.94 MB)



map_10.png (4.5 MB)



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United States Commutes and Megaregions data for GIS

Version 3 01.12.2016, 00:07 by Alasdair Rae, Garrett.G.D.Nelson@dartmouth.edu

Summary

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An Economic Geography of the United States: From Commutes to Megaregions

Overview of attention for article published in PLoS ONE, November 2016



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SUMMARY

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Title	An Economic Geography of the United States: From Commutes to Megaregions
Published in	PLoS ONE, November 2016
DOI	10.1371/journal.pone.0166083 ↗
Pubmed ID	27902707 ↗
Authors	Garrett Dash Nelson , Alasdair Rae , Garrett Dash Nelson, Alasdair Rae, Nelson, G.D., Garrett Dash... [show]
Abstract	The emergence in the United States of large-scale "megaregions" centered on major metropolitan... [show]

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ATTENTION SCORE IN CONTEXT

This research output has an **Altmetric Attention Score of 850**. This is our high-level measure of the quality and quantity of online attention that it has received. This Attention Score, as well as the ranking and number of research outputs shown below, was calculated when the research output was last mentioned on **15 April 2017**.

ALL RESEARCH OUTPUTS

#2,121

of 7,584,657 outputs

OUTPUTS FROM PLOS ONE

#58

of 108,125 outputs

OUTPUTS OF SIMILAR AGE

#252

of 238,709 outputs

OUTPUTS OF SIMILAR AGE FROM PLOS ONE

#5

of 3,822 outputs

Altmetric has tracked 7,584,657 research outputs across all sources so far. Compared to these this one has done particularly well and is in the 99th percentile: it's **in the top 5% of all research outputs ever tracked** by Altmetric.

In a nutshell

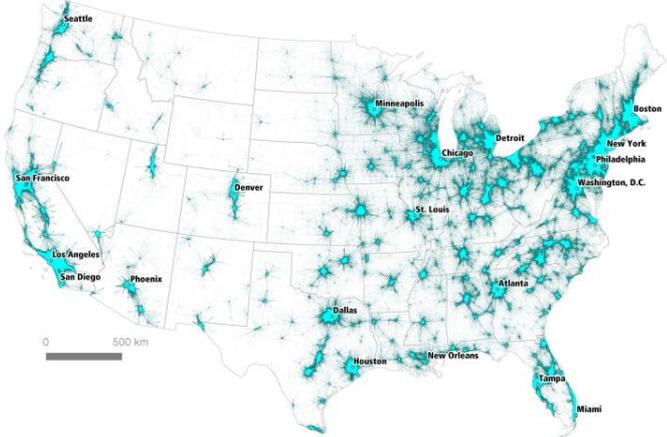


Fig 1. Tract-to-Tract Commutes of 160km or less.
doi:10.1371/journal.pone.0166083.g011

We moved from this

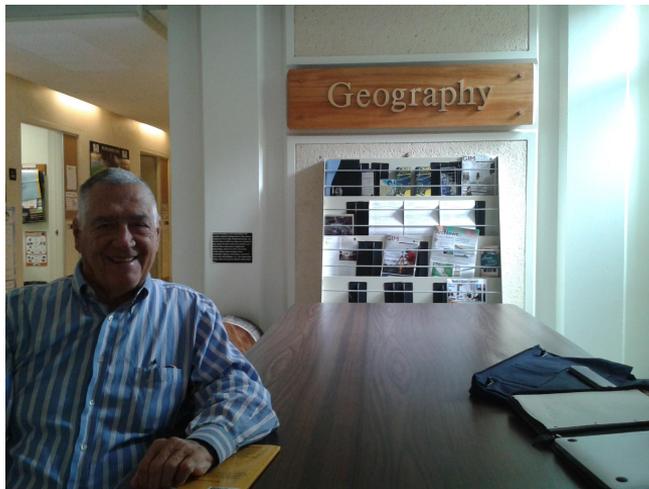


To this



Fig 11. Computed communities subject to interpretive analysis.
doi:10.1371/journal.pone.0166083.g011

The geography-blindness of the algorithm therefore also allows us to provide a test case for Tobler's "First Law" of geography: the premise that 'near things are more related than distant things' [34]. Census tracts near to each other should, according to this logic, have stronger commuter connections to one another than census tracts far apart. Consequently, even though the partitioning algorithm is not considering nodes' locations in space, it *should* produce communities which are spatially clustered, if the structure of commuter patterns obeys the expected rule of more connections between spatially-proximate nodes, and fewer connections between spatially-distant nodes.



Waldo Tobler, UCSB, 2013



I'm trying to stand nearest to Waldo here



Commuting in Santa Barbara

A visual heuristic approach to regional delineation

When attempting to make sense of large and complex spatial datasets, it is possible to take a number of different methodological approaches. Here we examine two of the most common: a visual heuristic approach and an algorithmic approach. According to Smelcer and Carmel [23], the cognitive work we do with maps is simplified using visual heuristics, and this is certainly the case when we compare a large commuter data table with millions of cells to the kind of cartographic representation shown in Fig 1. However, we do not concur with Smelcer and Carmel when they state that “visual heuristics differ from algorithms, which are *guaranteed to provide a correct solution*” (emphasis added; cf. Anderson, [24]). As we shall see below, the extent to which a “correct solution” can be derived depends upon user-defined parameters, the nature of the algorithm used and the underlying epistemological position of the researcher. Nonetheless, we do believe that the algorithmic approach we develop confers many advantages above and beyond the visual heuristic and has significant potential in adding value to the visual approach, particularly with respect to discriminating the dividing lines or overlaps between closely-integrated regions.

Algorithms: ‘guaranteed to provide a correct solution’.

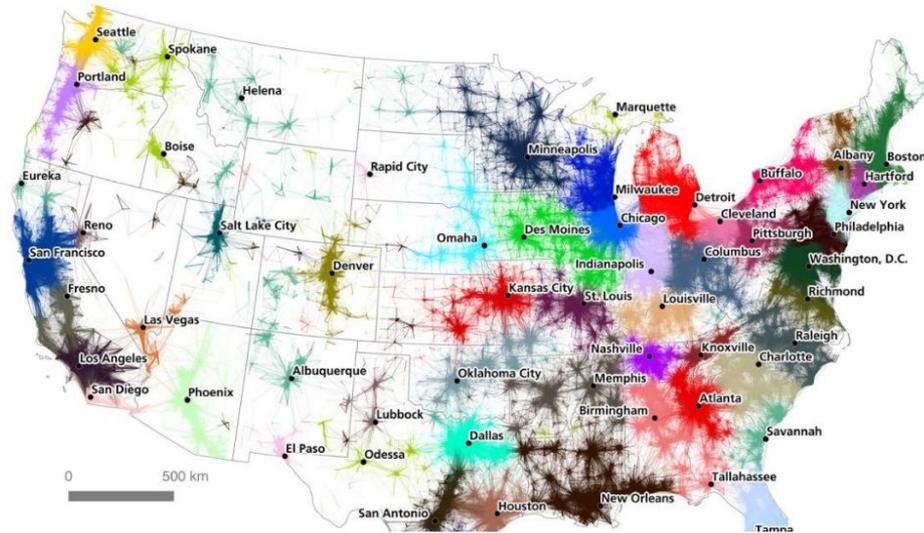
Oh, really? 

0.948469

A value of 0 indicates a partitioning of nodes into communities which is “no better than random,” while a value of 1 indicates “networks with strong community structure”

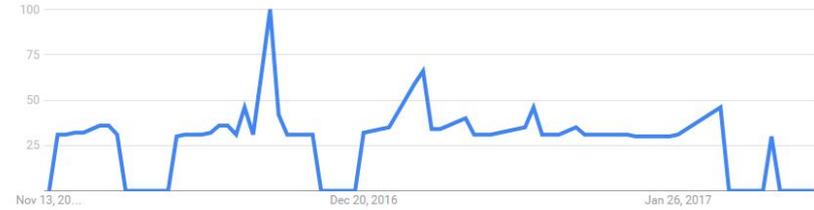
Four Million Commutes Reveal New U.S. 'Megaregions'

As economic centers grow in size and importance, determining their boundaries has become more crucial. Where do you fall on the map?



People quite like regions

Interest over time ?



Google Trends

From *The Atlantic*

CITYLAB

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MAPS

PHOTOS

VIDEOS

SEARCH 🔍

f t in 📡

COMMUTE WORK HOUSING WEATHER CRIME POLITICS DESIGN TECH

MAPS

How 4 Million Commutes Shape America's 'Megaregions'

New maps use math to define the amorphous term.

LAURA BLISS | [@mslaurabliss](#) | Dec 7, 2016 | 4 Comments

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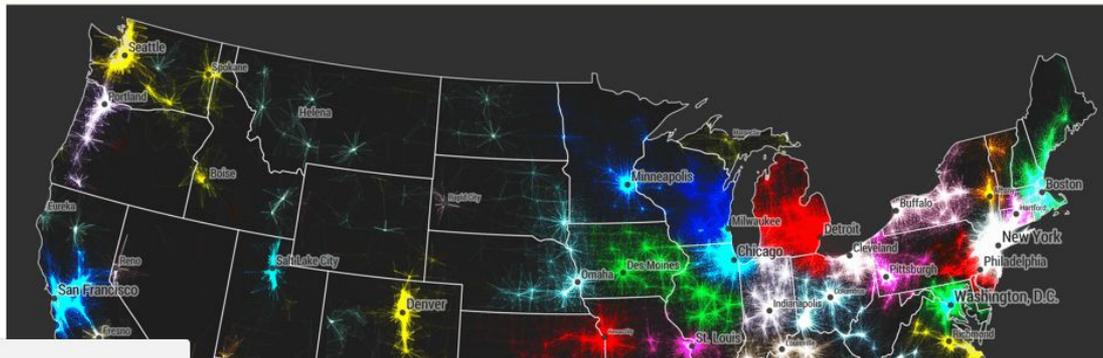
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Commuter Megaregions of the United States



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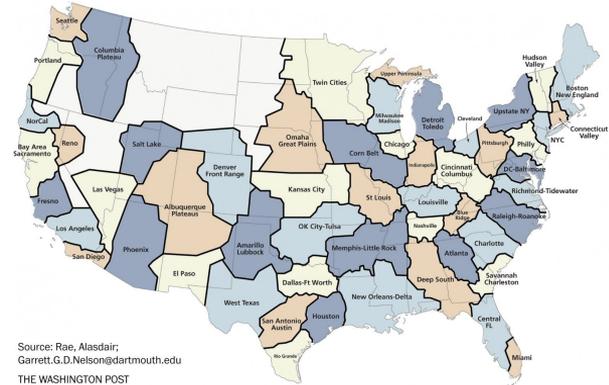
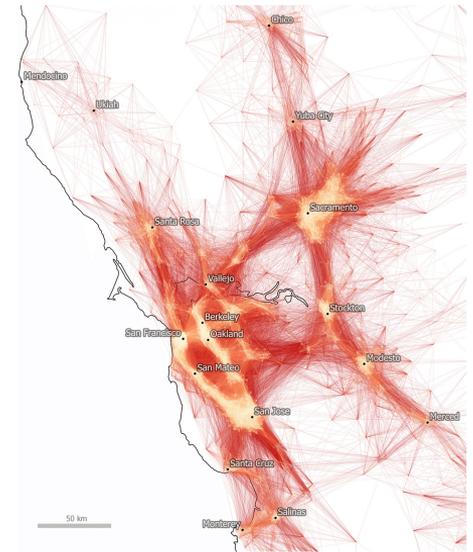
What the U.S. map should really look like

By Ana Swanson and Jonathan O'Connell December 12 at 12:09 PM



(Washington Post illustration; iStock)

State boundaries matter for all sorts of reasons. The state you live in determined [how much](#) your vote



Source: Rae, Alasdair; Garrett, G.D. Nelson@dartmouth.edu
THE WASHINGTON POST

[comments](#) [other discussions \(5\)](#)**Trending:** [Oroville Dam risk: Thousands ordered to evacuate homes](#)

Social Science

★ Commuter Map AMA

4923 [PLOS Science Wednesday: Hi Reddit, we're Alasdair and Garrett and we drew a new map of the United States based on commuter data instead of traditional borders, creating new way how geography impacts our lives – Ask Us Anything!](#) [self.science](#)

1 month ago by [PLOSScienceWednesday](#) **20** [PLOS Science Wednesday Guest](#)

Hi Reddit,

My name is [Alasdair Rae](#) and I am Senior Lecturer in Urban Studies and Planning at the University of Sheffield, in England. My research focuses on geographic analysis, and particularly on how places connect, or not. One of the main things I'm interested in is the difference between political boundaries, such as counties and states, and how this compares with patterns of human connection on the ground, such as commuting and migration.

And I'm [Garrett Dash Nelson](#); I'm a postdoctoral fellow in the Society of Fellows and the Department of Geography at Dartmouth College in New Hampshire. I work on the history of geographic problems in planning, and I'm interested in how the human landscape and social action structure one another.

Last month, we published a paper titled "[An Economic Geography of the United States: From Commutes to Megaregions](#)" in the journal [PLOS ONE](#). We were curious what would happen if we tried to divide the geography of the United States up by using data about millions of Americans' commuting habits, instead of relying on old borders like state and city lines. We tried two ways of interpreting the data. First, we made "flow maps," which allowed us to visually interpret where clusters of commuters are congregating. Second, we used an algorithm to do what's called "community detection"—finding groups of closely related points within a network of complex interrelations. We ended up with a new map of the United States that offers a new way of thinking about what kind of areas match the geographic patterns of our real lives.

We'll be answering your questions at 1pm ET -- Ask Us Anything!

Follow Alasdair on Twitter [@undertheraedar](#) and Garrett on Twitter at [@en_dash](#)

438 comments [share](#)

↑ [-] **thesneakywalrus** 11 points 4 months ago

↓ Yup, DC/Baltimore is spot on as well.

I leave Maryland all the time, but I rarely go beyond the areas of VA, WV, and PA that they included.

[permalink](#) [embed](#) [parent](#)

↑ [-] **Linearts** BS | Analytical Chemistry 8 points 4 months ago

↓ Arlington, VA resident here: I agree as well. Baltimore feels much more like a part of my home region than Richmond does. I always have to correct people who hear I'm from Virginia and think I'm a Southerner.

[permalink](#) [embed](#) [parent](#)

↑ [-] **daka441** 6 points 4 months ago

↓ As someone who lives in the Roanoke area, I'm always surprised how different NoVA is from the rest of the state, even Richmond. Driving past Front Royal even feels like driving into another state.

[permalink](#) [embed](#) [parent](#)

↑ [-] **chazz19** 4 points 4 months ago

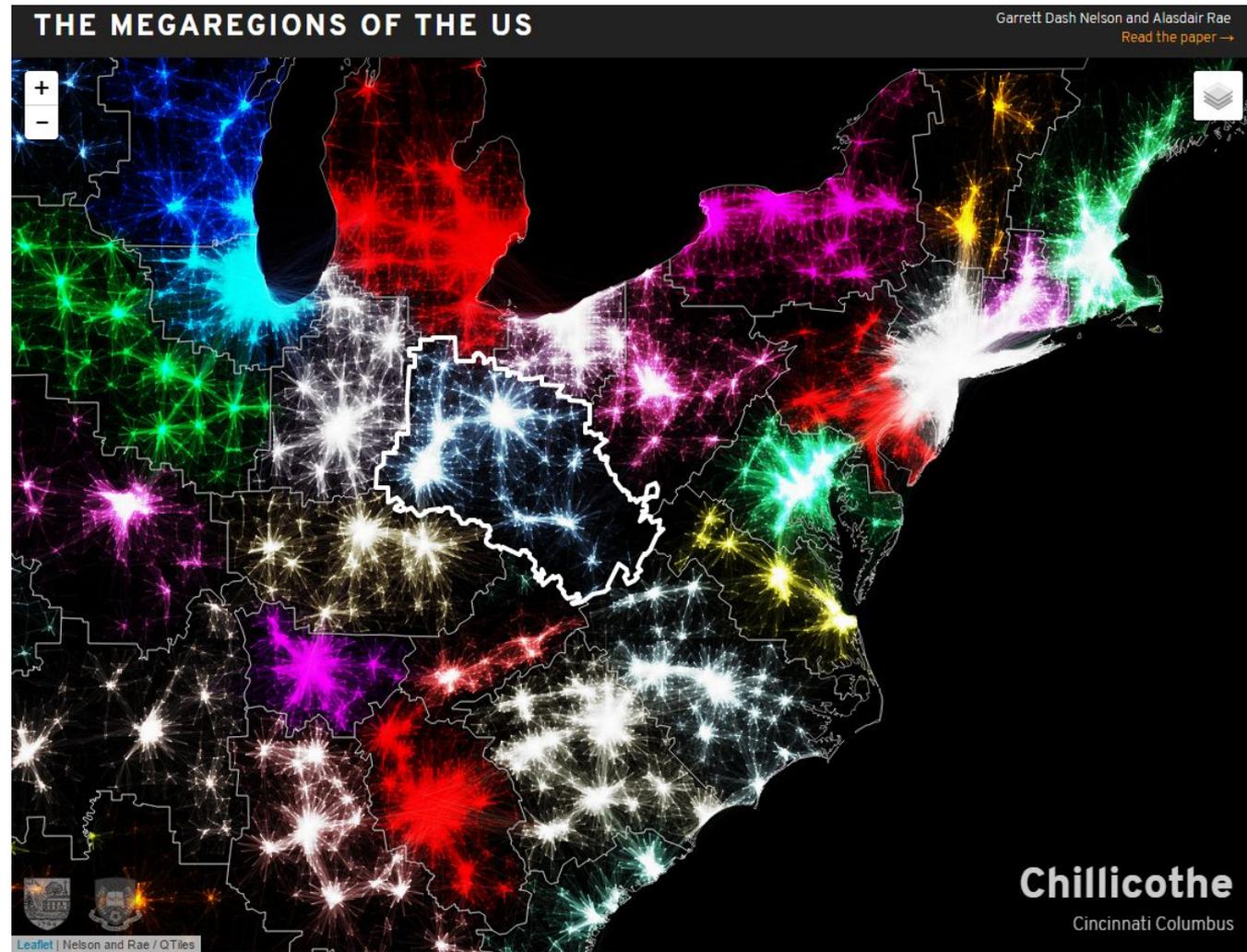
↓ dont NOVA my rva.

[permalink](#) [embed](#) [parent](#)

[load more comments](#) (1 reply)

Really useful public feedback on this project helped us move things on a bit more

Let's take a look if there's time



Tropicana

Field



MLB TAMPA BAY STADIUM SAGA RAYS EDITORIALS

Why did a new Rays stadium search take so long?

Some political thoughts on this Florida primary day.

by Daniel Russell | @d_russ | Mar 15, 2016, 10:30am EDT

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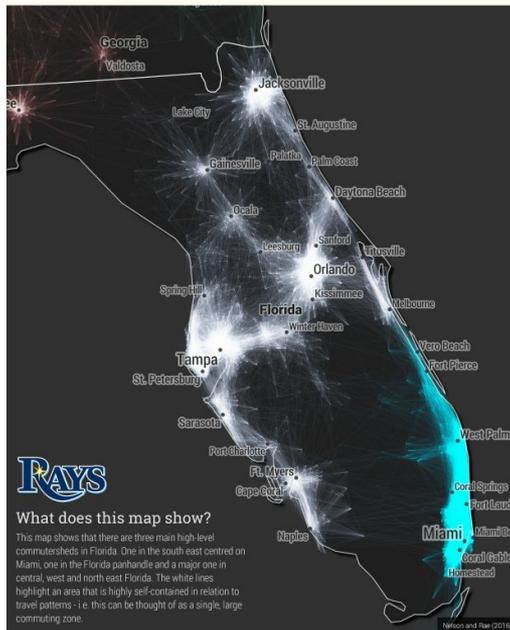
Tampa Bay Rays close to signing Nathan Eovaldi





KEVIN KIERMAIER

Florida Commuter Megaregions



Summing up

1. It's not procrastination if you produce something useful
2. 1 isn't strictly true, but it gets you off the hook
3. This conception of megaregions really struck a chord
4. The power of maps should never be underestimated
5. Publishing open access opens doors and starts new conversations with interesting people
6. Even Redditors agreed that the results make sense



bit.ly/megaregions2017