

第9章

数据显示与地图编制



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2020-11-15 @ UCAS

<http://giserv.me>

主要内容



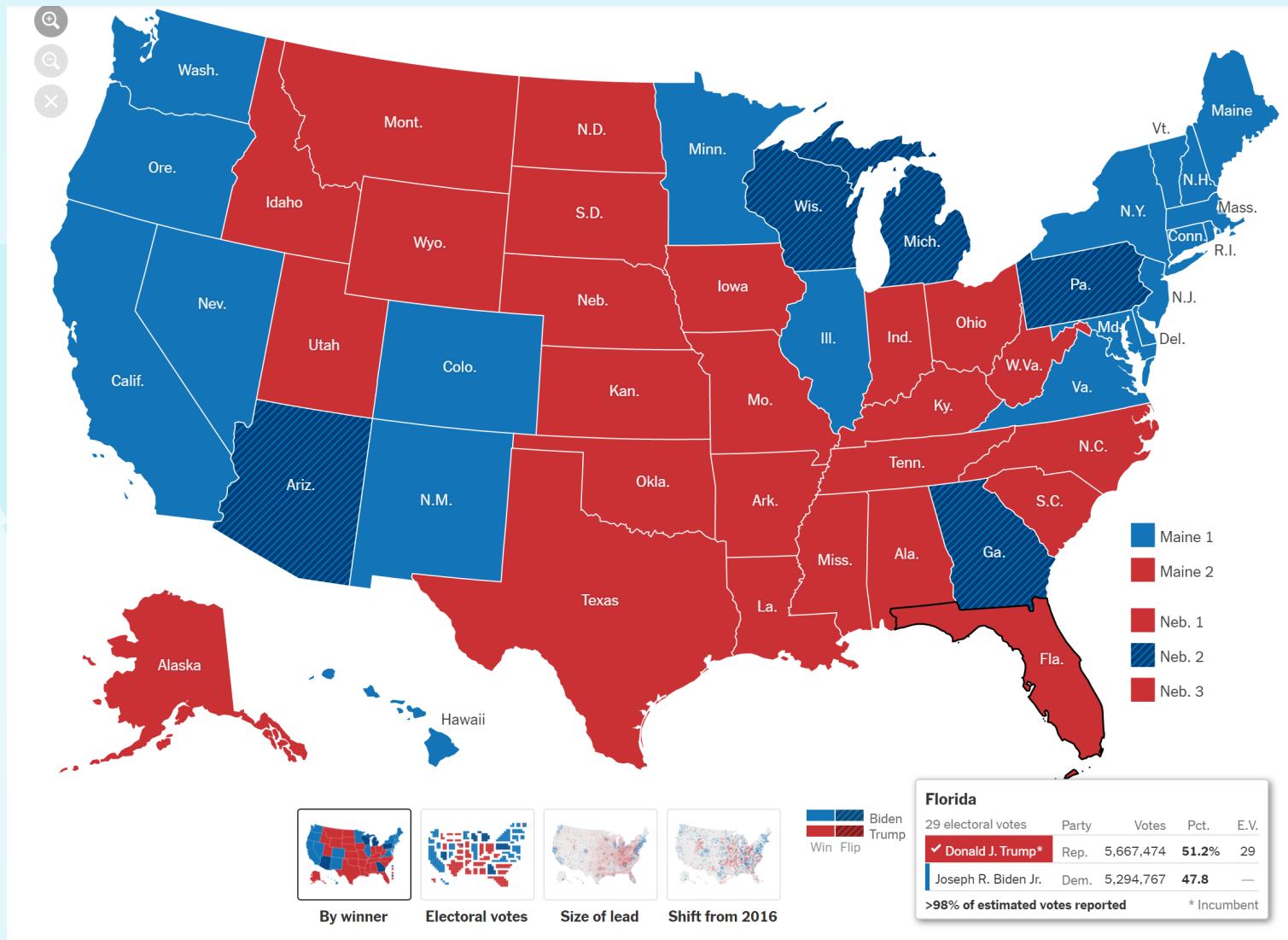
数据显示与地图编制简介

- 数据显示
- 地图的符号表达
- 定量地图的编制
- 地图的注记
- 地图设计与生产

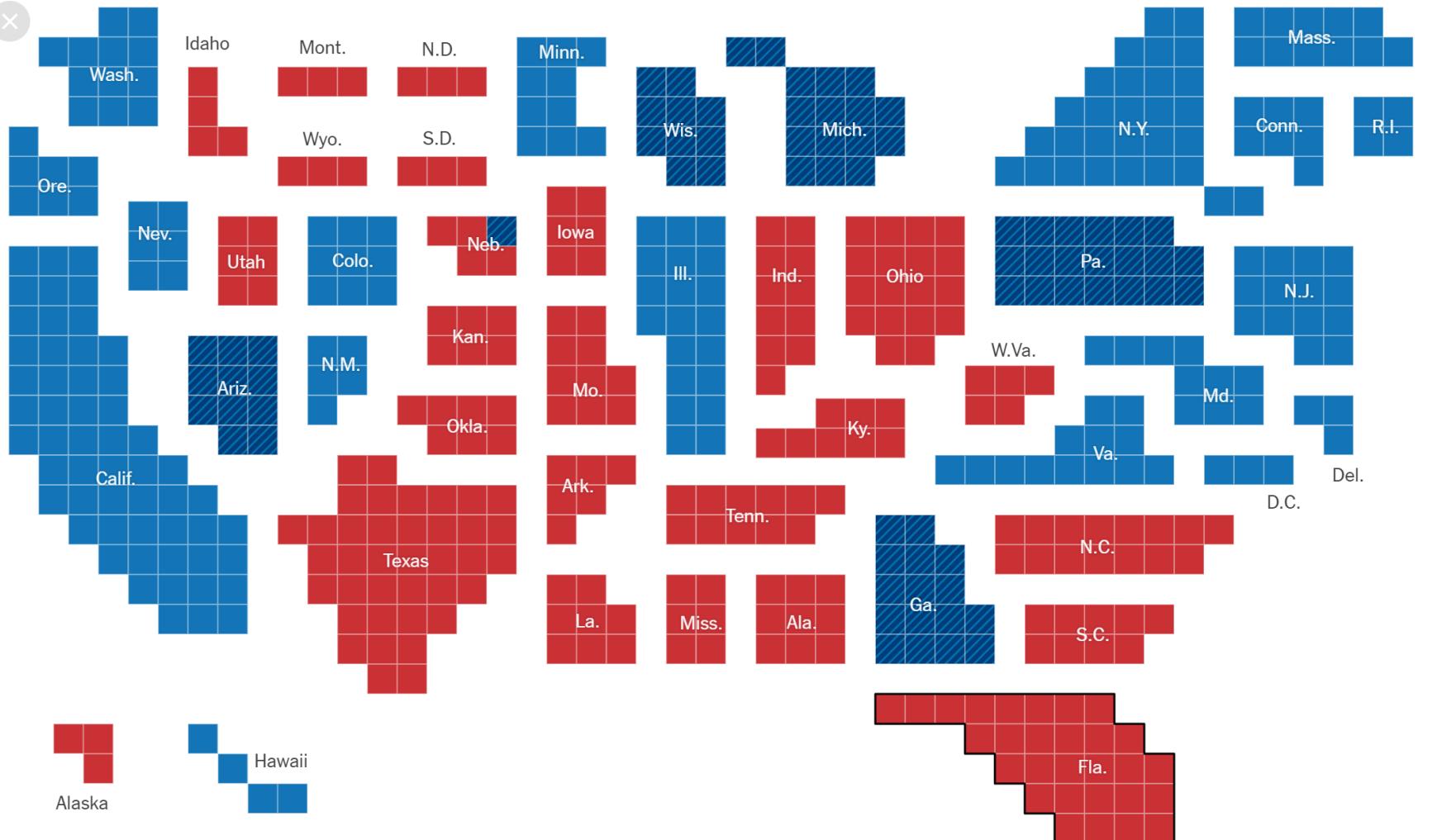
上机实践

- 练习1：制作一幅等值区域图
- 练习2：地图的符号表达
- 练习3：河流注记

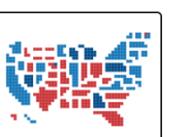
数据显示（数据可视化）



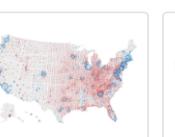
TO WIN



By winner



Electoral votes

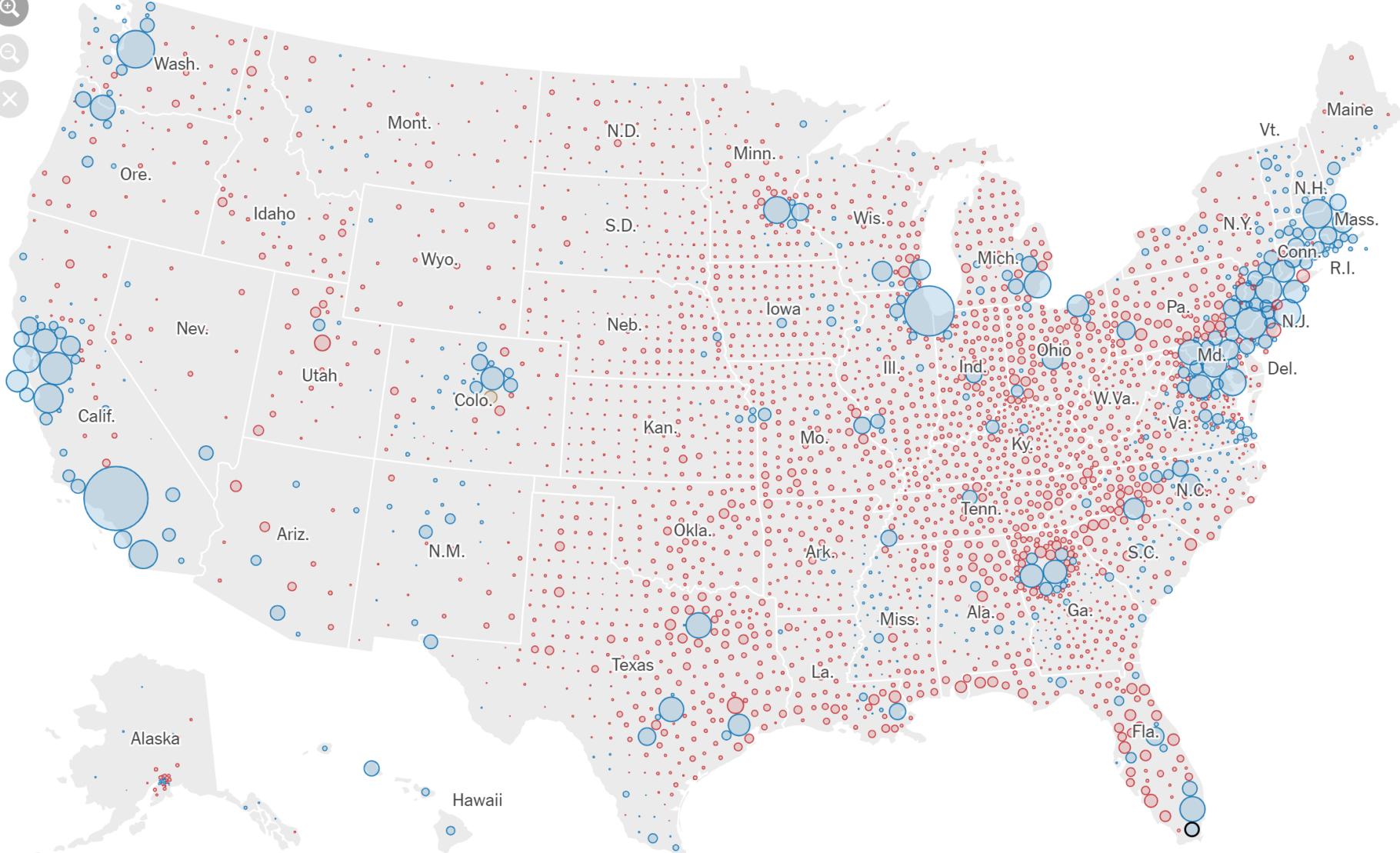


Size of lead



Shift from 2016

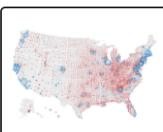
Florida					
29 electoral votes	Party	Votes	Pct.	E.V.	
✓ Donald J. Trump*	Rep.	5,667,474	51.2%	29	
Joseph R. Biden Jr.	Dem.	5,294,767	47.8	—	
>98% of estimated votes reported					* Incumbent



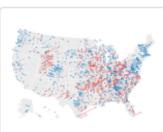
By winner



Electoral votes



Size of lead



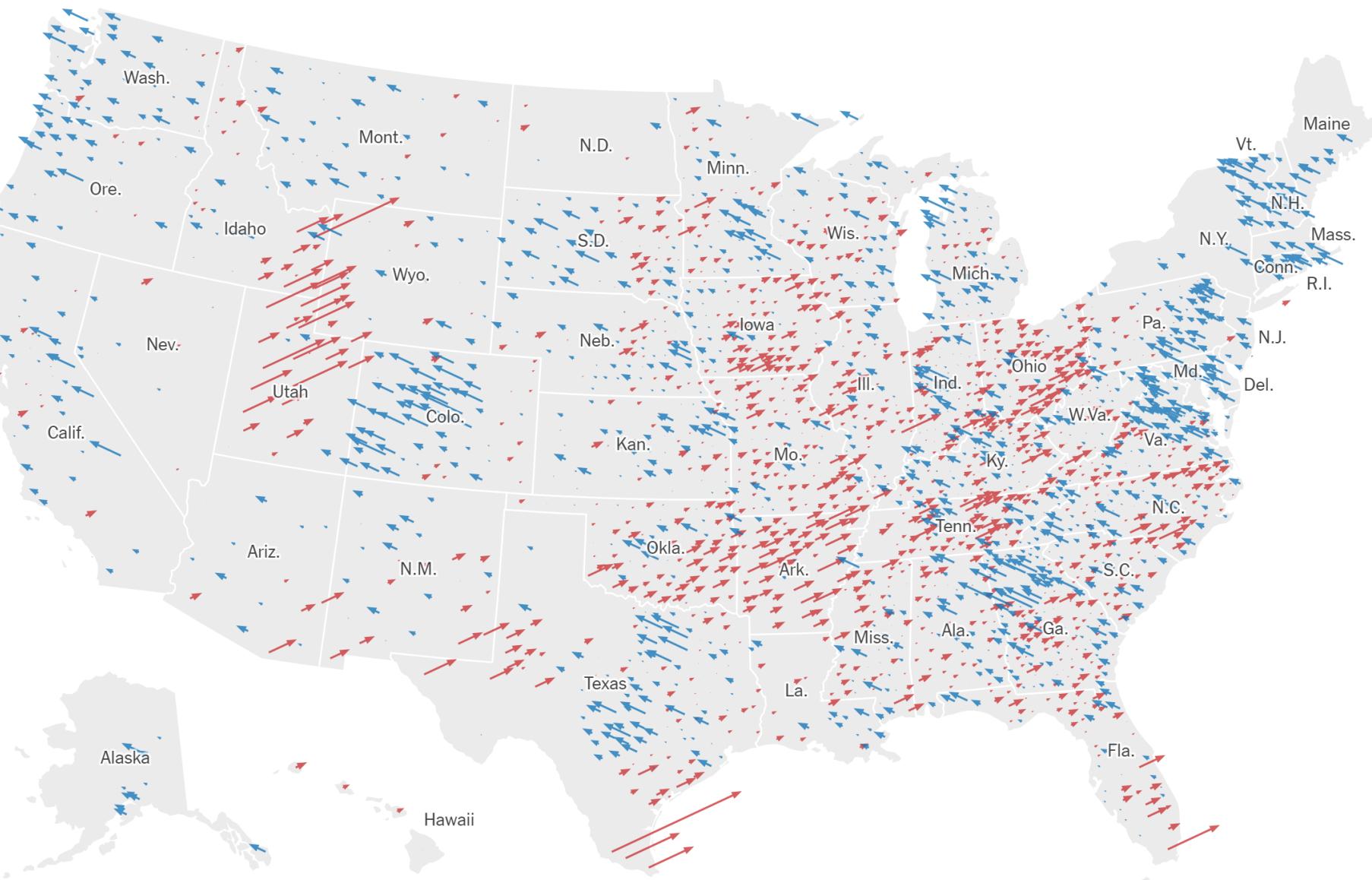
Shift from 2016

LEADER: ● Biden
Circle size is proportional amount each county's candidate is ahead.

Miami-Dade County

Candidate	Party	Votes	Pct.
Joseph R. Biden Jr.	Dem.	617,647	53.3%
Donald J. Trump*	Rep.	532,734	46.0

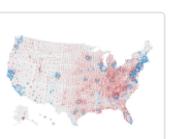
96% of estimated votes reported * Incumbent



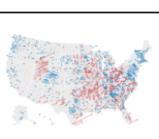
By winner



Electoral votes



Size of lead



Shift from 2016

SHIFT IN MARGIN
In counties that have
reported almost all of their
votes

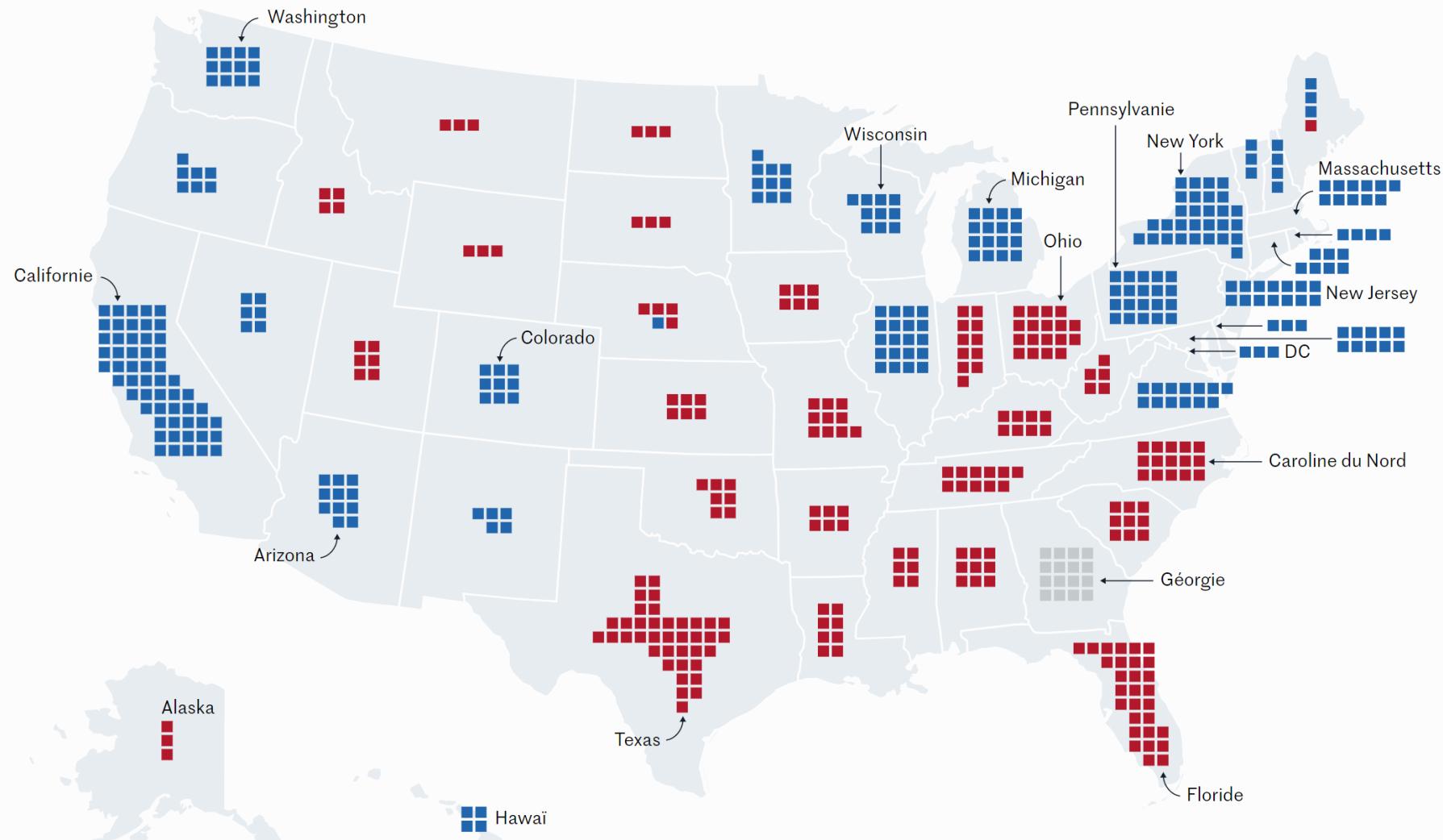




Joe Biden 290

majorité absolue

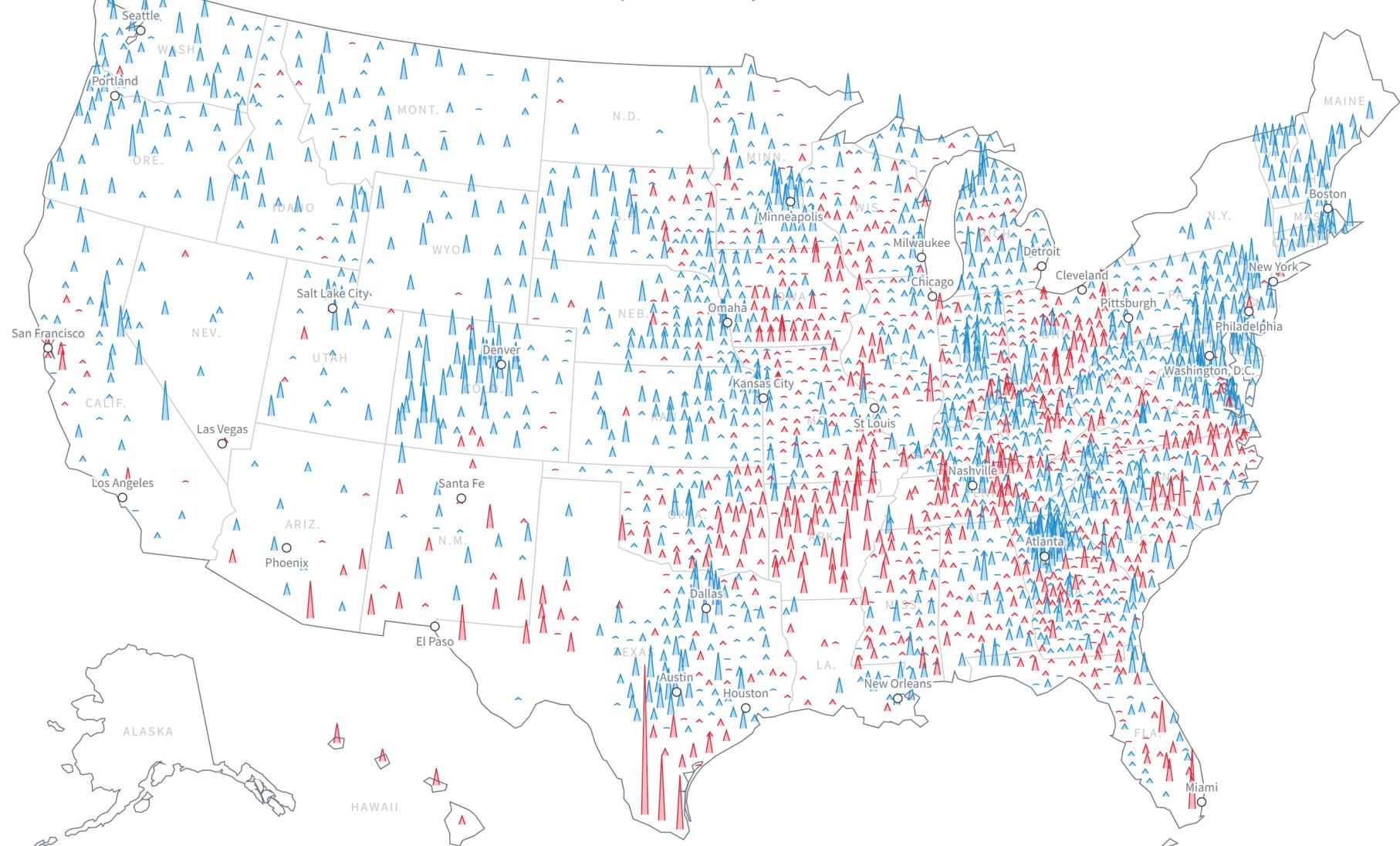
232 Donald Trump



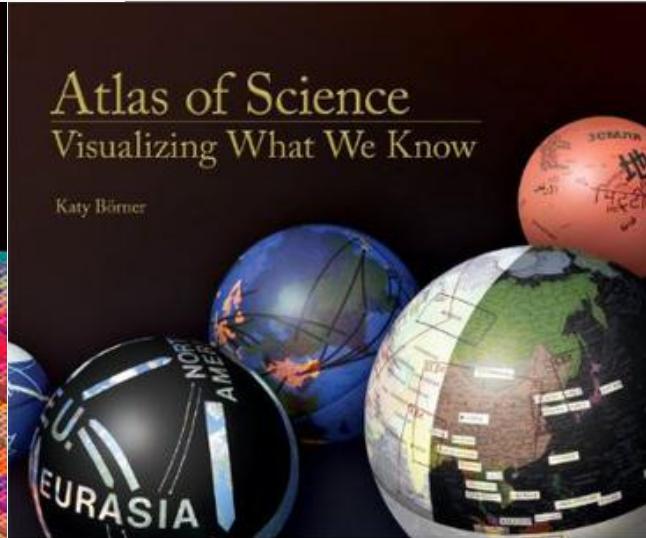
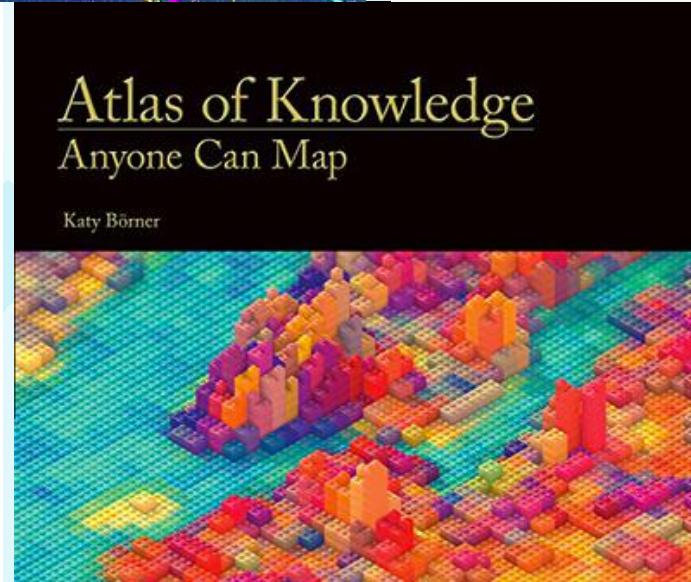
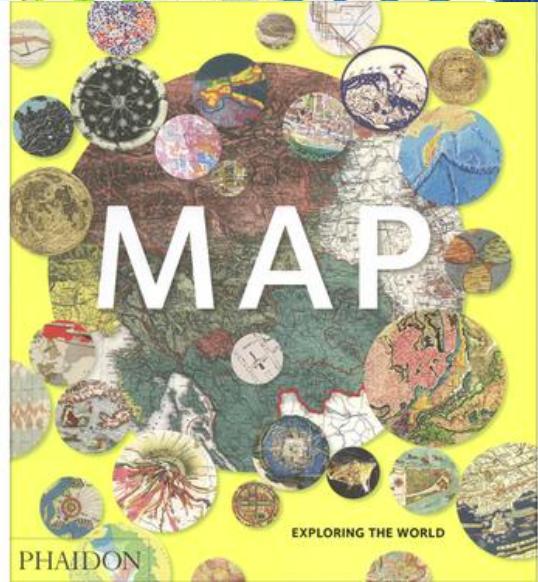
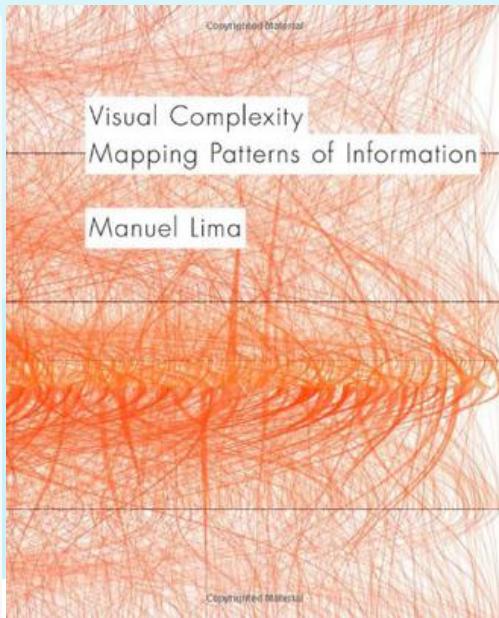
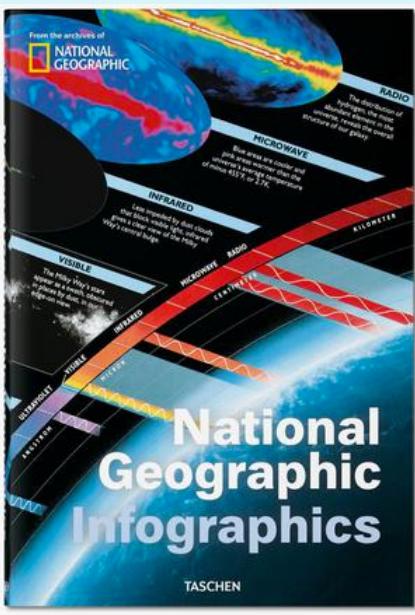
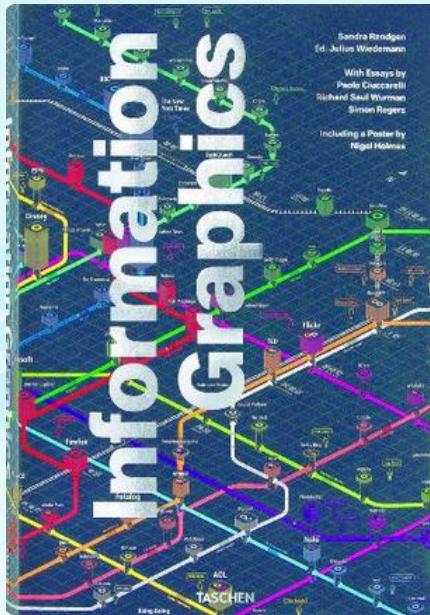
Change from 2016 by county

Where at least 95% of expected votes have been counted

Voted more Democratic Voted more Republican



Books



Website



<http://www.informationisbeautiful.net/>

<https://github.com/d3/d3/wiki/Gallery>

<https://www.mapbox.com/gallery/>

<https://www.mapbox.com/map-design/>

<https://carto.com/gallery/>

<https://uber.github.io/react-map-gl/>

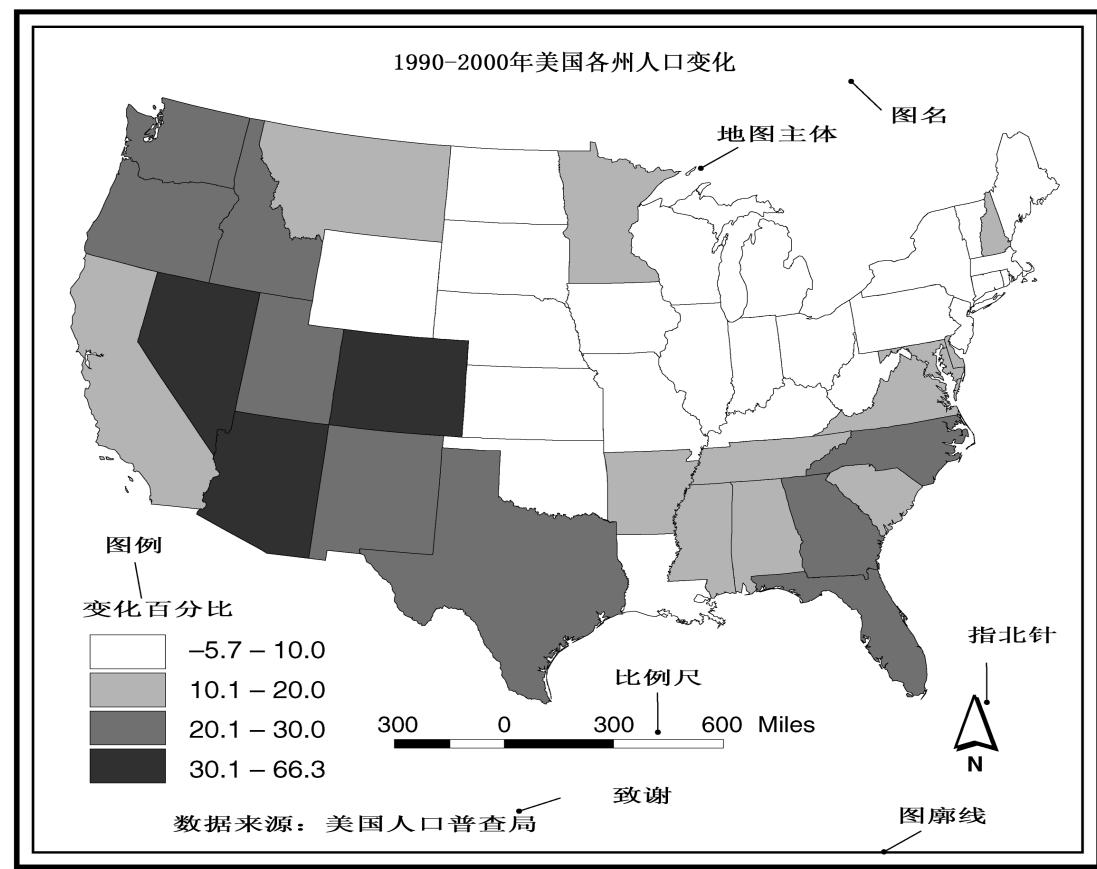
<http://datavizproject.com/>



从数据可视化到地图设计



- 普通的地图元素包括图名、地图主体、图例、指北针、比例尺、文字说明和图廓。
- 其他元素包括格子线或格网、地图投影名称、插图或位置图，以及数据质量信息。

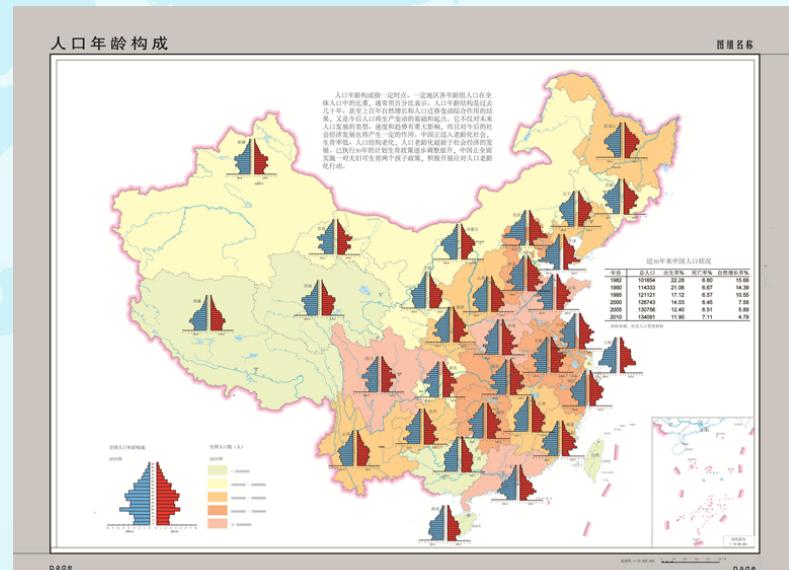
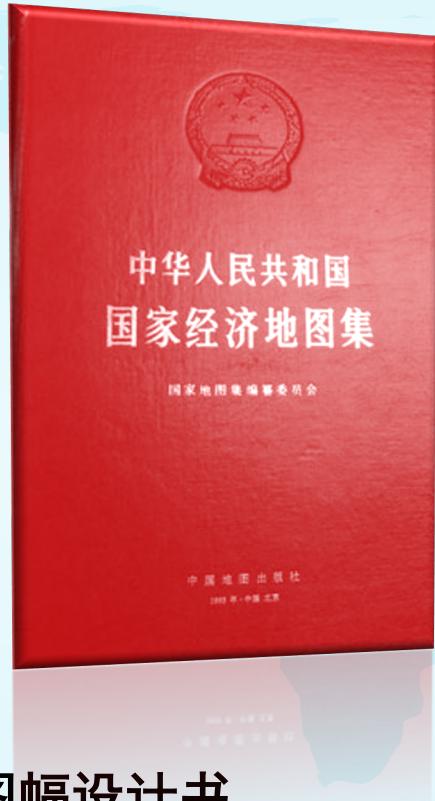


■ 地图学涉及制作和研究地图的所有方面。

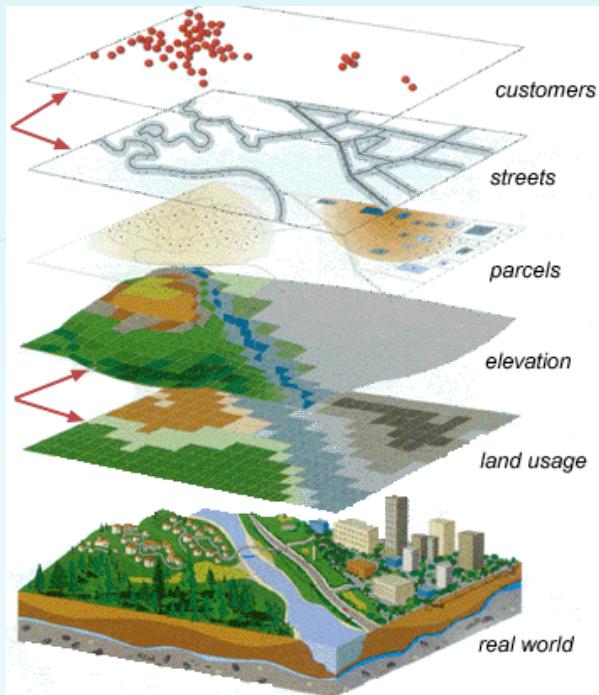
■ 地图制图学家把地图分为普通地图或专题地图，定性的地图或定量的地图。

地图(集)的设计与生产

- ❖ 内容的选取和图组设计
- ❖ 幅面和分幅的设计
- ❖ 比例尺的设计
- ❖ 图幅编排次序设计
- ❖ 图面配置设计
- ❖ 表达方法设计
- ❖ 地图投影设计
- ❖ 图式图例设计
- ❖ 地图整饰设计
- ❖ 装帧设计等
- ❖ 图组专题设计书和图幅设计书
- ❖ 图组设计



空间要素与地图符号



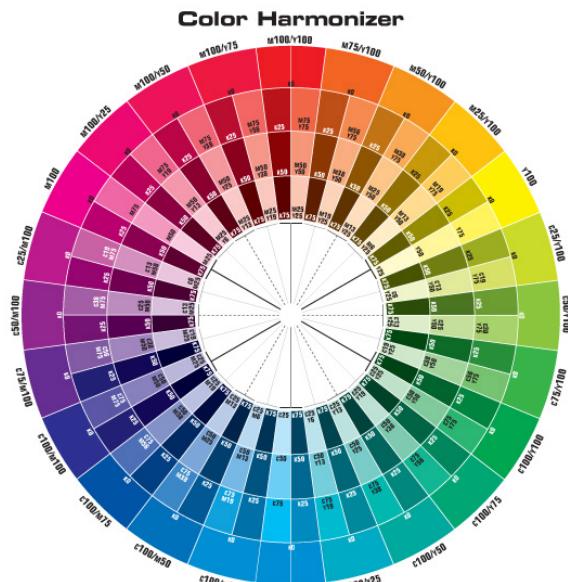
		□	大小
		■	明度
红1 1	■	■	彩度
红2 2	■	■	纹理
	□	○	形状
	■	■	色调
红	■	■	图案

色彩的运用



- **色调**是一种色彩与另一种色彩区别的性质；
 - **明度**是一种色彩的亮度或暗度；
 - **彩度**又称为饱和度或强度。

<http://colorbrewer2.org/>



FIND PLEASING COLOR COMBINATIONS

- Find PLEASING COLOR COMBINATIONS**

 - 1) Choose two colors within two or three sectors. (Make sure colors have enough contrast to avoid blending with each other!) (e.g. $c100$ & $t100/m100$)

 - 2) Choose two colors opposite of each other on the circle. These are the color's opposing hues. (e.g. $m100$ & $t100/100$)

 - 3) Choose a color's related hue by moving either six spaces clockwise or six spaces anti-clockwise. (e.g. $c50/m100$ & $c100$)

 - 4) Choose a 3-color combination: Start on any color and move around the circle, landing on every sixth color.

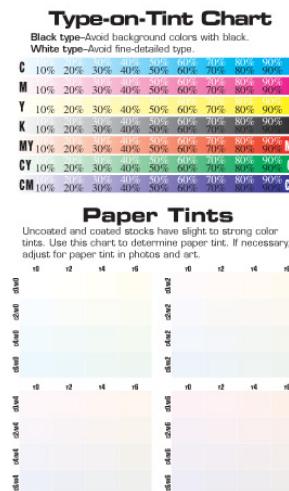
 - 5) Choose a four-color combination: Start on any color and move around the circle, landing on every sixth color. (e.g. $m100/y100$, $c50/t100$, $c100$ & $c50/m100$)

 - 6) Using prior methods, move toward center of circle, making colors *darker* by adding black. (e.g. $c100/100/25$ & $m100/100/25$)

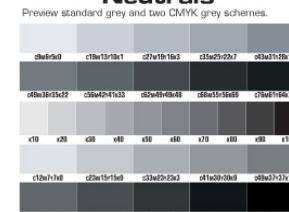
 - 7) Using prior methods, move toward center of circle, making colors *lighter*. (e.g. $c50$ & $c50/25$)

 - 8) When using any of these methods choose one color as *primary*, and other color(s) as *secondary or accent*.

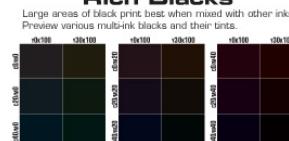
Galaxy Press Ranger Control Code: 66BCM-1004
©2007 Scientific Illustration Services Corp.



Neutrals



Bioh Blocks



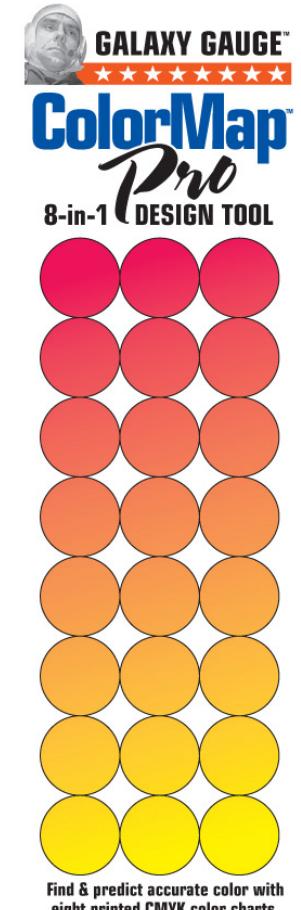
Color Directory

When choosing colors, dark colors are typically serious, light colors fun. Blues and greens are cool and calming; reds and yellows are bright and invigorating.

Am
Ap
Aq
Az
Ba
Blu
Blu
Blu
Blu
Br
Ca
Ca

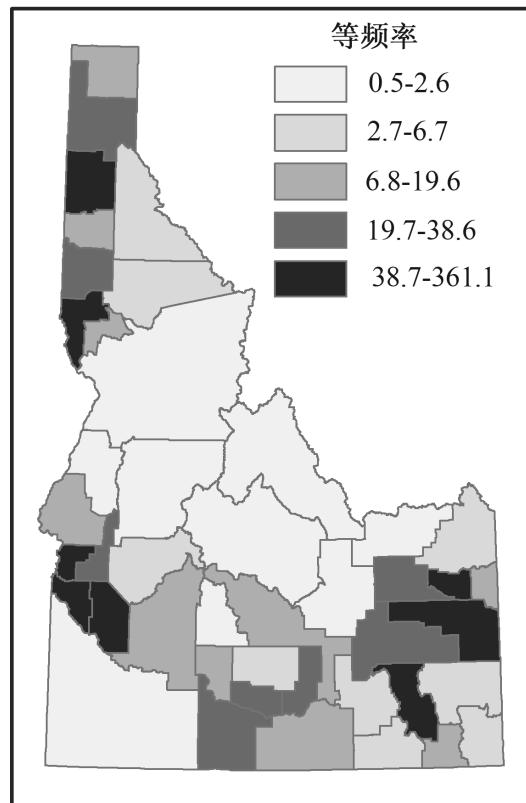
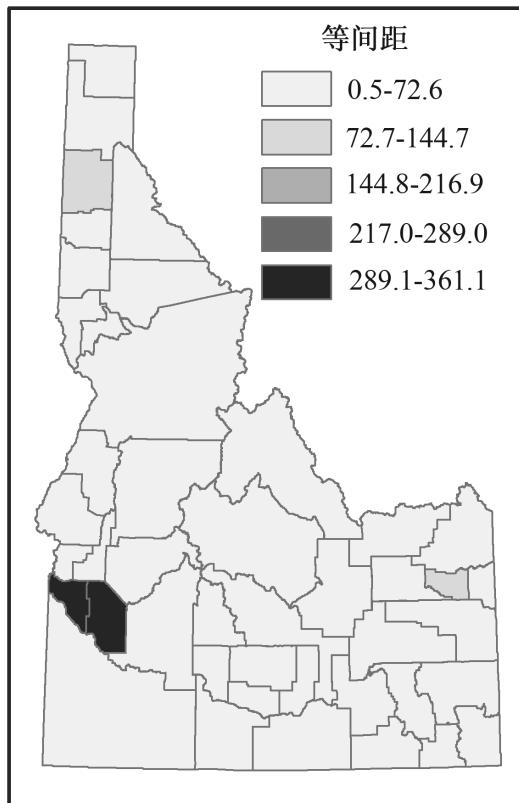
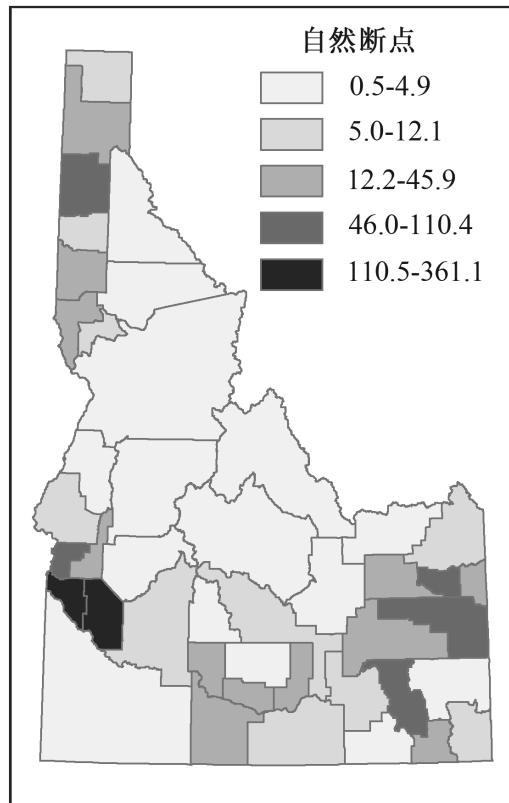
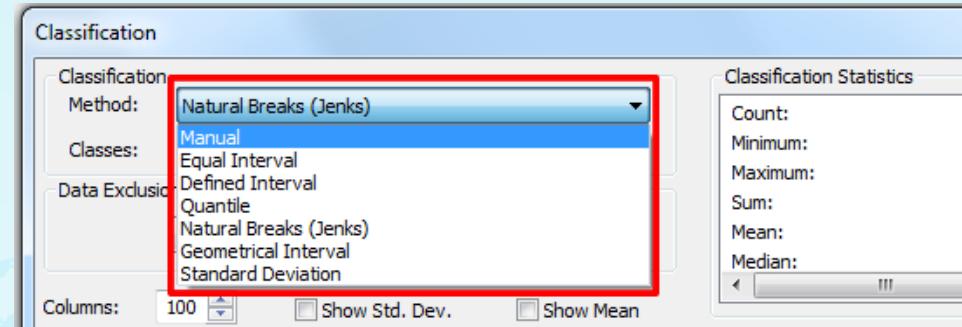
Paper Tints

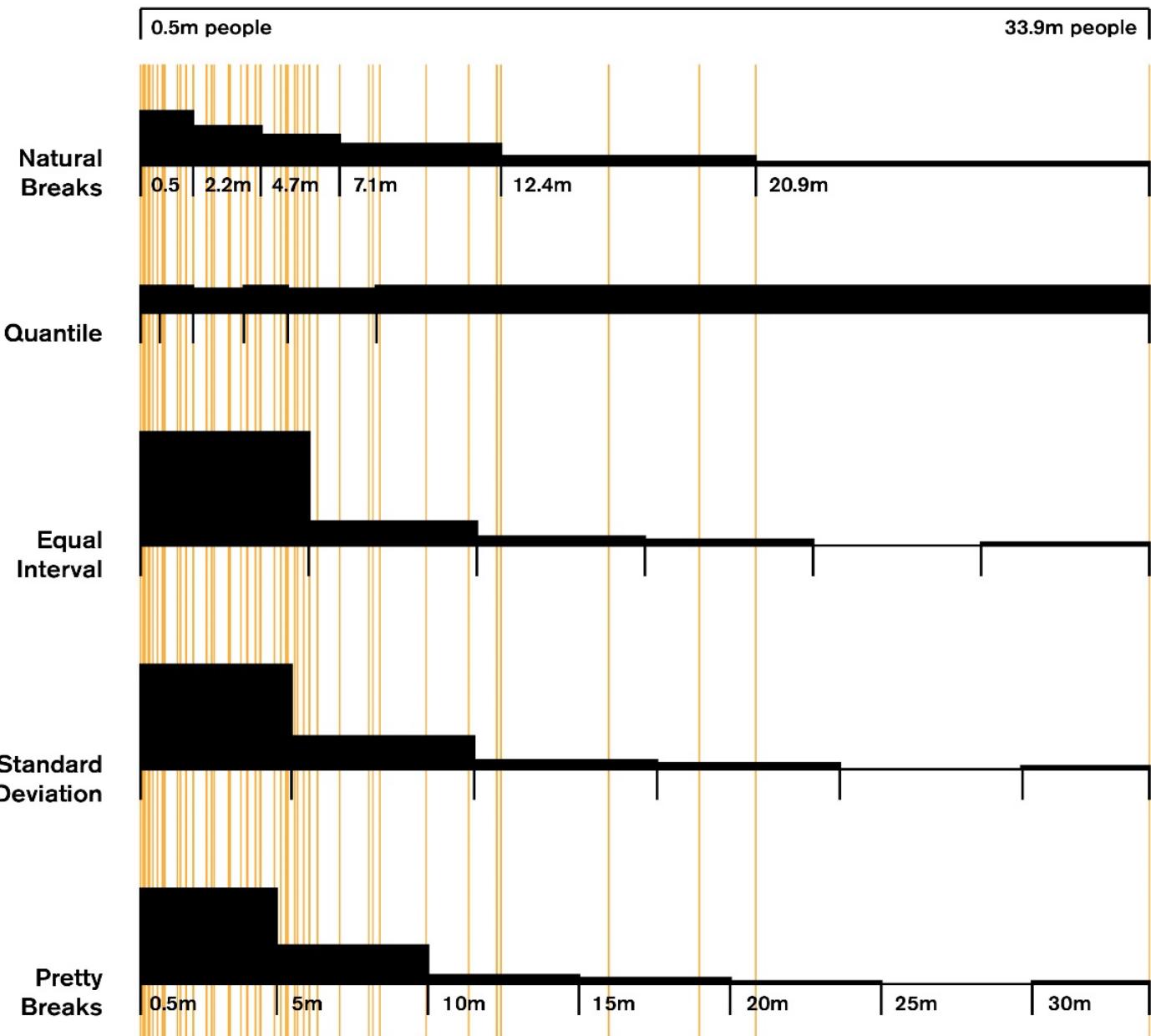
Uncoated and coated stocks have slight to strong color hints. Use this chart to determine paper tint. If necessary, adjust for paper tint in photos and art.



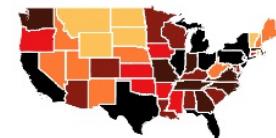
数据的分类

6种常用的分类方法：
等间隔、几何间隔、等频率、
标准离差、自然断点和用户自定义





Population in
US-American states

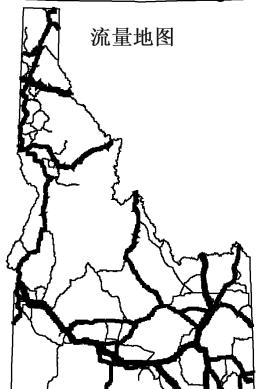
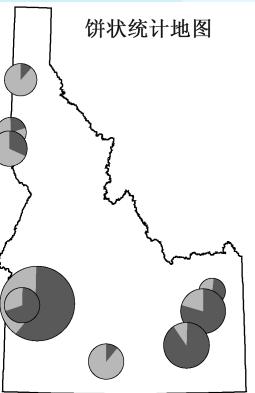
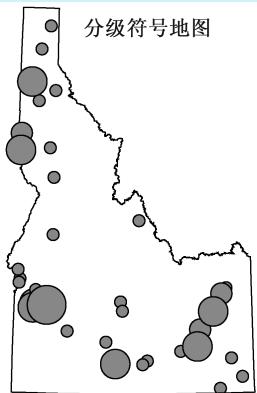
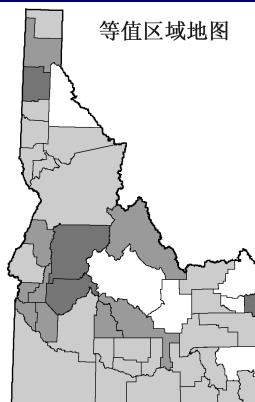
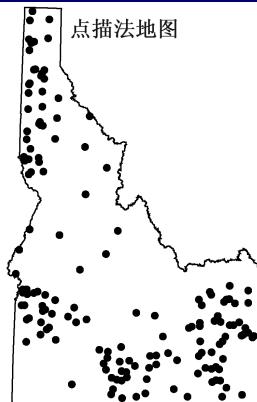


制图综合



定量地图的制作

- ❖ 点描法地图
- ❖ 等值区域地图
- ❖ 分级符号地图
- ❖ 饼状统计地图
- ❖ 流量地图
- ❖ 等值线地图
- ❖



地图的注记



- ❖ 几乎每一种地图要素都需要有注记。制图者把文字当作一种地图符号，因为与点状、线状、面状符号一样，文字也有多种变化类型。

Helvetica Normal

Helvetica Italic

Helvetica Bold

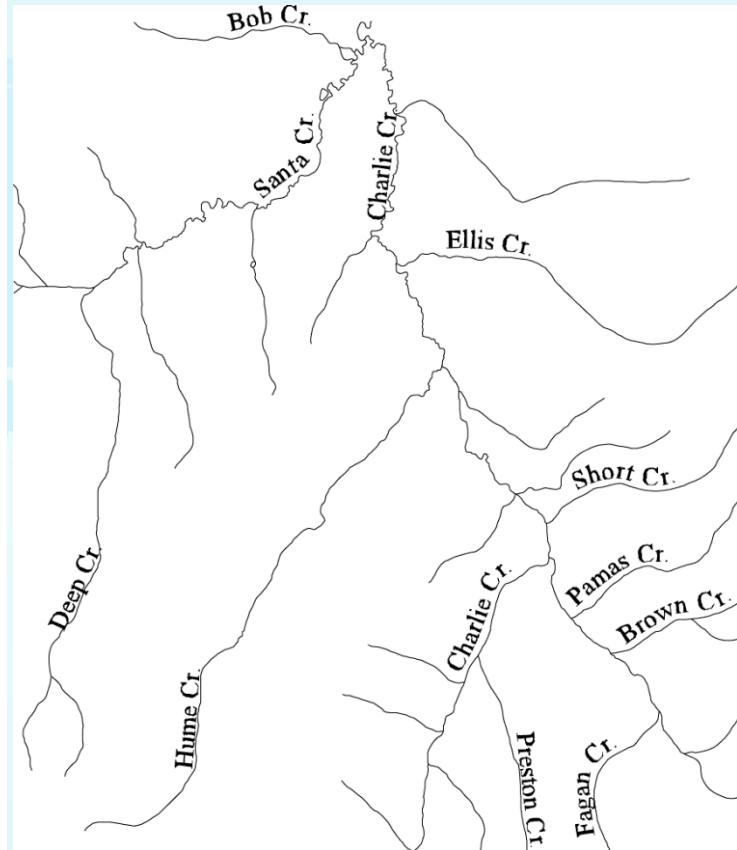
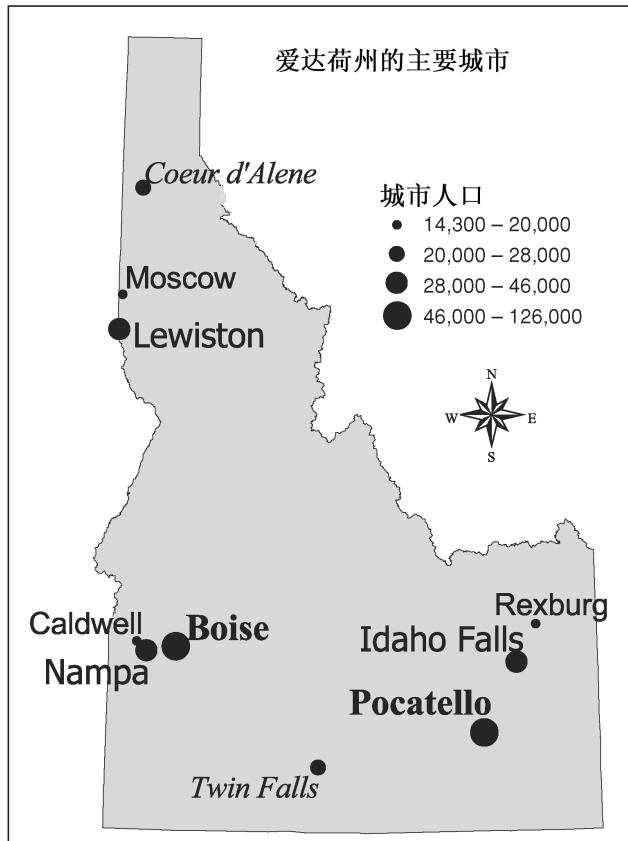
Helvetica Bold-Italic

Times Roman Normal

Times Roman Italic

Times Roman Bold

Times Roman Bold-Italic



地图设计



- 地图设计是一种为达一定目标而进行的视觉设计。

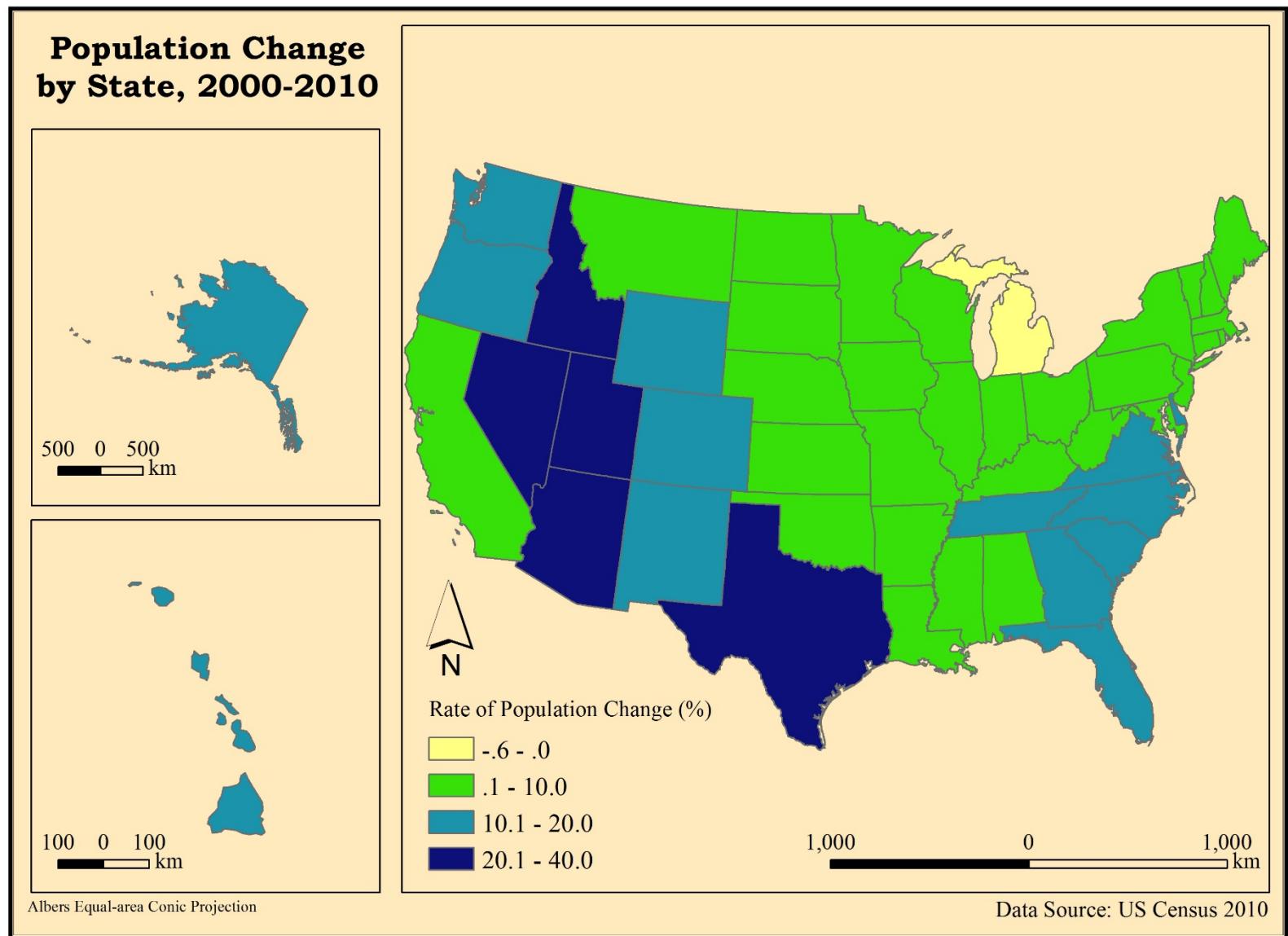
设计良好的地图看起来应该是平衡的、协调的、有序的和悦目的，而设计拙劣的地图则只会令人迷惑和产生误导。

地图设计既是科学，也是艺术。

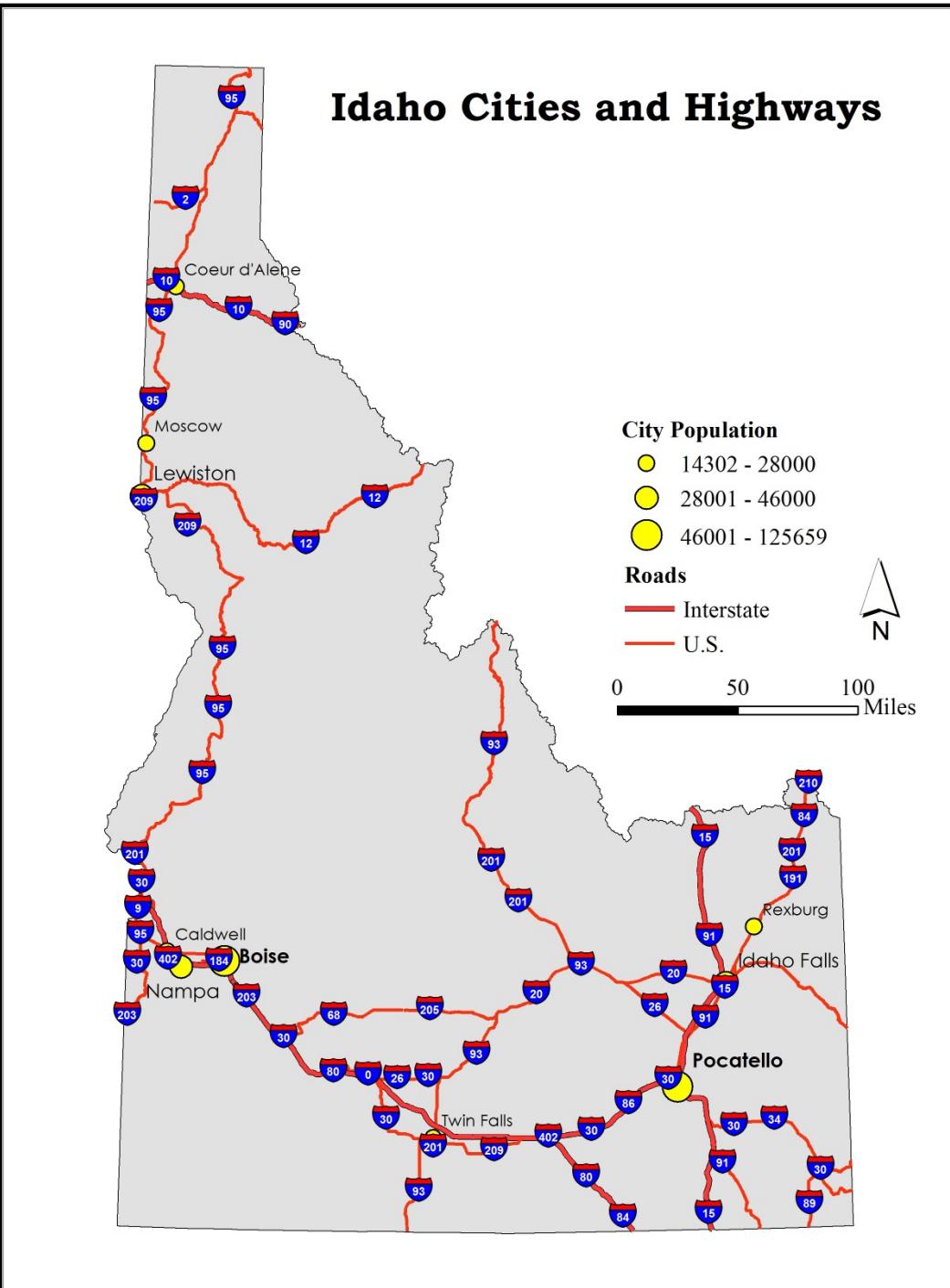
- 制图者通常从**排版**和**视觉层次**的角度来研究地图设计。

- 排版是对地图的不同要素进行排列与组合。排版关注的主要方面包括焦点、顺序和平衡问题。
- 视觉层次（Visual hierarchy）是指将三维效果或深度引入可视平面的开发过程。

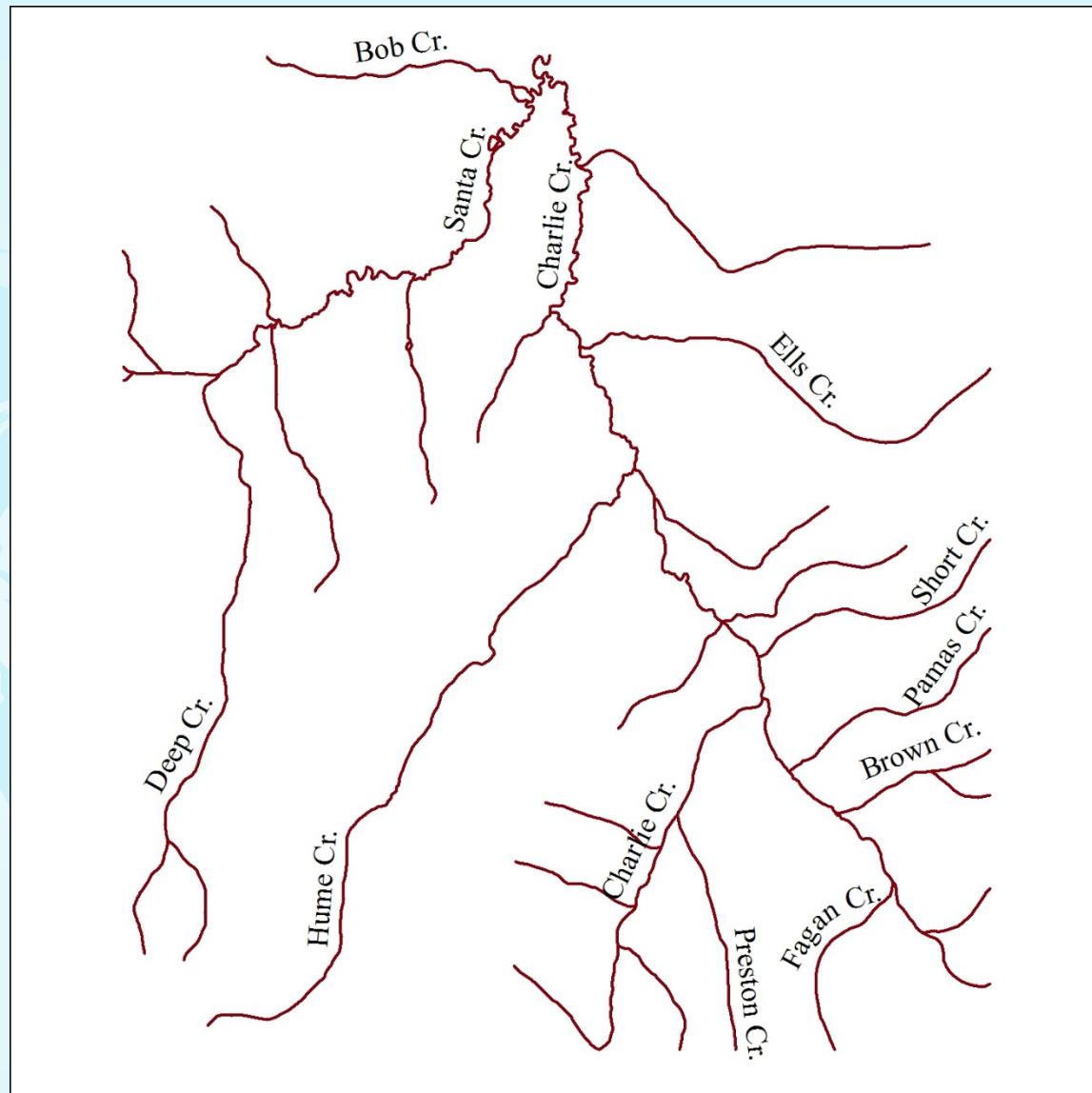
练习1：制作一幅等值区域图



练习2：使 字符号



练习3：河流注记



Thanks !

Q & A



王江浩CAS

<http://jianghao.wang>