

# COMMERCE DATA USABILITY PROJECT

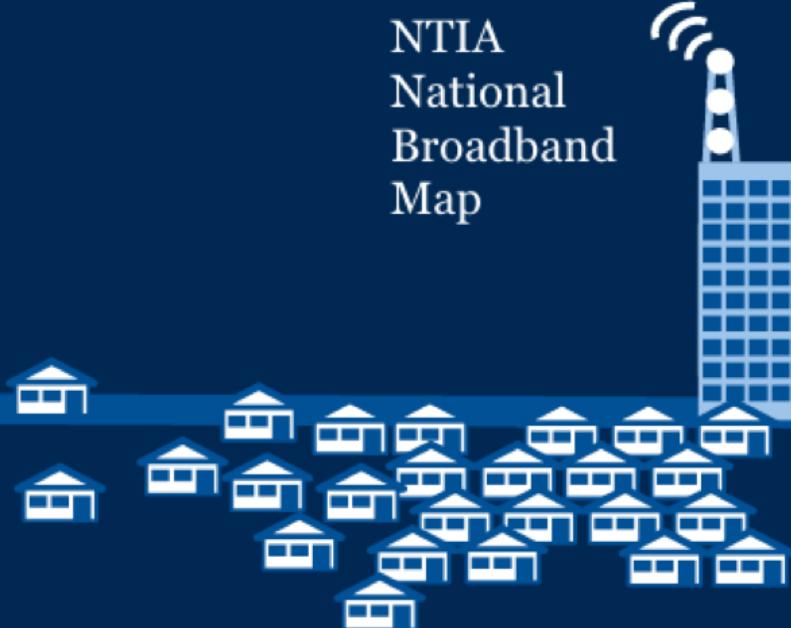
TYRONE GRANDISON / DEPUTY CHIEF DATA OFFICER  
JEFF CHEN / CHIEF DATA SCIENTIST



**Commerce agencies are among the biggest contributors to the open data movement.**



NOAA VIIRS  
Satellite  
Imagery



NTIA  
National  
Broadband  
Map



Census Foreign Trade  
+ ITA Market Reports

NOAA



American  
Housing Survey  
+ American  
Community  
Survey



Severe  
Weather Data  
Inventory



NOAA  
NEXRAD



IP +  
Patents



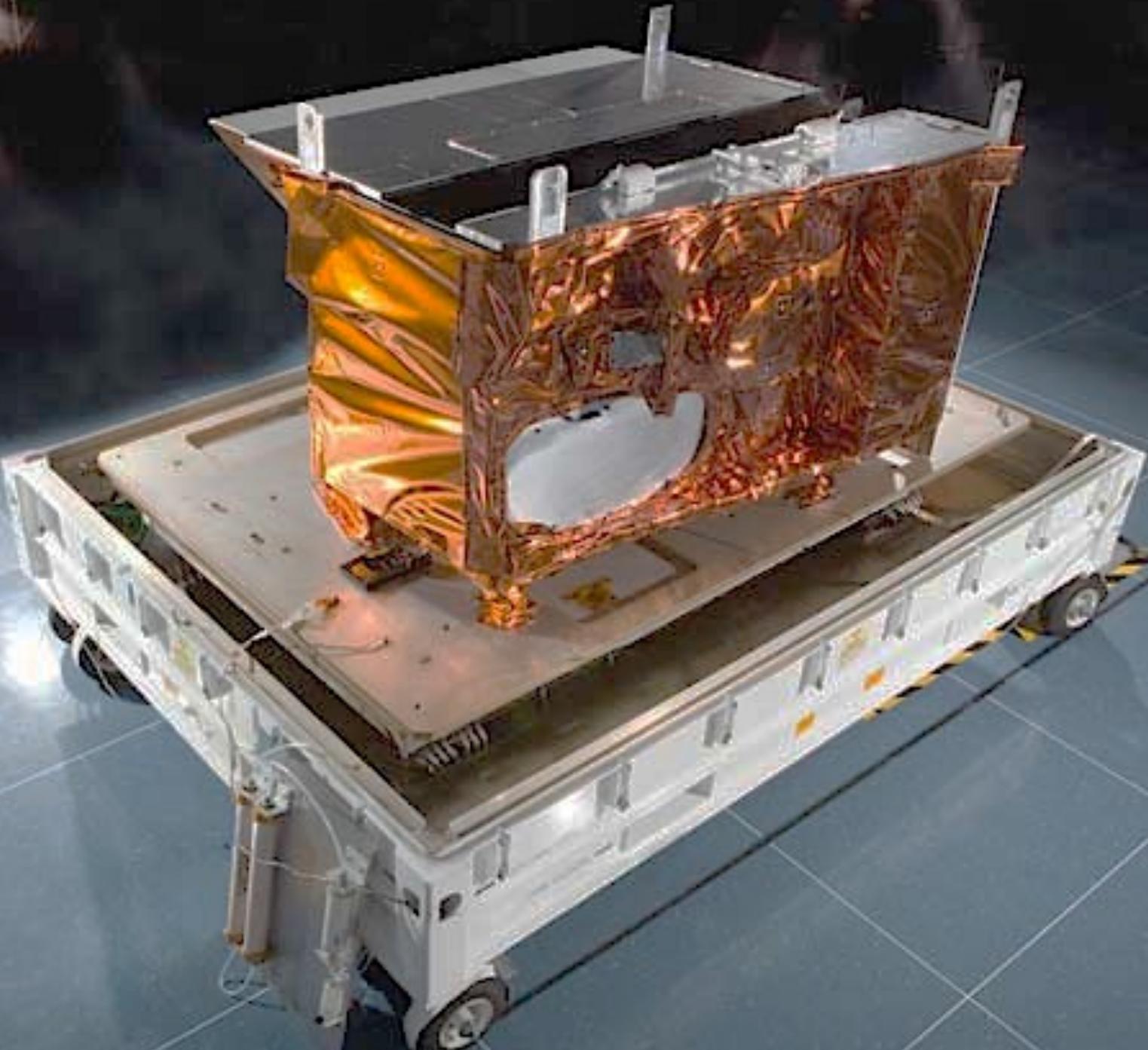
3 25

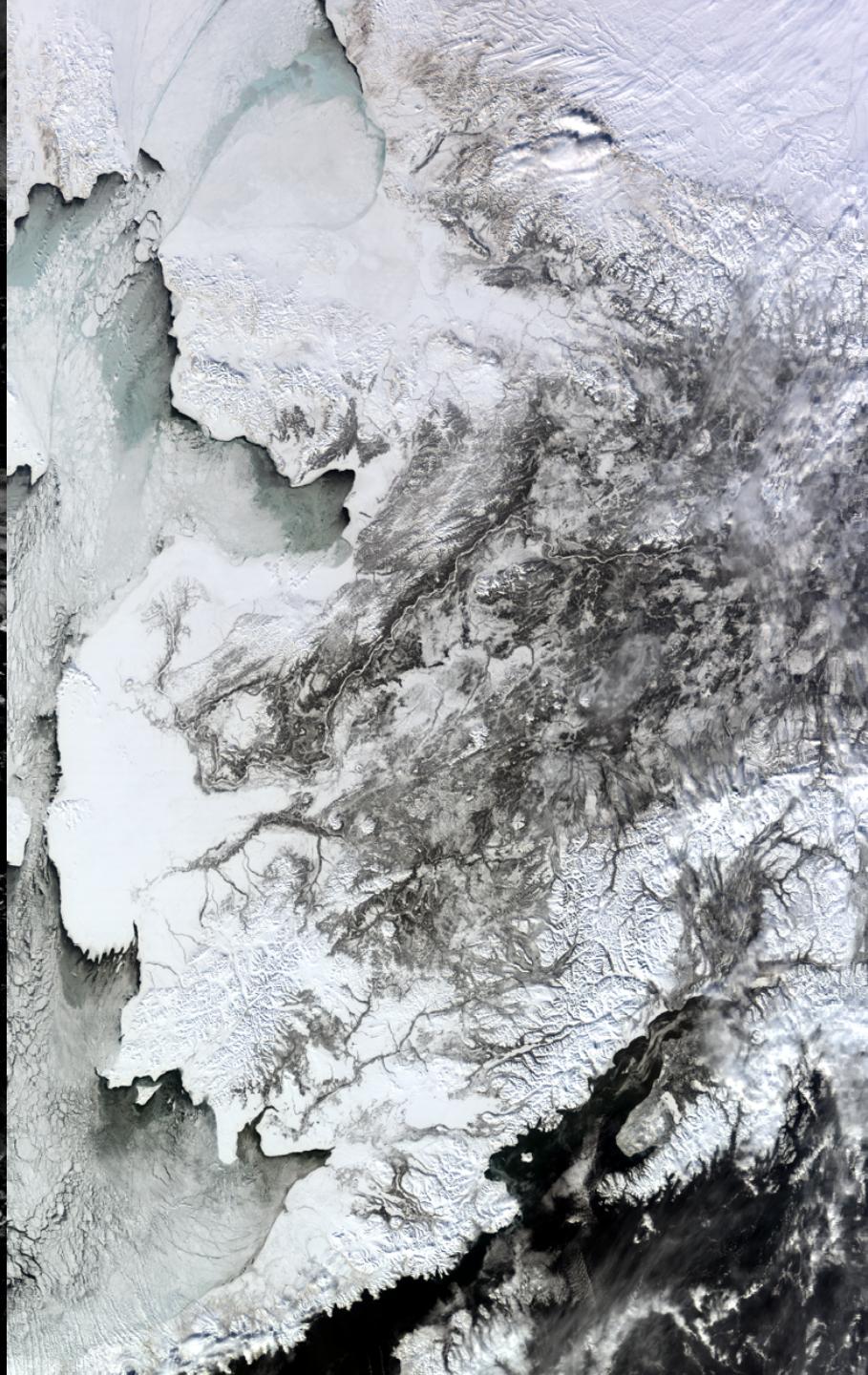
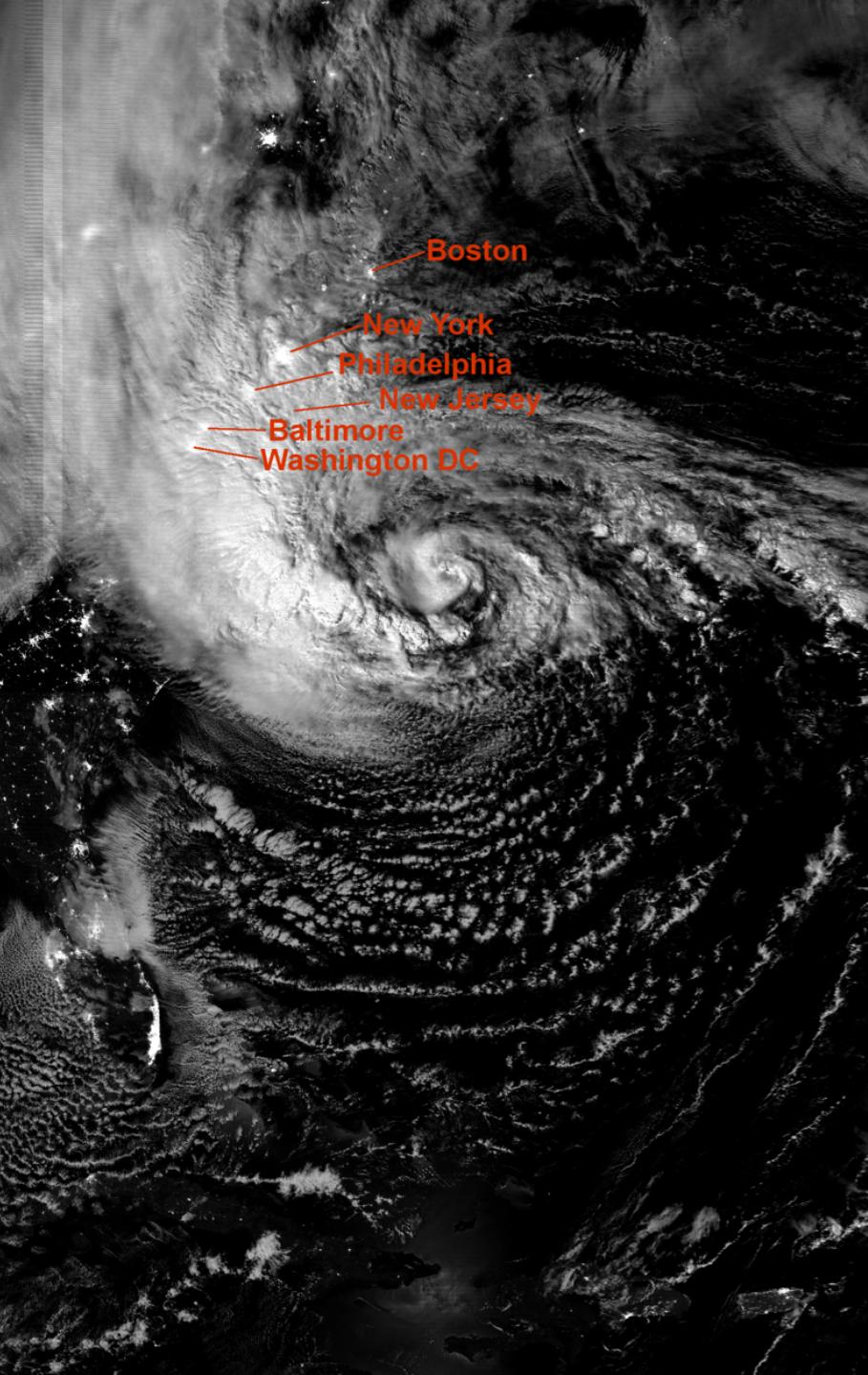


Commodity







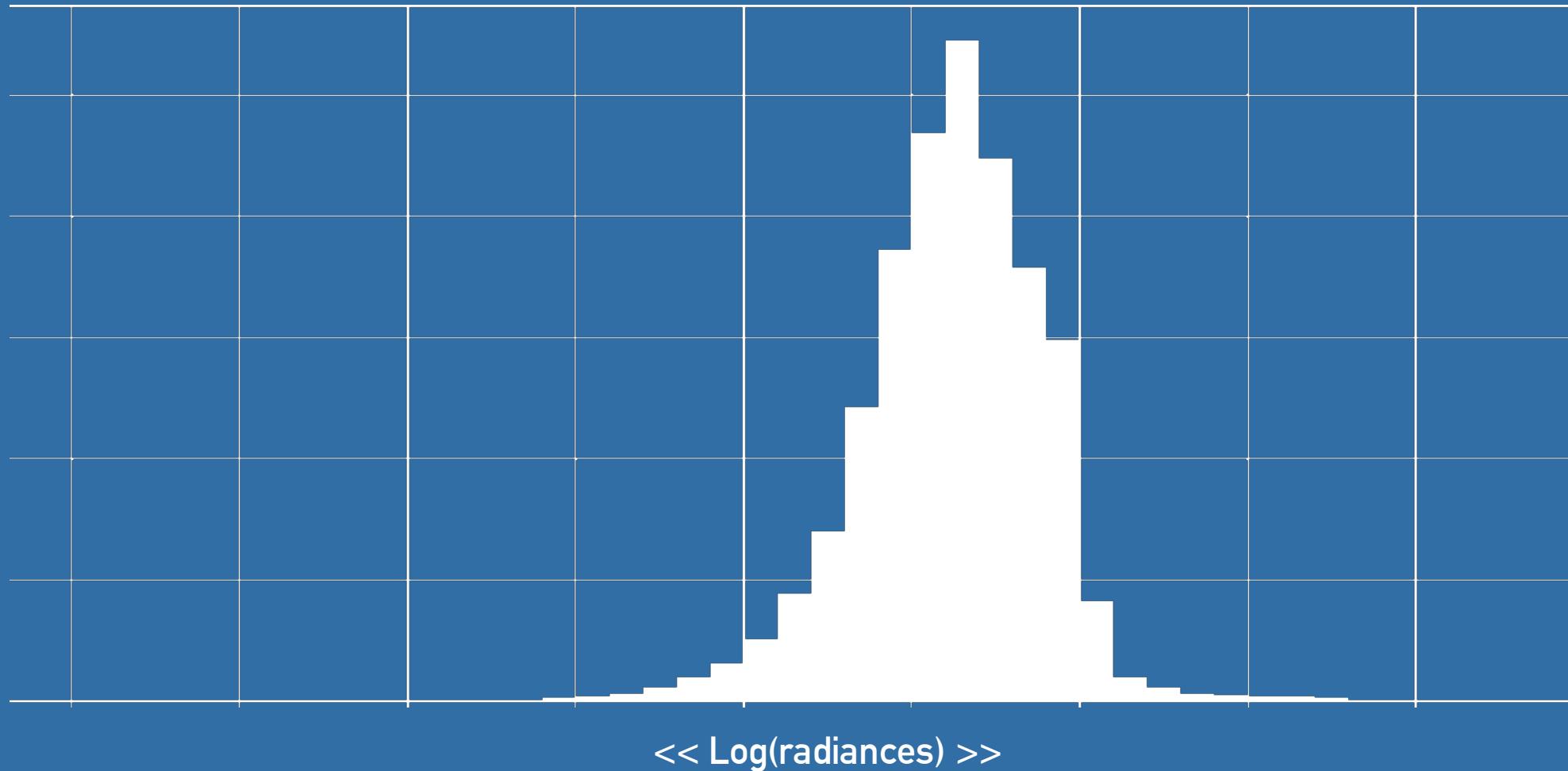




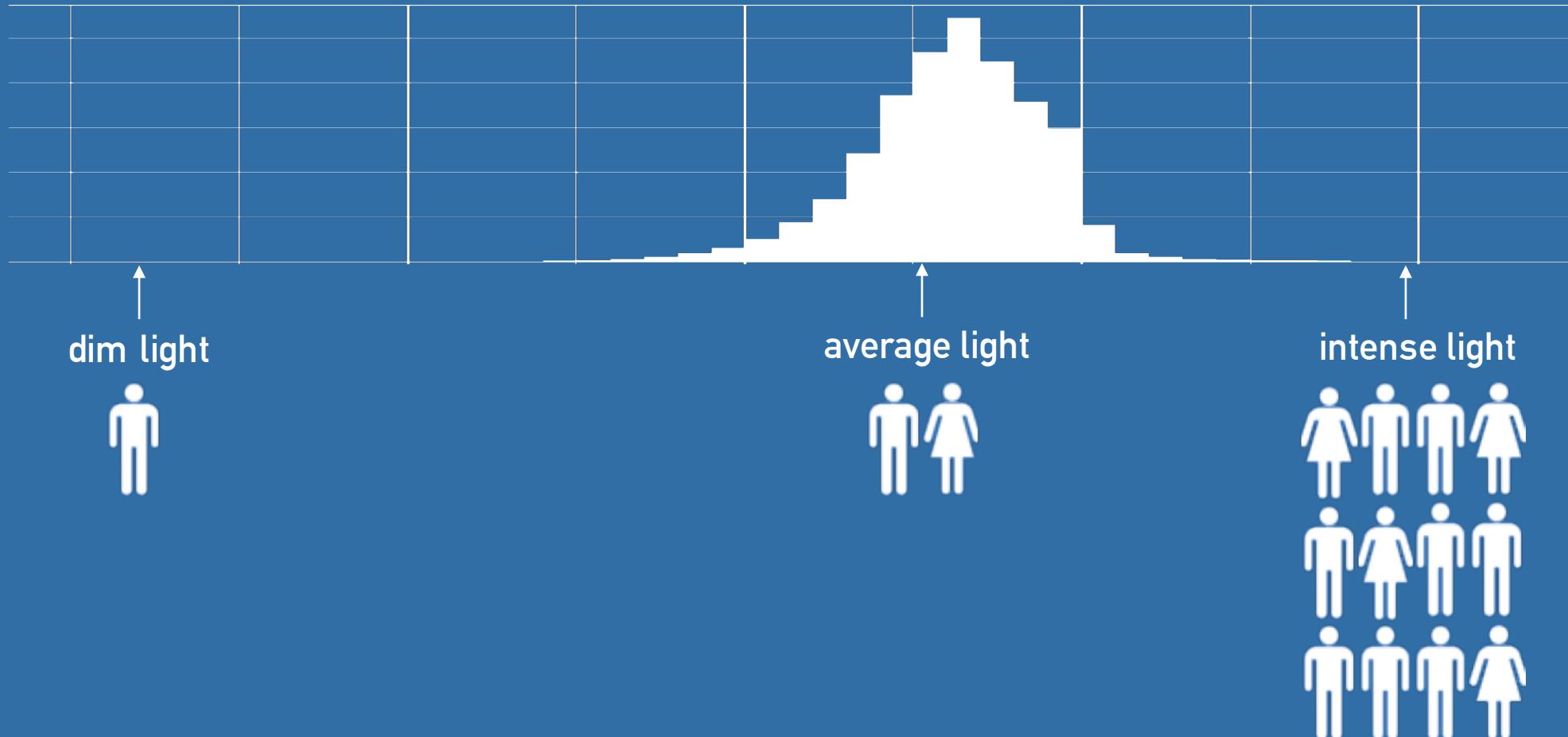




# The US as a histogram



## radiance roughly proxies for people activity



New York



Los Angeles



Chicago



Houston



Philadelphia



Phoenix



San Antonio



San Diego



Dallas



San Jose



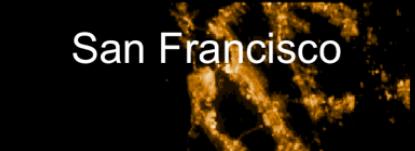
Austin



Jacksonville



San Francisco



Indianapolis



Columbus



Fort Worth



Charlotte



Detroit



El Paso



Seattle



Denver



Washington



Memphis



Boston



Nashville



Baltimore



Oklahoma City



Portland



Las Vegas



Louisville



Milwaukee



Albuquerque



Tucson

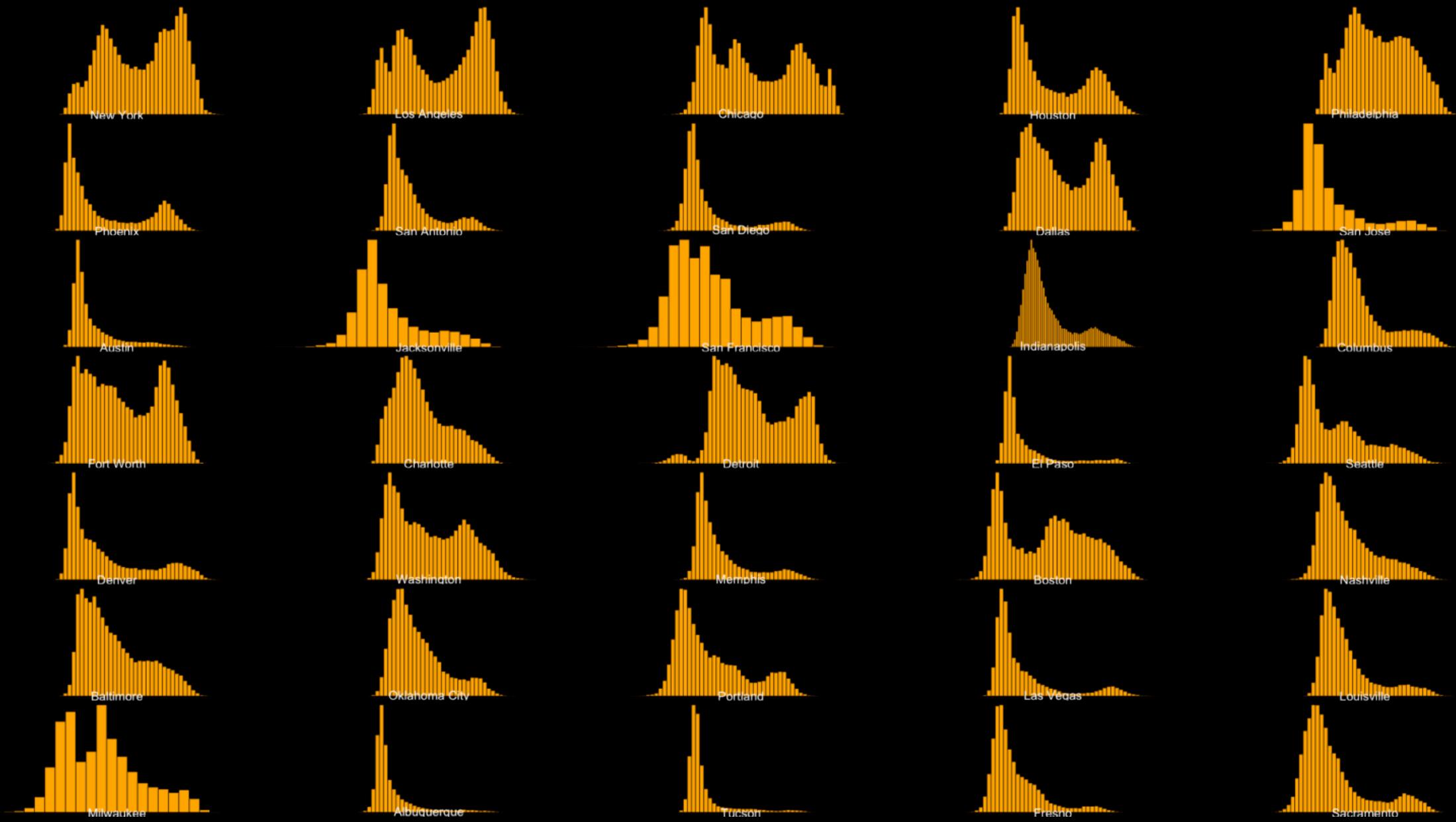


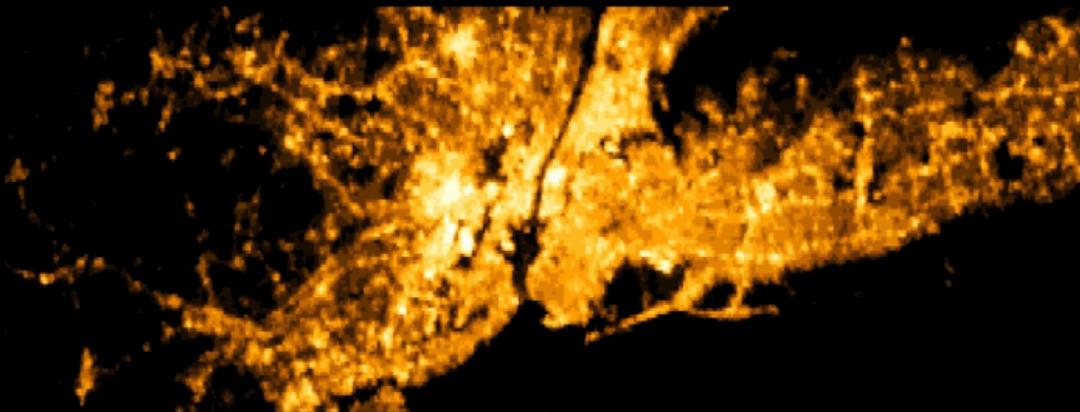
Fresno



Sacramento







New York City



Las Vegas



$Y(Indicator_i)$



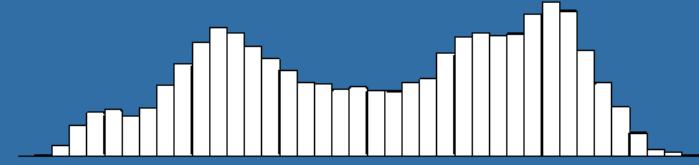
⋮



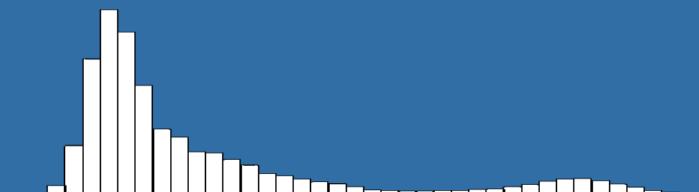
⋮



$X(Radiance_{i,j} \dots Radiance_{i,n})$



⋮



**The Night Light Development Index (NLDI): a spatially explicit measure of human development from satellite data**

C. D. Elvidge<sup>1</sup>, K. E. Baugh<sup>2</sup>, S. J. Anderson<sup>2,3</sup>, P. C. Sutton<sup>3</sup>, and T. Ghosh<sup>2</sup>

**Estimation of Gross Domestic Product at Sub-National Scales using Nighttime Satellite Imagery**

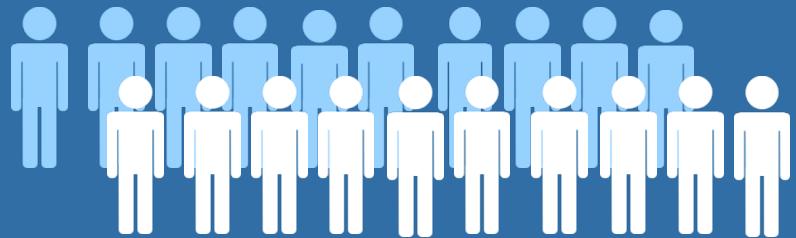
Paul C. Sutton<sup>1</sup>, Christopher D. Elvidge<sup>2</sup> and Tilottama Ghosh<sup>3</sup>

**Methods for Global Survey of Natural Gas Flaring from Visible Infrared Imaging Radiometer Suite Data**

Christopher D. Elvidge <sup>1,\*</sup>, Mikhail Zhizhin <sup>2,3</sup>, Kimberly Baugh <sup>2</sup>, Feng-Chi Hsu <sup>2</sup> and Tilottama Ghosh <sup>2</sup>

**Automatic Boat Identification System for VIIRS Low Light Imaging Data**

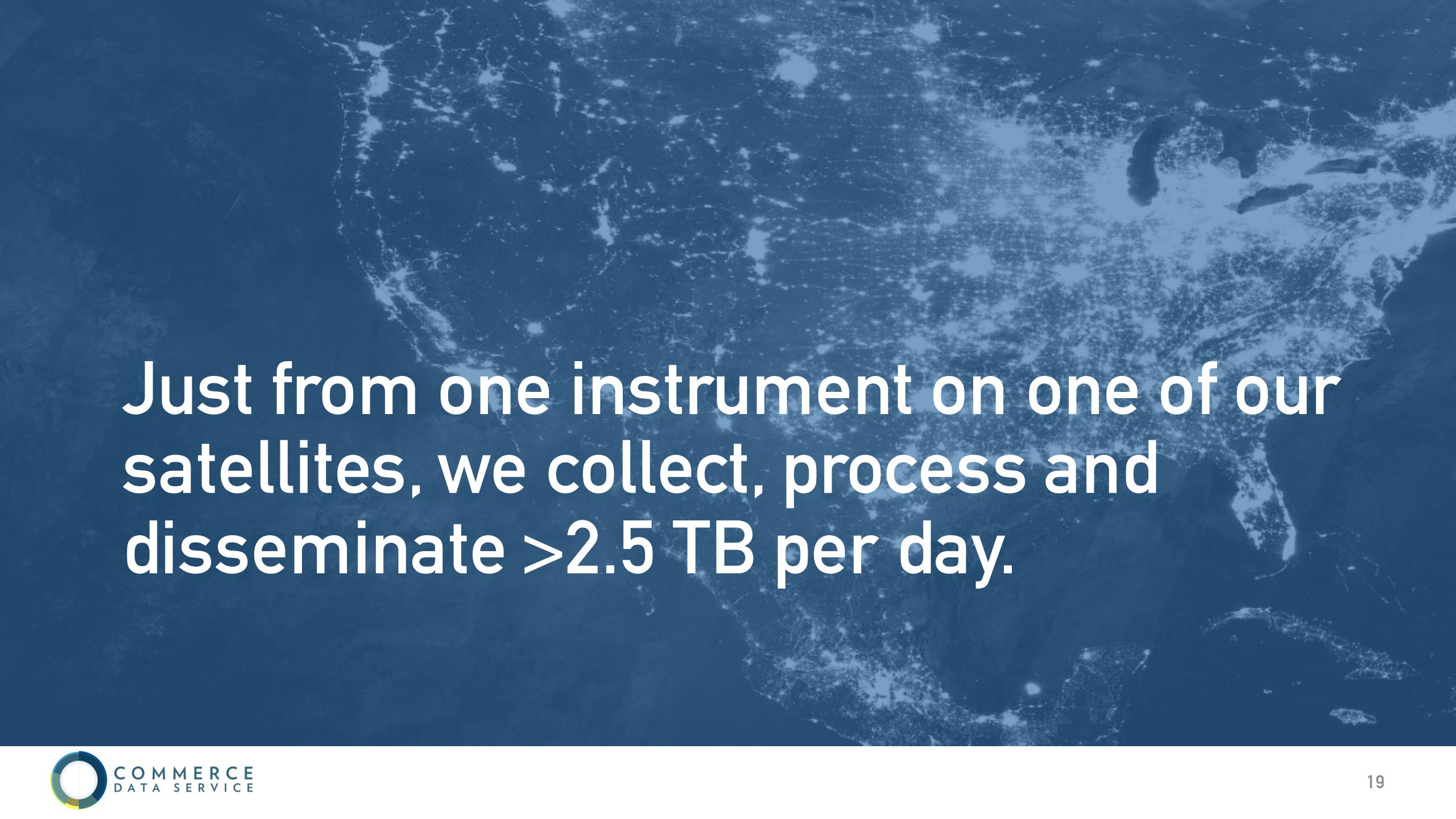
Christopher D. Elvidge <sup>1,\*</sup>, Mikhail Zhizhin <sup>2</sup>, Kimberly Baugh <sup>2</sup> and Feng-Chi Hsu <sup>2</sup>



population

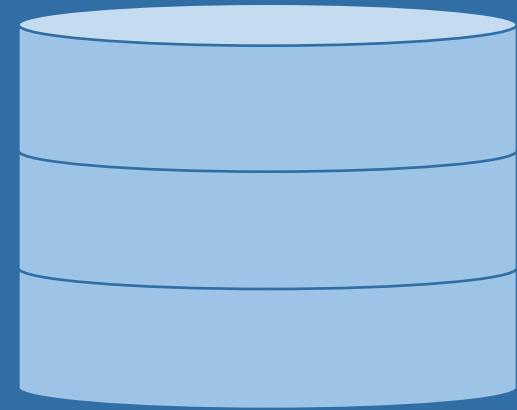


gas flares



Just from one instrument on one of our satellites, we collect, process and disseminate >2.5 TB per day.

But what can you do with that information? What can we do to encourage data use and data-drivenness?



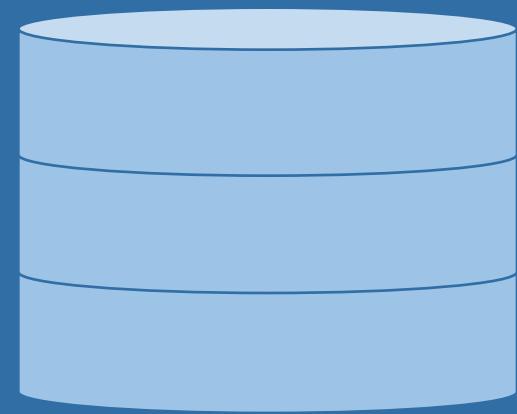
code

visuals

context

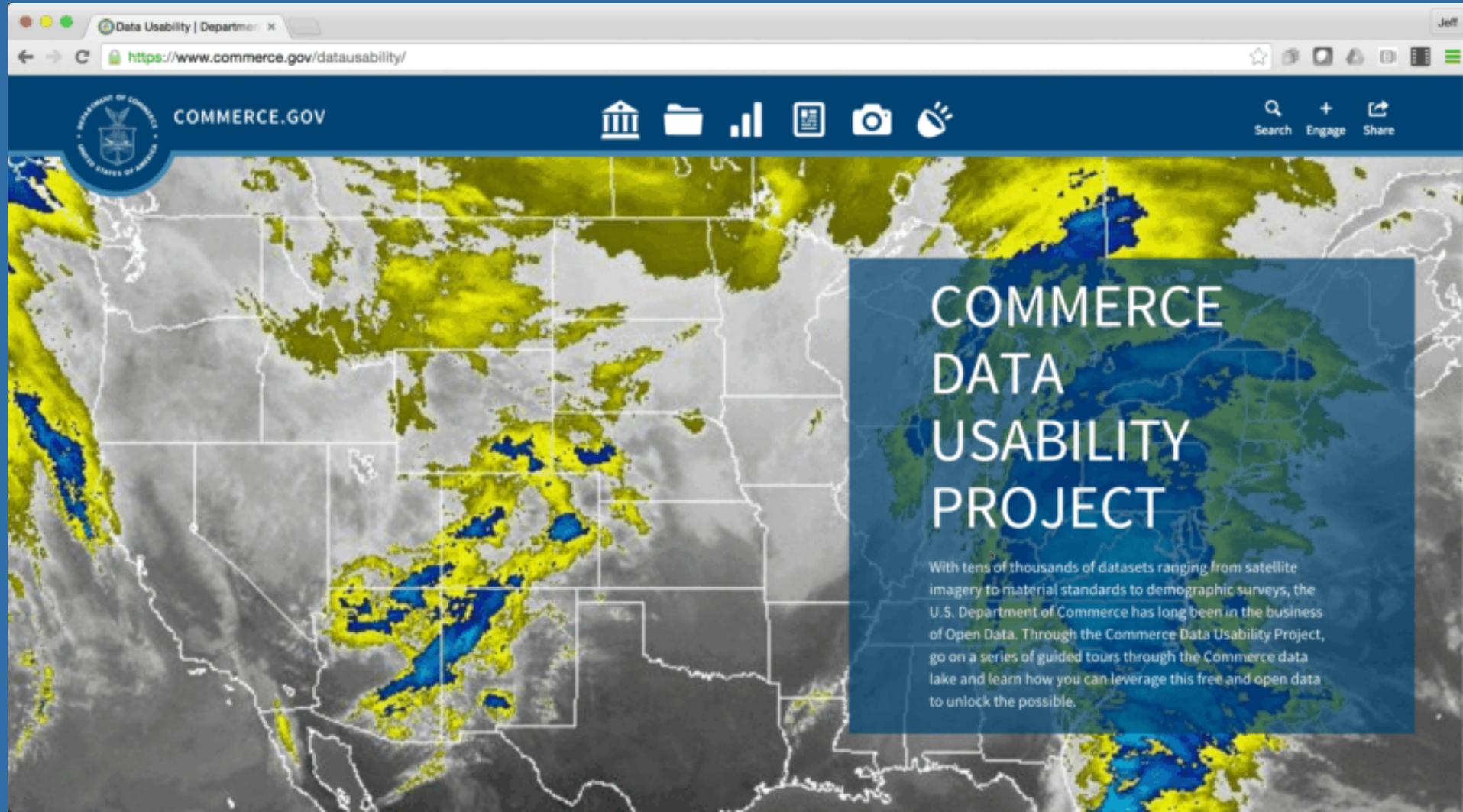
research questions

narrative

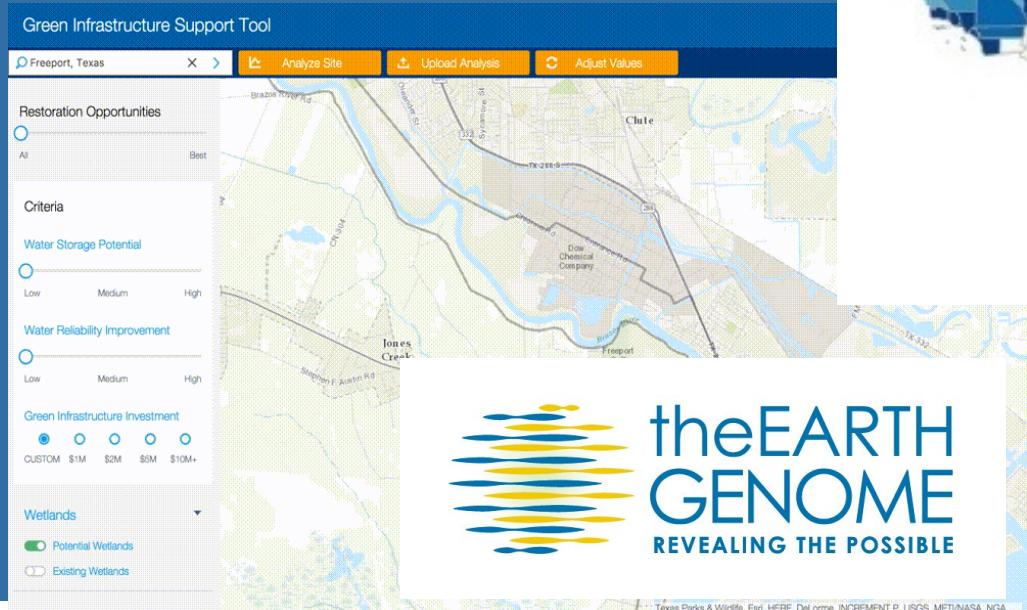
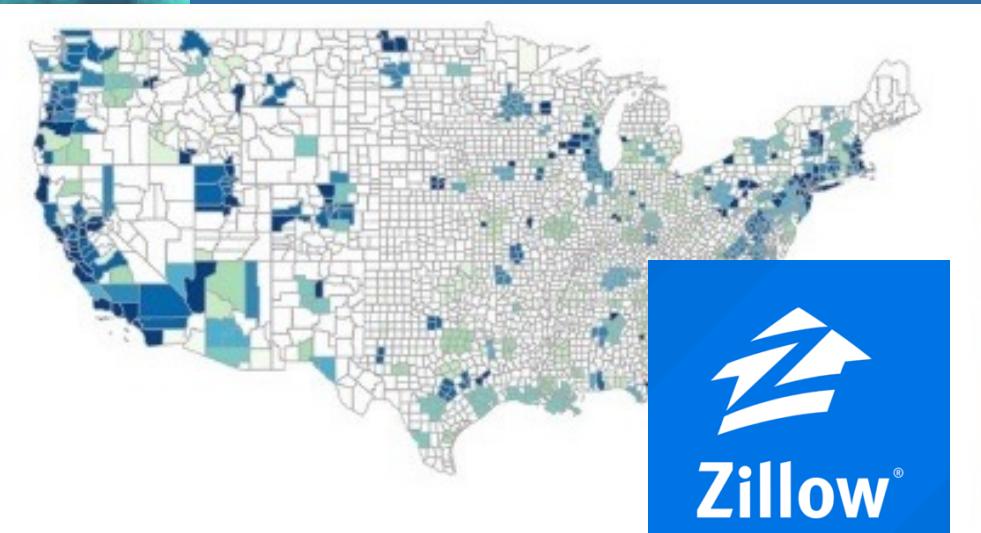


algorithms

“show the thing”



[commerce.gov/datausability](https://www.commerce.gov/datausability)



# DEMOS

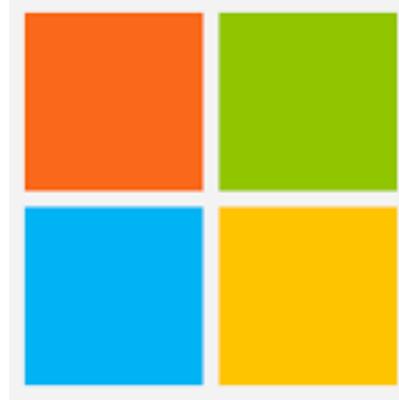
# Tutorials

[Earth Genome: Digital Elevation Model Data](#)

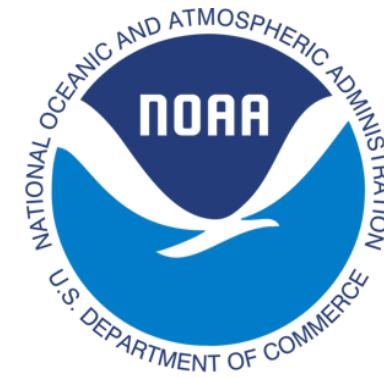
[US Census: American Community Survey](#)

[NOAA: Night Time Lights for Demography](#)

[Zillow: Housing Affordability](#)



NIST

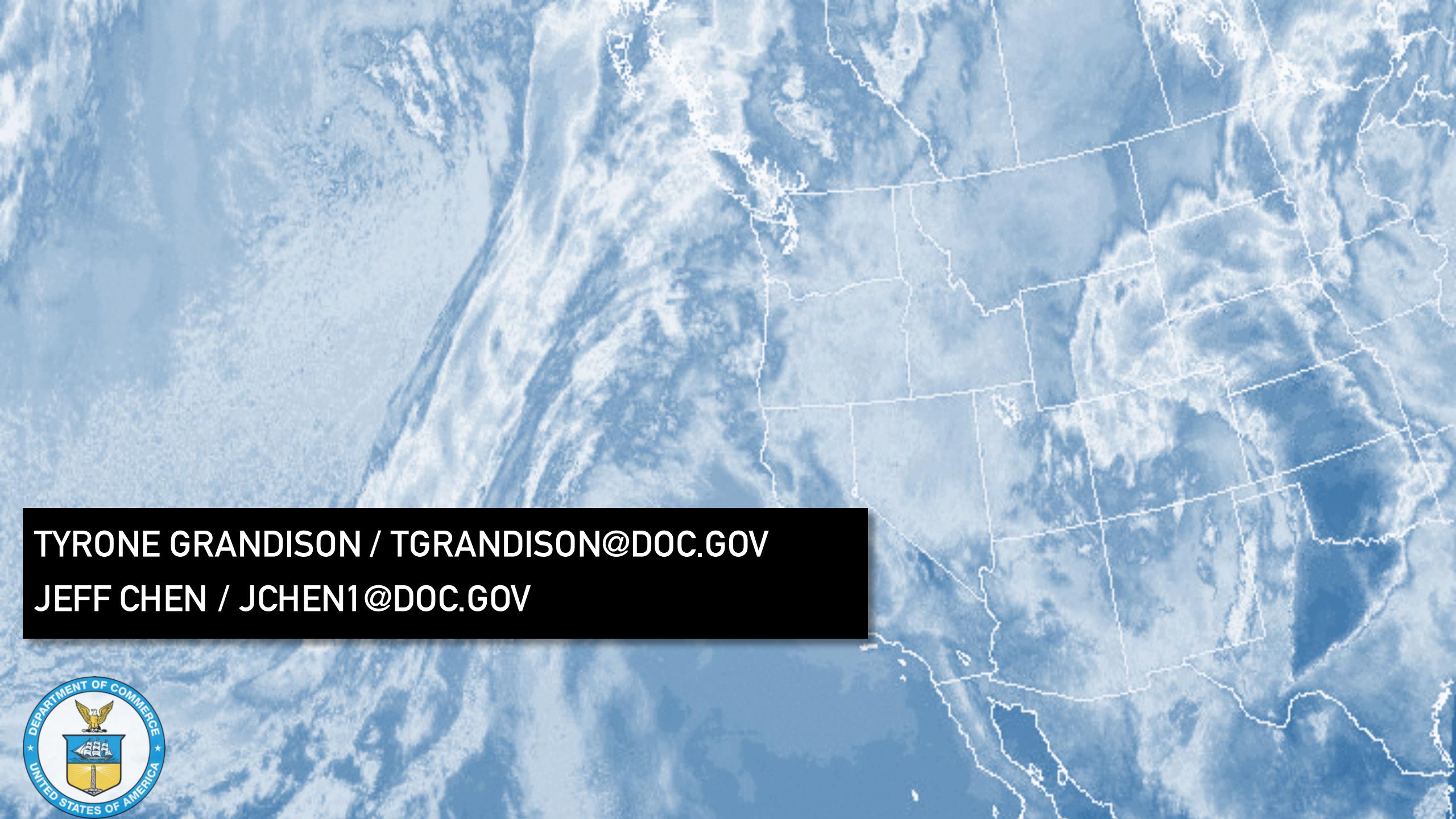


Mapbox

Zillow®

COLUMBIA UNIVERSITY  
IN THE CITY OF NEW YORK

8 published  
12 + tutorials in the pipeline



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**JEFF CHEN / JCHEN1@DOC.GOV**

