POWER OF STORY

Compelling Data + Story + Telling

*Every **presenter** has the potential to be great; every **presentation** is high stakes; and every **audience** deserves the absolute best.*

PIC.gov
Performance
Improvement
Council

Engage Thru Story

PIC.gov
Performance Improvement Council

Earth System Science

Land

Ocean

Atmosphere

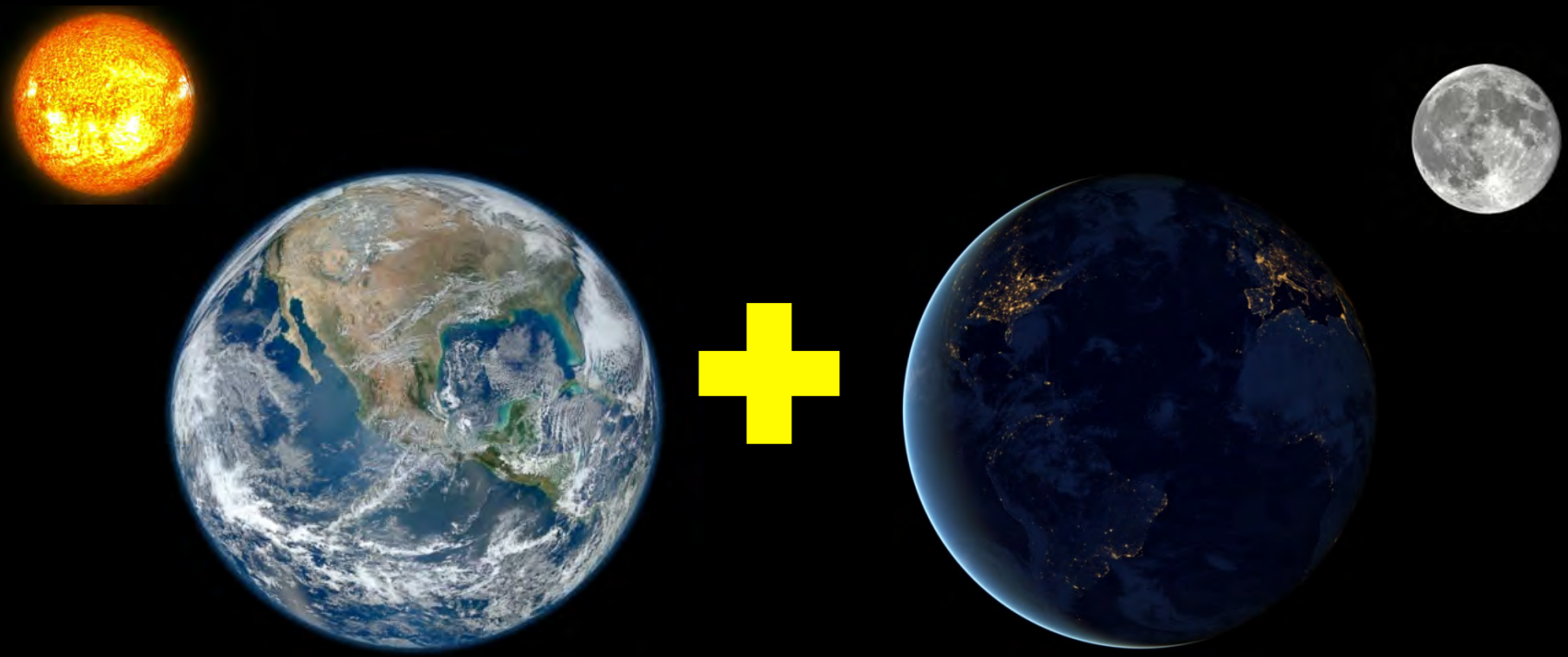
Ice

Changing Planet

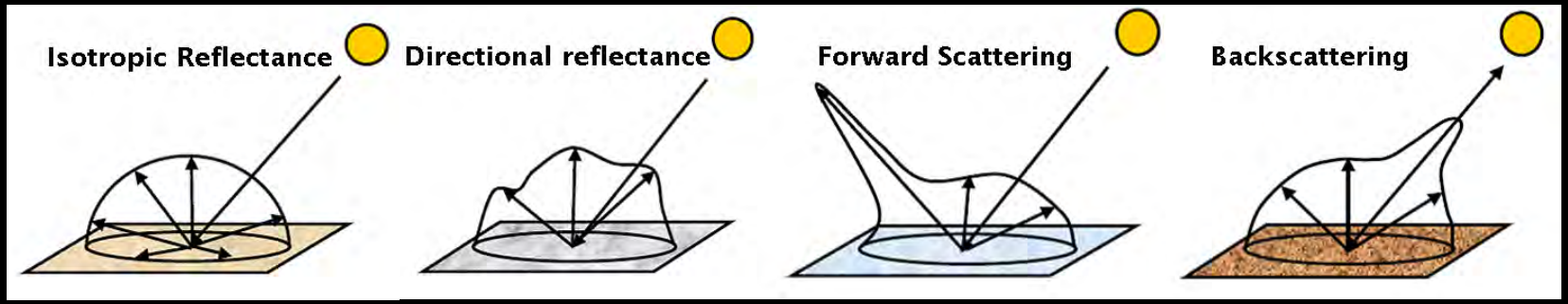

What makes a community meaningfully similar or different is not just its landscape, but also its people.

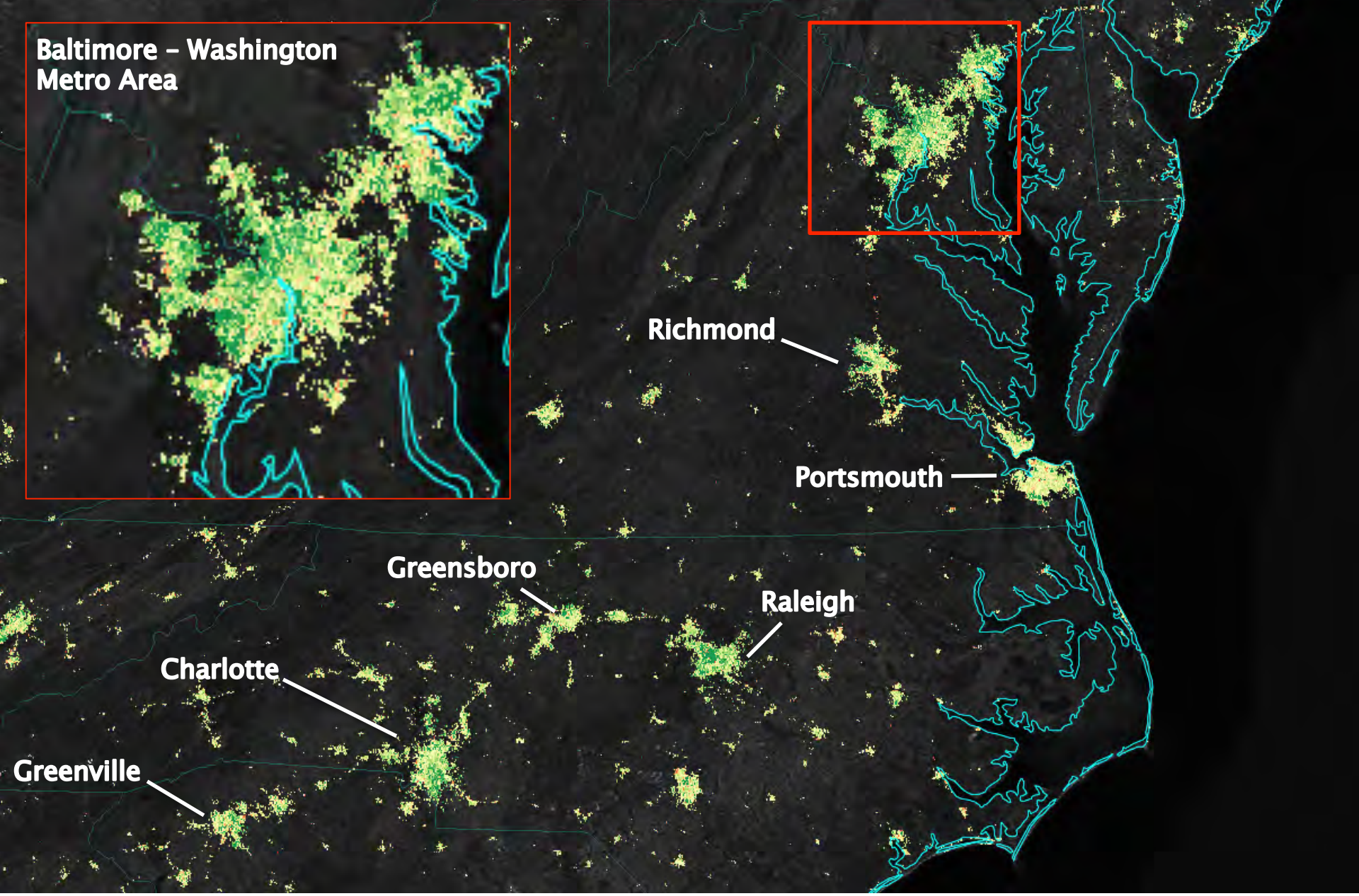
Holiday Season in Puerto Rico

The Solution: Combine daytime and nighttime measurements…



…with well-established physical principles.





Holiday Lighting

less equal more

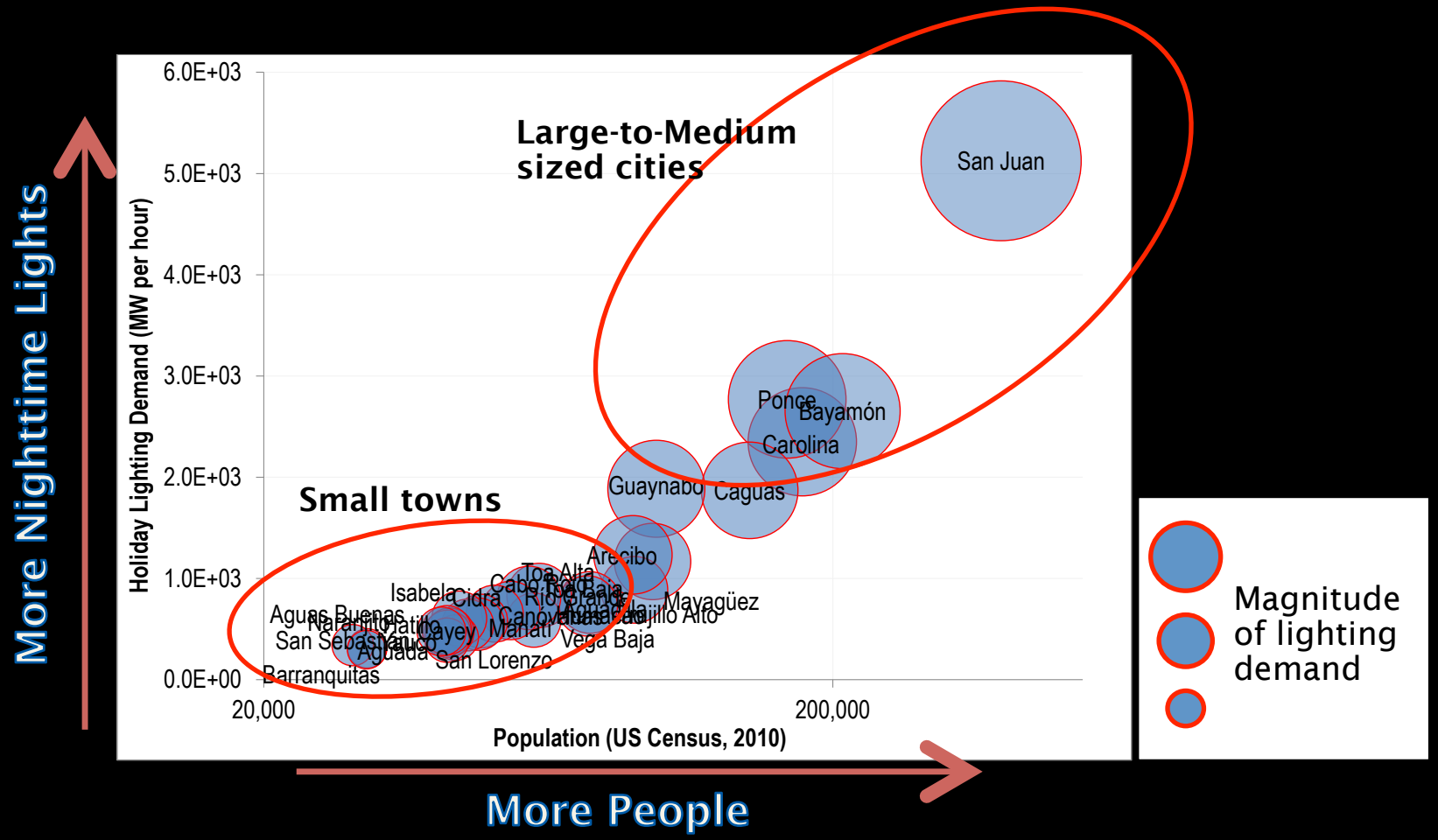
NASA Goddard Space Flight Center

Yale University
School of Forestry
& Environmental Studies

EARTH *RIGHT* NOW

www.nasa.gov/earthrightnow

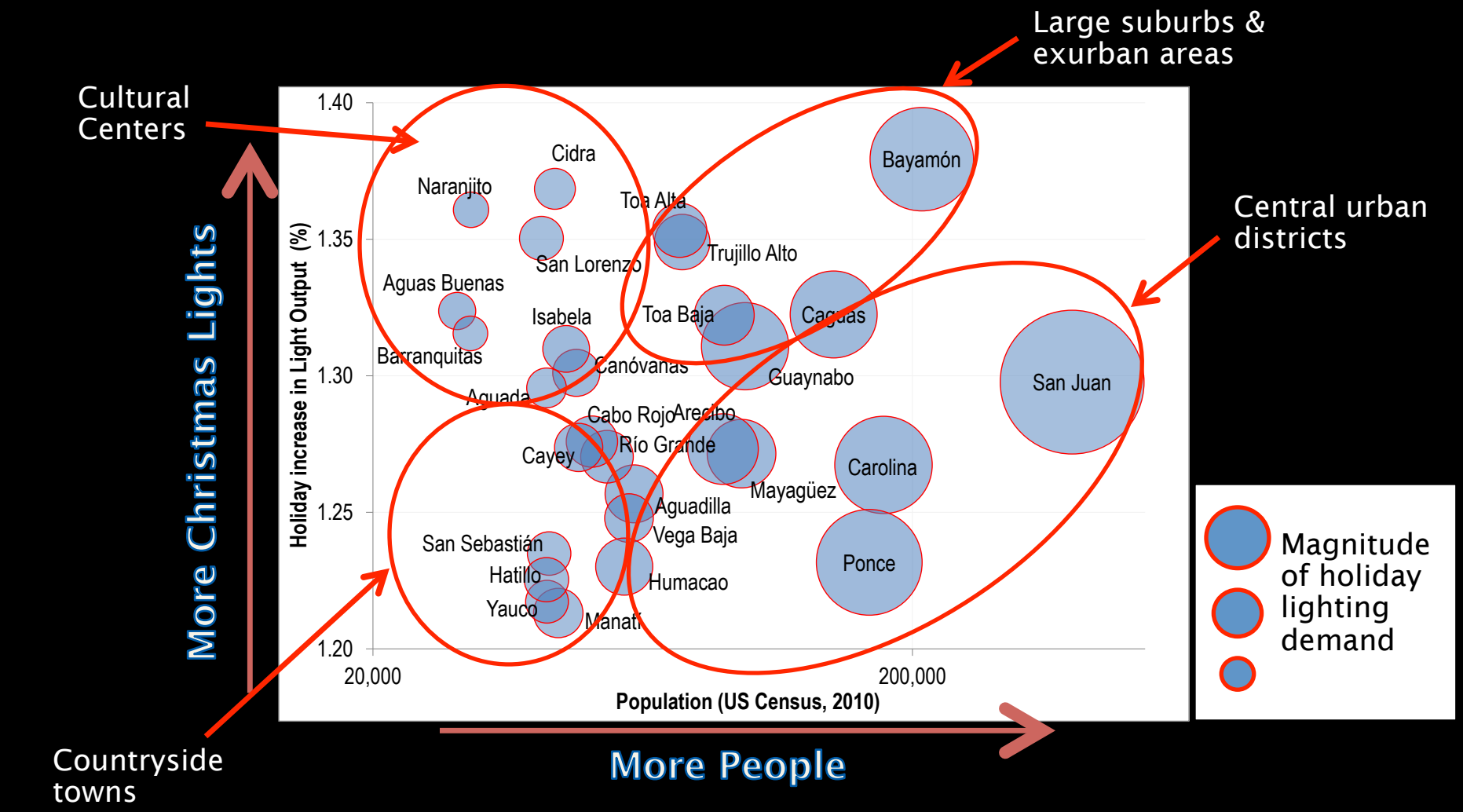
Holiday Season in Puerto Rico



NASA Goddard Space Flight Center

Yale University School of Forestry & Environmental Studies

Holiday Season in Puerto Rico



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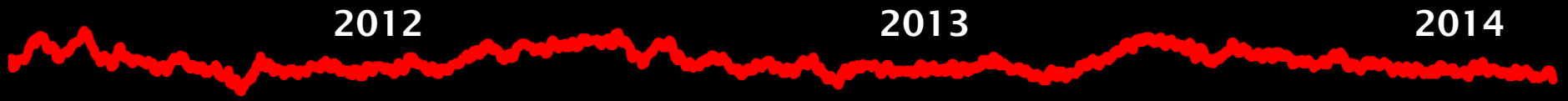
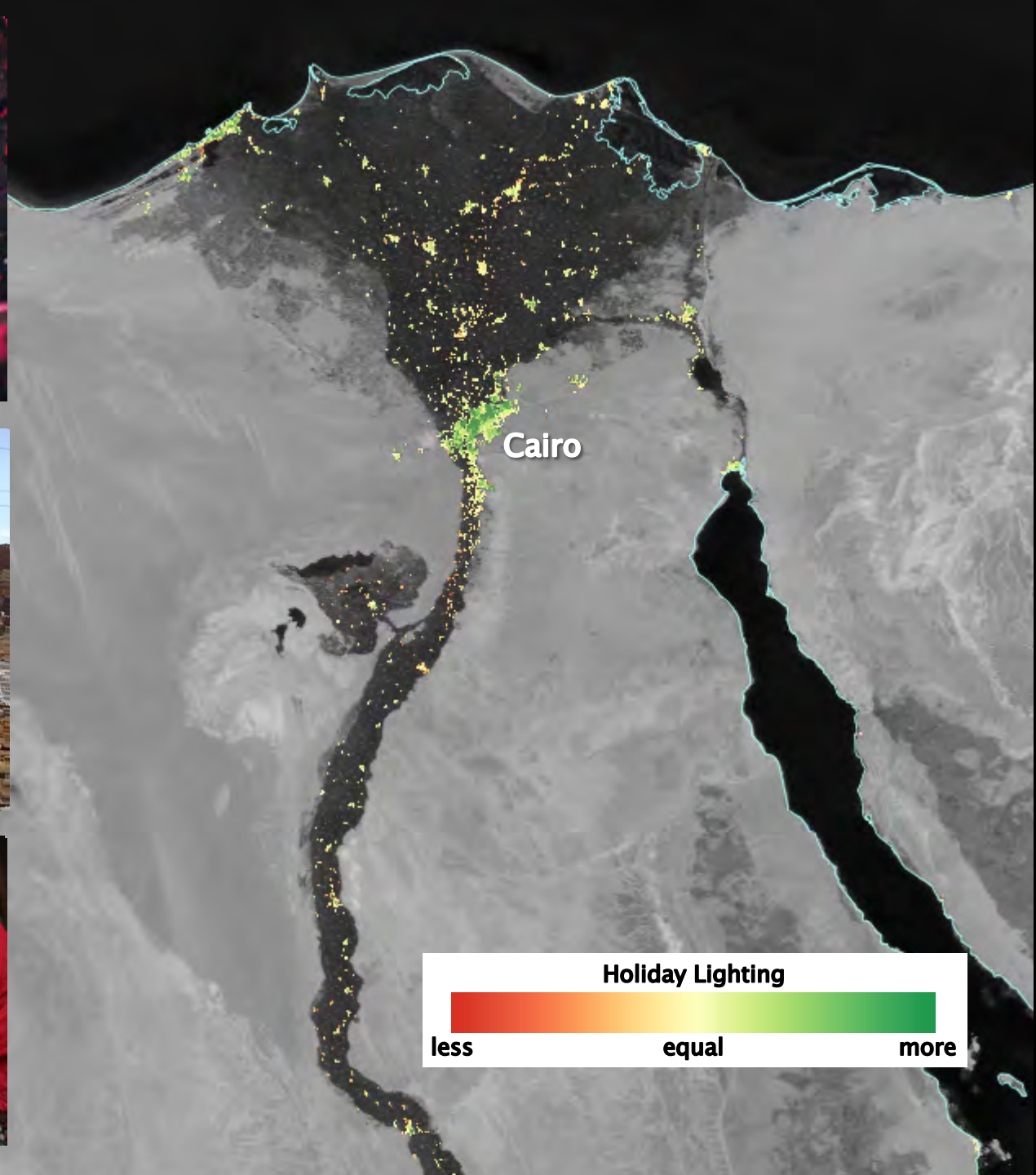
Yale University School of Forestry & Environmental Studies

The Holy Month of Ramadan

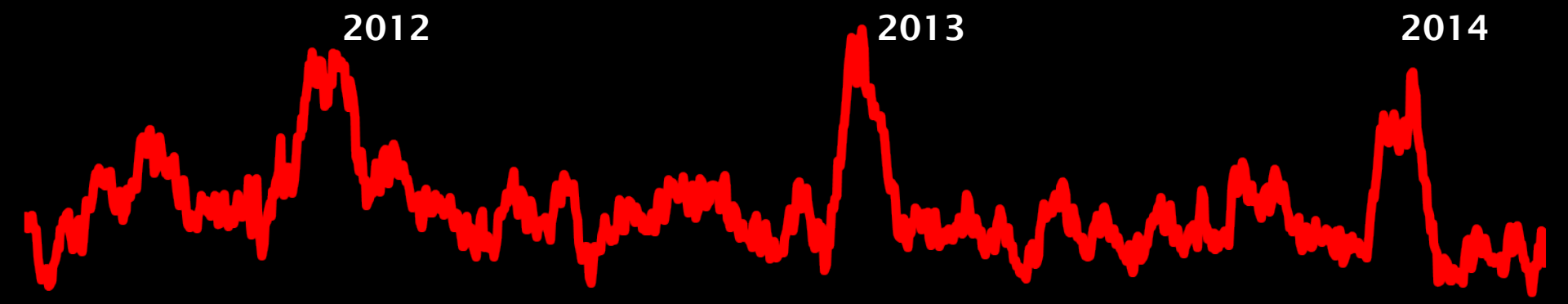
Jeddah, Saudi Arabia

Tel Aviv, Israel

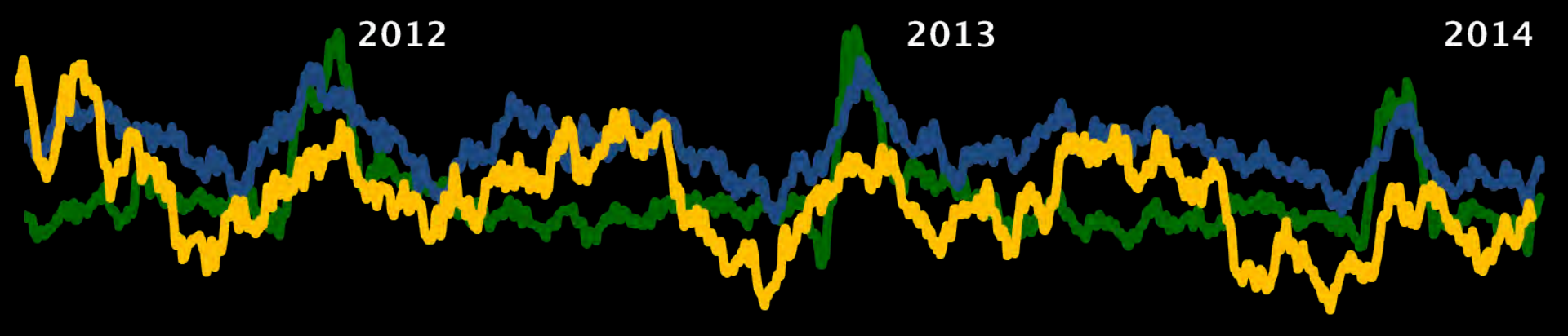



Cairo
Holiday Lighting
less
equal
more

Cairo, Egypt

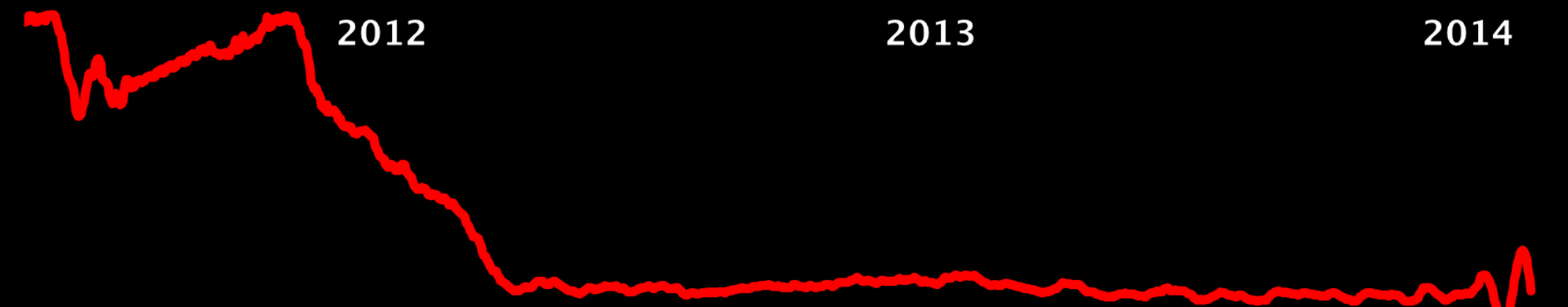


Cairo District, Sharqiya District, and Assiut District



Basrah, Iraq

Aleppo, Syria

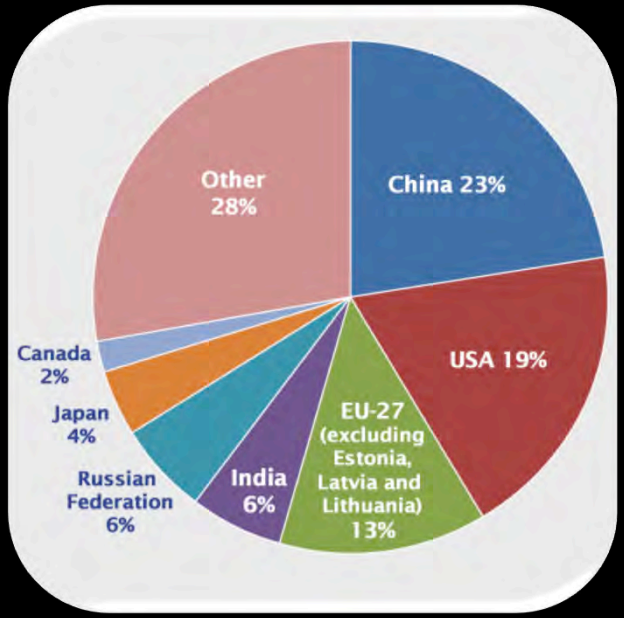


Why is it important ?

Sustainable energy for all.

Individual

Neighborhood



Global

Thanks to NASA's SIF Fund. For more info:

- Román and Stokes (2015). Holidays in lights: Tracking cultural patterns in demand for energy services. AGU Earth's Future Journal [Accepted].

+ Innovative research that made ours possible:

- Miller and Turner (2009), A Dynamic Lunar Spectral Irradiance Data Set for VIIRS DNB Nighttime Environmental Applications, IEEE-TGRS.
- Zhang et al., (2013), The Vegetation Adjusted NTL Urban Index: A new approach to reduce saturation and increase variation in nighttime luminosity, RSE.
- Johnson, et al., (2013), Preliminary investigations toward nighttime aerosol optical depth retrievals from the VIIRS DNB, AMTD.
- Walther, et al., (2013), The Expected Performance of Cloud Optical and Microphysical Properties derived from Suomi NPP VIIRS DNB Lunar Reflectance, JGR-Atmospheres.
- Cao and Bai (2014), Quantitative Analysis of VIIRS DNB Nightlight Point Source for Light Power Estimation and Stability Monitoring, Remote Sensing.

AGU'15 Session Proposal: Emerging Issues in Nighttime Environmental Remote Sensing and Earth System Science Applications

Session ID#: 7530: A new generation of satellite instruments, pioneered by the Visible Infrared Imaging Radiometer Suite (VIIRS) Day/Night Band (DNB), now offer global measurements of nocturnal visible and near-infrared light that are suitable for Earth science and climate studies. These novel low-light measurements have opened doors to a wealth of new and expanded interdisciplinary research topics, including urban sustainability, improved weather forecasting, and enhanced climate data records. We are requesting abstracts in the following topic areas:

- **Fundamental questions and challenges surrounding quantitative nighttime remote sensing;**
- **Novel capabilities, applications, and algorithms involving VIIRS DNB measurements of interest to the research and operational communities;**
- **Stability, accuracy, and calibration of nighttime observations;**
- **Extension of physical models of radiative transfer to characterize the nighttime environment;**
- **Quantitative assessments of diurnal variation in atmospheric, land, cryospheric, and ocean properties;**
- **Observation requirements for characterization of the nighttime environment on future sensors/platforms;**
- **Temporal studies of night light for change detection.**

Primary Convener: Miguel O. Román, NASA Goddard Space Flight Center, Greenbelt, MD, United States. **Conveners: Edward J. Hyer**, Naval Research Laboratory, Marine Meteorology Division, Monterey, CA, United States, **Steven D Miller**, Cooperative Institute for Research in the Atmosphere, Fort Collins, CO, United States and **Changyong Cao**, NOAA College Park, College Park, MD, United States.