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# **Spatial Data and Technology in Land Administration**

**Presenter: Jill Urban-Karr**

**Property Rights and Resource Governance  
Issues and Best Practices**

**Washington, DC**

**October 2012**

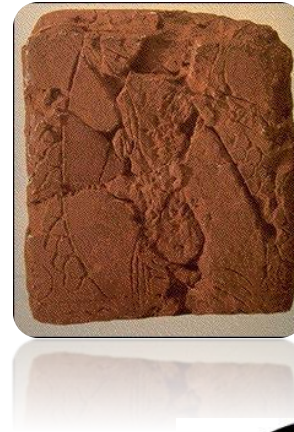
# Contents

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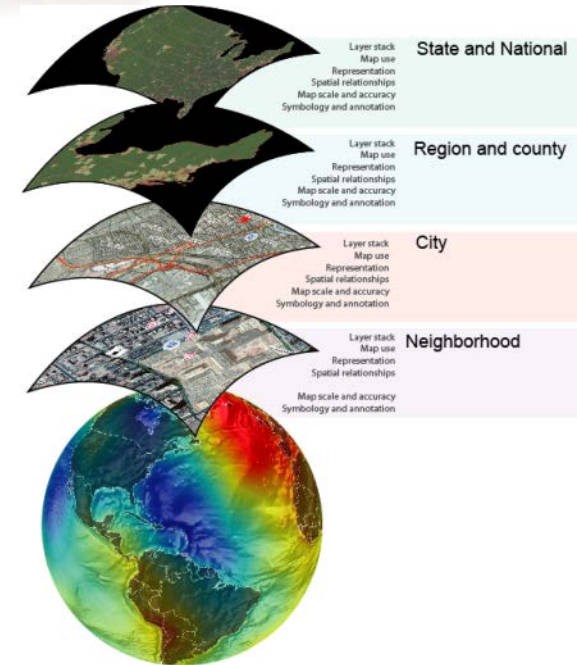
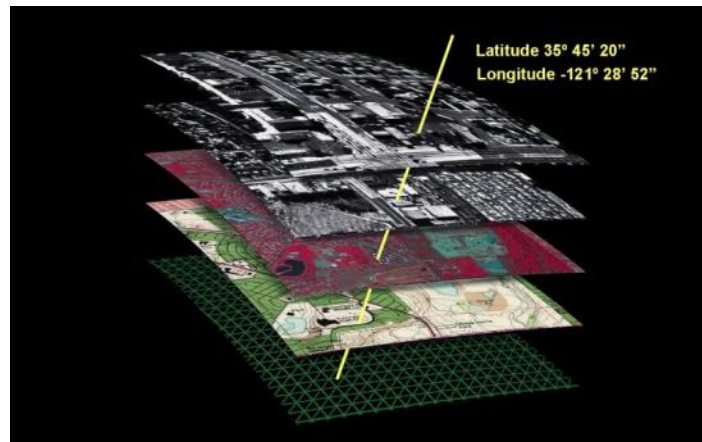
- What is spatial data?
- GIS/LIS/GPS/Remote Sensing
- Approaches
- Points to Take Away

# What is Spatial Data?

- *“the data or information that identifies the geographic location of features and boundaries on Earth”*



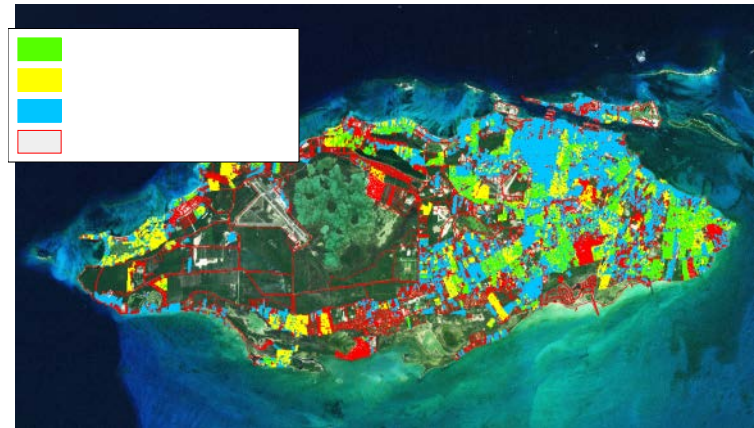
- Spatial Reference System
- Maps
- Imagery
- Geography
- Scale
- Time
- Twitter



# GIS/LIS – Geographic/Land Information Systems

*“is a facility for preparing, presenting, and interpreting facts that pertain to the surface of the earth”*

- Web Mapping
- Google Earth/Open Street Maps



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**Events Technology Systems** [?](#)  
1560, Wilson Blvd # 1100, West McLean, McLean  
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Map Satellite Layers

Theodore Roosevelt Island National Memorial

Key Blvd

18th St N

Wilson Blvd

19th St N

Chop't Creative Salad Company

Inspector General Office

Artisphere

Raytheon Co

GardnerMeets at Robert Frost Middle School

Great Eatery

Belvedere Park

Hillside Park

14th St N

15th St N

16th St N

17th St N

18th St N

19th St N

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98th St N

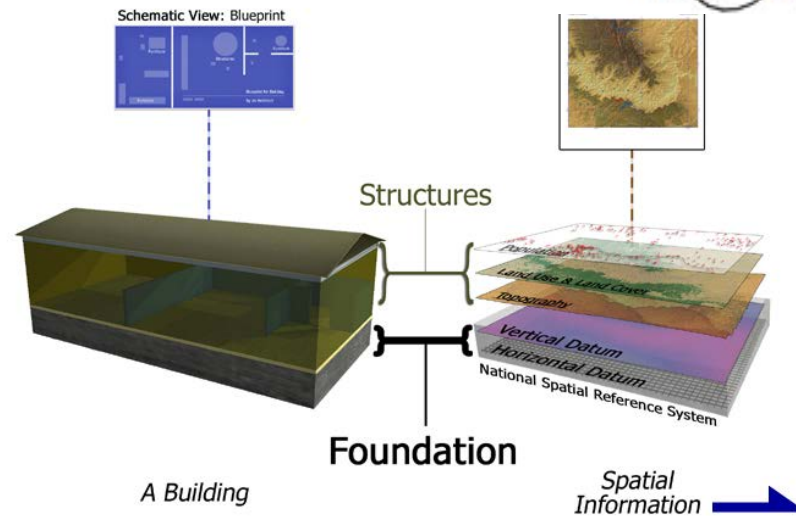
99th St N

100th St N



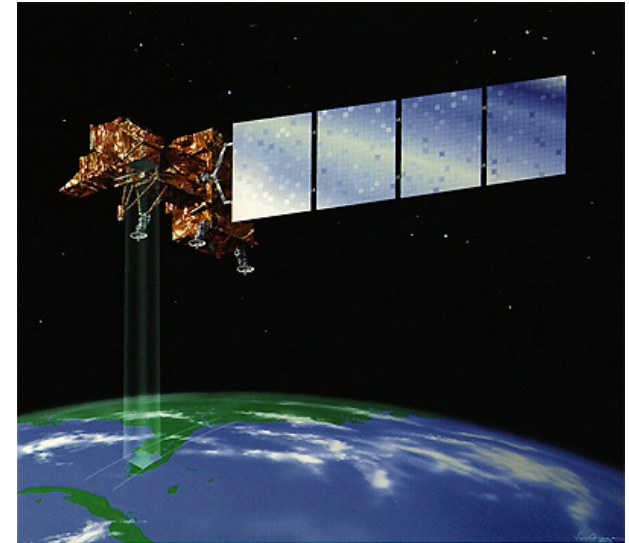
# GPS-Global Positioning Systems

- Geodesy “science of measuring and monitoring the size and shape of the Earth”
- Developed by USDOD in 1978
- Constellation of 32 satellites
- GLONASS, Beidou, Galileo
- Time measurement
  - Distances i.e. Meter



# Remote Sensing

- Satellites
- Aerial Photography
  - Nadir
  - Oblique
  - Video
  - LIDAR



# Remote Sensing-Aerial Photography

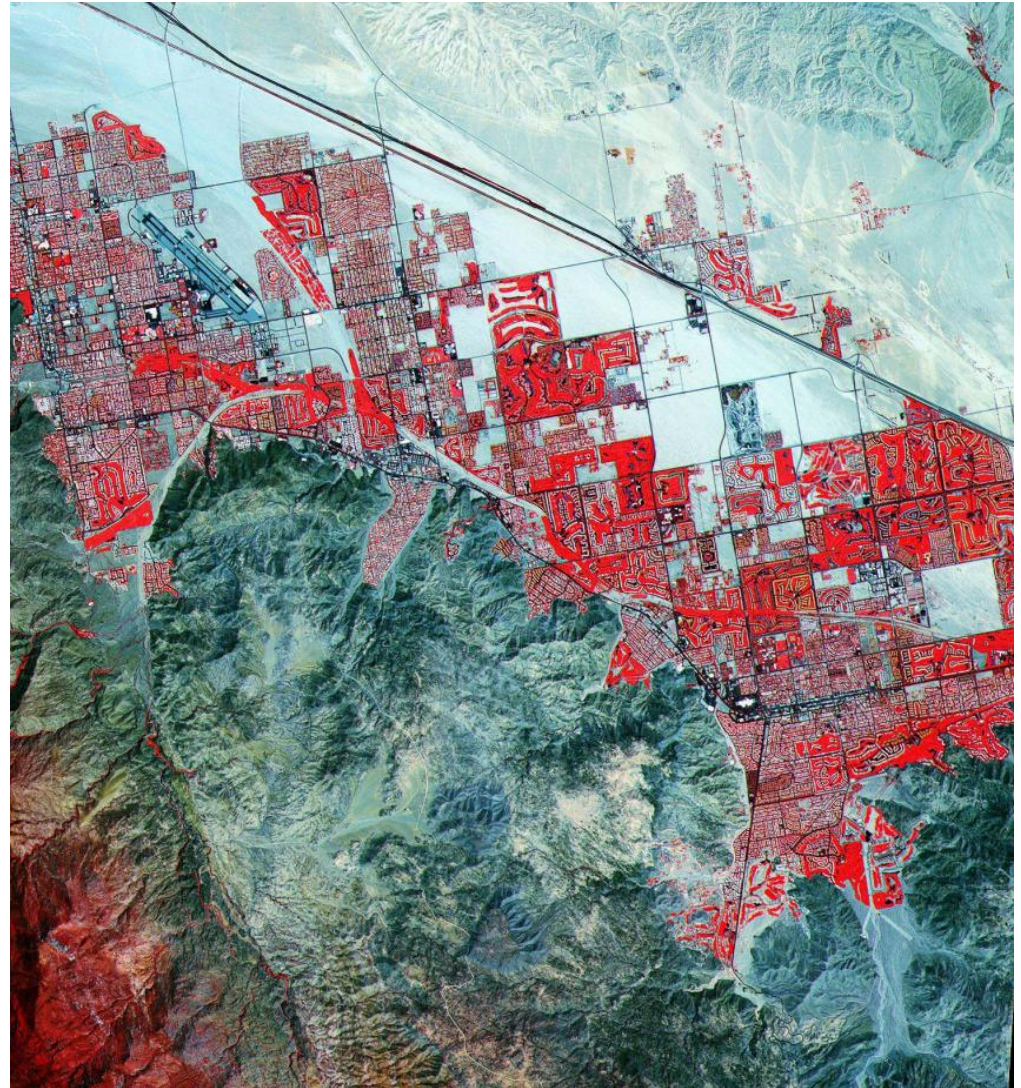
- High Resolution





# Remote Sensing-Aerial Photography

- Medium Resolution





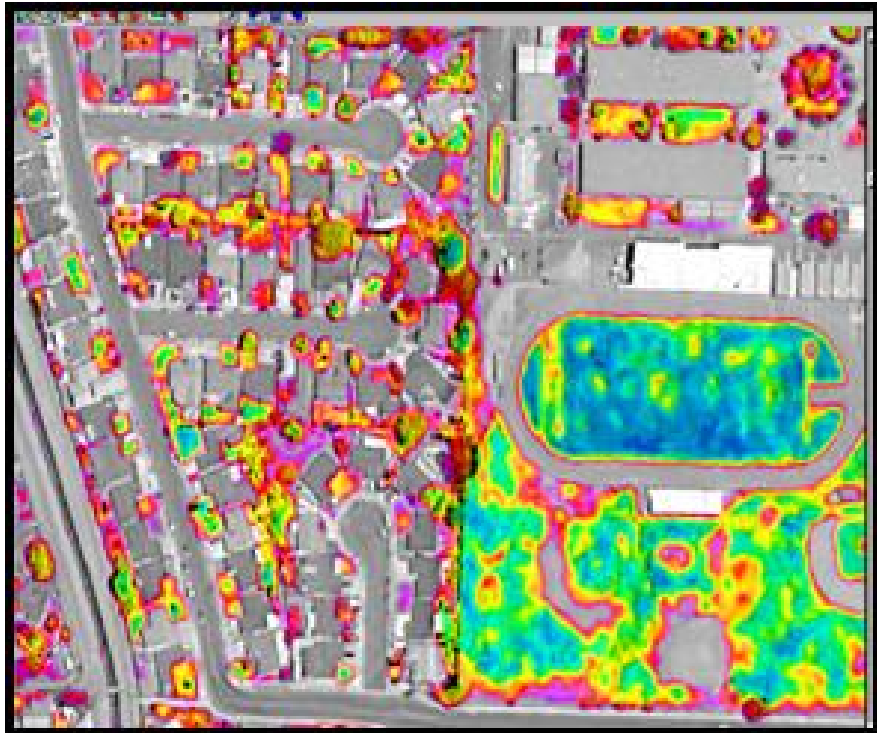
# Remote Sensing-Aerial Photography

- Low Resolution



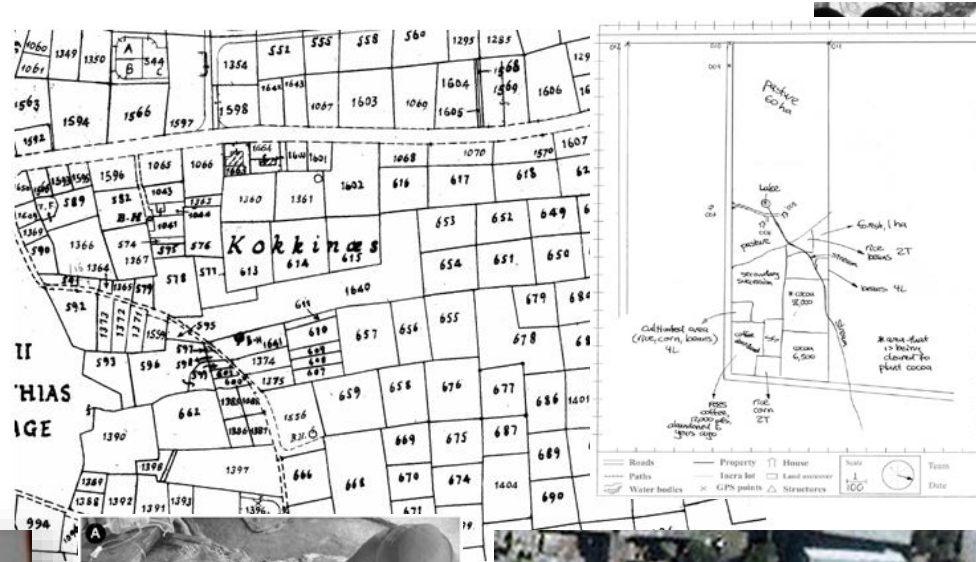
# Remote Sensing

- Analysis



## Approaches: Flexible Systems

- Index maps
- Properties by Points
- Identify Features
- Local knowledge
- Evidence





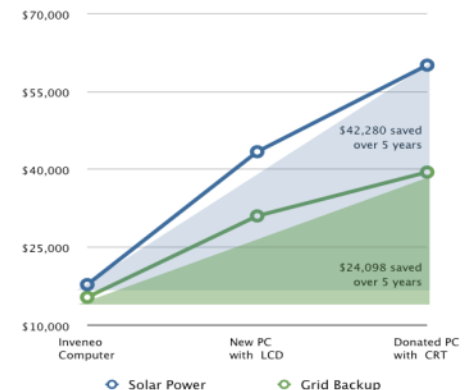
# Approaches: Appropriate Technology

- Cell Phones
- Solar Power
- Wifi/Cell networks
- GPS
- High Resolution Satellite Imagery
- Digital Still/Video Cameras
- Commercial off the Shelf Software/Open Source
- Web systems and data



Low power computers vs. Refurbished Computers

20 computer lab, 5 year cost



5 year Total Cost of Ownership

	Inveneo Computer	New PC with LCD	Donated PC with CRT
Solar Power	\$17,920	\$43,520	\$60,200
Grid Backup	\$15,490	\$31,153	\$39,588

# Points to Take Away

- Spatial data is key to property rights but also to many other development needs
- Collect once – use many times
- Use various modes of spatial data tools and gathering approaches
- Blending scales and accuracies is acceptable in data poor environments
- Spatial data has considerable value but must be maintained
- Maintenance requires good governance
- Emerging economies must look to partnerships with private sector to develop and sustain spatial data



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*"The global-positioning system says  
we're all in the wrong building."*