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Spatial Data and Technology in Land Administration

Presenter: Peter Rabley

Property Rights and Resource Governance
Issues and Best Practices

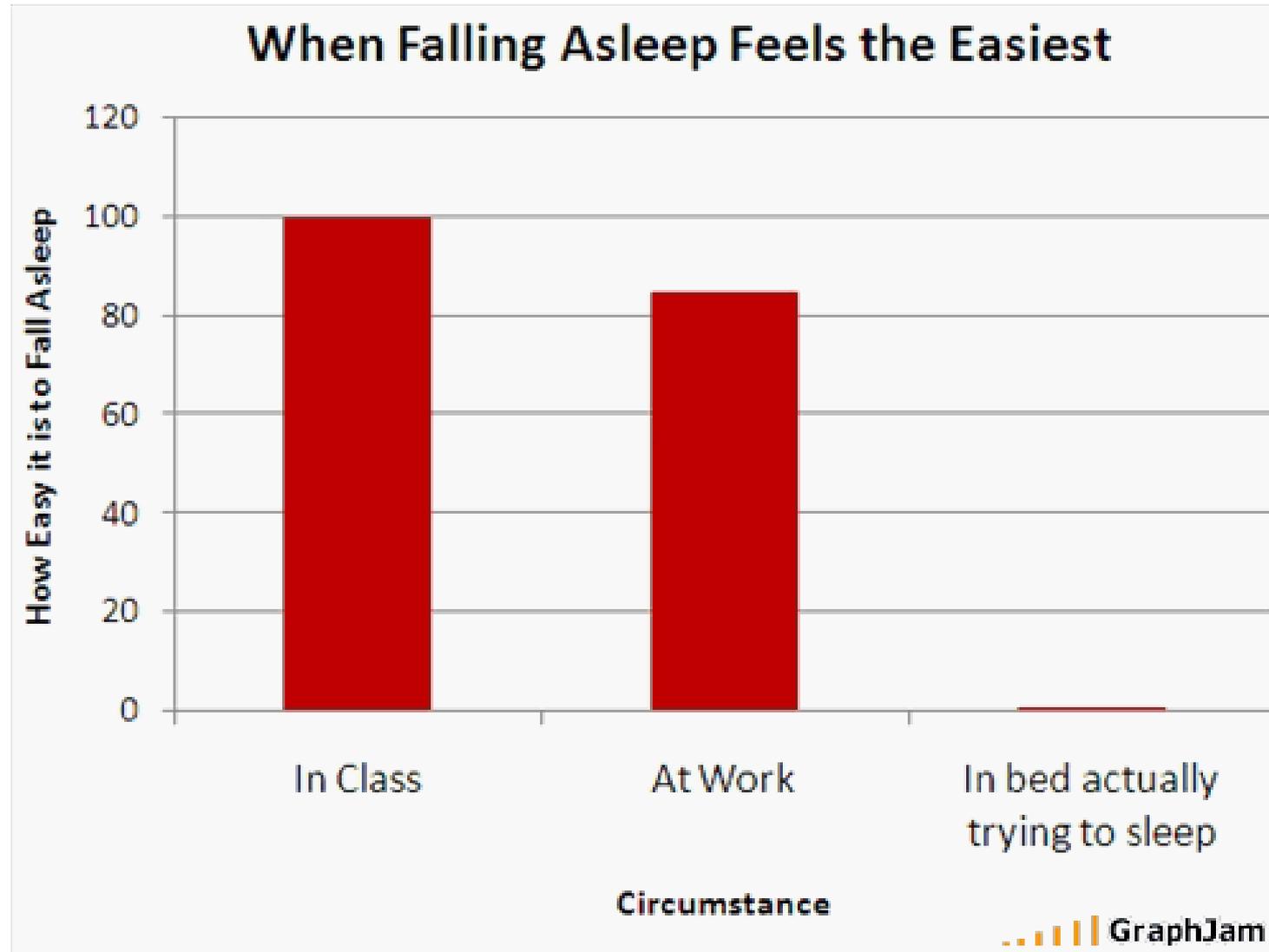
Washington DC, October 2011

Contents

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

“Nothing endures but change”

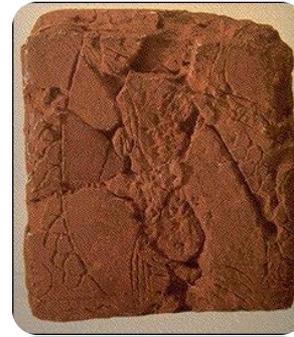
Awake



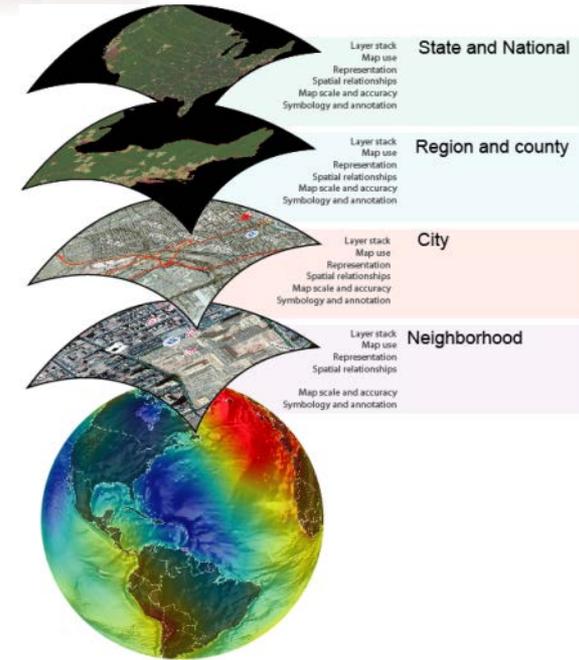
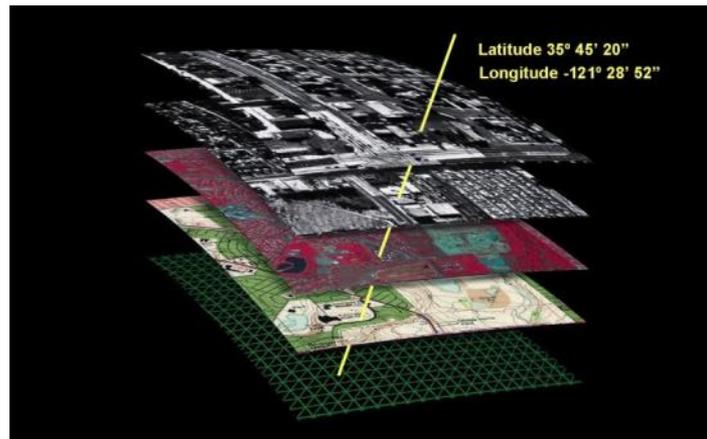
THIS CERTIFICATED LAND PROPERTY
BELONGS TO SALIA & IT'S NOT 4 SALE
BUY IT AT YOUR OWN RISK !!!
027-7755495

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”



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To create features, please zoom deep into the area of interest.

A [Events Technology Systems](#)

1560, Wilson Blvd # 1100, West McLean, McLean
Category: Engineering Consultant
Status: **Pending** (2 edits) [Approve edits](#)
Changed on May 25, 2011 8:59pm
[Details](#) | [Edit](#)

B [Address / Plot](#)

1908, N Rhodes St, Arlington, Virginia
Category: Address / Plot
Status: **Pending** (1 edits) [Approve edits](#)
Changed on Aug 29, 2011 5:10am
[Details](#) | [Edit](#)

C [Rosslyn BP](#)

1625, Wilson Boulevard, Arlington, VA
Category: Gas Company
Status: **Pending** (1 edits) [Approve edits](#)
Changed on Jul 11, 2011 4:43pm
[Details](#) | [Edit](#)

D [Crandal Mackey Park](#)

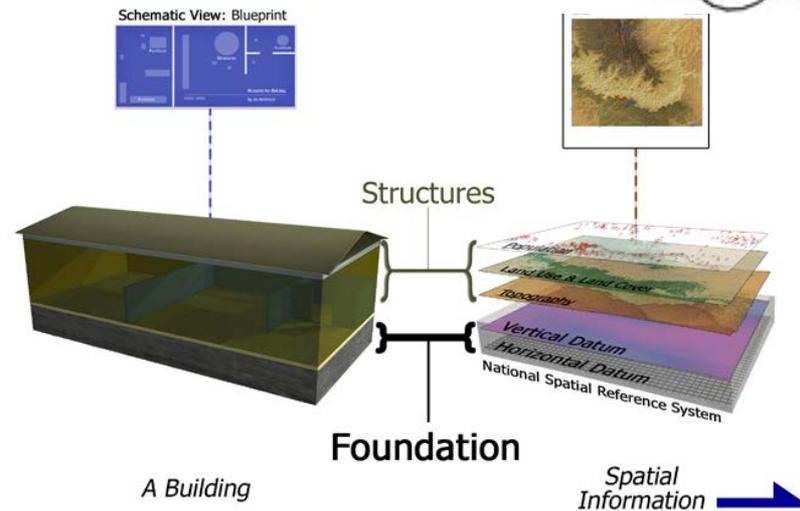
N Lynn St, Arlington, Arlington, Virginia
Category: Boundary (Boundary)
Status: **Pending** (1 edits) [Approve edits](#)
Changed on Sep 14, 2011 8:39pm
[Details](#) | [Edit](#)

Map **Satellite** Layers

Contributed by [twintowersflorist](#), [Michael](#), [Jonathan](#) and others

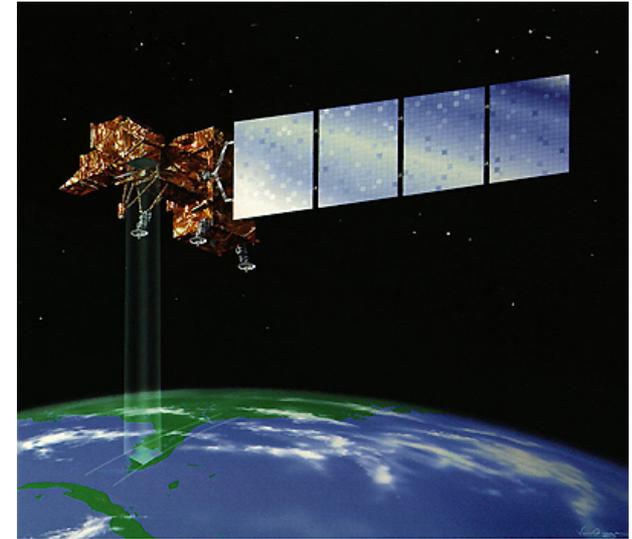
GPS-Global Positioning Systems

- 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

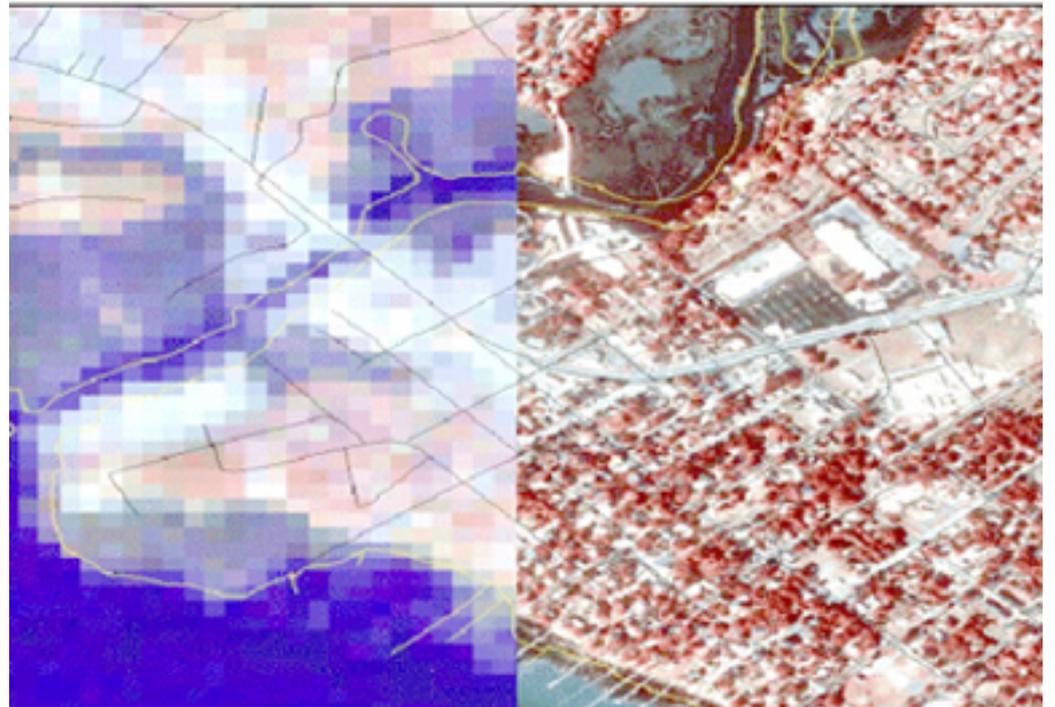
- Satellites
- Aerial Photography
 - Nadir
 - Oblique
 - Video
 - LIDAR



Remote Sensing

- Resolution

Satellite Image (30-Meter Pixels) vs. Aerial Photograph (1-Meter Pixels)



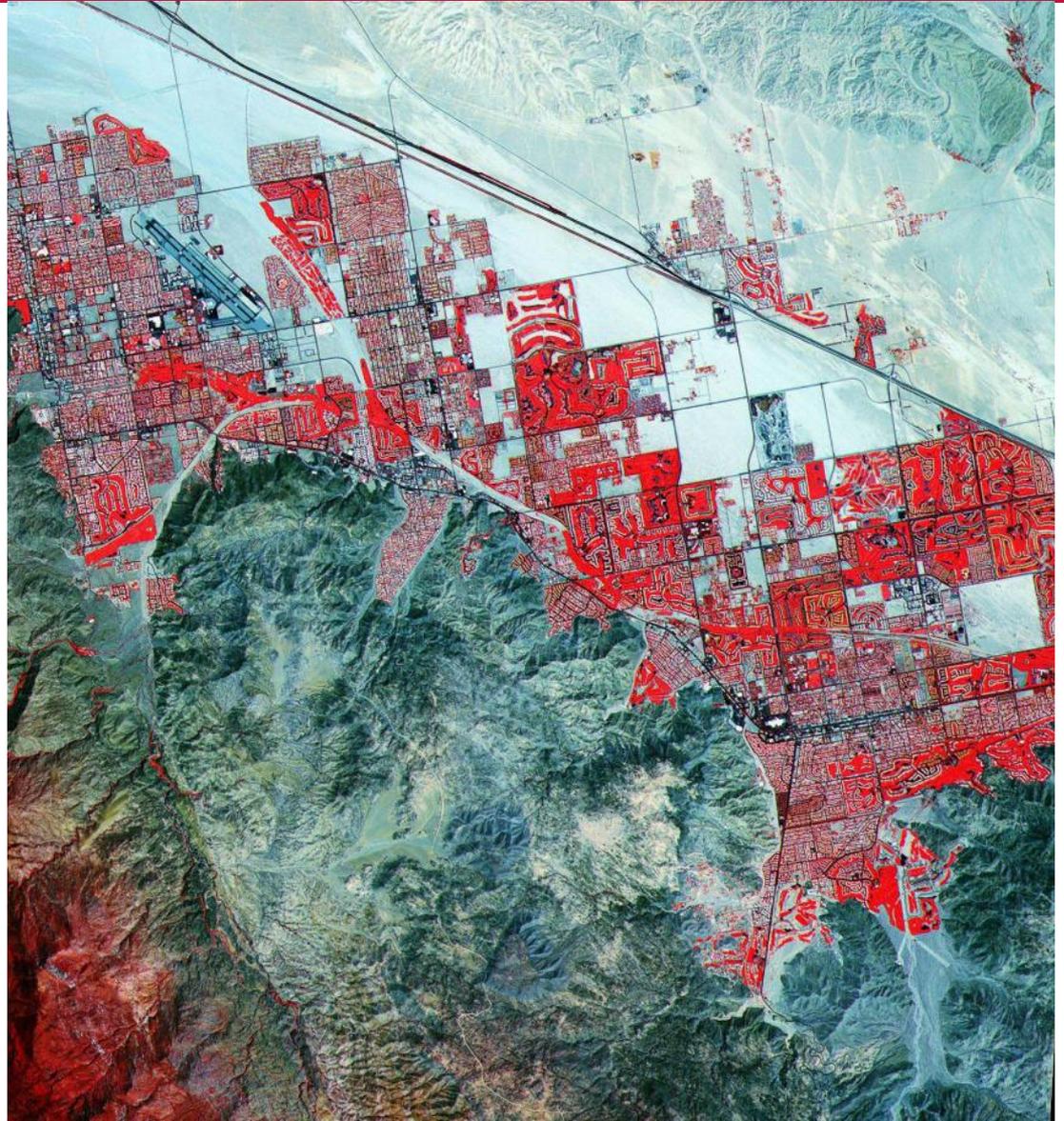
Remote Sensing-Aerial Photography

- High Resolution



Remote Sensing-Aerial Photography

- Medium Resolution



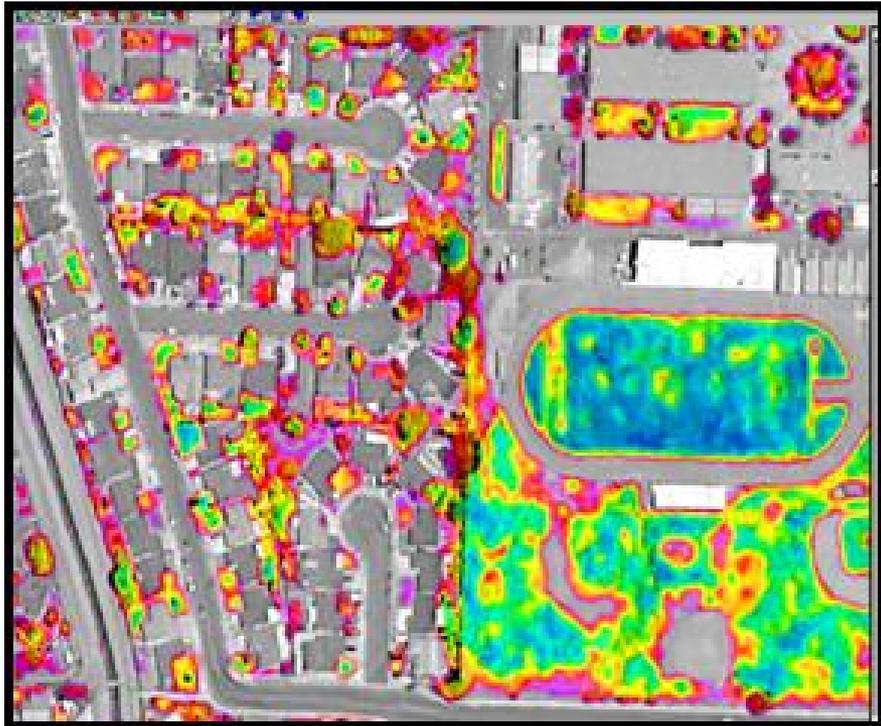
Remote Sensing-Aerial Photography

- Low Resolution



Remote Sensing

- Analysis



Approaches: Flexible Systems

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

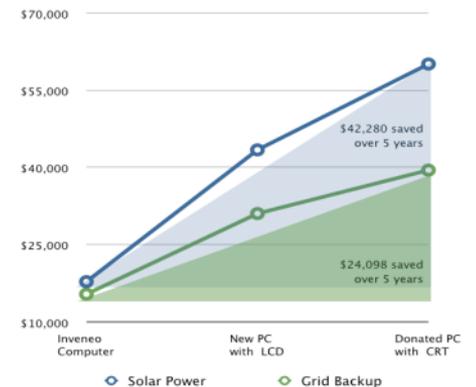


Approaches: Appropriate Technology

- 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

