Spatial Data and Technology in Land Administration

Presenter: Peter Rabley

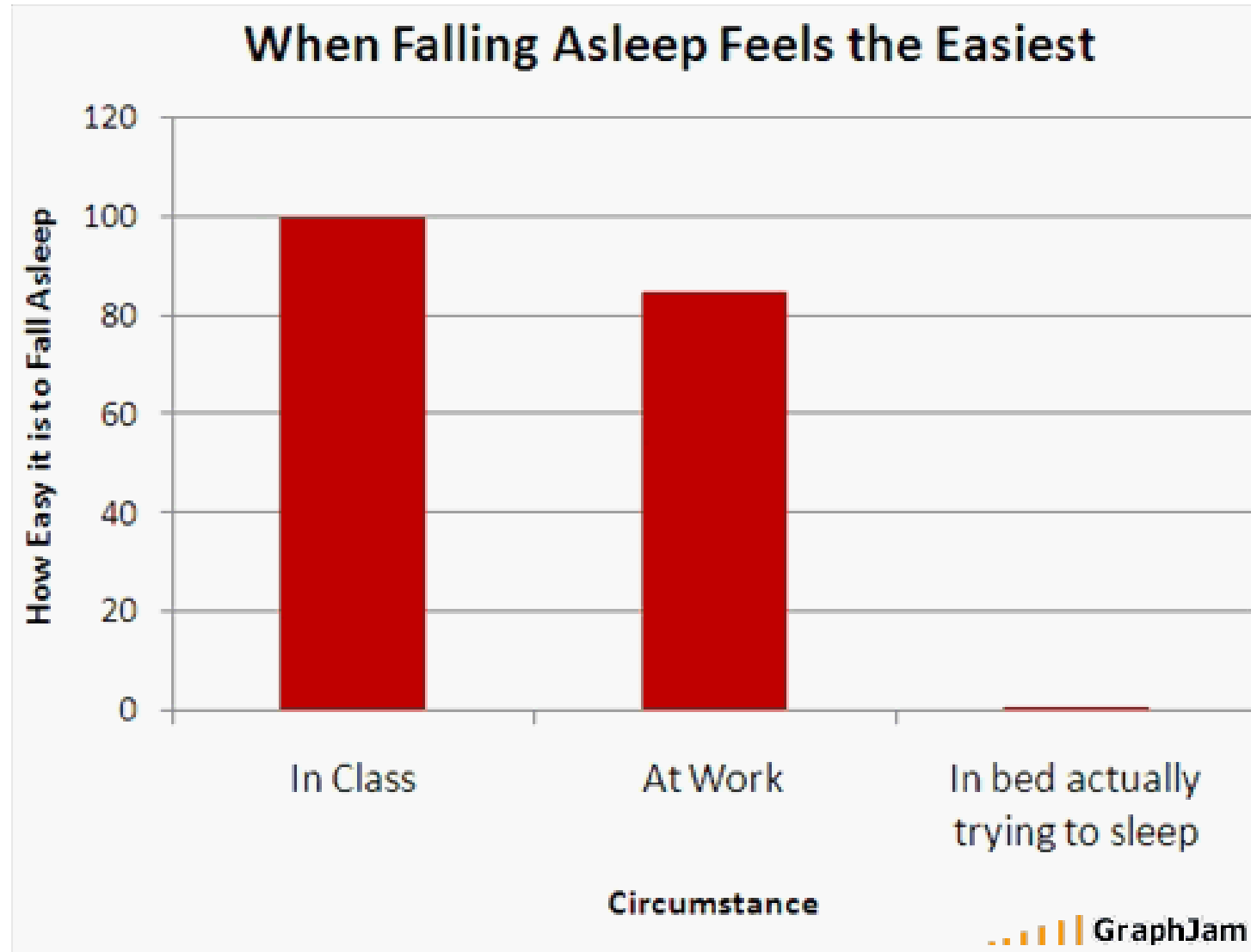Property Rights and Resource Governance
Issues and Best Practices

Washington DC, October 2011

Contents

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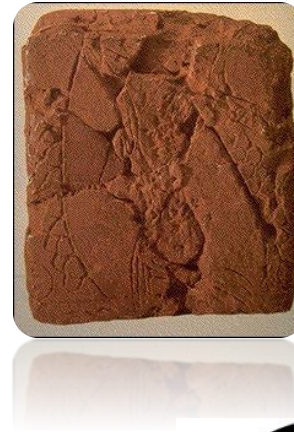- Points to Take Away

"Nothing endures but change"

Awake

THIS CERTIFICATED LAND PROPERTY BELONGS TO SALIM & 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
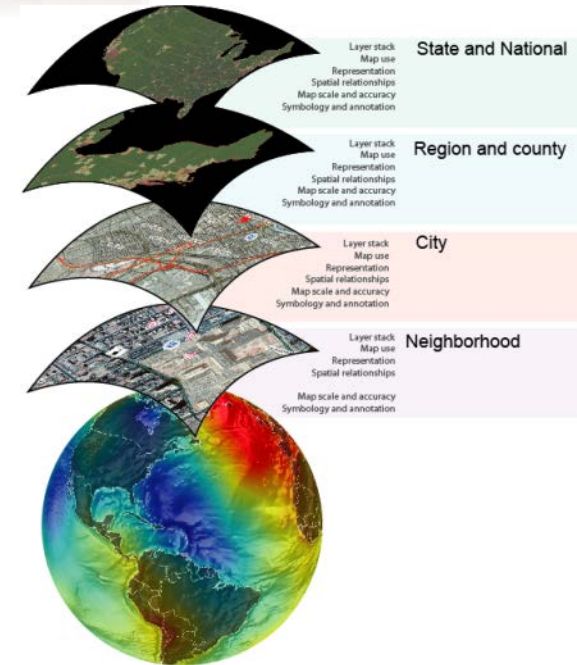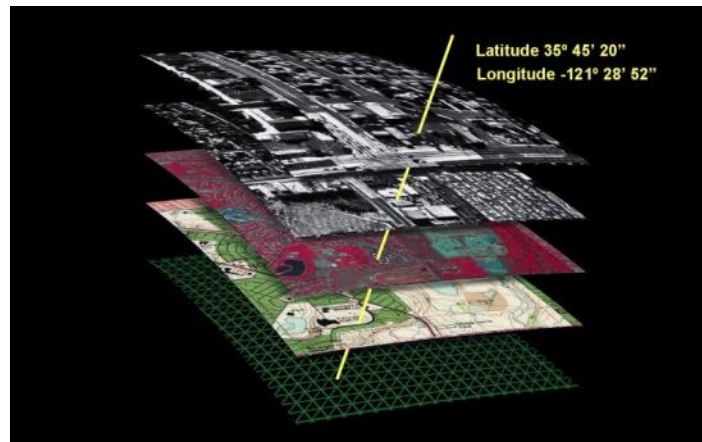
"is a facility for preparing, presenting, and interpreting facts that pertain to the surface of the earth"
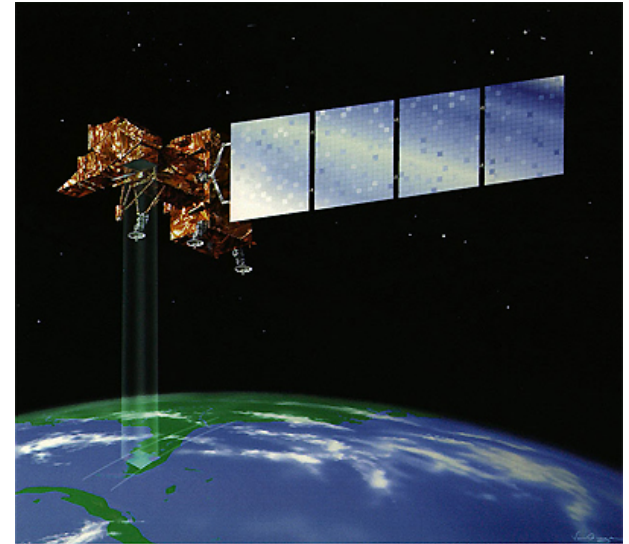
GPS-Global Positioning Systems

- 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

Schematic View: Blueprint

Structures

Panorama
Land Use & Land Cover
Topography
Vertical Datum
Horizontal Datum
National Spatial Reference System

Foundation

A Building

Spatial Information
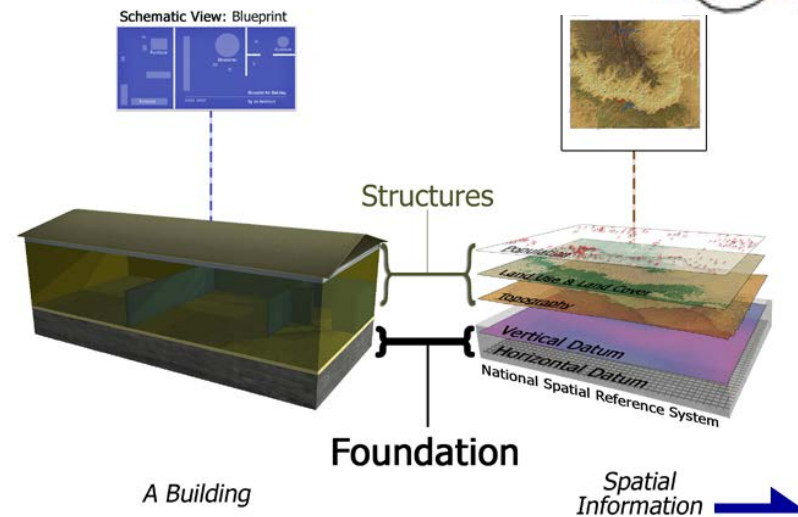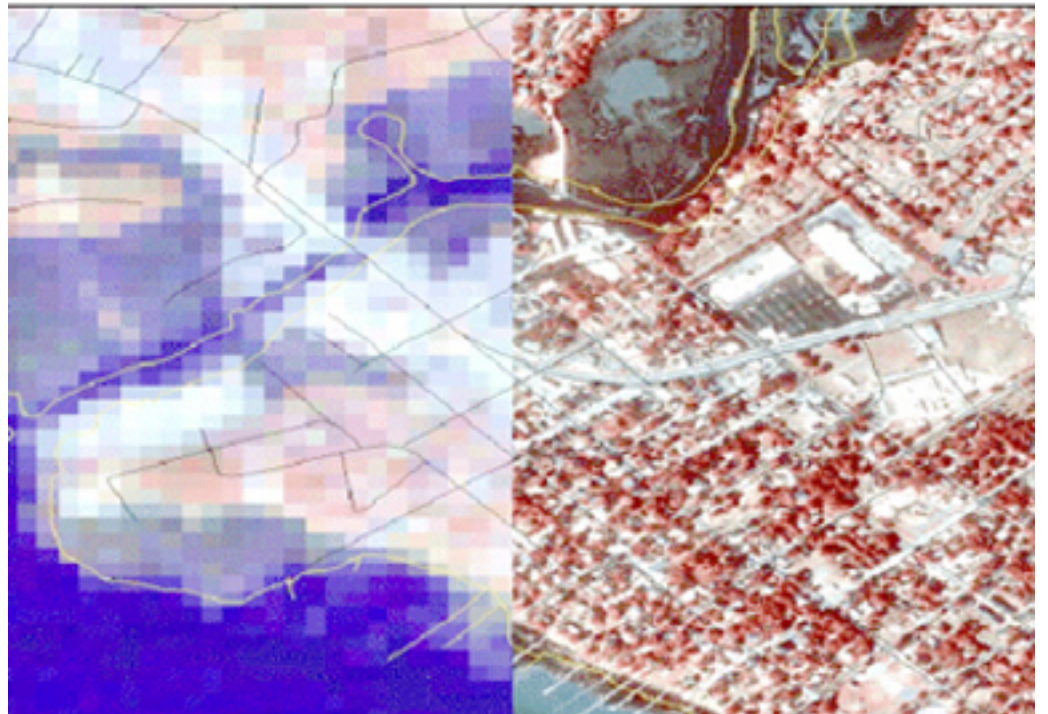
Remote Sensing

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

Remote Sensing

- Resolution

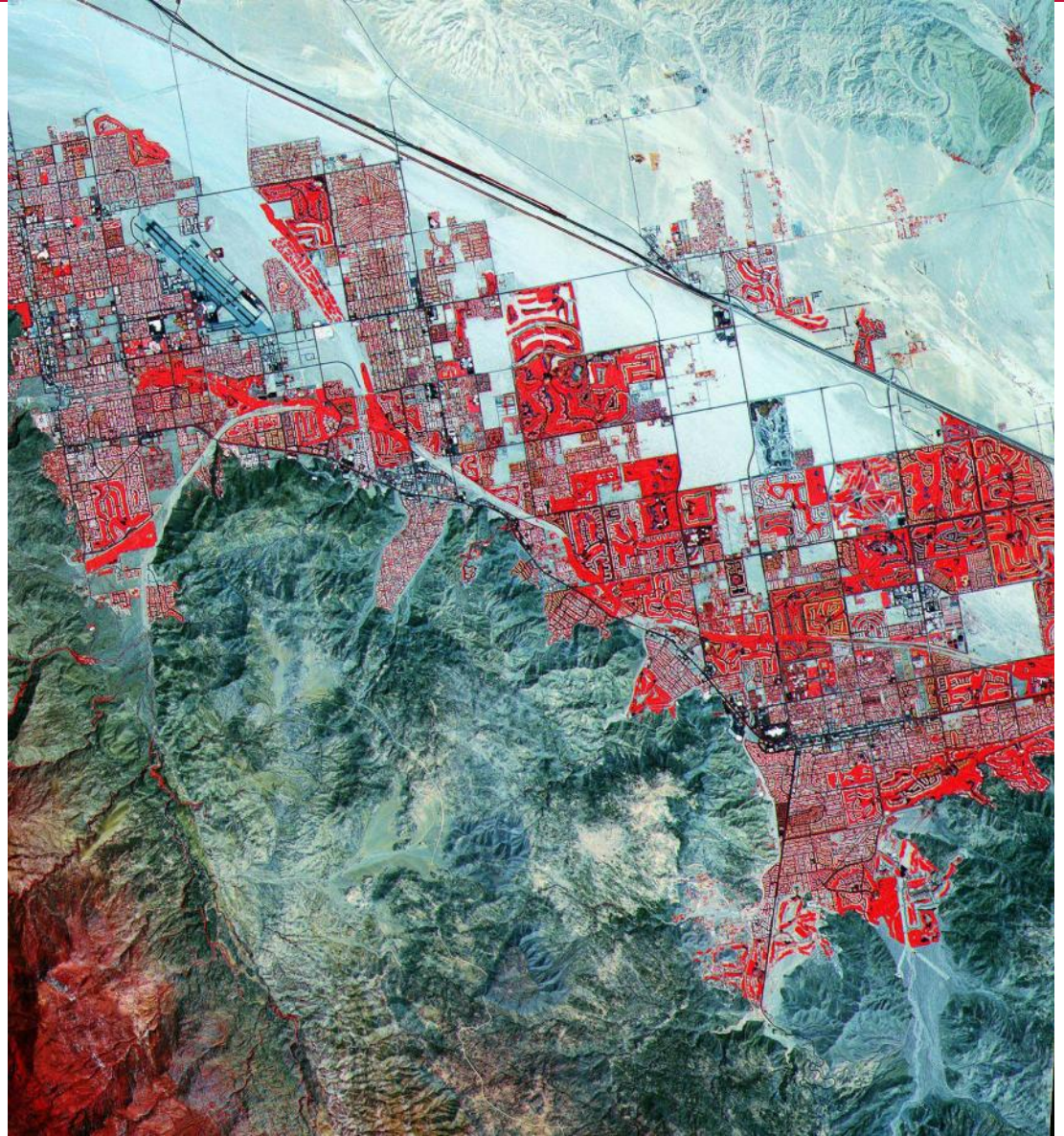Satellite Image (30-Meter Pixels) vs. Aerial Photograph (1-Meter Pixels)

Remote Sensing-Aerial Photography

- High Resolution

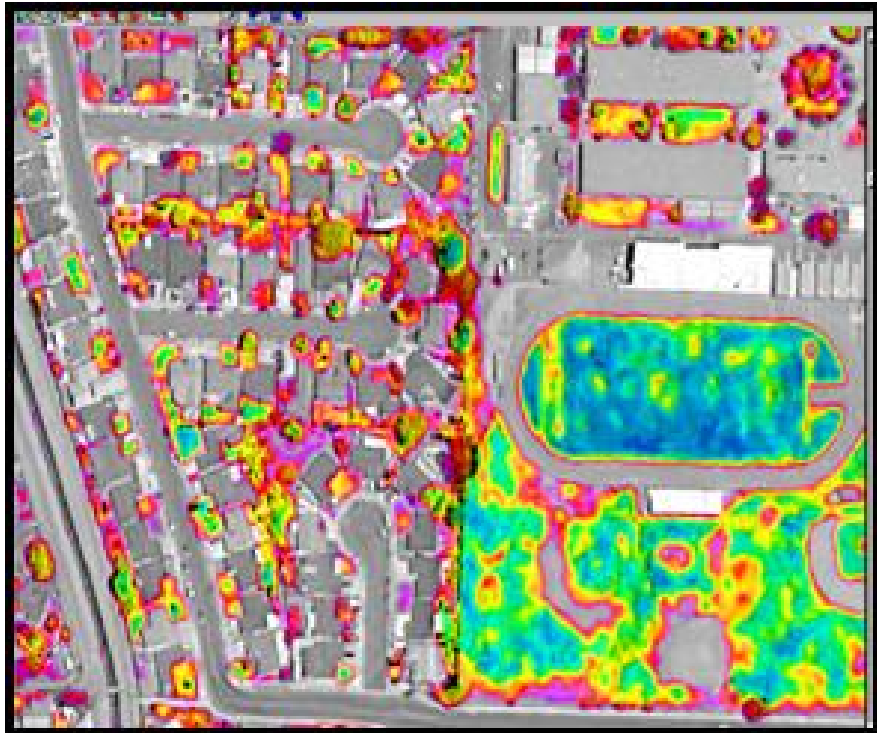# Remote Sensing-Aerial Photography

• Medium Resolution

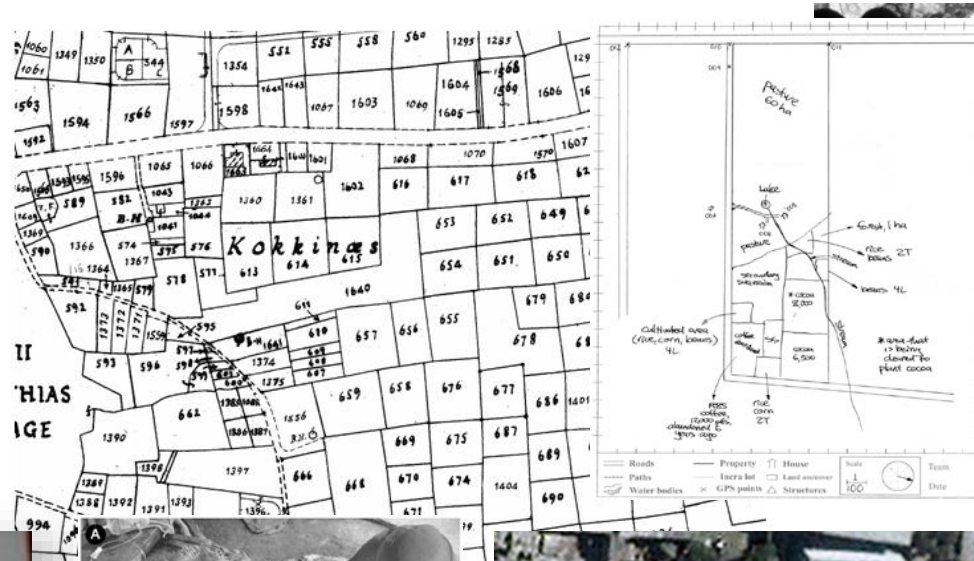# Remote Sensing-Aerial Photography

- Low Resolution

Remote Sensing

- Analysis

Approaches: Flexible Systems

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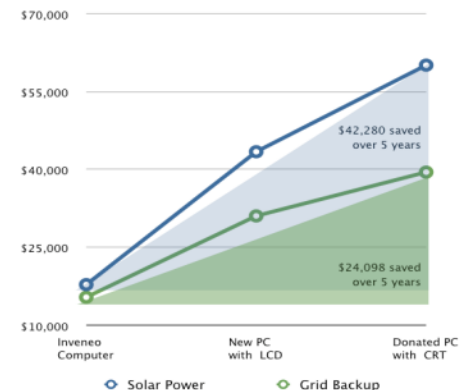- Local knowledge
- Evidence

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

$42,280 saved over 5 years

$24,098 saved over 5 years

	Inveneo Computer	New PC with LCD	Donated PC with CRT
Solar Power			
Grid Backup			

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