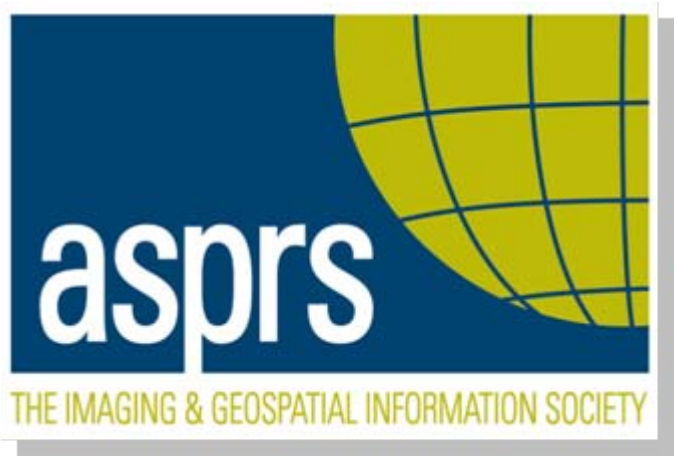


Imagery Requirements Now and in the Future

Presented to the National Oceanic and Atmospheric Administration's Advisory Committee on Commercial Remote Sensing (ACCRES)

October 7, 2008

by
Bradley Doorn
ASPRS President-Elect

AGENDA

- *ASPRS Intro*
- *Users Defined*
- *Requirements*

MISSION

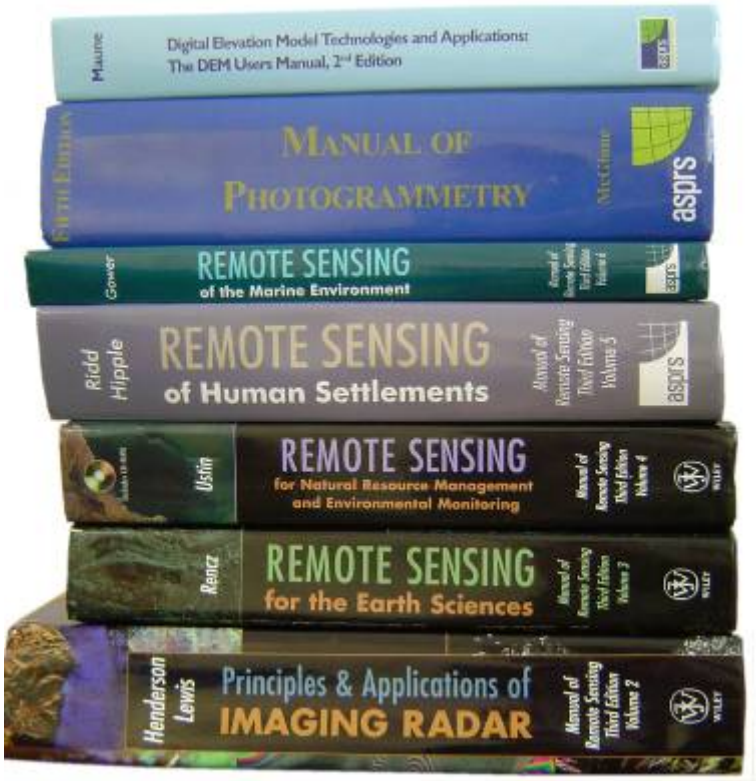
The mission of the ASPRS is to advance knowledge and improve understanding of mapping sciences and to promote the responsible applications of photogrammetry, remote sensing, geographic information systems (GIS), and supporting technologies.

Promote Awards and Scholarships Through the ASPRS Foundation

- We have a very robust Awards and Scholarship Program
- Awards and Scholarships total over $30,000 each year.
- ASPRS Foundation currently has $800,000 in endowment funds
- New scholarships established each year.

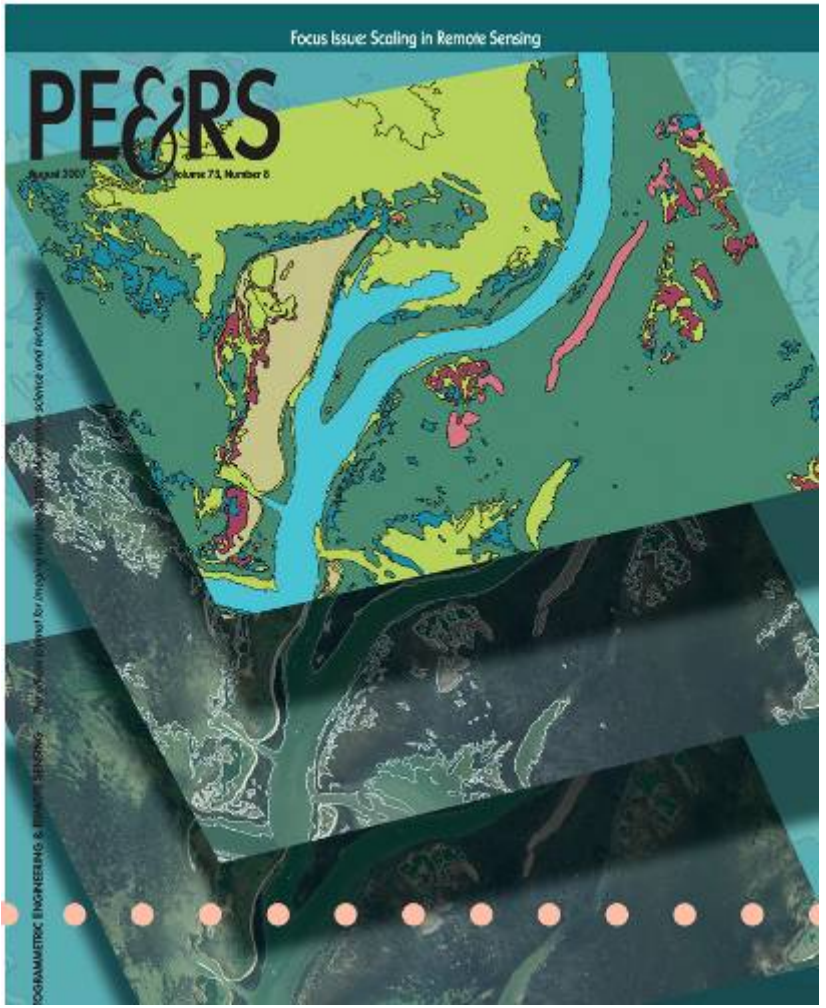
Enhance the Strength and Value of ASPRS Publications

- DEM Manual, 2nd edition released last year
- Upcoming significant publications
  - GIS Manual
  - Sensors and Platforms
  - Lidar Manual



PE&RS – an ASPRS Jewel

- *PERS delivers the latest information about innovation in geospatial information technologies.*



Develop Standards And Guidelines

- *ASPRS's legacy of establishing community wide standards and guidelines is integral to the Society's standing in the geospatial community*

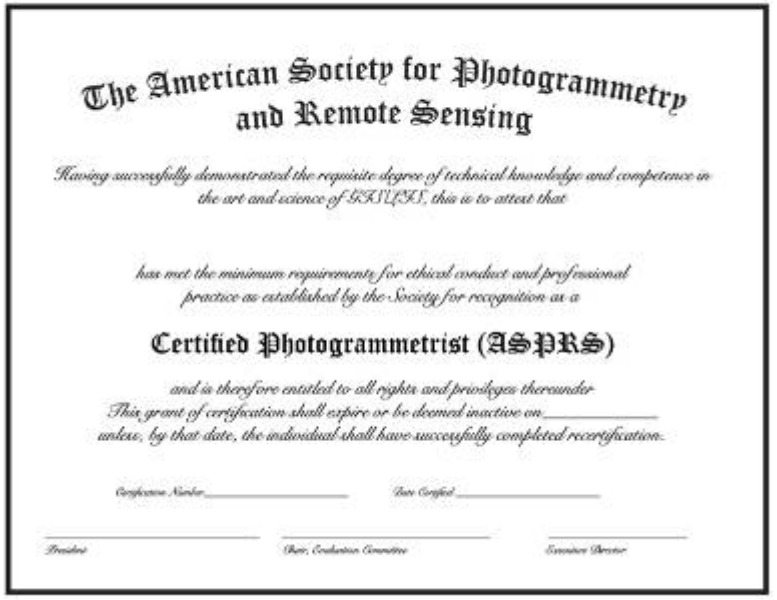
- *Elevating the Standards subcommittee to a standing committee last year has been an important step*

Students – Our Inspiration Today, Our Strength Tomorrow

- New student chapter toolkit
- Student Advisory Council
- New student chapters
- Provisional Certification
- Signature, the online ASPRS Student Member website and resource
- Student membership increase substantial
- Marguerite Madden to Chair the new Ad Hoc Committee on Student Assistantships

Promote Professional Education, Certification and Licensure

- *"an ASPRS provisionally certified professional is worth their weight in gold."*
- *"we pay a bounty for ASPRS certification"*
- *Certification raises the stature of our profession and the prestige of the Society.*



The American Society for Photogrammetry and Remote Sensing

Having successfully demonstrated the requisite degree of technical knowledge and competence in the art and science of PHOTOGRAMMETRY, this is to attest that

has met the minimum requirements for ethical conduct and professional practice as established by the Society for recognition as a

Certified Photogrammetrist (ASPRS)

and is therefore entitled to all rights and privileges thereunder. This grant of certification shall expire or be deemed inactive on _____ unless, by that date, the individual shall have successfully completed recertification.

Certificate Number _____ Date Certified _____

President _____ Chair, Evaluation Committee _____ Executive Director _____

Increase Outreach, Awareness, and Use of Imaging and Geospatial Information

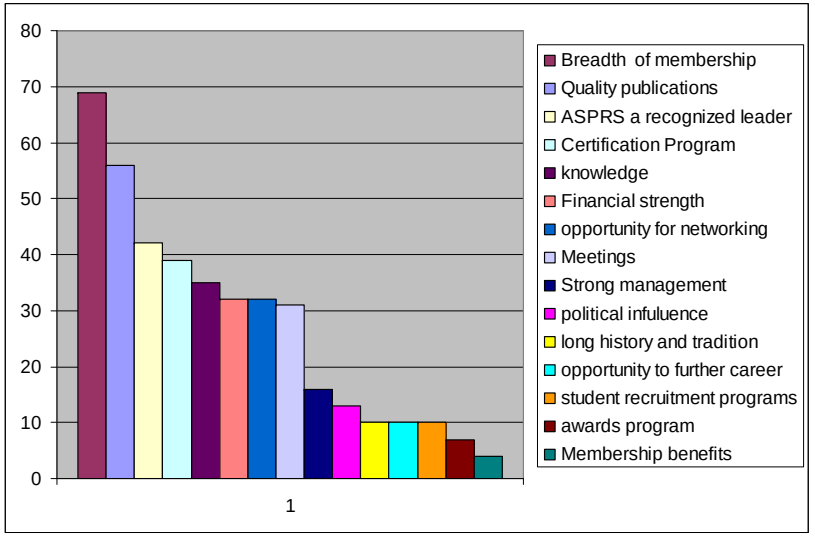
- *10-Year Remote Sensing Industry Forecast, Phases 1-5.*
- *Phase 1 and 2 documents desperately need updating.*
- *ASPRS and Charles Modello will continue to lead this effort.*

Ensure Continued Organizational Strength and Financial Stability

- *ASPRS is financially strong*
- *ASPRS awards and scholarships will soon be completely endowed, and most importantly*

ASPRS Has Multiple Strengths

- As identified by the Board of Directors
  1. Breadth of membership
  2. Quality publications
  3. ASPRS's stature in the geospatial community
  4. Certification Program
  5. Financial strength



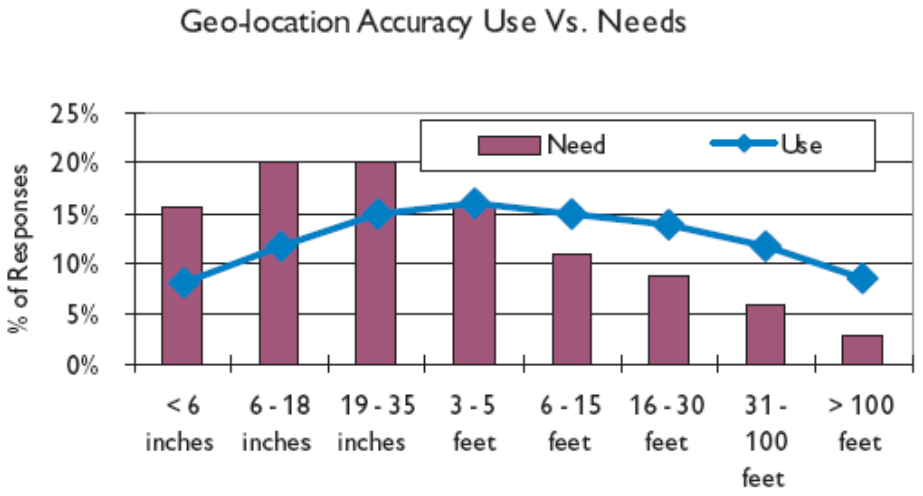
Users Defined

- *ASPRS members*
  - *Connecting decision makers with remote sensing information*
  - *Defining value of remote sensing*
- *ASPRS member value recipients*
  - *Commercial and Public Sector*
  - *Defense and Civilian*
  - *Local and Global*

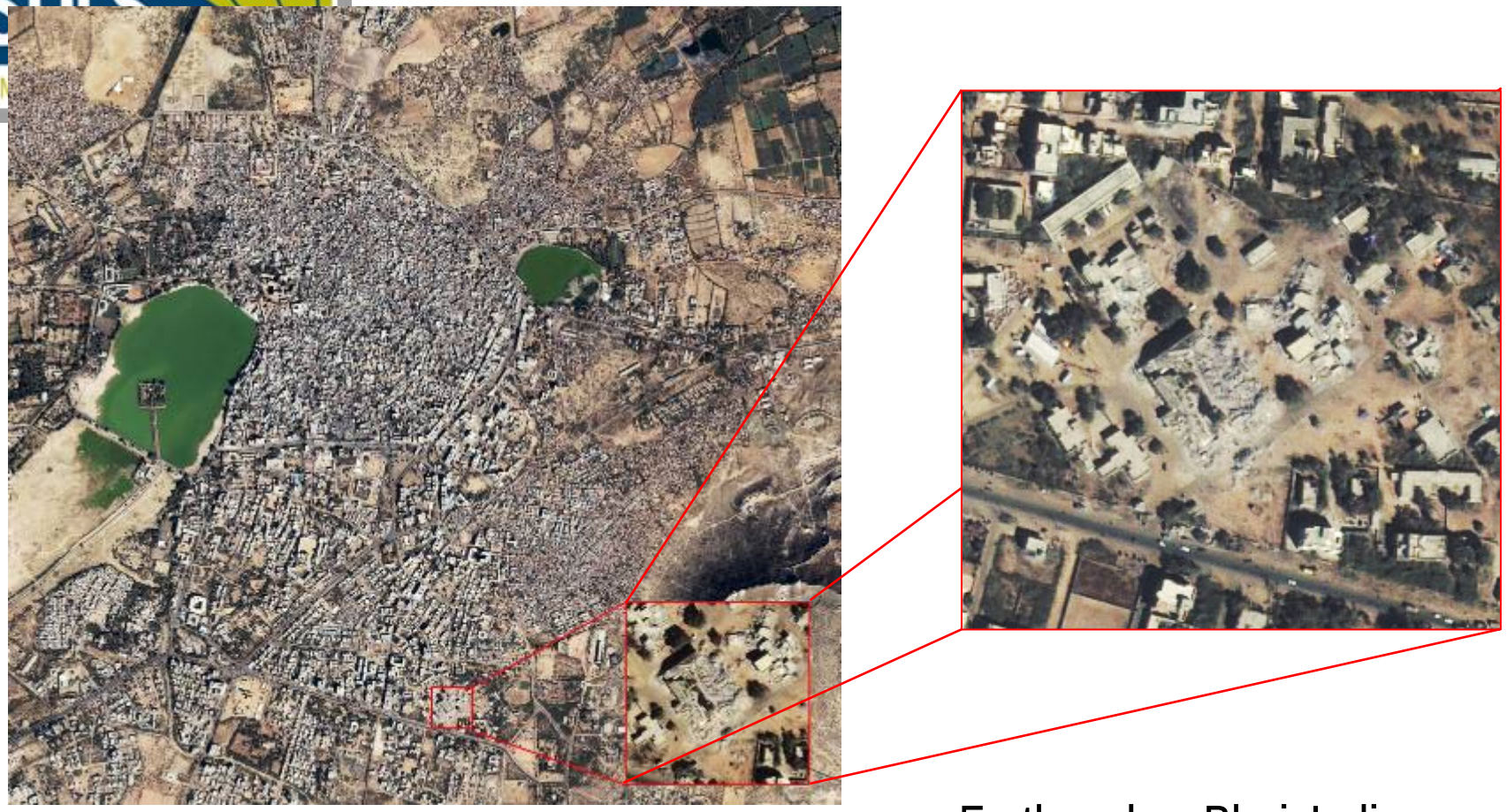
Requirements…beyond spatial resolution

- *ASPRS/NOAA/NASA Industry Forecast (perspective)*
  - *Spatial resolution dependency on users*
  - *Gov't value recipients still large driver of imagery use*
  - *Workforce concerns (ASPRS JOB ONE!)*
  - *Future forecasts*

- *Future of Land Imaging/Landsat Survey*
  - *~$1 billion impact*
  - *~50% operational*



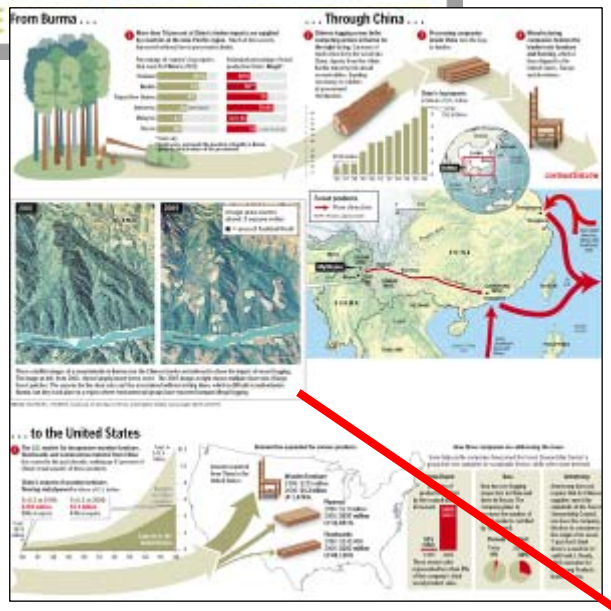
Natural Disaster Reporting

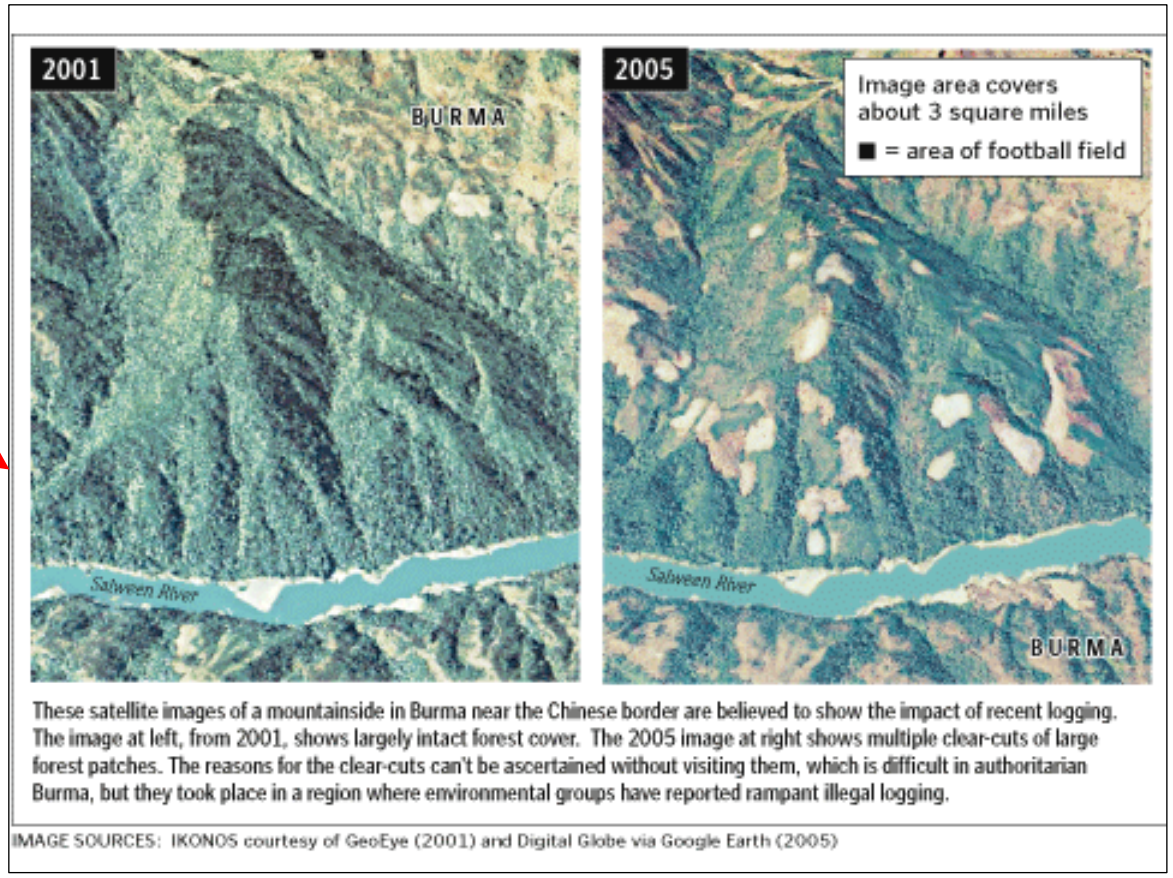


Earthquake: Bhuj, India

Washington Post – Illegal Logging Story

April 1, 2007 page 1 story, used GeoEye and DigitalGlobe imagery in graphic



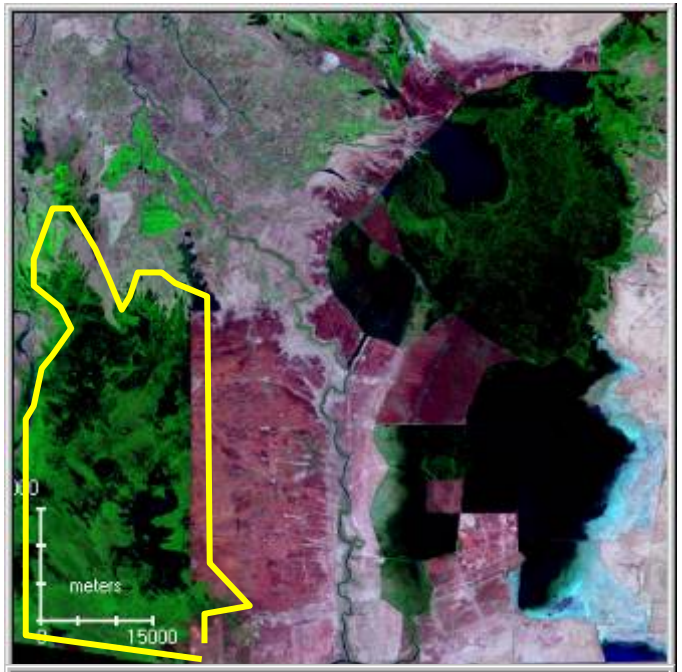


Draining of the Iraqi Marshes

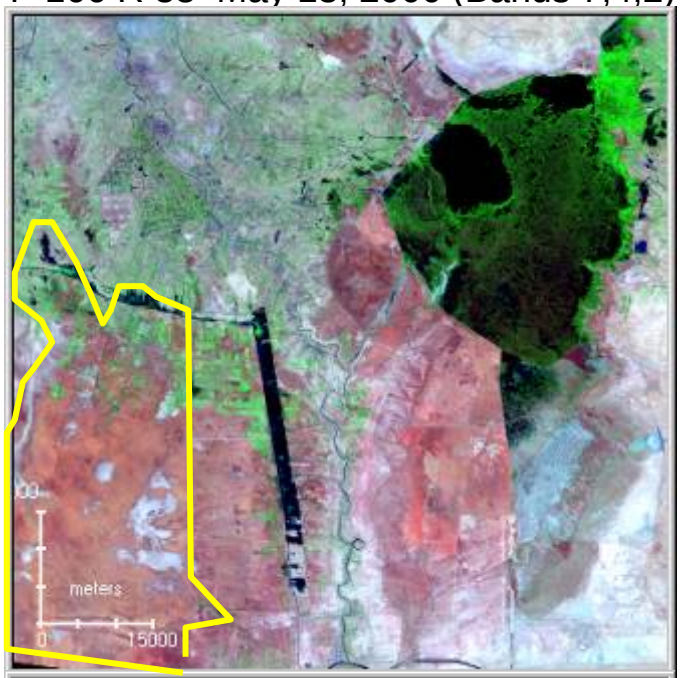
GeoCover LC data shows over 9,000 km² drained from 1990 to 2000

Location:
47° 07’ 29.12” E
31° 15’ 45.70” N

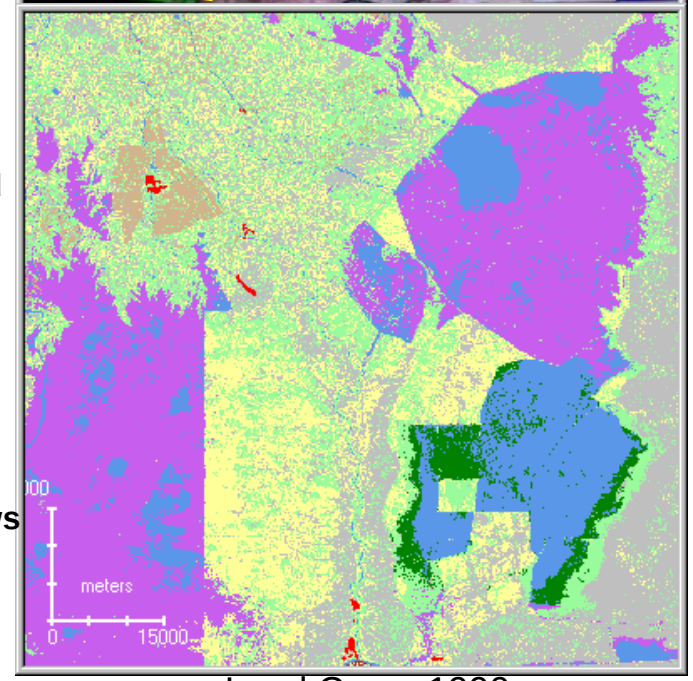
P 166 R 38 Sept 07, 1990 (Bands 7,4,2)



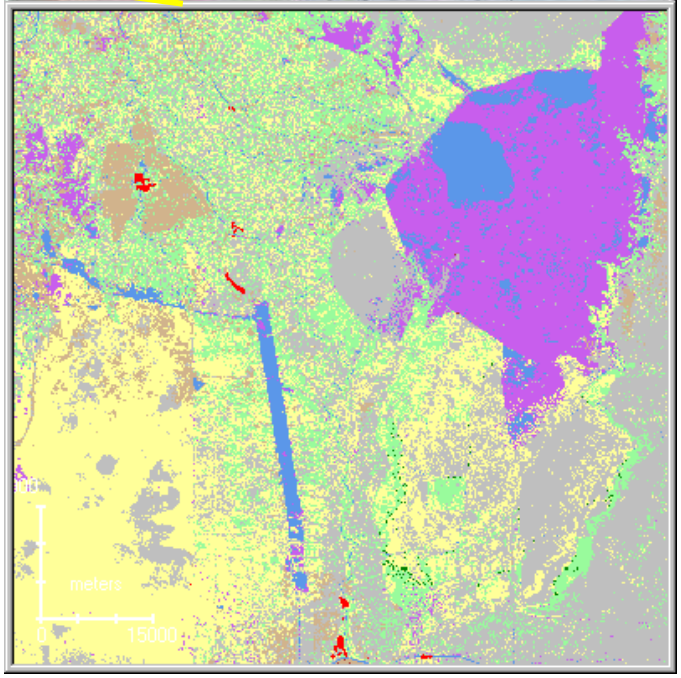
P 166 R 38 May 13, 2000 (Bands 7,4,2)



- Forest - Deciduous
- Forest - Coniferous
- Scrub / Shrub
- Grasslands
- Barren/Sparsely Vegetated
- Urban / Built up
- Agriculture - Rice Fields
- Agriculture - Other
- Wetlands
- Wetlands - Mangroves
- Water
- Ice/Snow
- No Data / Clouds / Shadows



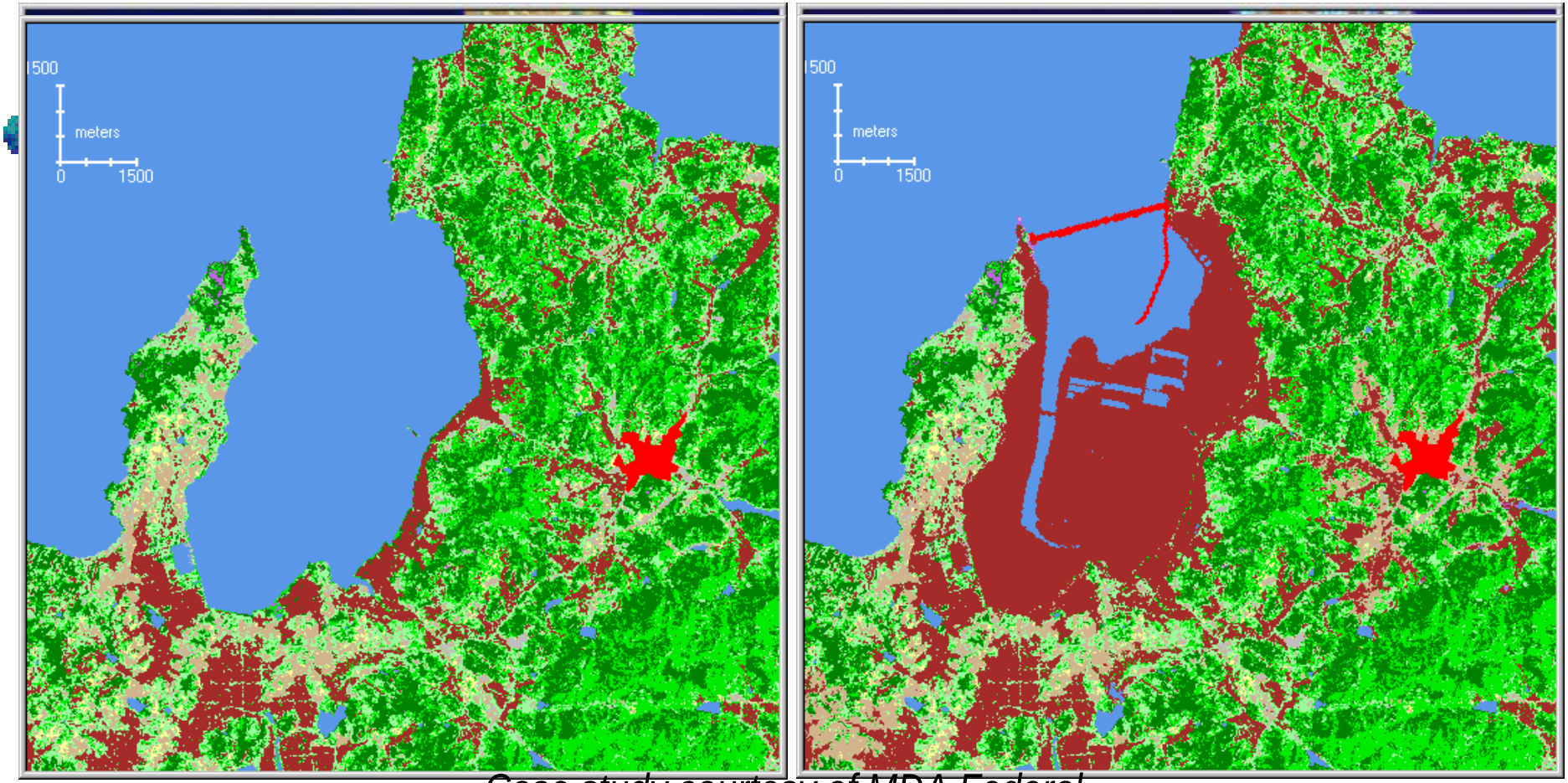
Land Cover 1990



Land Cover 2000

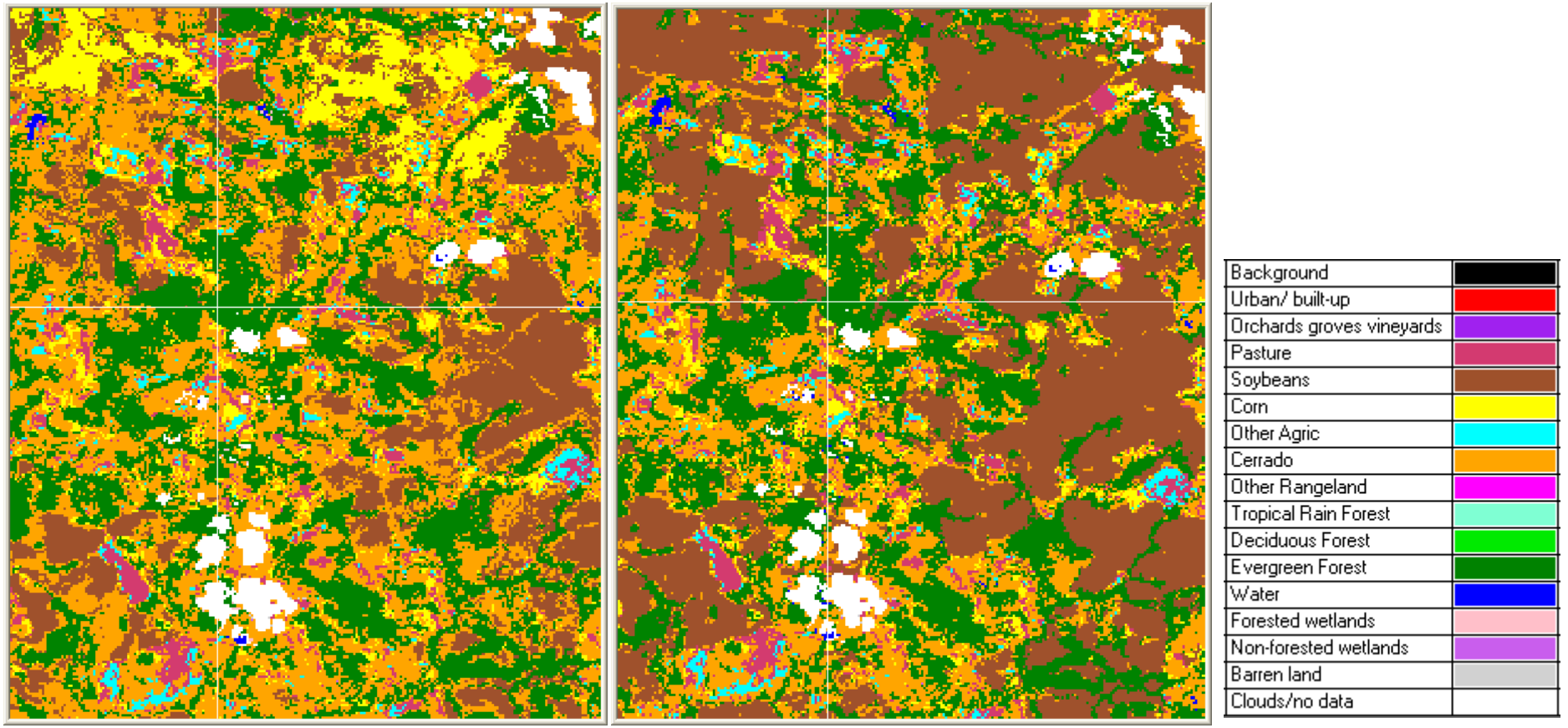
Case study courtesy of MDA Federal

Coastal Change



Case study courtesy of MDA Federal

Forest Loss to Agriculture: Soybean Expansion in Brazil



Case study courtesy of MDA Federal

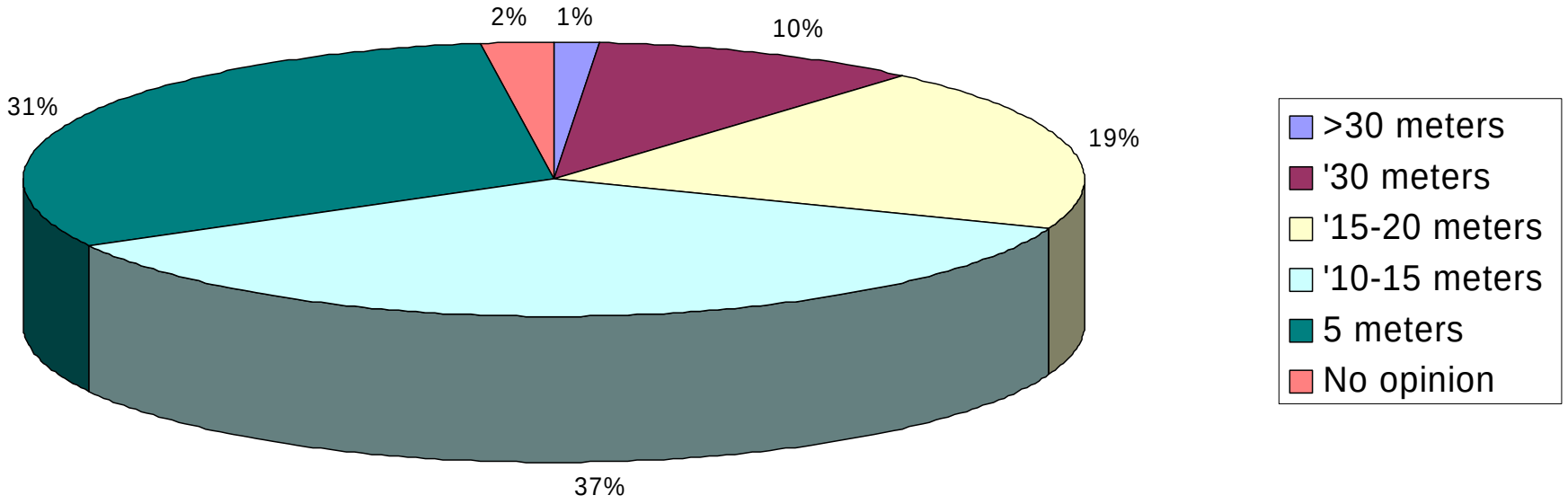
Operational Programs Are Varied

Operational programs using moderate resolution data include

- *Inventorying toxic releases*
- *Monitoring grant performance*
- *Emergency response*
- *Coastal change analysis*
- *Support of DoD operations*
- *Mineral exploration*
- *Water rights monitoring*
- *Land use and land cover change*
- *Crop estimates*
- *Forest management*
- *Space cartography*
- *Wildlife reintroduction*
- *Design of defense systems*
- *Range management*
- *Invasive species monitoring*
- *Deforestation monitoring*
- *Recreation planning*
- *Soil analysis*
- *Ecosystem mapping*
- *Water resource planning and administration*
- *Snow and ice monitoring*
- *Detecting and monitoring volcanic activity*
- *Wetlands rehabilitation*
- *Weather prediction*
- *Wildland fire risk assessment*
- *Irrigation management*
- *Carbon cycle monitoring*
- *Mapping groundwater discharge zones*

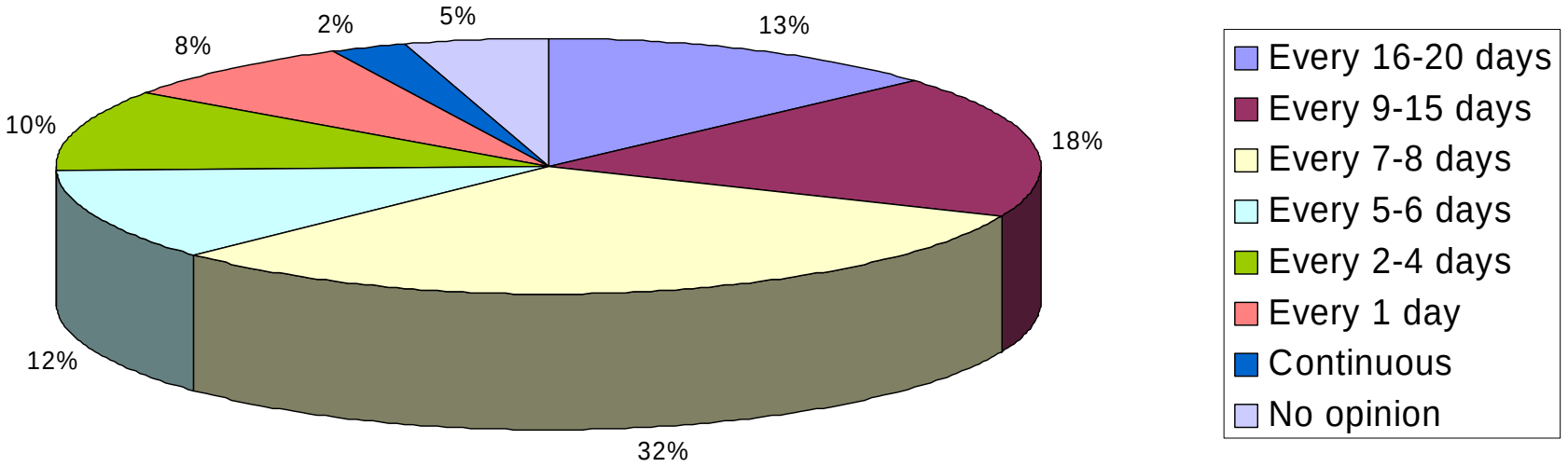
Draft Results

Desired Spatial Resolution



Draft Results

Desired Temporal Resolution



Draft Results

Members Requirements
(look also at the Society that Represents them)

- Standards,
- Application development,
- Trained workforce.

Final Comments

- *Value of information increases directly with the uncertainty of a future event (situation),*
- *Remote Sensing is not just a spatial measurement requirement. It also provides*
  - *Transparency,*
  - *Objectivity,*
  - *Reliability,*
  - *Frequency,*
  - *Timeliness.*

Final Comments

- *It is our responsibility to be engaged and to affect debates and decisions*
  - *Worldwide food security,*
  - *Environmental management,*
  - *Health management,*
  - *National security,*
  - *Homeland security.*

THE IMAGING & GEOSPATIAL INFORMATION SOCIETY