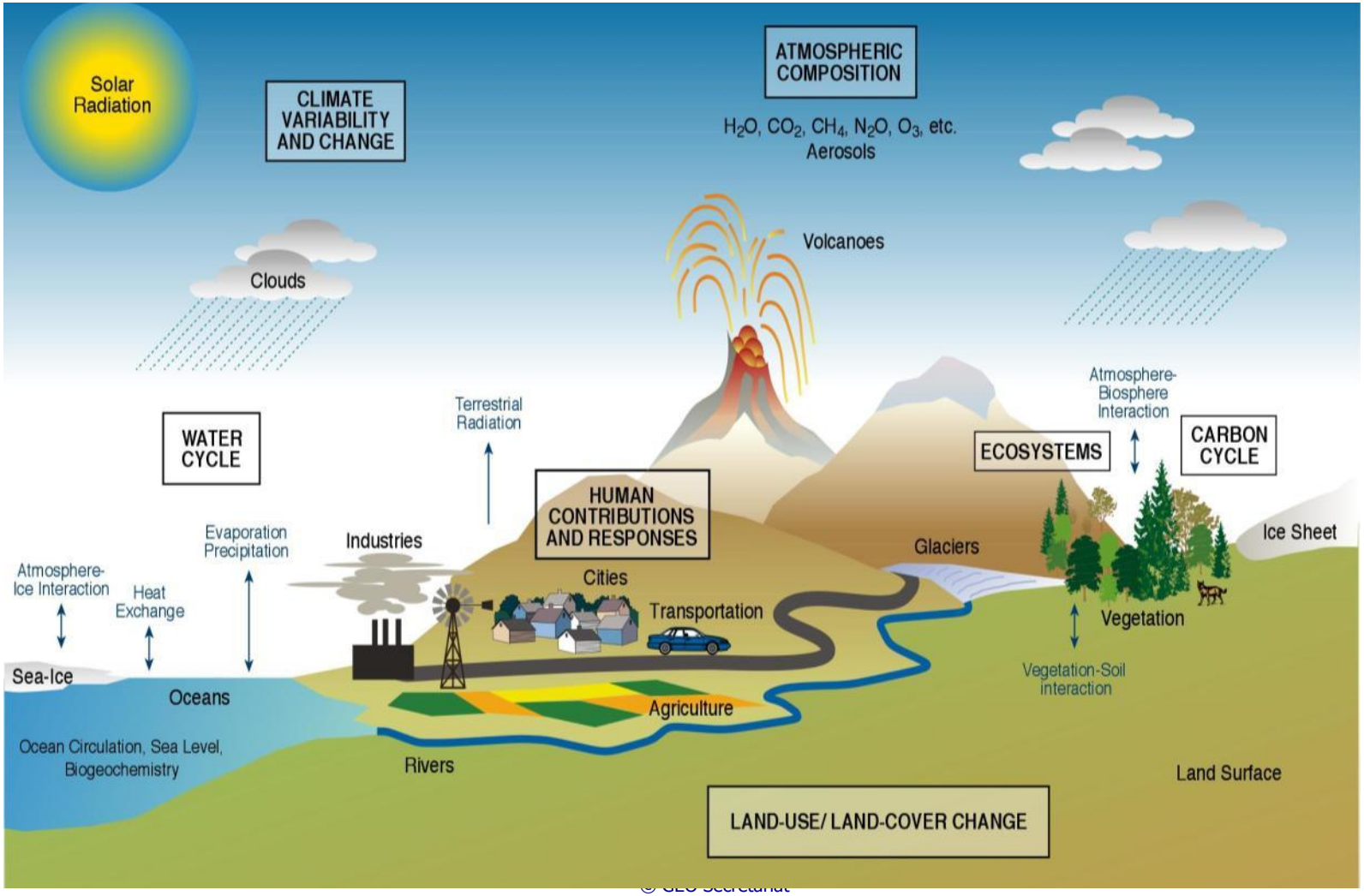
GEO - GEOSS Support of the CBD 2010 Targets

CBD - SBSTTA
Paris, 4 July 2007

Douglas Muchoney, GEO Secretariat

The Earth is a complex system of systems



Any Single Problem Requires Many Data Sets

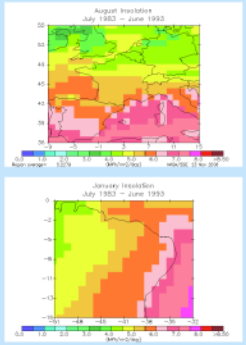
A Single Data Set Will Serve Many Communities

Group on Earth Observations

Solar Energy

SSE Data Set

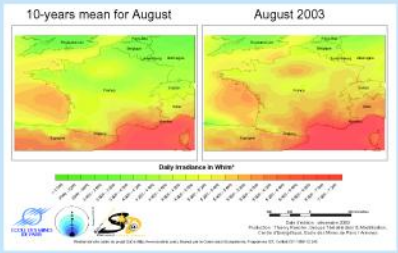
Access through:
http://eosweb.larc.nasa.gov/sse/



- Monthly averaged from 11 years of data (1983-1993)
- Data tables for a particular location
- Color plots on both global and regional scales
- Over 200 satellite-derived meteorology and solar energy parameters
- Data for the RETScreen® Clean Energy Project Analysis Software

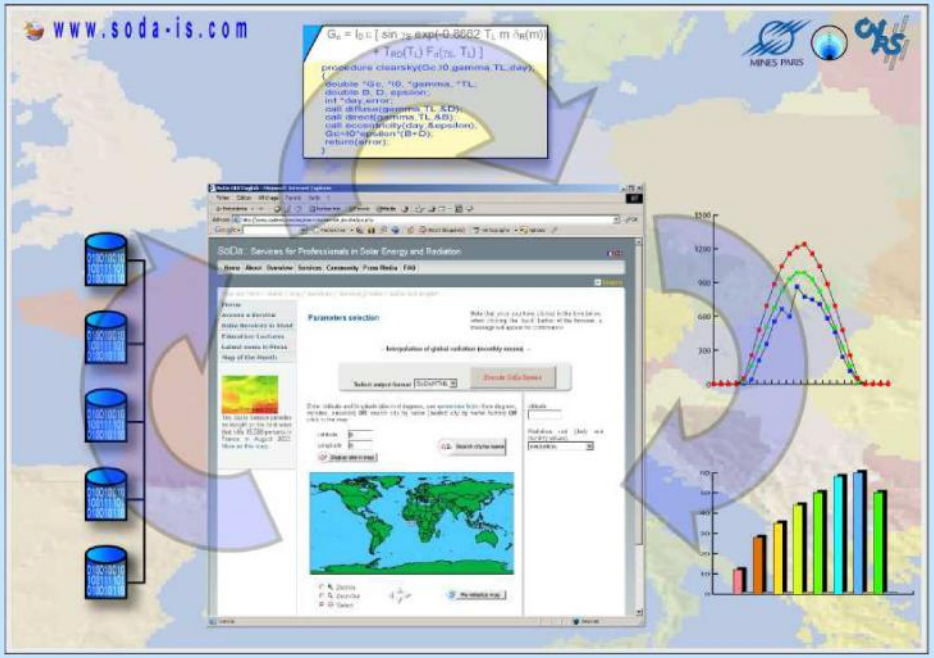
Helioclim Database

Access through SoDa:
http://www.soda-is.com/



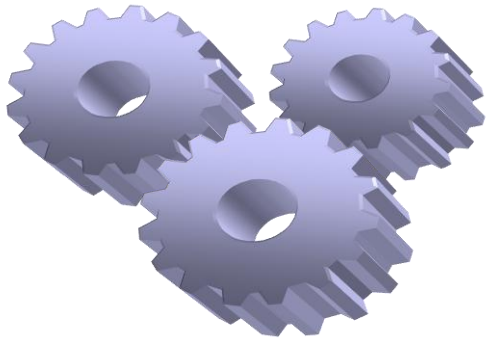
- Database and time-series of irradiance or irradiation
- Produced by the processing of satellite images, especially from the Meteosat series of satellites
- Covering Europe, Africa, the Mediterranean Basin, the Atlantic Ocean and part of the Indian Ocean
- Period runs from 1985 onwards

The SoDa Service Integrator



GEOSS Implementation is a Non-binding, Voluntary Process

- **Relies on the Goodwill of Members and Participating Organizations**
- **Efficient for Contribution of Components**
- **Not a Funding Mechanism**
- **GEO implements GEOSS**



GEO Goal

- **Improve and Coordinate Observation Systems**
- **Provide Easier & More Open Data Access**
- **Foster Use (Science, Applications, Capacity Bldg)**

… to answer Society's need for informed decision making

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GEOSS: A Global, Coordinated, Comprehensive and Sustained System of Observing Systems

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GEOSS will Address Nine Societal Benefit Areas

1. Reduction and Prevention of Disasters
2. Human Health and Epidemiology
3. Energy Management
4. Climate Variability & Change
5. Water Management
6. Weather Forecasting
7. Ecosystems
8. Agriculture
9. Biodiversity

GEOSS achievement through 5 Transverse Areas

1. Architecture
2. Data Management
3. User Engagement
4. Capacity Building
5. Outreach

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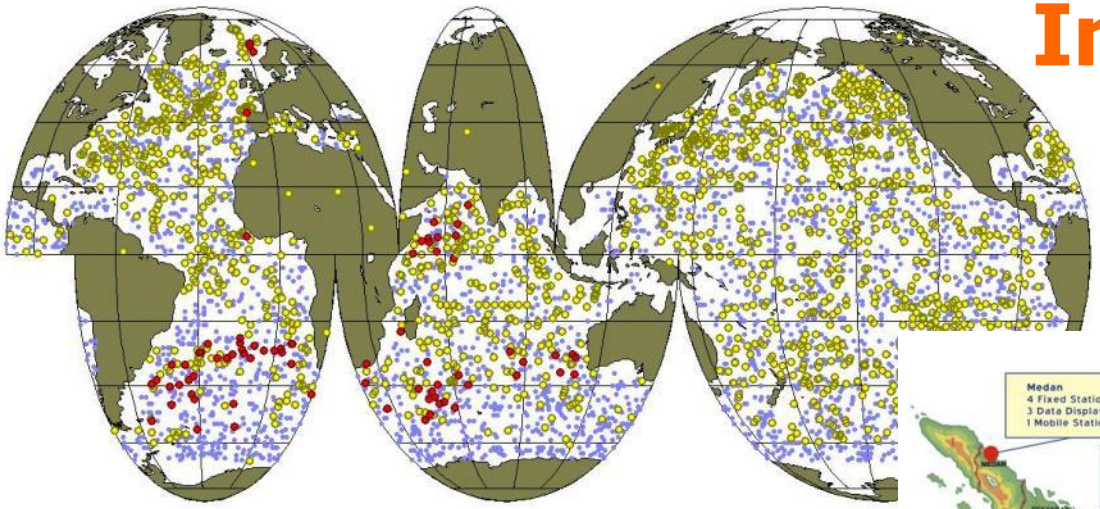
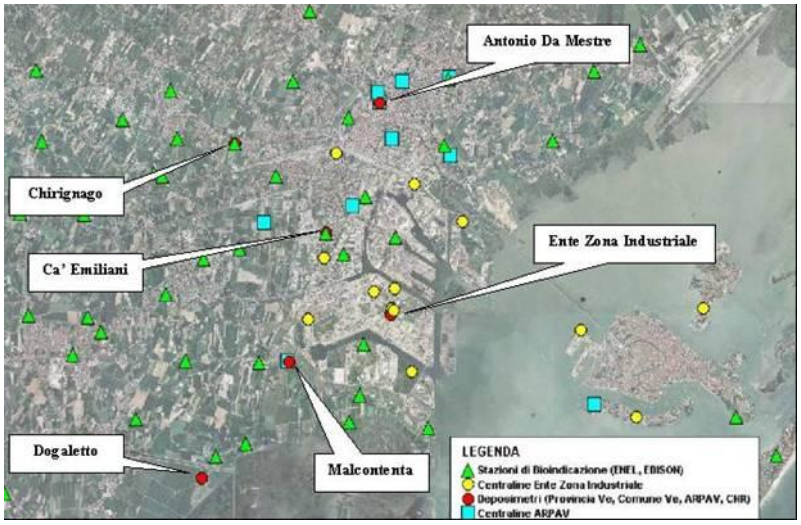
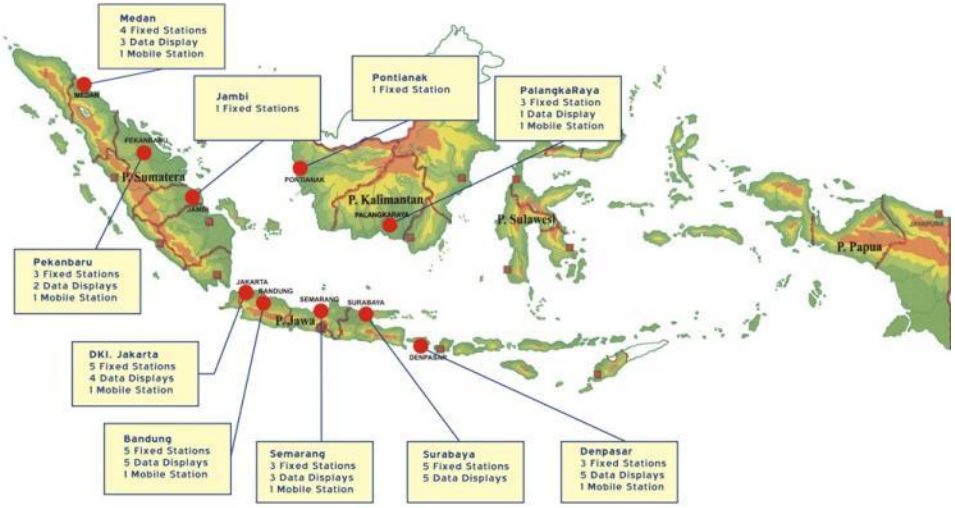
Space Observation Systems

In Situ Observation Systems

Global Argo Float Array (red – Argo UK; yellow – all Argo; blue – proposed array)







Assistant Deputy for Environmental Impact Control Facility
Deputy Minister for Technical Infrastructure for Environmental Management
Ministry Environment

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GEO Societal Benefit Areas

1. Reduction and Prevention of Disasters
2. Human Health
3. Energy Management
4. Climate Change
5. Water Management
6. Weather Forecasting
7. Ecosystems
8. Agriculture
9. Biodiversity

ECOSYSTEMS GEO Point of Contact:
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Tel: 00 41 22 730 84 71

GEO Ecosystems

Objective: to improve the management and protection of terrestrial, coastal and marine resources

Goals:

- Initiation of a global carbon observing system (IGCO; EC-06-07)
- Development and mapping of global operational scheme for ecosystems classification (EC-06-02)
- Historical Ecosystem Data Inventory, Collection and Capture
- Harmonization of ecosystems observing methods
- Improving tools for space-based and *in-situ* ecosystems observations

GEO Ecosystems

Goals (cont.):

- GEO Ecosystems Observation Network (GEOECONET; EC-07-01)
- Regional Networks for Ecosystems (EC-06-07)
- Development of a global sampling frame for ecosystems
- AR-07-02: GEOSS Architecture Implementation Pilot Interactive Data Access and Analysis System
- Global Land Cover (DA-07-03)
- Forest Monitoring (AG-06-04)
- Protected Area Monitoring

Ecosystems Task EC-06-02: *Ecosystem Classification and Mapping*

Leads: USA, USGS, Roger Sayre and Guyra Paraguay, Alberto Janoskey)

Key 2006/07 Outcomes:

- Ecosystem Classification Advisory Group (ECAG) convened
- Development of protocols for robust global ecosystem classification
- Recommendations on classification framework; Workshop hosted by USGS and Guyra Paraguay, in Asuncion Paraguay, 9- 13 Oct 2006
- Mapping of the classification framework initiated
- Freshwater Ecosystem Workshop in Washington, 4-8 Dec 2006.
- Marine Ecosystem Workshop, 2007

GEO Ecosystems

Major Events

- Ecosystem Classification Working Group Meeting
  Asuncion Paraguay, 9-13 October 2006
- Freshwater Ecosystem Classification Working Group Meeting
  Arlington Virginia USA, December 2006
- Marine Ecosystem Classification Working Group Meeting
  2007, venue TBD
- IABIN, NBII and GEO-hosted Protected Areas for South America Workshop, Paraguay 2007
- Global Forest Monitoring Symposium, TBD 2008

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GEO Societal Benefit Areas

1. Reduction and Prevention of Disasters
2. Human Health
3. Energy Management
4. Climate Change
5. Water Management
6. Weather Forecasting
7. Ecosystems
8. Agriculture
9. Biodiversity

Biodiversity GEO Point of Contact:
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Tel: +41 (0)22 730 84 71

GEO Biodiversity

Objectives: Understanding, monitoring and conserving biodiversity. Issues include the condition and extent of ecosystems, distribution and status of species, and genetic diversity in key populations.

Goals:

- GEO Biodiversity Observation Network (GEOBIONET, EC-07-01)
- Invasive Species Monitoring Network (BI-07-02)
- Specimen Data Collection (BI-06-03)
- Data Collection Protocols
- Protected Areas Mapping and Monitoring
- AR-07-02: GEOSS Architecture Implementation Pilot Interactive Data Access and Analysis System

GEO Biodiversity

Task Number	**Initiate the development of a strategic plan for capturing historical biodiversity data from natural history collections and the research community**
BI-06-03	**<u>Key 2006/07 Outcomes</u>:** - 1st Meeting of GBIF GEOSS Interest Group (Cape Town, 5 April 2006) - Progress on identification of specimen & observational data to be digitized (Workshop jointly organized by DIVERSITAS, GTOS, GBIF, GEO, Geneva, 23-25 October 20006). - GBIF / ESA and FAO, U. of Ottawa Species and Climate Change Demo
Societal Benefit Area	
Biodiversity	
Relevant Committee	
STC	

GEO Biodiversity

Task Number	GEO Invasive Species Monitoring
BI-07-02	This task will characterize the current requirements and capacity for invasive species monitoring, identify gaps, and develop and implement strategies for a global, operational invasive species monitoring system. Coordinate development of the Invasive Species Monitoring System with the USGS Invasive Species program, IUCN/SSC Invasive Species Specialist Group (ISSG) and other invasive species activities.
Societal Benefit Area	
Biodiversity	
Relevant Committee	
STC	

GEO Biodiversity

Task Number	Biodiversity Requirements in Earth Observation
BI-06-02	Building on the framework adopted for monitoring biodiversity trends in the UN Convention on Biological Diversity, conduct a series of workshops and meetings to (i) define the needs and requirements of the biodiversity information users sector, (ii) delineate available methodologies and (iii) identify the adequacy of current and past observational strategies.
Societal Benefit Area	
Biodiversity	
Relevant Committee	
STC	

GEO Biodiversity

Task Number	GEO Global Biodiversity Observing Network
BI-07-01	**The task will further develop and implement the GEO Global Biodiversity Observation and Monitoring Network. The task will build upon the Biodiversity task BI-06-02, "define the needs and requirements of the biodiversity information". For the ocean, it will build on the implementation of monitoring through IOC's Coastal GOOS, and the Census of Marine Life program with its Ocean Biogeographic Information System**
Societal Benefit Area	
Biodiversity	
Relevant Committee	
STC	

GEO Biodiversity BI-07-01

Building on the successful integration of numerous institutions representing user and provider communities, initiated in 2006, this task will:

- Develop a strategy for assessing biodiversity at both the species and ecosystems level.
- Facilitate the establishment of monitoring systems that enable frequent, repeated, globally coordinated assessment of trends and distributions of species and ecosystems of special conservation merit. among monitoring programs.

GEO Biodiversity BI-07-01

- Ensure that the biodiversity data collection process will contribute to on on-going global initiatives.
- Develop a strategic plan for the periodic assessment of species and ecosystems of merit, taking into account the results of the Millennium Ecosystem Assessment and progress towards the Convention on Biological Diversity 2010 Targets.
- Consolidate and enlarge the community, and define and operationalize the integrated global observation system

GEO Biodiversity Observation Network: What is it?

- A Network of Networks of Biodiversity Information Data Providers and Users
- An ecoregion-based *framework* for global planning and management applications
- A global *data development and analysis* effort
- An *advisory resource* for other networks and processes like IABIN, the Convention on Biological Diversity, the Conservation Measures Partnership, the UN Millennium Development Goals, etc.

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GEO Biodiversity Observation Network

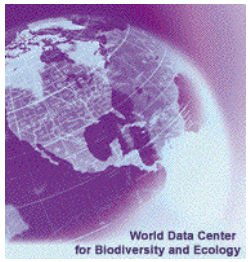
BirdLife INTERNATIONAL

DIVERSITAS
an international programme of biodiversity science

USAID
FROM THE AMERICAN PEOPLE

CENSUS OF MARINE LIFE

iabin
Inter-American Biodiversity Information Network



GUYRA PARAGUAY

CONSERVATION INTERNATIONAL

nbii
National Biological Information Infrastructure

WWF

The Nature Conservancy

USGS
science for a changing world

UNEP WCMC

IUCN
The World Conservation Union

GEO Biodiversity Observation Network – Successes to Date

- Diversitas has launched the GEO BioObservation.org website with a declaration and mechanism to join the network: http://www.bioobservation.net/
- Primarily through the USGS/NBII-supported Global Data Toolkit (GDT; http://rockyitr.cr.usgs.gov/gitan/) and partnerships with GBIF, WCMC-UNEP, IABIN and most recently with Conservation International, IUCN and the Zoological Society of London, the GDT is or will be used for Threatened and Endangered Species assessments, and supporting the global biodiversity assessments (like mammals, amphibians and reptiles).

GEO Biodiversity Observation Network – Successes to date

- The functionality of the GDT has increased tremendously, as have the data holdings. Modules now include protected areas, BirdLife and species assessments (T&E and global).
- Integrate the ***Model GEO Biodiversity Observation Network*** portal and the ***Global Data Toolkit*** (http://rmgsc.cr.usgs.gov/GITAN/) into the GEO WebPortal.
- Demo the ***Rapid Biological and Ecological Assessment of Biosphere Reserves*** project showing power of integrating data and providing models and tools such as ATtILLA landscape and hydro models and the GEO ecosystem model.
- Formation of the new ***GEO Invasive Species Monitoring Network.***
- Release of the ***Rapid Land Cover Mapping Tool***.

GEOportal: Homepage - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites

Address http://www.geoportal.org/ Go Links

GEO Portal

Home - About GEOportal - How to use GEOportal - Contacts | News - Events | GO - Advanced Search | Download GEOportal - MyGEO

Browse Resources by Societal Benefit Areas

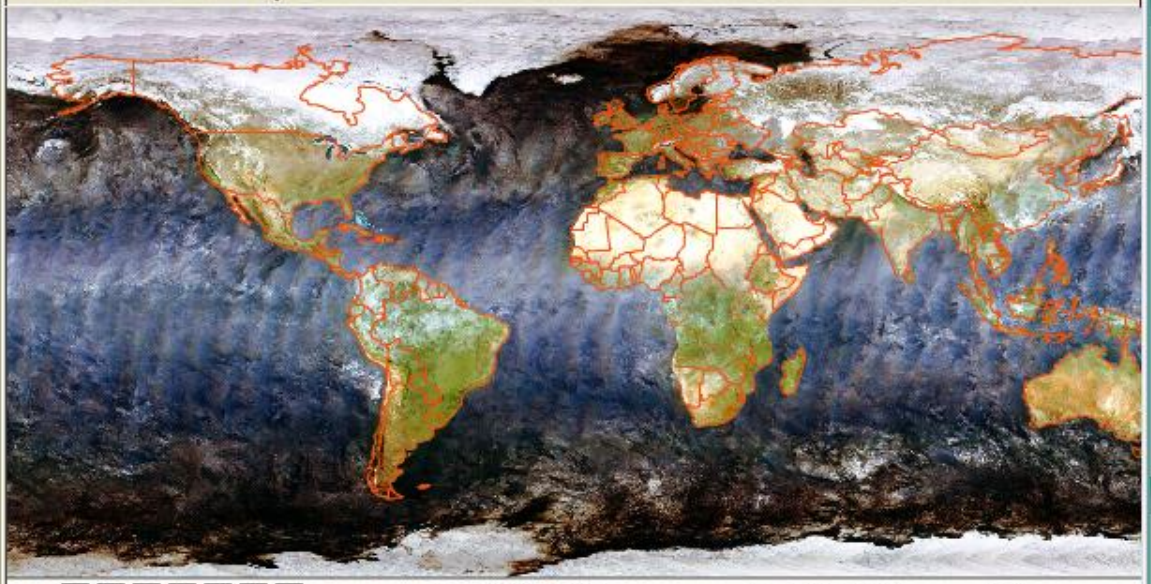
- DISASTERS
- HEALTH
- ENERGY
- CLIMATE
- WATER
- WEATHER
- ECOSYSTEMS
- AGRICULTURE
- BIODIVERSITY

Resources Provided by

Select GEO Member

GEO Clearinghouse

Browse Resources by Location



Overview Map Select Location

EVENTS

IGARSS, 23-27 July 2007, Barcelona, Spain

The 27th International Geoscience And Remote

SHOWCASE

The Elbe region in Saxony was affected by heavy flooding following strong rainfall in conjunction with snowmelt in the Krkonose

Breaking News

Intense rainfall and the rise of the Parana and Gualeguay rivers produced severe flooding in the Santa Fe and Entre Rios provinces, affecting mainly the cities of Santa Fe, Rosario and Gualeguay in Argentina. Three people were killed and the total number of evacuees was estimated at between 30,000 and 40,000.

more...

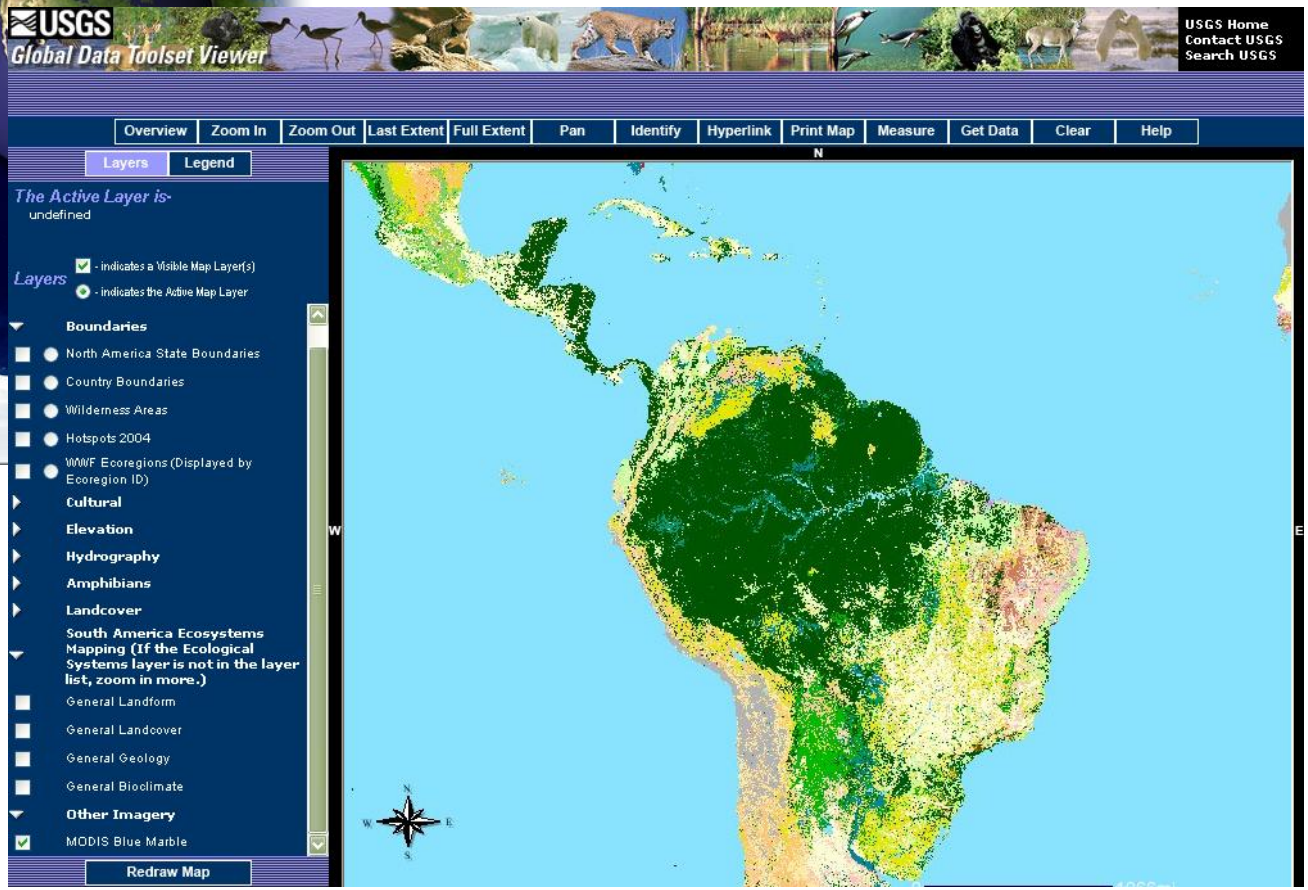
Welcome to GEOportal

The GEOportal provides an entry point to access remote sensing, geospatial static and in-situ data, information and services. The site is currently under construction with a planned release of the operational ESA contribution to the

Internet

Group on Earth Observations

GEO Global Data Toolset



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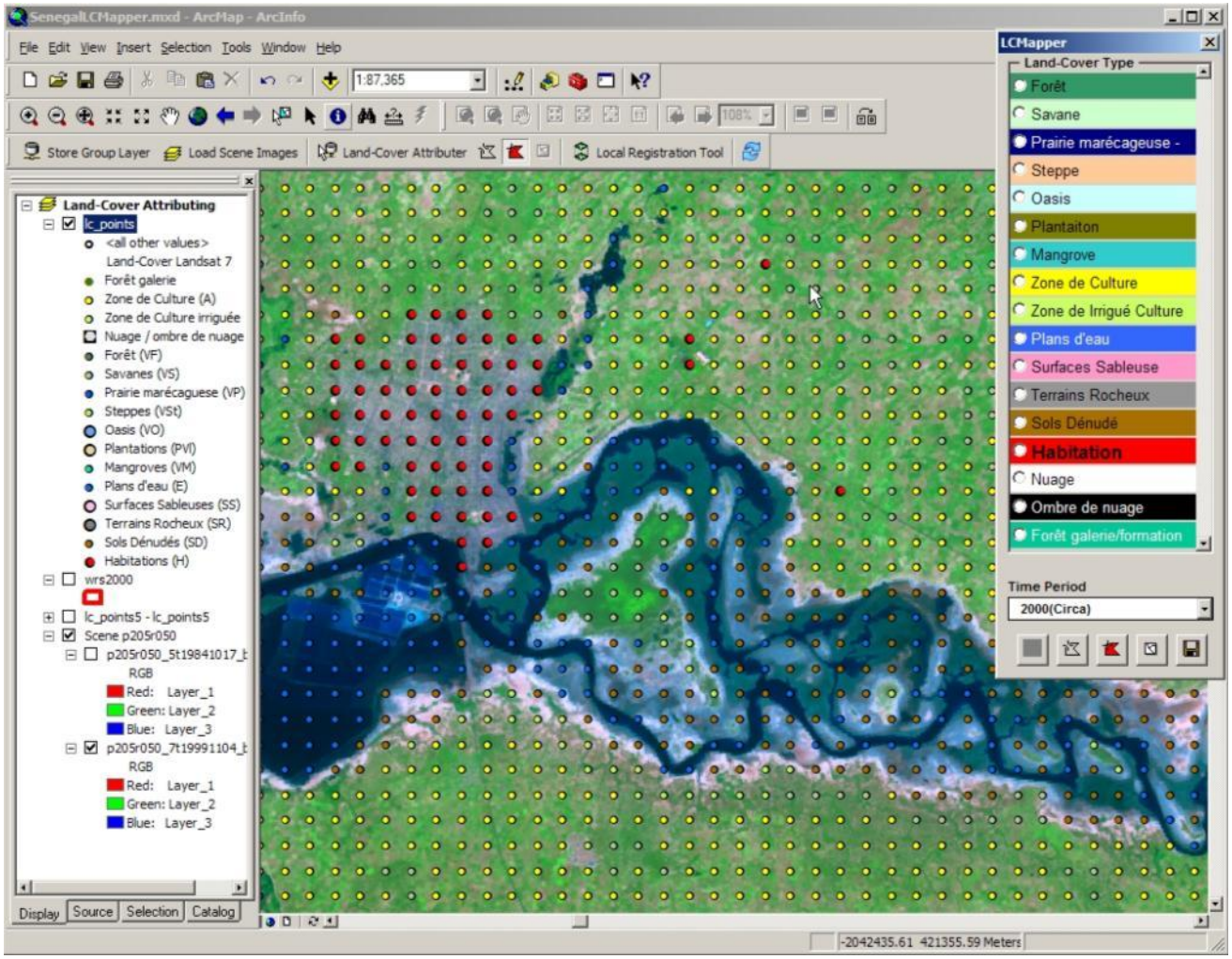
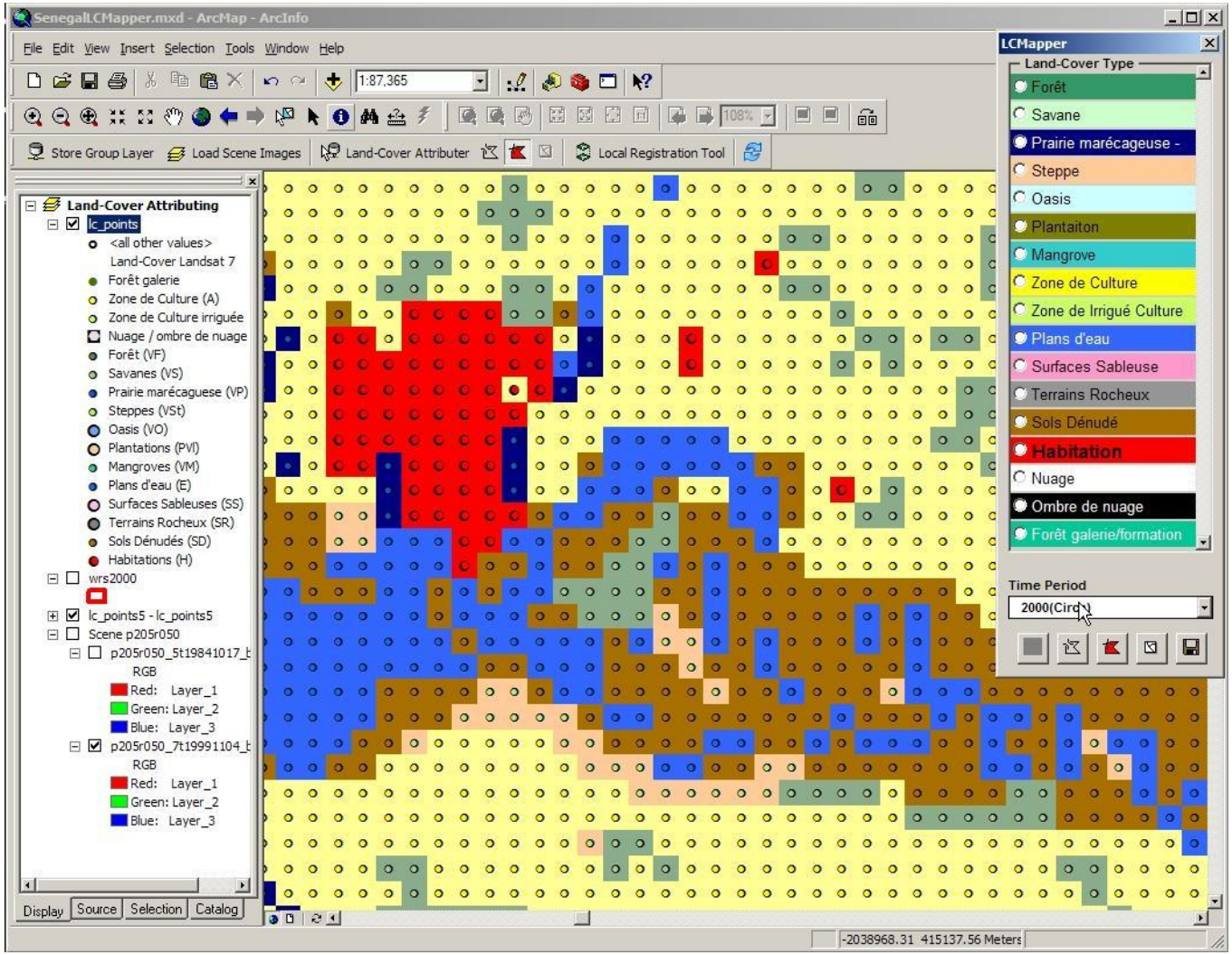
Senegal: Rapid Land Cover Mapping

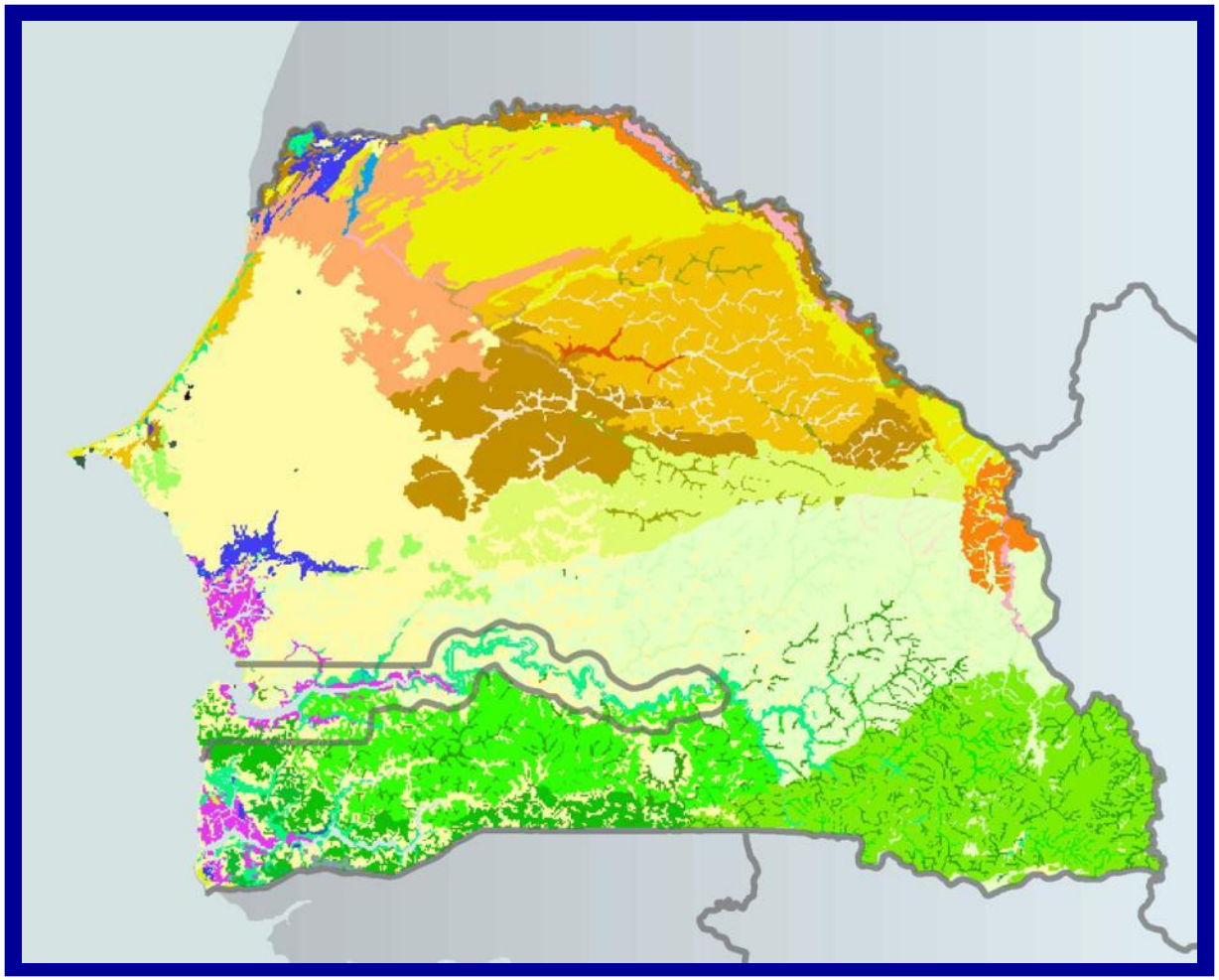


Group on Earth Observations

Senegal: Rapid Land Cover Mapping

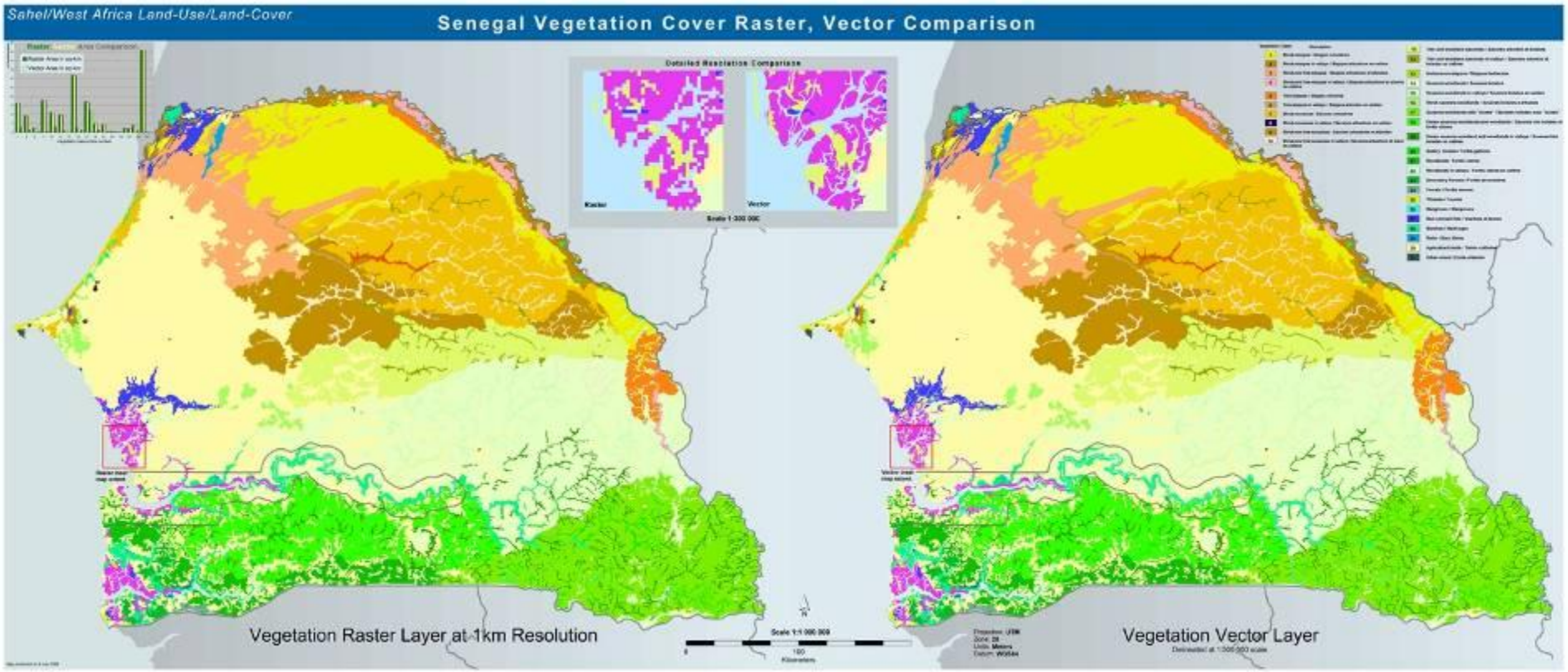


Senegal: Rapid Land Cover Mapping



Senegal Land Cover – 0.5 km Resolution Raster

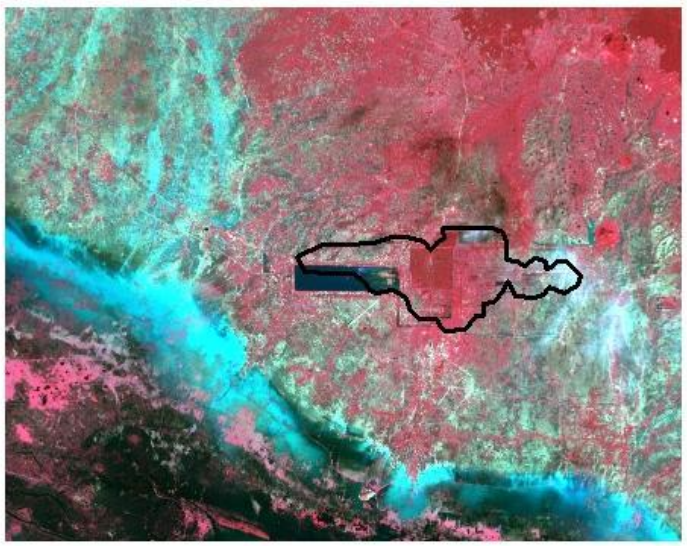
USAID
FROM THE AMERICAN PEOPLE



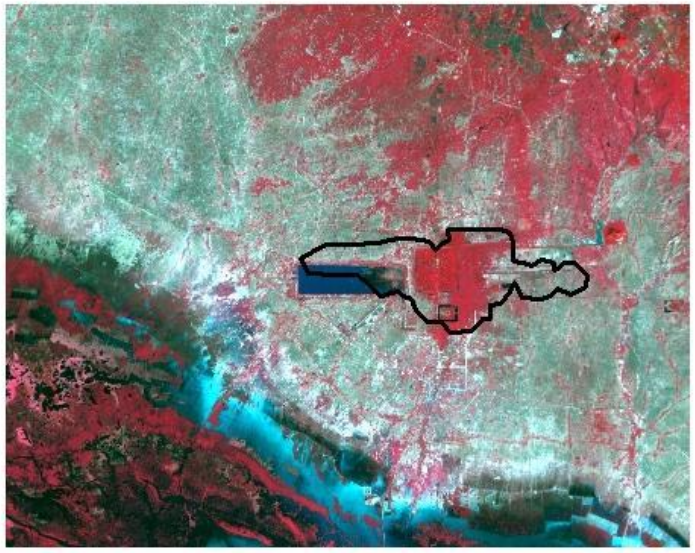
World Heritage Sites

- Satellite images show significant land use changes around Angkor Wat
- Official protected area boundaries are inappropriate

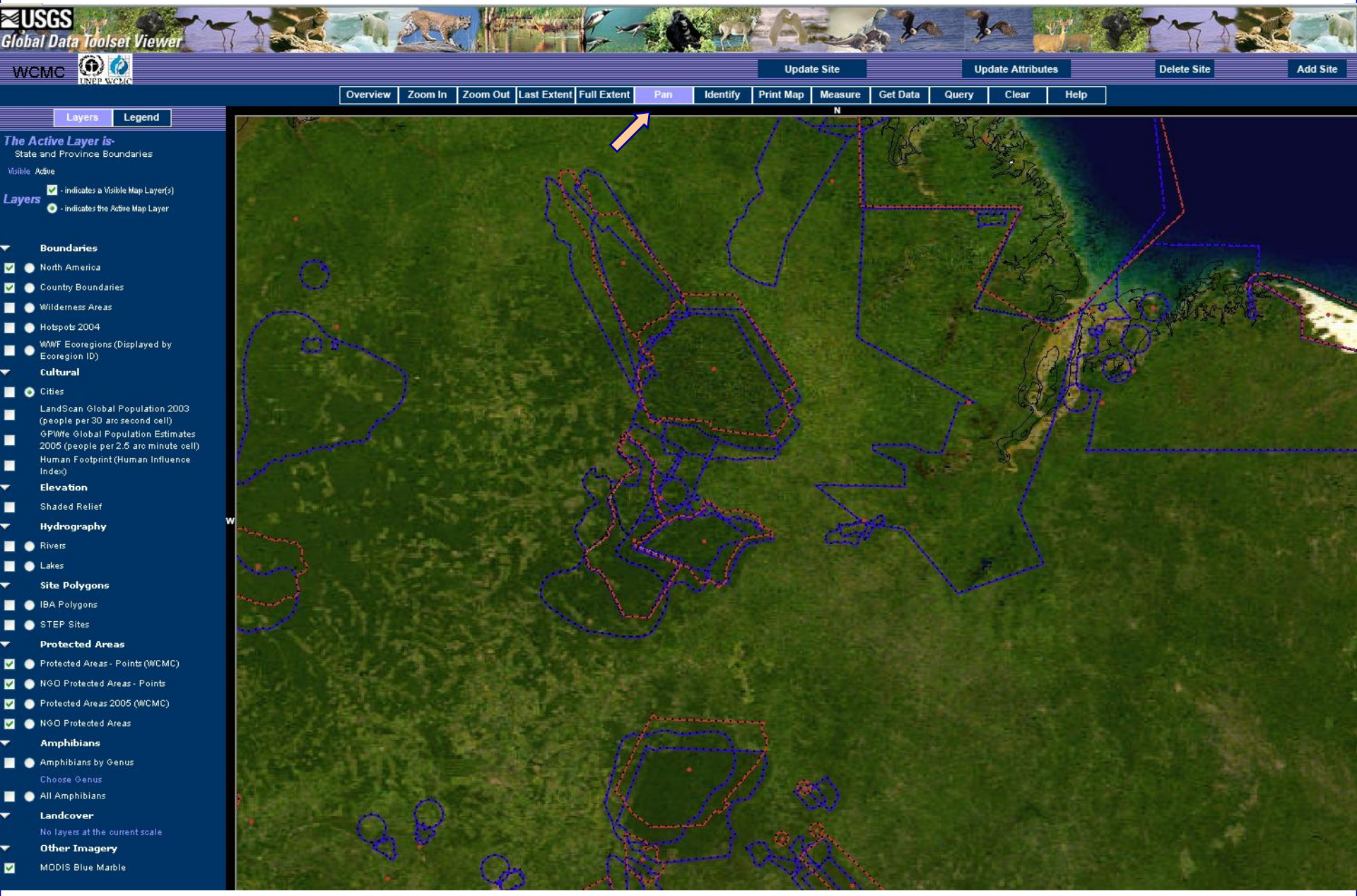
Angkor Wat, Cambodia



1990

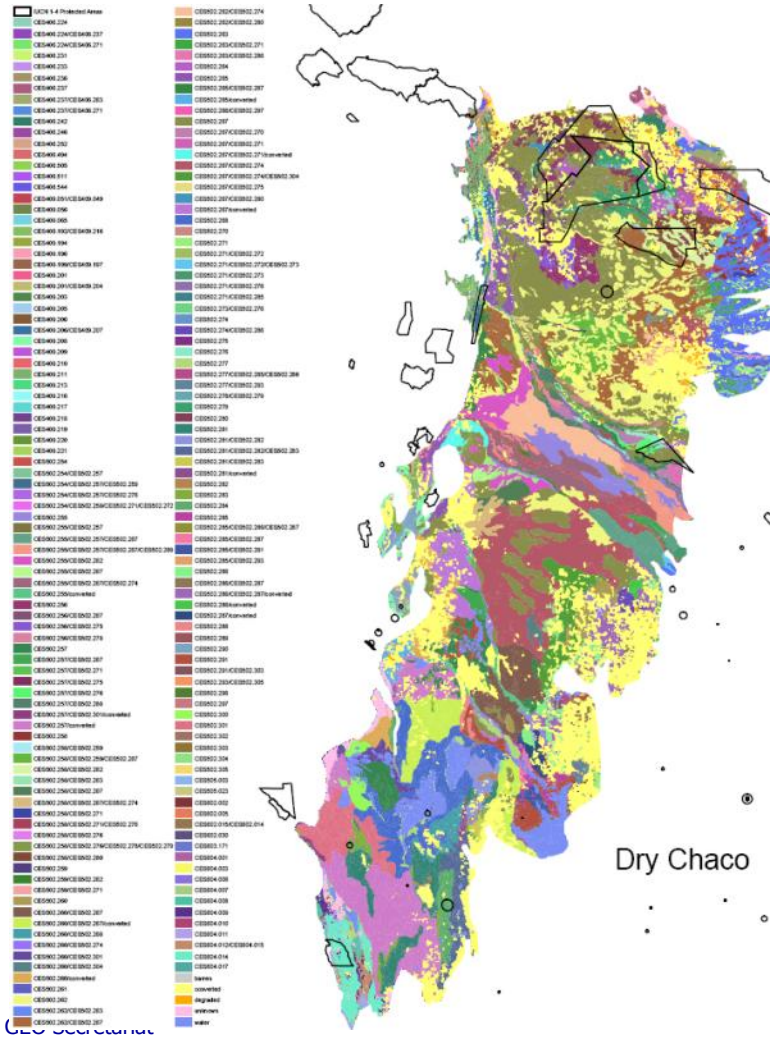


2000


USGS
Global Data Toolset Viewer
WCMC
UNEP WCMC
Update Site
Update Attributes
Delete Site
Add Site
Overview
Zoom In
Zoom Out
Last Extent
Full Extent
Pan
Identify
Print Map
Measure
Get Data
Query
Clear
Help
Layers
Legend
The Active Layer is-
State and Province Boundaries
Visible Active
Layers
- indicates a Visible Map Layer(s)
- indicates the Active Map Layer
Boundaries
North America
Country Boundaries
Wilderness Areas
Hotspots 2004
WWF Ecoregions (Displayed by Ecoregion ID)
Cultural
Cities
LandScan Global Population 2003 (people per 30 arc second cell)
GPWfe Global Population Estimates 2005 (people per 2.5 arc minute cell)
Human Footprint (Human Influence Index)
Elevation
Shaded Relief
Hydrography
Rivers
Lakes
Site Polygons
IBA Polygons
STEP Sites
Protected Areas
Protected Areas - Points (WCMC)
NGO Protected Areas - Points
Protected Areas 2005 (WCMC)
NGO Protected Areas
Amphibians
Amphibians by Genus
Choose Genus
All Amphibians
Landcover
No layers at the current scale
Other Imagery
MODIS Blue Marble
N
W

Paraguay: GAP analysis

- Representation of Paraguayan terrestrial ecosystems in the national protected area system
- COP-7/CBD mandates that all signatory countries implement a national gap analysis of their biodiversity



GEO Biodiversity Observation Network Value-Added

- Cost Saving: reduce redundant data collection, management and analyses
- Integrated Analysis: Data Sharing and Interoperability allows for analyses that would not be performed
- Capacity Building: providing data and tools

GEO Biodiversity Observation Network Critical Elements

- Rapid Biosphere Assessment Prototypes completed
- Integrate GITAN GDT Portal with GEO Web Portal
- Web-enable the Rapid Land Cover Mapping tool
- GBIF – GEO Biodiversity Climate Change Demo
- Participant follow-through

GEO Biodiversity

Major Events:

- GBIF Species Data Workshop, Geneva, 23-25 October 2006
- User Requirements for Biodiversity; DIVERSITAS, GEO, GBIF, GTOS); Geneva, 23-25 October 2006
- Forum on Biodiversity and Human Health, Washington, September 2006
- Invasive Species Monitoring Network Workshop, 2007, venue TBD
- GEO Biodiversity Observation Network Planning Meeting, 18-20 October 2007, U. Waginginen Netherlands

Thank You!

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