



Report to the User Interface Committee: Biodiversity, Ecosystems and GEO BON

Boulder, Colorado
23 September 2008
Doug Muchoney



GEO Ecosystems – 2009-11 Work Plan

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

EC-09-01: Ecosystem Observation and Monitoring Network (GEO EcoNet)

- Coordinate and improve the observation, characterization and monitoring of terrestrial (forest, urban agriculture, woodlands, grasslands, and deserts), freshwater, ice and oceans ecosystems – especially in terms of acquisition and use of satellite/aerial/in-situ observation. Develop a global integrated sampling frame in coordination with the GEOSS Geodesy activities.
- *a) Ecosystem Classification and Mapping (former EC-06-02)*
- *b) Ecosystem Status and Trends*
- *c) Regional Networks for Ecosystems (former EC-06-07)*
- *d) Protected Areas Assessment and Monitoring (GEO PAAM)*



GEO Ecosystems – 2009-11 Work Plan

EC-09-02: Human Dimension of Ecosystem Utilization and Conservation

- Identify and assess the risks posed by global change and human development to the environment, society and regional economies. Develop adaptation strategies to reduce these risks and mitigate impacts at local, regional and global levels.
 - a) Global Road and Human Settlements Mapping on GEO Grid*
 - b) Tourism Impact on Environmental, Social and Economic Regional Activities*
 - c) Developing Transport Infrastructure in Africa*



GEO 2009-11 Work Plan – Related Task

DA-09-03: Global Data Sets

- a) Global Land Cover (former DA-07-02)*
- b) Forest Mapping and Change Monitoring (former AG-06-04)*
- c) Bio-geophysical & Land Surface Data*
- d) Global Phenology Data*
- e) Global DEM (former DA-07-01)*
- f) Development of Global Map for GEOSS Societal Benefit Areas (former DA-06-05)*



GEO 2009-11 Work Plan – Related Task

DA-09-05: Global Carbon Observation and Analysis System

Implement a global carbon observation and analysis system addressing the three components of the carbon cycle (atmosphere, land and ocean). Develop robust tools and methodologies for high-precision CO₂ measurements and carbon storage evaluation.

***a) Integrated Global Carbon Observation (IGCO)
(former EC-06-01)***

b) Forest Carbon Tracking

Note: This Task is supported by the Carbon Cycle Community of Practice (former IGCO) and the Forest Community of Practice



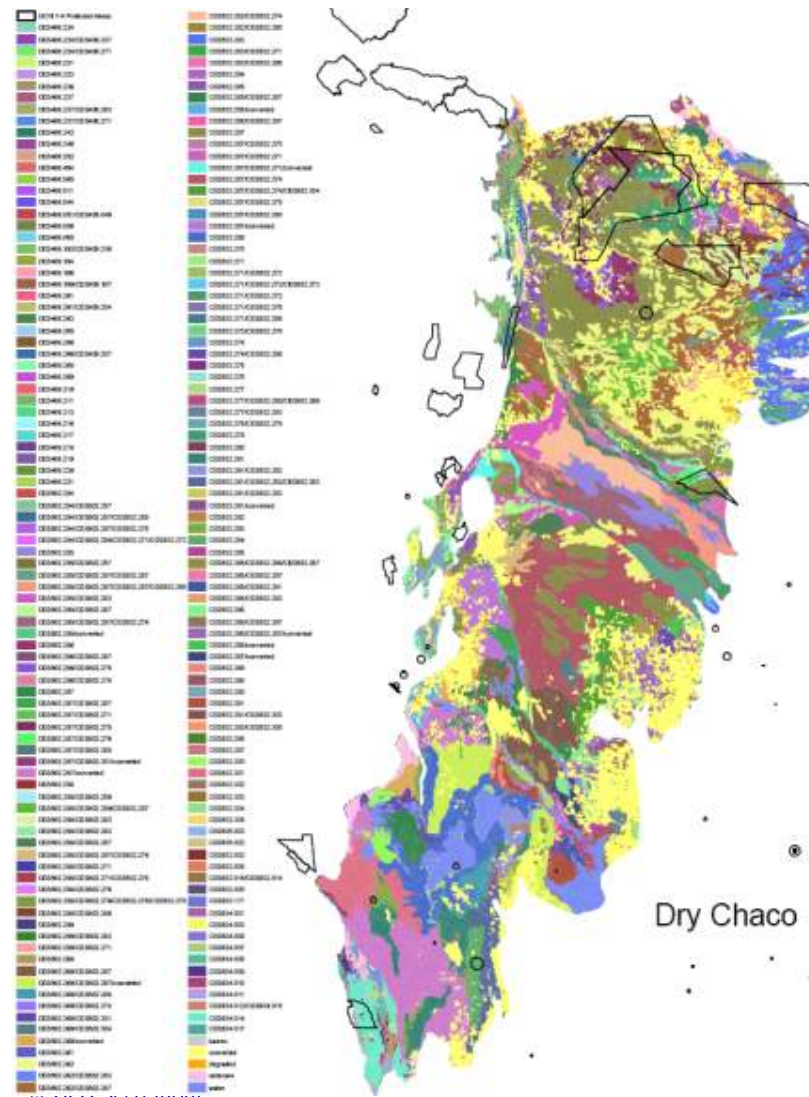
GEO Ecosystems Classification and Mapping EC-06-02





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

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.

BI-07-01: Biodiversity Observation Network (GEO BON)

Coordinate and improve biodiversity (animals, plants, genes, etc) observation, assessment and conservation – especially in terms of acquisition and use of satellite/aerial/in-situ observation. Develop a global observation network to facilitate coordination among information users and providers. Improve the quality and quantity of observation and advocate for a better understanding of trends and conservation.

a) Biodiversity Observation Network (GEO BON)

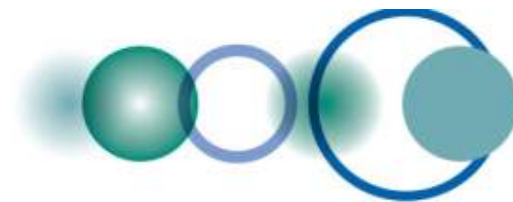
b) Invasive Species Monitoring System (former BI-07-02)

Note: Activities in the Biodiversity area are supported by the Biodiversity Community of Practice

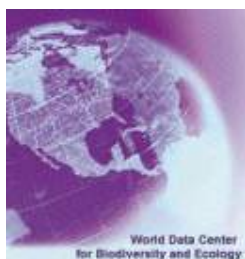


GEO Biodiversity Community of Practice

Australia, Botswana, Brazil, Canada, Columbia, Denmark, Estonia, France, Germany, Ghana, Hungary, India, Iran, Israel, Italy, Japan, Mexico, Namibia, Netherlands, Nicaragua, Niger, Nigeria, Norway, Panama, Philippines, Portugal, South Africa, Switzerland, Thailand, Tunisia, UK, Ukraine, Uruguay, USA, ASEAN Centre for Biodiversity, BioNET-INTERNATIONAL, BirdLife International, Conservation International, DIVERSITAS, ESRI, GBIF, Guyra Paraguay, IUCN, LIFEWATCH, The Nature Conservancy, UNEP, UNESCO



GEO Biodiversity Observation Network



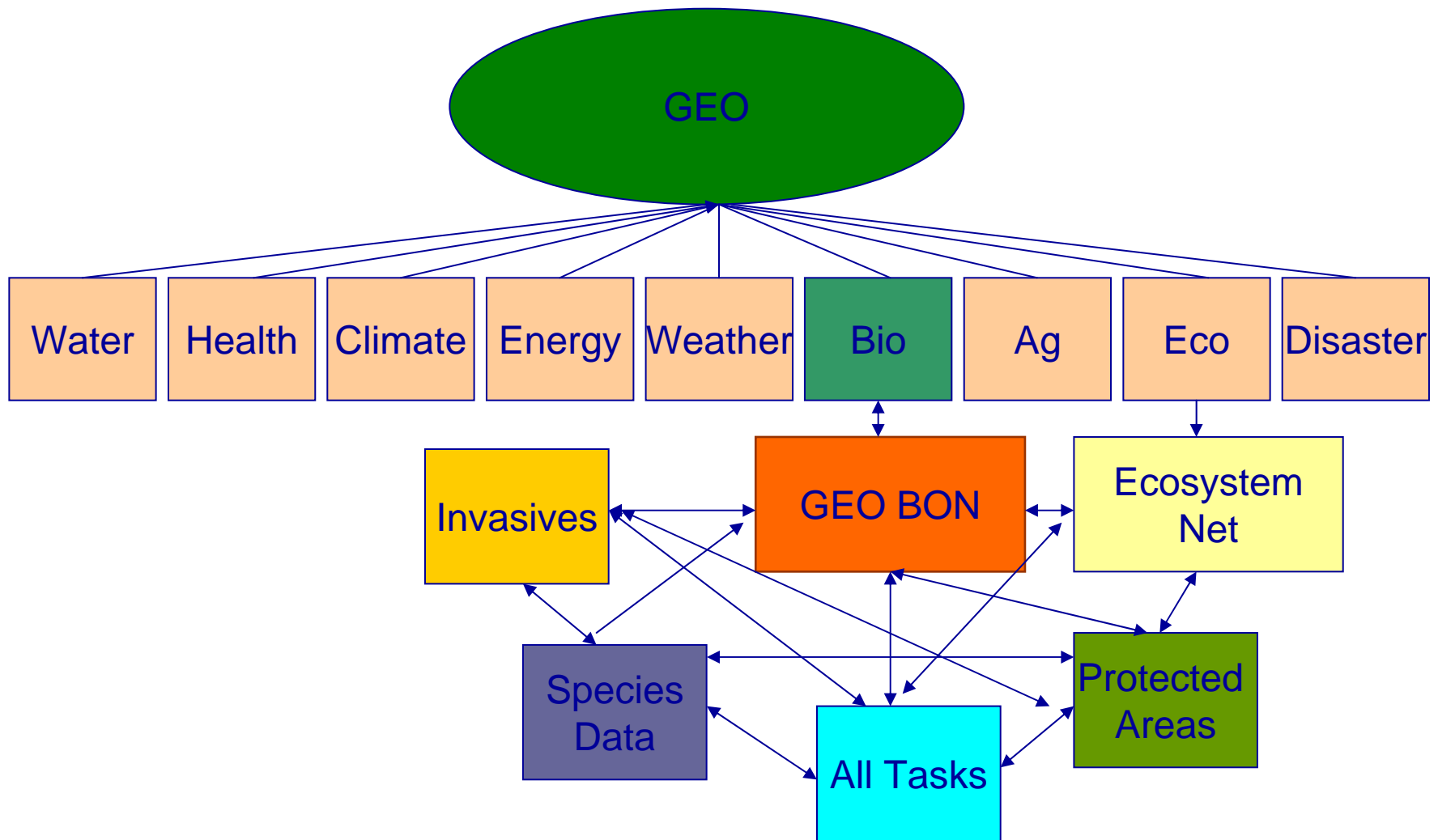


GEO Biodiversity Observation Network: What is it?

- 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.

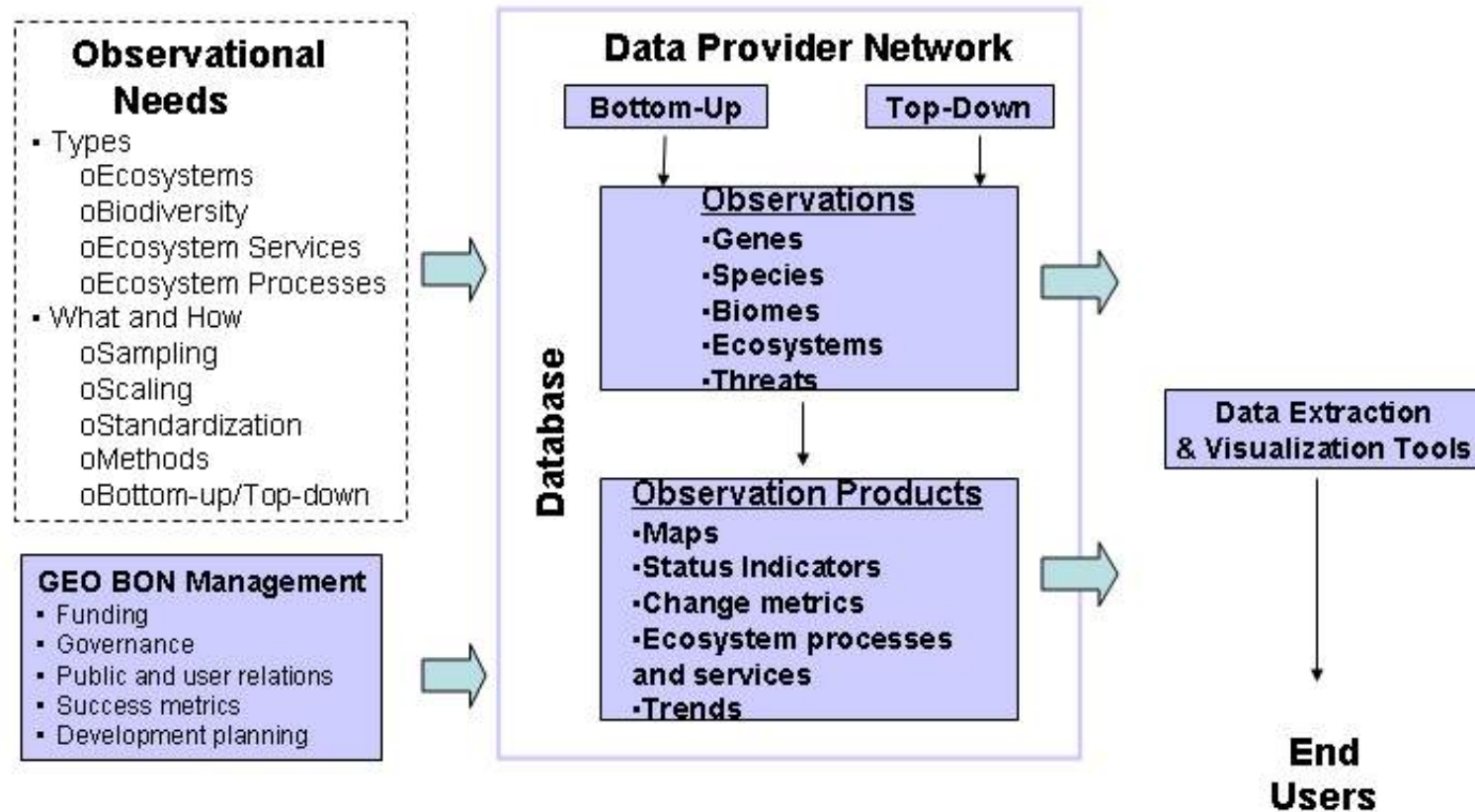


GEO UIC Community of Practice Structure



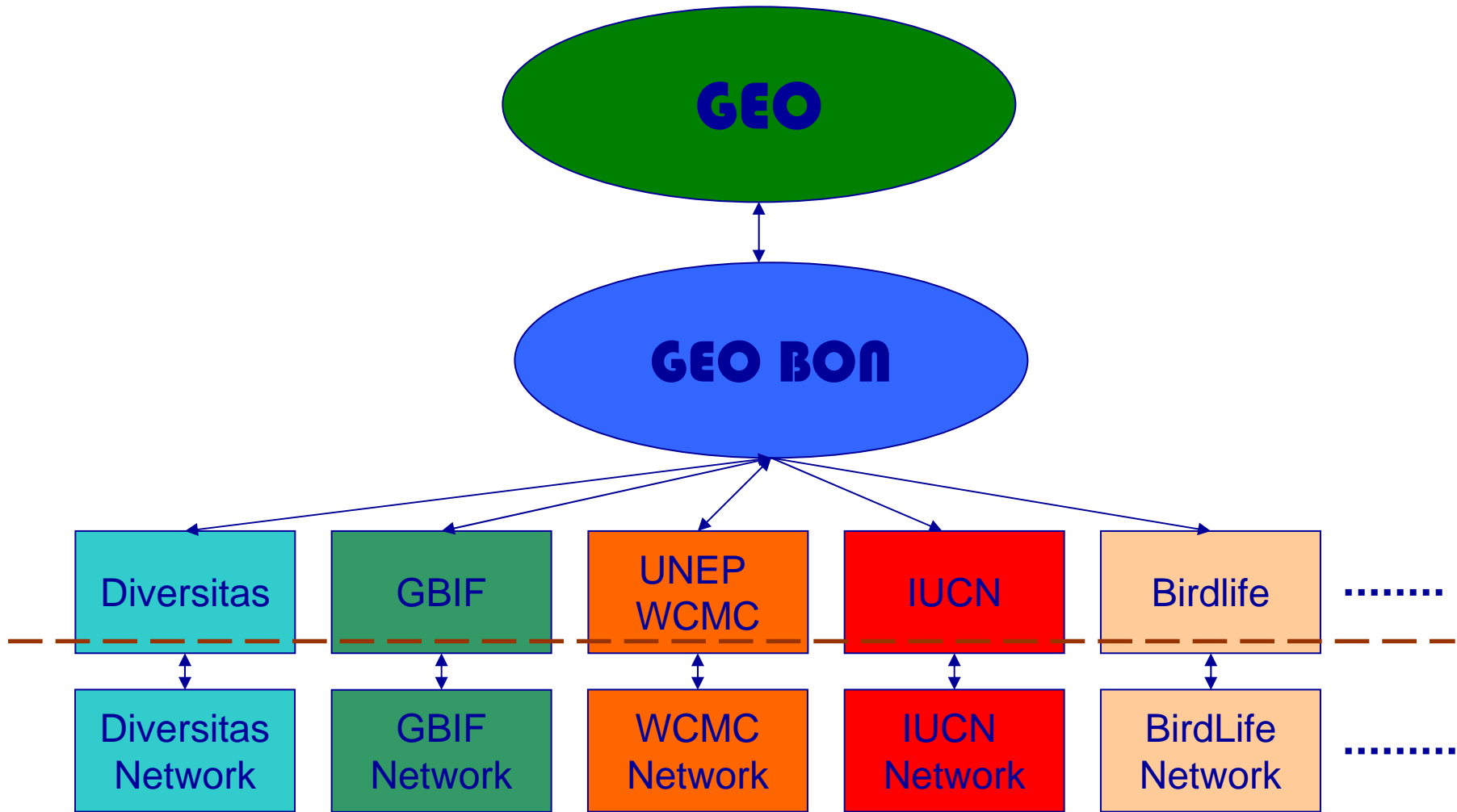


GEO BON Concept Overview

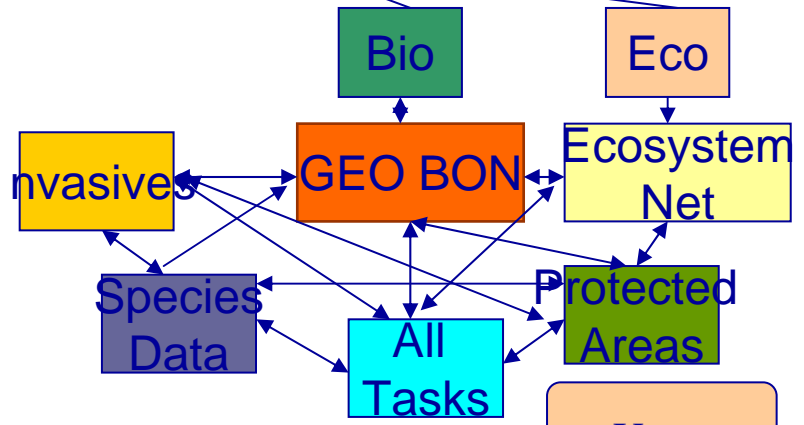




GEO BON Network of Networks



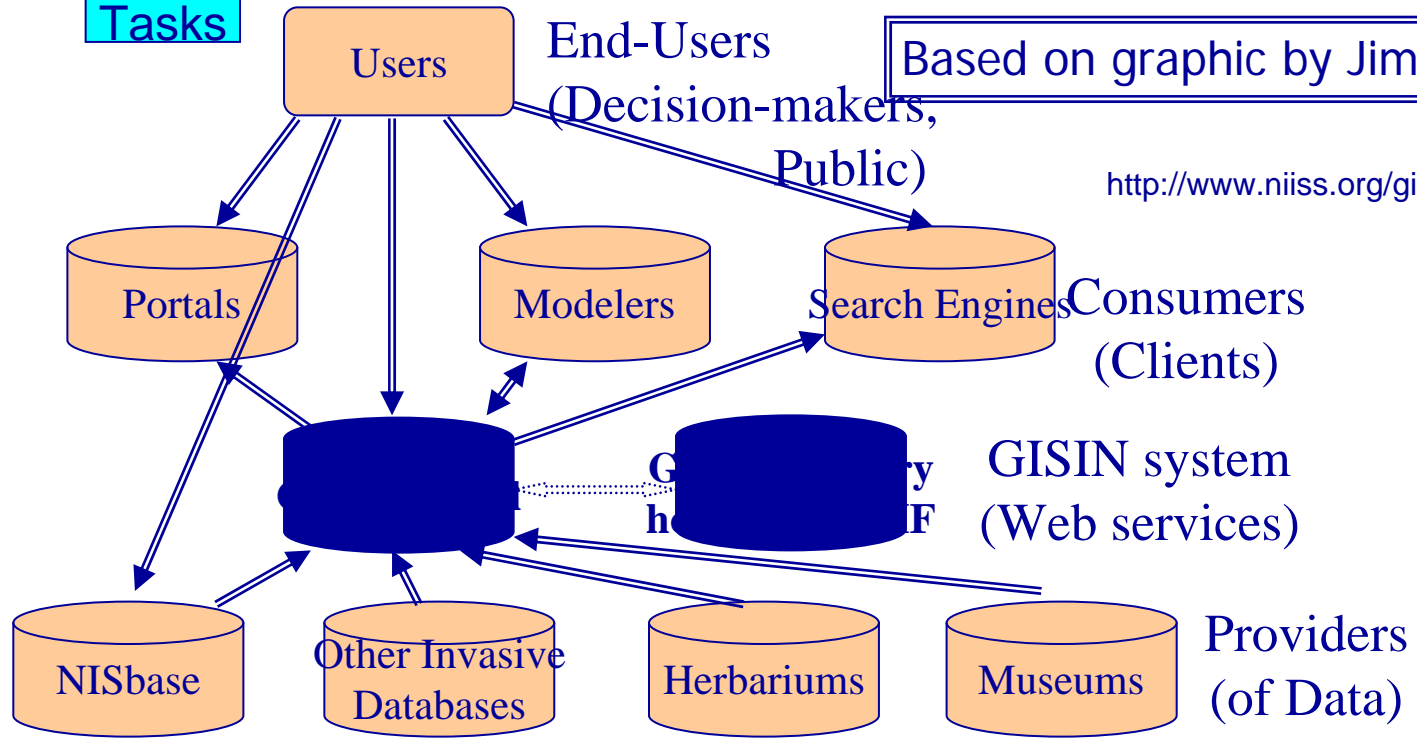
--- Integration Line



Emerging GISIN Information System

Based on graphic by Jim Graham

<http://www.niiss.org/gisin>





The American Cordillera Transect

Global change research in the American Cordillera



- > Cordillera Transect Newsletters
- > Cordillera Transect Sites: Map
- > Who is Who
- > Working Group "Science&Stakeholders"
- > Working Group "Hydrological and Meteorological Modelling"
- > Cordillera Forest Dynamics Network (CORFOR)
- > Working Group "Land Use and Land Cover Change"
- > Working Group "Biodiversity"
- > Working Group "Climate Data"
- > Launching Workshop April 2006

MRI -- Mountain Research Initiative
<http://mri.scnatwet.ch/content/view/98/67/>
 PNL: Mount... Agenda List of coun... encyclopedia Swissqee - U... en Suisse Media21 Clim... at Articles

mri
mountain research initiative

The MRI Projects Documents Events Network

You are here: [Home](#) > [Projects](#) > [American Cordillera Transect](#) > [Who is Who](#)

Who is Who

The "Who is Who" of the American Cordillera Transect:

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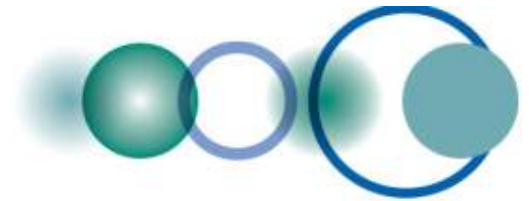
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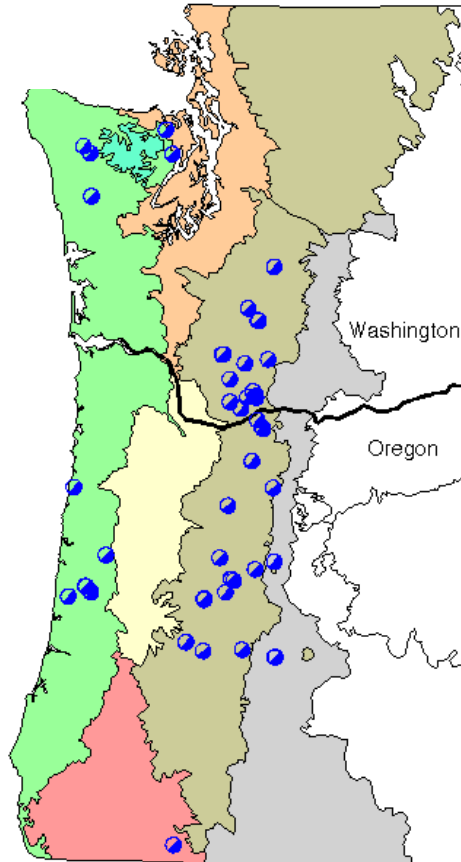


The American Cordillera Transect for Global Change Research Sites





Dr. Lori Daniels, UBC
7 plots
British Columbia



John Byrne, USFS
8 plots
Idaho

US Forest Service FIA plots?
>10,000 plots
Everywhere

Dr. Tom Veblen, U. of Colorado
>40 plots?
Colorado

National Park Service FMH plots
>1000 plots?
Western national parks

USFS, Gus Pearson forest
1 huge plot
Arizona

Stephenson, van Mantgem, *et al.*, USGS
27 plots
California

The CTFS plot network

<http://www.ctfs.si.edu/>

(130 to 1780 m elevation; mean = 715 m)

Prof. J. P. Veillon *et al.*

Plots measured 1961 to 1985?

(<180 to >2450 m elevation)

Dr. D. Lieberman *et al.*

Plots measured

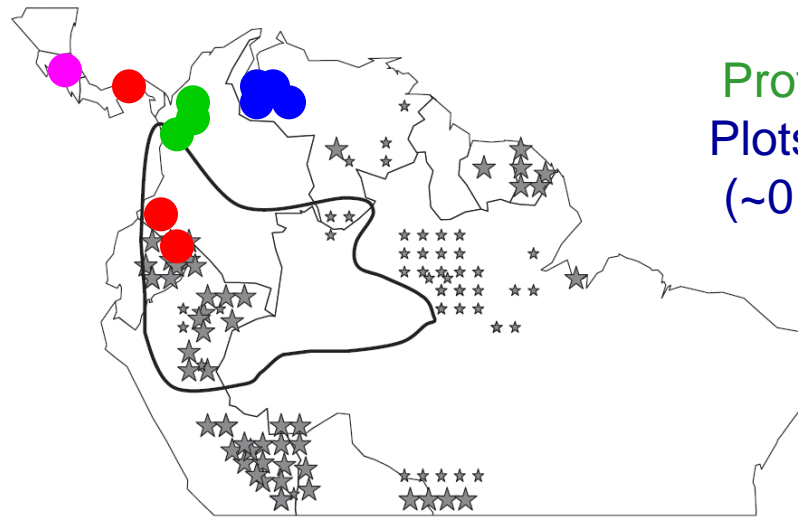
1969 to 1985?

(32 to 71 m elevation)

Prof. A. J. Duque M. *et al.*

Plots are being established

(~0 to ~3000 m elevation)



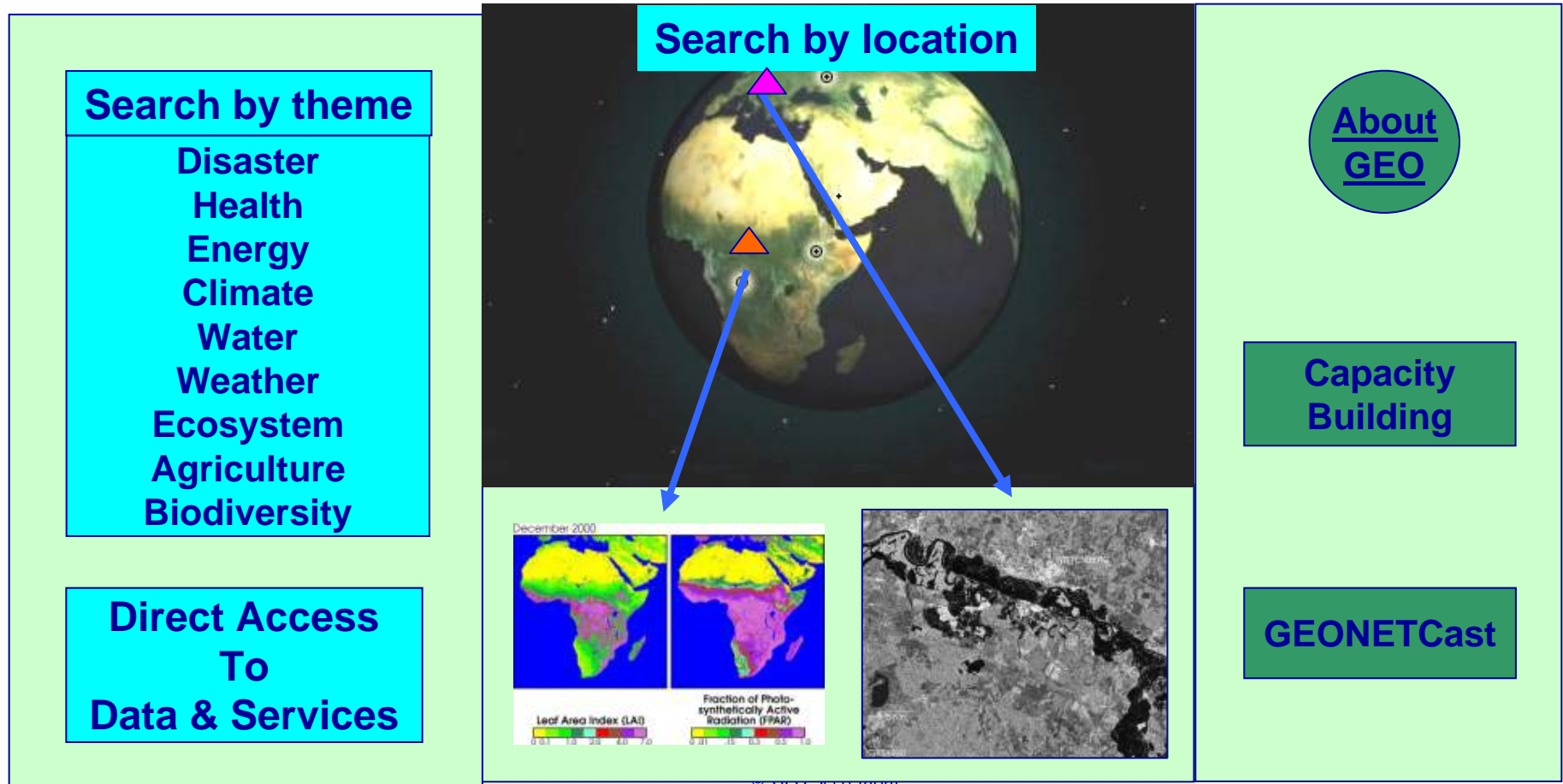
The RAINFOR plot network

<http://www.geog.leeds.ac.uk/projects/rainfor/>

(35 to 800 m elevation; mean = 250 m)



A Portal to DATA and SERVICES





GBIF Interoperability Scenario

- Scenarios for interoperability between Biodiversity and Climate SBAs
- Relevancy
 - Climate change threatens to commit 15-37% of species to extinction by 2050.
 - Widespread land use changes are accelerating the mass extinction.
 - The theme for the International Day for Biological Diversity (IBD) in 2007
 - Report of the Intergovernmental Panel on Climate Change



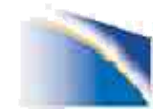
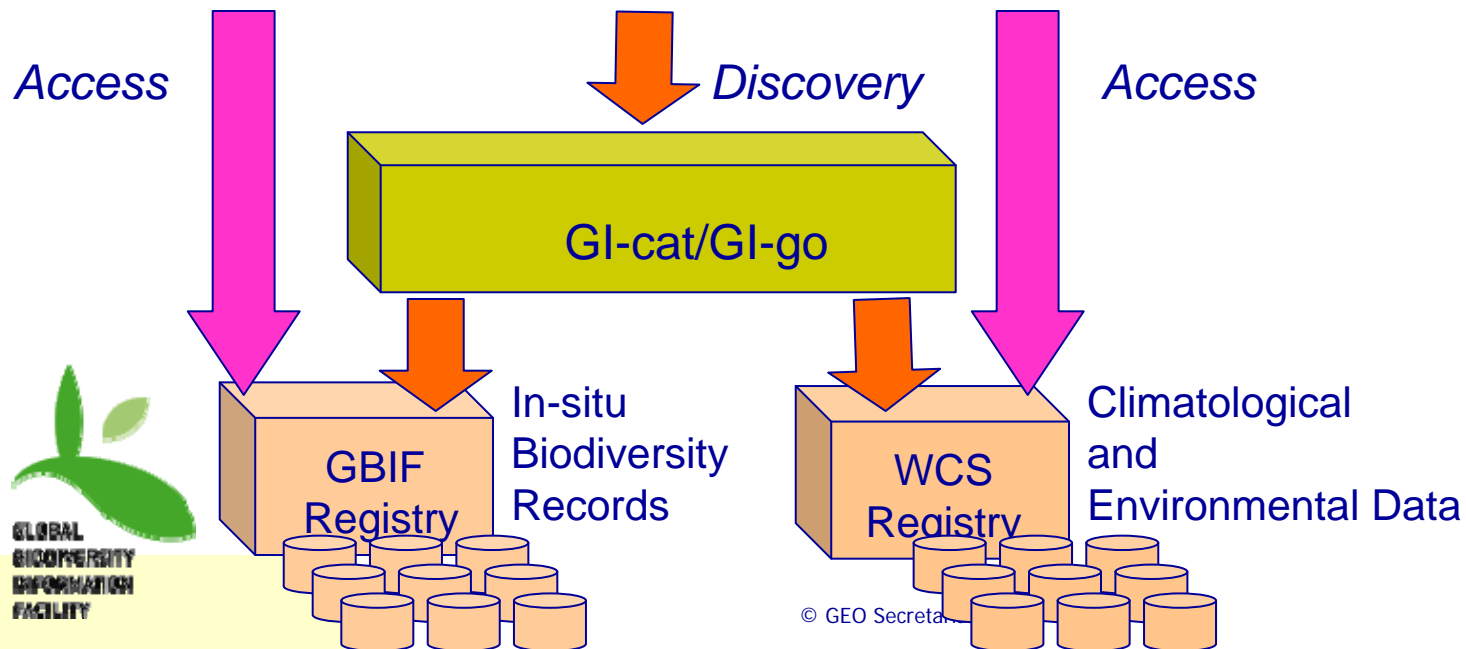
Species Response to Climate Change

- Ecological Niche Modeling is applied to study the adaptation of butterflies in Canada and Alaska to various climate change scenarios.
 - The scientific approach for using primary biodiversity data for studying adaptation to various climate change scenarios has been created by Peterson & al. (2001, 2002).
- Requires interoperability between the GBIF (Global Biodiversity Information Facility) and components of the WIS (World Meteorological Organization Information System).

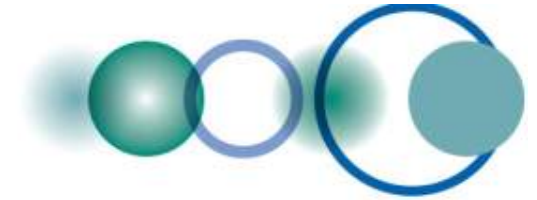


Interoperability with GBIF and climatological registries

- Mediation Metadata Model: ISO 19115 core profile



NCAR



Demonstrator user interface

- Demo AJAX Graphical User Interface to: Open Modeller Compute Servers and GI-cat/GI-go

GEOS IP3 GBIF Client

Search Create Project View Debug

Select Layers





Select Algorithm

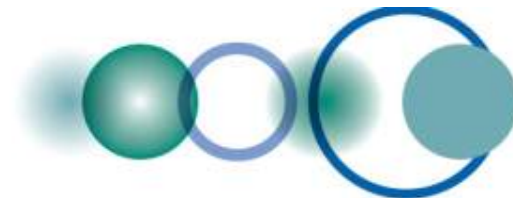
- Bioclim
- GARP with best subsets - DesktopGARP implementation
- Distance to average
- Environmental Distance
- GARP (single run) - new openModeller implementation
- GARP with best subsets - new openModeller implementation
- Minimum distance
- GARP (single run) - DesktopGARP implementation

Set Algorithm Parameters

Select Presence

Create Model



GEO BON Milestones

2006: User Needs workshop, Geneva 23-25 October

2007: GEO Ministerial in Cape Town

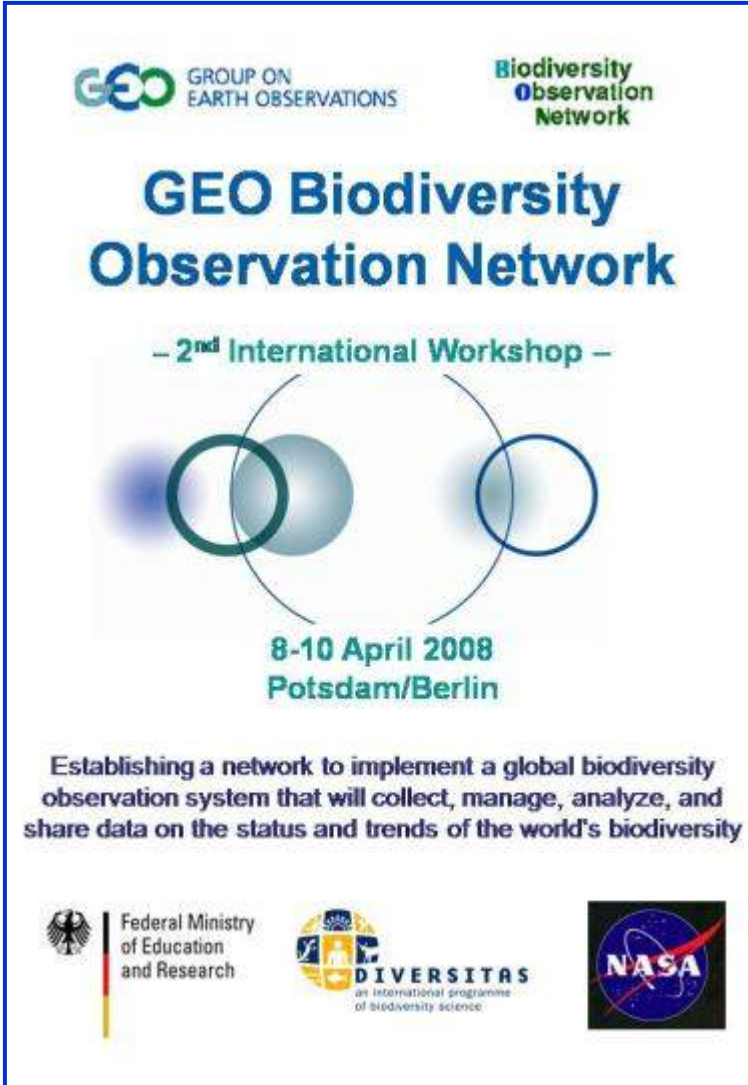
2008: Interim GEO BON Committee formed 14-16 January

- Draft GEO BON concept document produced

2008: 2nd International workshop, Potsdam/Berlin 8-10 April

- Draft GEO BON concept document discussed and amended, first implementation steps planned
- Science Forum article
- Biostrat Workshop – Budapest, 25-26 Oct. 2008
- GEO BON Implementation Plan, October 2008

2009: 3rd GEO BON Meeting



The poster features the GEO logo and the Biodiversity Observation Network logo at the top. The main title is "GEO Biodiversity Observation Network" in large blue letters. Below it, the text reads "– 2nd International Workshop –" in green. A graphic of two overlapping circles is shown, with the date "8-10 April 2008" and location "Potsdam/Berlin" in green below it. At the bottom, there is a paragraph: "Establishing a network to implement a global biodiversity observation system that will collect, manage, analyze, and share data on the status and trends of the world's biodiversity". Logos for the Federal Ministry of Education and Research, DIVERSITAS, and NASA are at the bottom.

GEO GROUP ON
EARTH OBSERVATIONS


Biodiversity
Observation
Network


GEO Biodiversity Observation Network


– 2nd International Workshop –

8-10 April 2008
Potsdam/Berlin

Establishing a network to implement a global biodiversity observation system that will collect, manage, analyze, and share data on the status and trends of the world's biodiversity

 Federal Ministry
of Education
and Research

 **DIVERSITAS**
an international programme
of biodiversity science

 **NASA**



GEO BON Implementation Plan Work Groups

1. **Data:** focuses on issues, primarily technical ones, relating to data, the systems that store and serve it, and how those systems communicate.
2. **Network and Governance Task Group:** charged with creating the approach for developing and governing the data provider network.
3. **Scaling, Integration, and Models:** focuses on the issues associated with data integration across multiple scales.
4. **Early Products Task Group:** mandate to select a small number of pilot projects that generate new, added-value GEO BON products.
5. **Capacity Building:** develop a plan to increase capacity where it is needed to support GEO BON activities and goals.
6. **Citizen Science:** ways to work with interested citizens as a means of providing useful scientific observations.
7. **Resources and Business Plan Task Group:** devise a business plan for GEO BON



**Thank
You!**

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