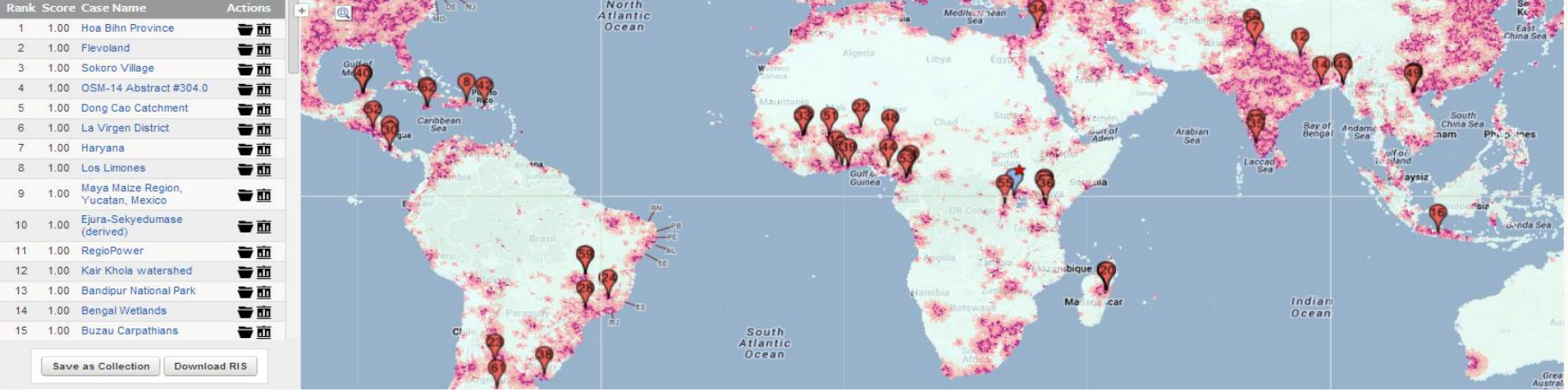

GLOBAL COLLABORATION ENGINE

GLOBE

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@globalyzer

NSF Cyber-Enabled Discovery & Innovation (CDE)
#1125210: 2011 – 2016 ($1.9M)

The **GLOBE** Project: *Online Tools for Global Synthesis of Local Knowledge*

PI: **Erle Ellis** Geography & Environmental Systems & Nick Magliocca, Jared Margulies
University of Maryland, Baltimore County, Baltimore, Maryland USA

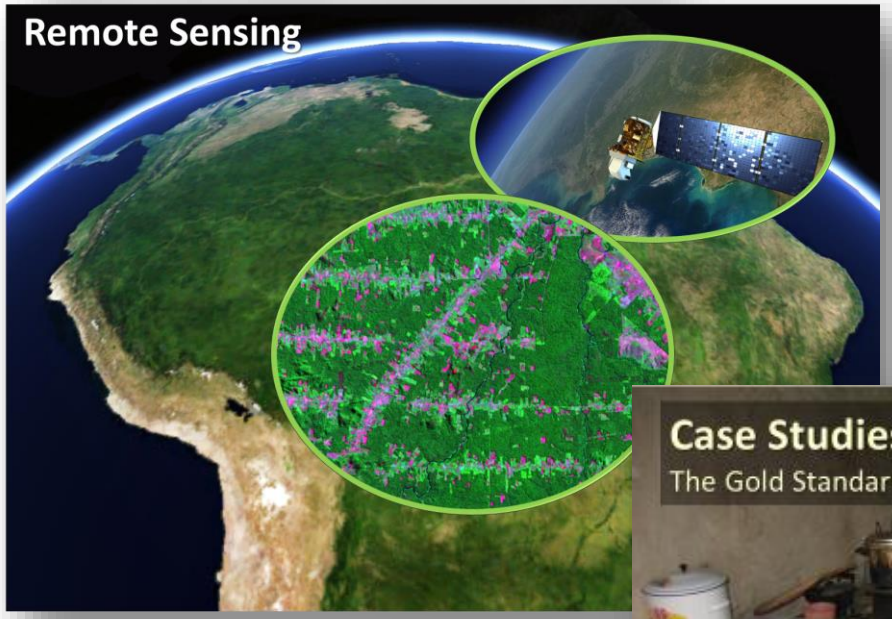
Information Systems Wayne Lutters, Alyson Young
Computer Science Tim Oates, Penny Rheingans, Tim Finin & Matt Schmill

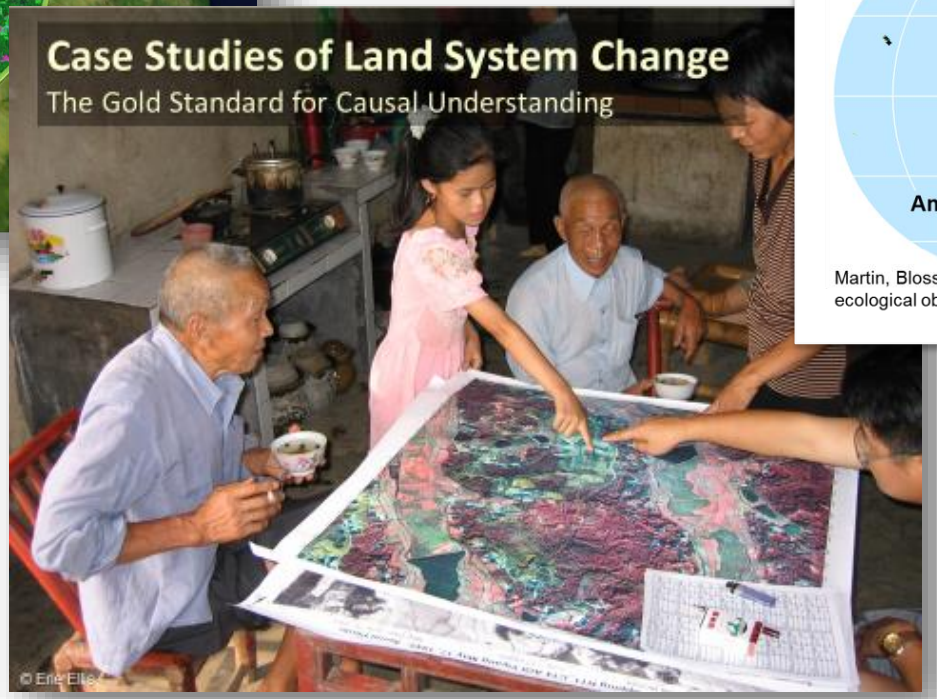
Belmont Forum: E-infrastructures & Data Management
Collaborative Research Action
Paris, France November 28-29, 2016

Observing the Anthropocene

Are we observing the global changes that matter?

Observing Global Land *Cover* Change

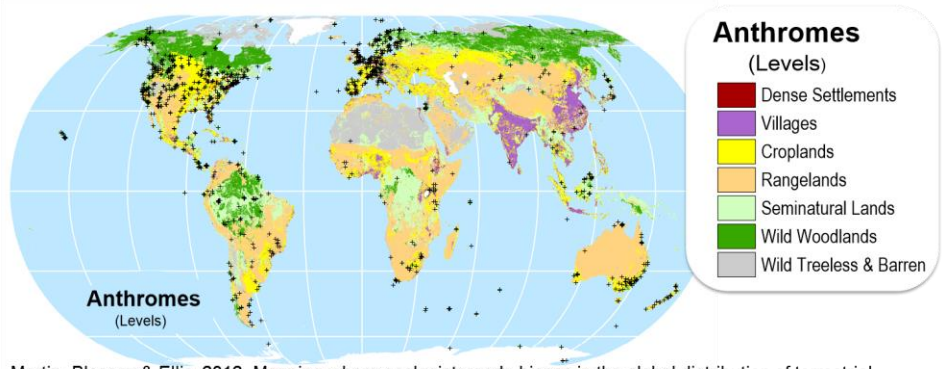




Bias in Ecological Field Research Sites

Ecological Research Sites Top 10 Ecology Journals: 2004 – 2009

- ***2/3 in "protected areas"***
- **Temperate Zone Bias, Wealthy Nation Bias**
- ***Just 1/6 in agricultural & settled lands***

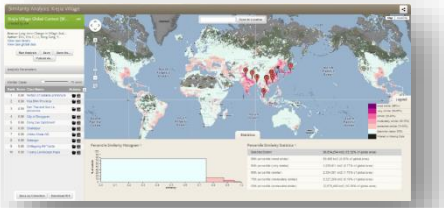


Martin, Blossey & Ellis. 2012. Mapping where ecologists work: biases in the global distribution of terrestrial ecological observations. *Frontiers in Ecology and the Environment* 10:195–201

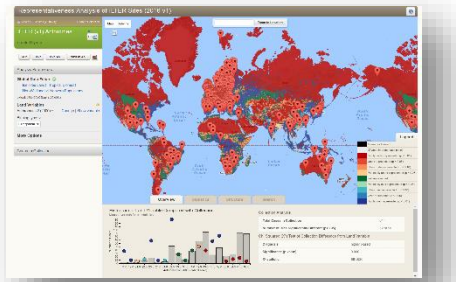
What GLOBE does:

1) **Enhances Case Study Sharing, Comparisons & Networking** ***Find similar study sites*** to facilitate research, networking and sharing with others working under similar conditions.

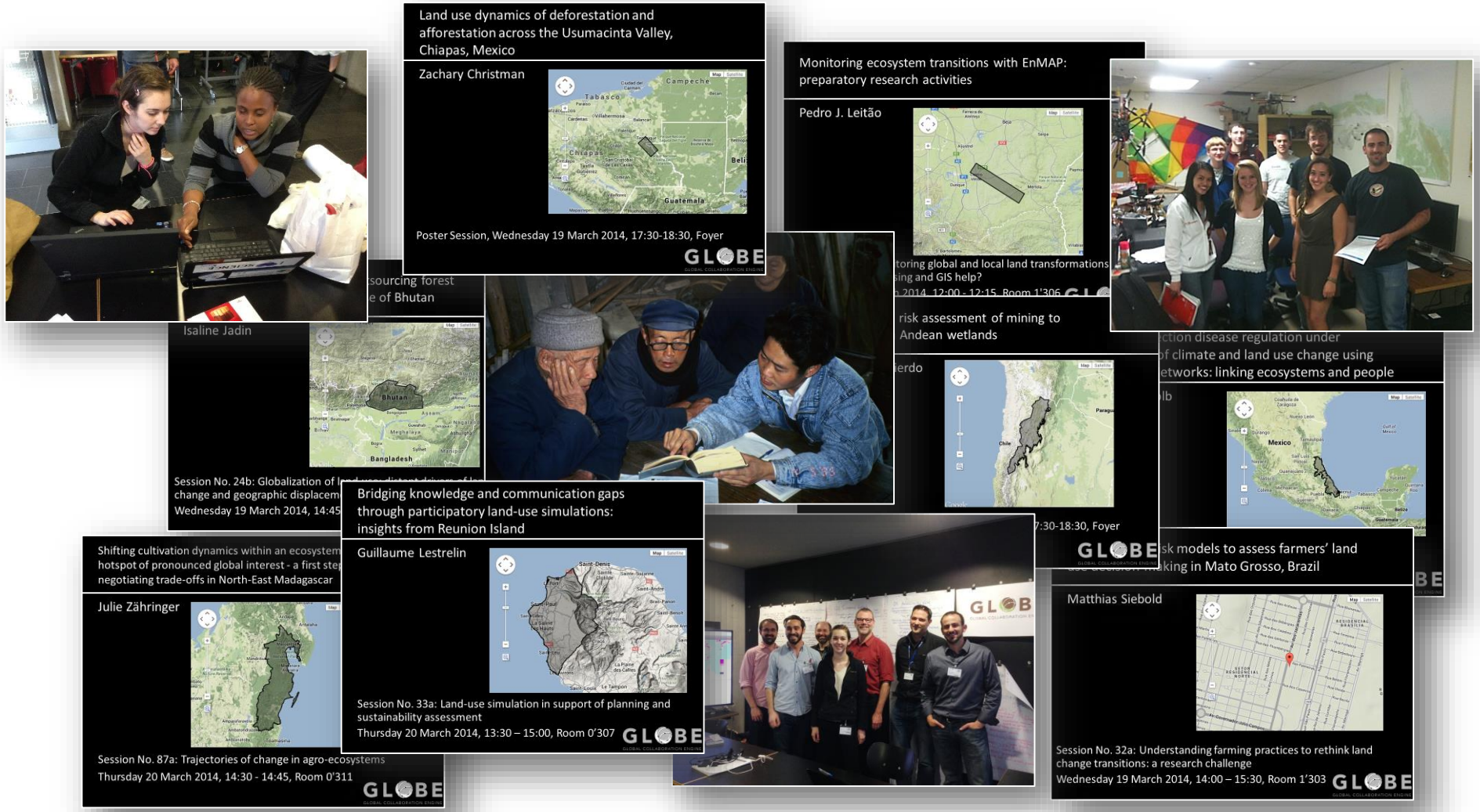
2) **Supports Globally Representative Meta-Analysis**
Helps researchers ***group, weight and synthesize results across case studies***, to develop better global models of human/environment interactions.



3) **Enhances Site Selection** (where next?)
Help researchers and grantmakers ***identify gaps and opportunities for future research***.



>17,000 Compiled + User-Entered Case Studies



Global Datasets (online & by request)

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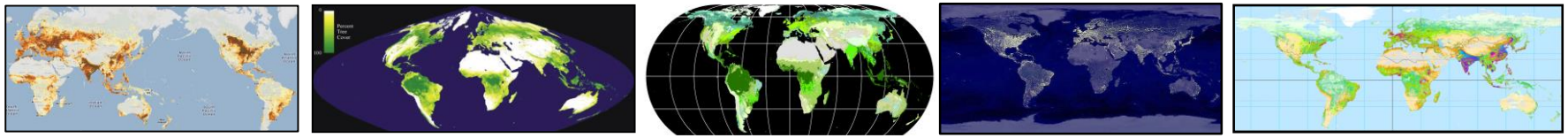

Geophysical: % land, % freshwater, marine coast distance, median elevation, terrain (% plain, % sloping, % steep).

Climate: precipitation & temperature (50 y mean, 2080 ensemble mean), growing degree days, global climate classifications.

Land Cover (MODIS): land cover (%; [16] IGBP classes), Vegetation Continuous Fields (VCF; % trees, % herbaceous, % bare).

Biological: biomes, ecoregions, species richness (plants, mammals), Net Primary Production (NPP: Potential, Actual)

Human: anthromes, population density, market access, market influence, land use (% urban, crops, pastures, irrigation, rice), land protection status, nations, poverty index, human footprint index.

Global Similarity: Assessing the Global Context of Xiejia Village

Market Influenced Rice Village Landscapes

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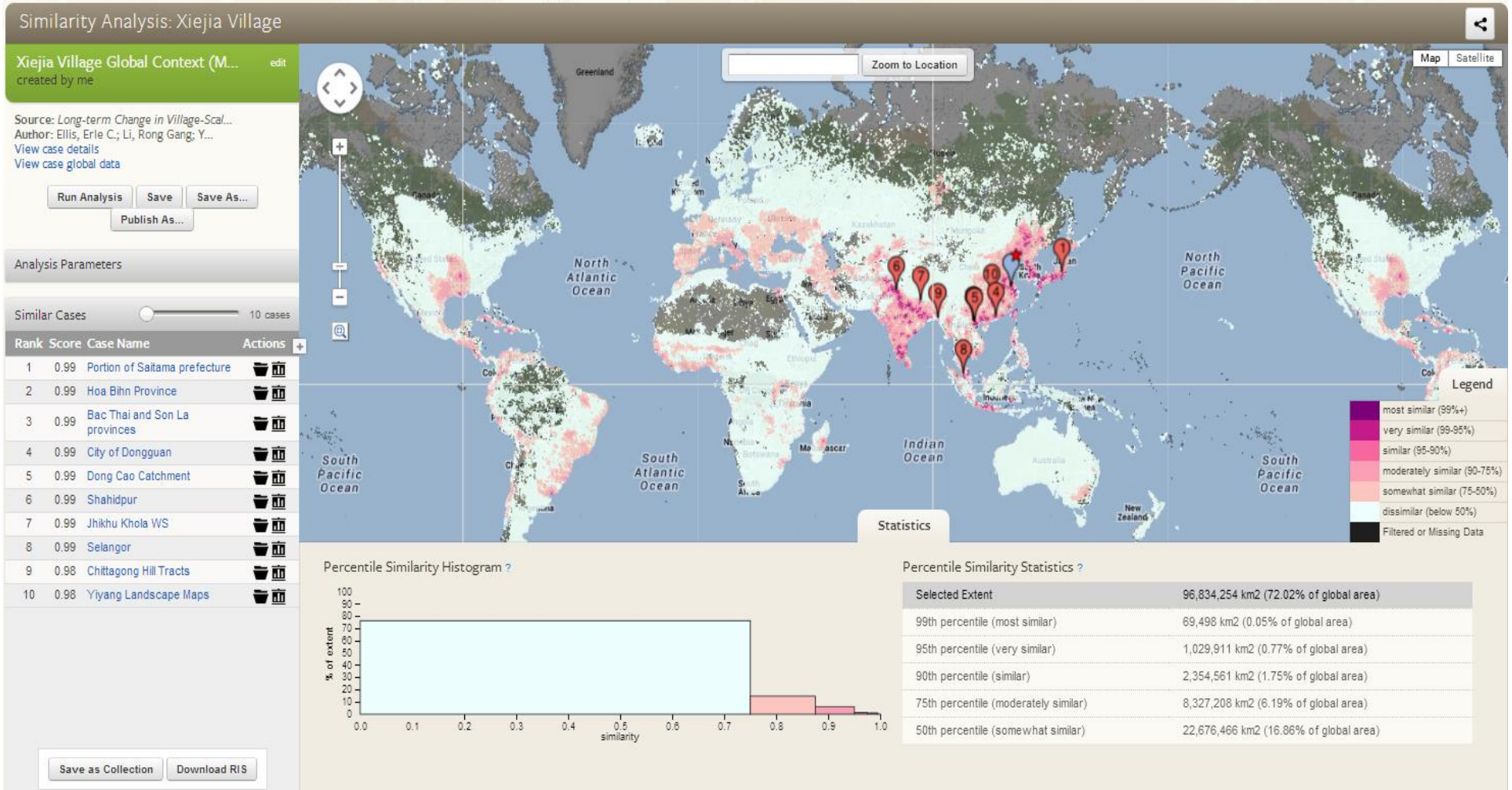

Global Representativeness Analysis

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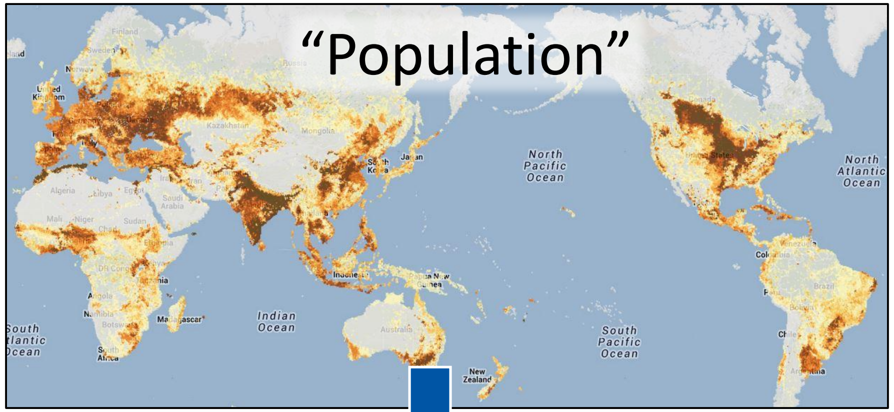

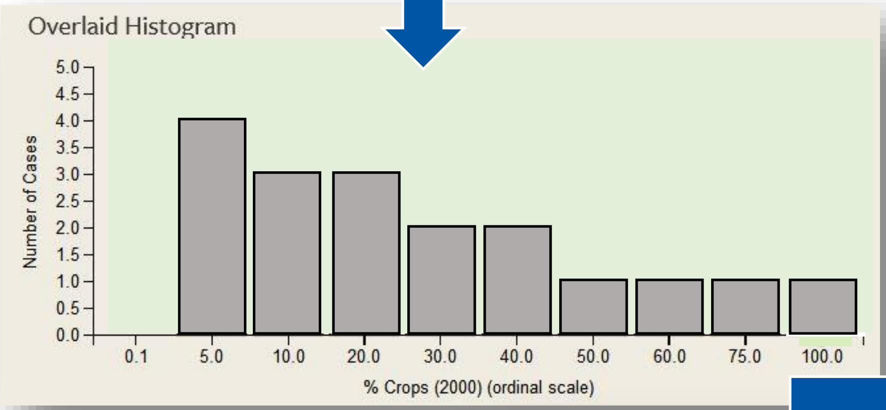

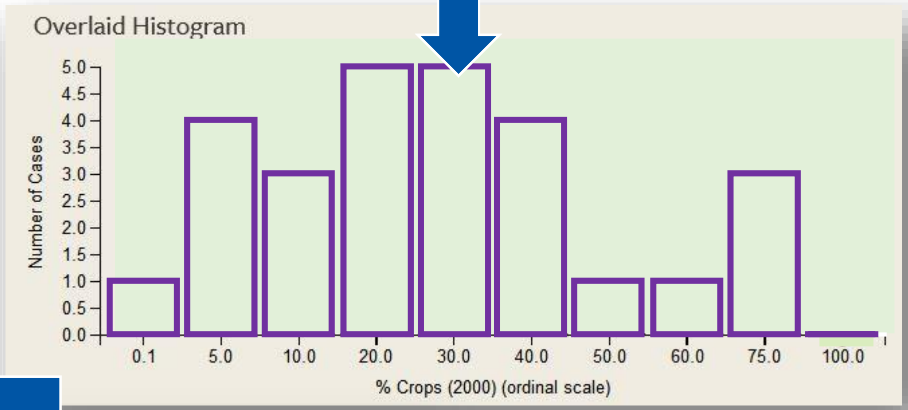

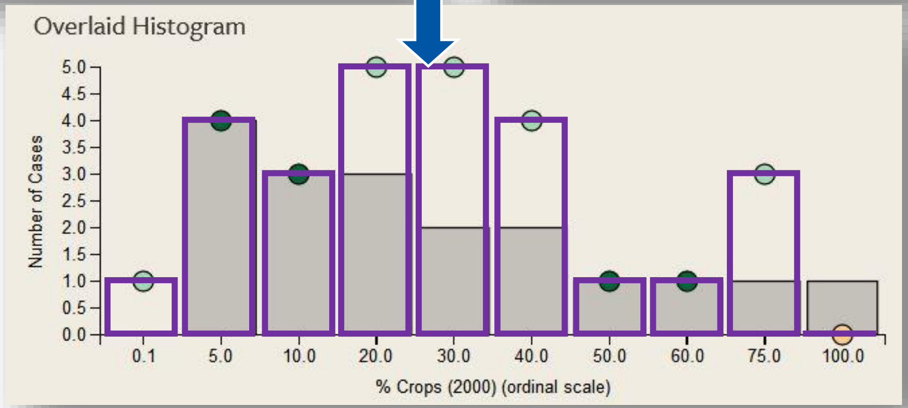

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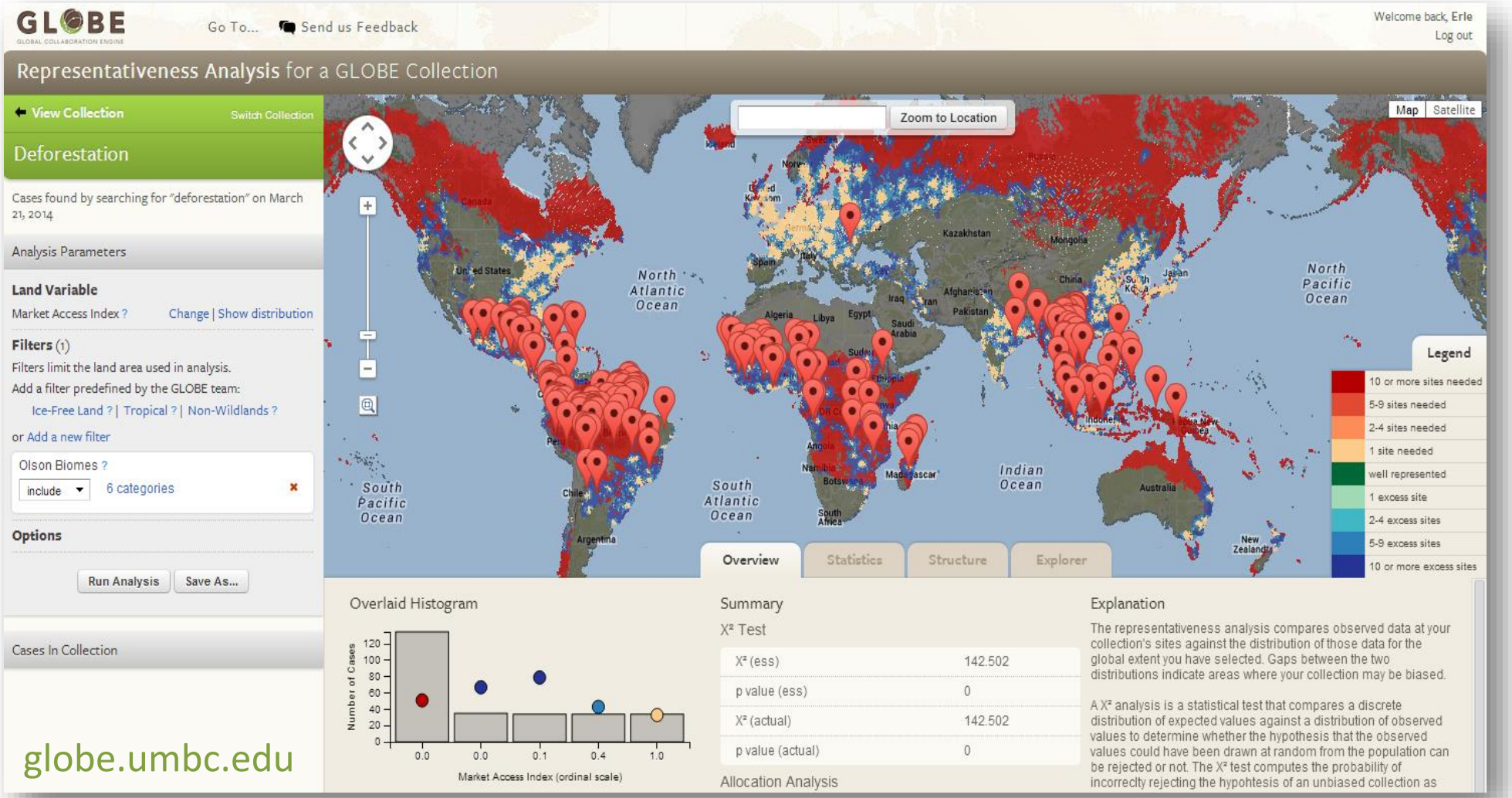
Global Representativeness Analysis



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E-INFRASTRUCTURE AND DATA MANAGEMENT ISSUES

Issues, barriers, difficulties encountered with respect to data and e-infrastructure

- **Costs/resources for UI/UX**- not available at universities
- **Sustaining long-term work with user community (takes time!)**:
  - E-Infrastructure technical support, development support
  - User community support- including workshops/training & promotion
- **Engaging high-profile users and promoting use cases** – across the full spectrum of users.
- **Changing cultures of collaboration**, sharing & synthesis – journals?

EXPECTATIONS FROM E-I&DM CALL

Needs to overcome issues described on previous slide. What could project gain from inter-project collaboration?

- **NOT: "build it and they will come"**
- **Longer-term / Phase 2 support for promising communities of practice.** Solve evolving issues, support ***system architects***.
  - Supported by a funded *pool* of experts/expertise?
  - Institutional project hosting?
  - Take promising projects to next level: *institutional sustainability*
- **Devil is in details: Learn from domain experiences:** the challenges of science community change - *from development to adoption*.
  - Involve *Information Systems* experts to conduct User research.
  - *In our community (GLP)*: GLOBE, Global Forest Watch, GTAP, Land Matrix, SEDAC….