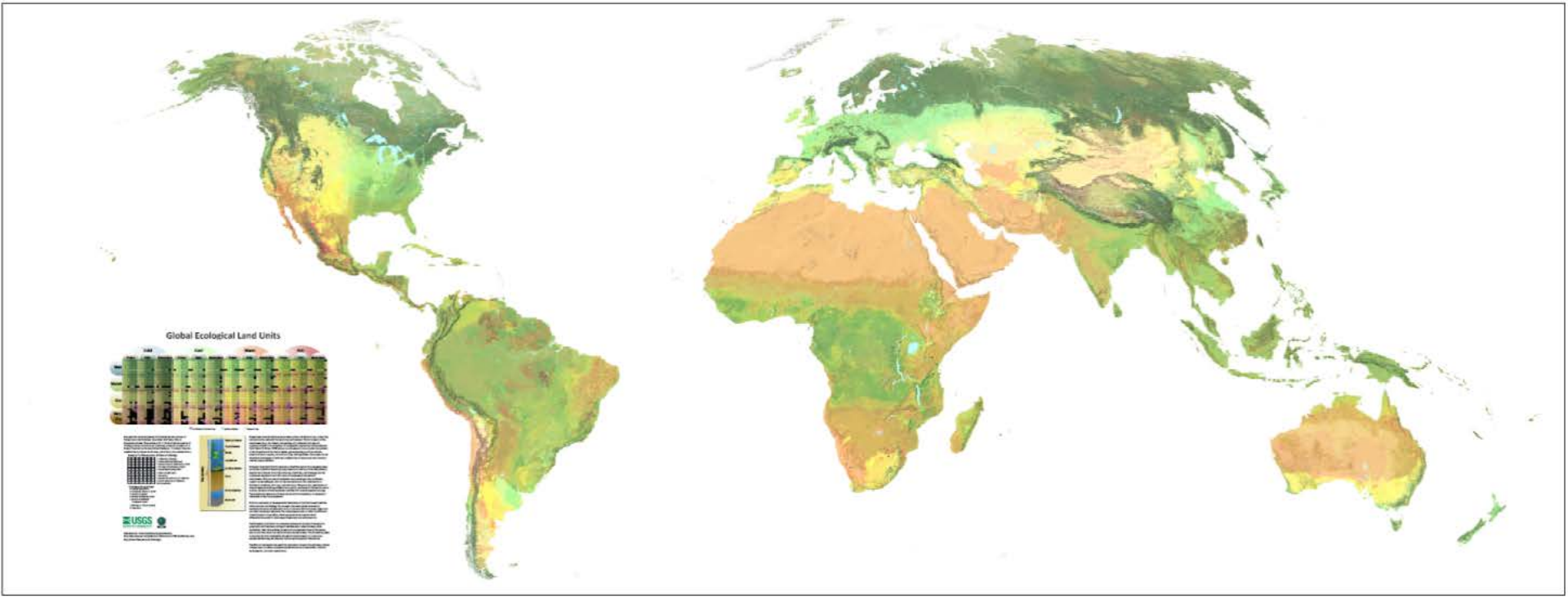
A New Map of Global Ecological Land Units



Roger Sayre (USGS)

Charlie Frye, Pete Aniello, Randy Vaughan, Sean Breyer, Dawn Wright (ESRI)

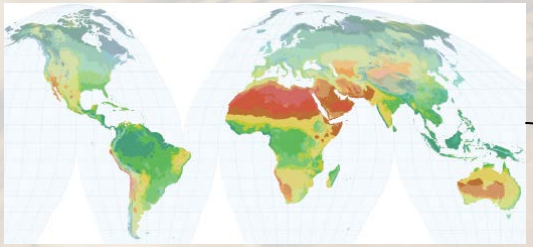
UN SEEA EEA Experts Forum
28 April 2015
New York

USGS science for a changing world

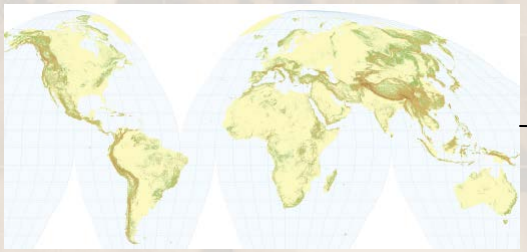
esri

How Were The Global Ecological Land Units (ELUs) Developed?

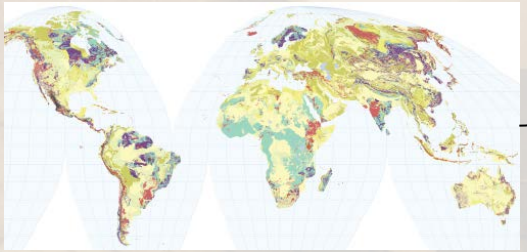
Bioclimate



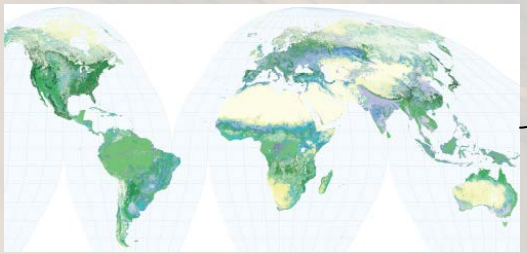
Landform

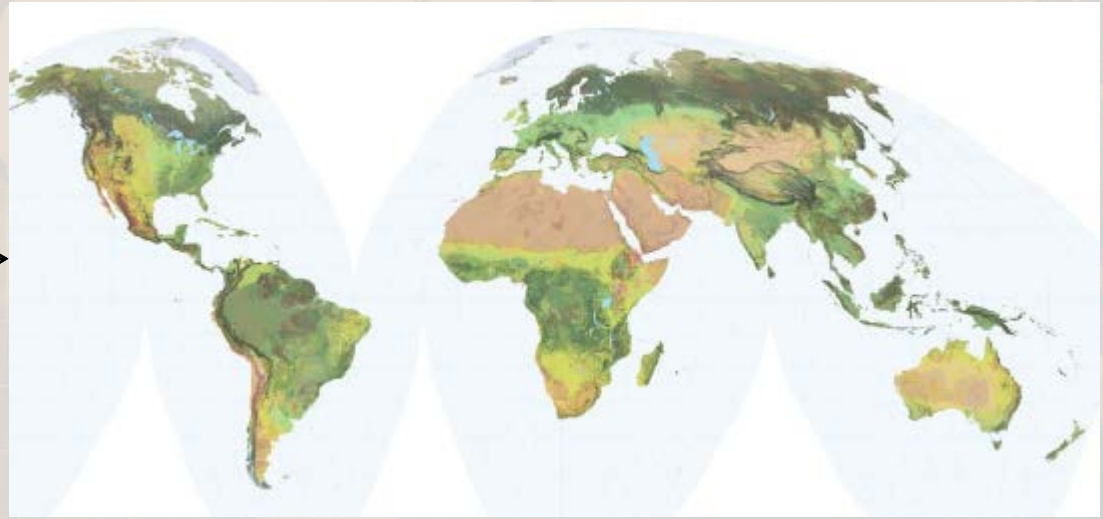


Lithology



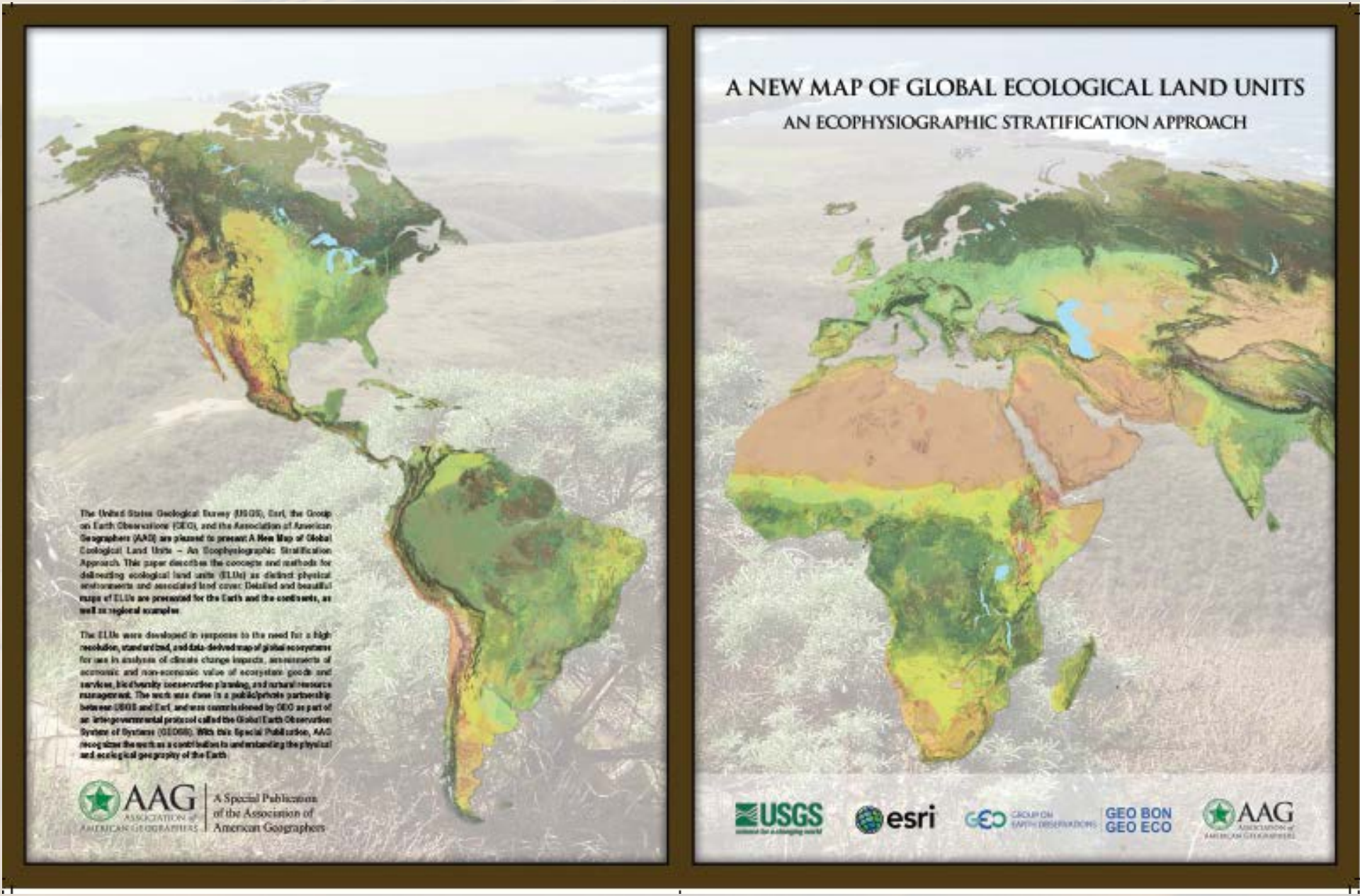
Land Cover



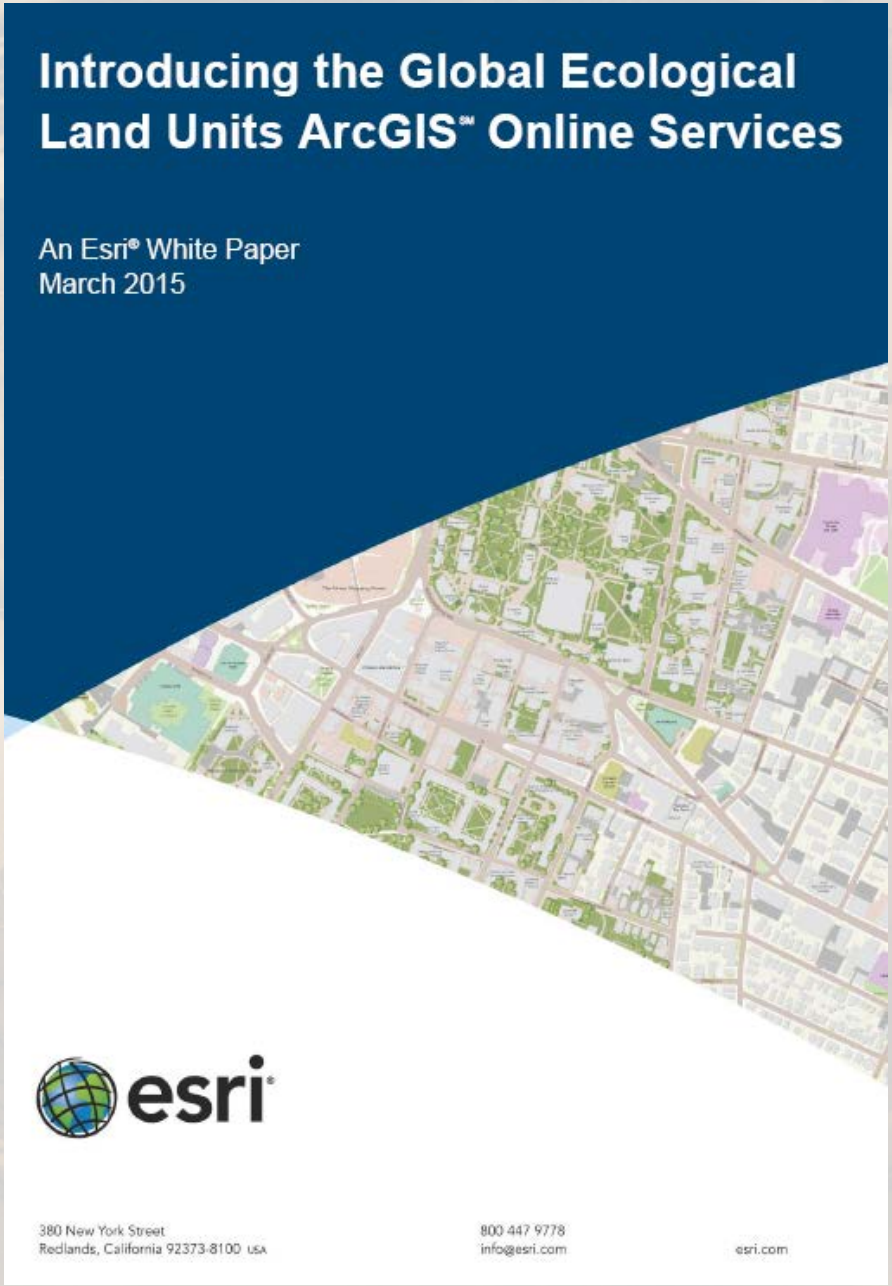


3,923 ELUs Mapped
250 m Spatial Resolution

The Anchor Publication



The Esri White Paper



GEOSS Task EC-01-C1

GROUP ON EARTH OBSERVATIONS

GEO BON
GEO ECO

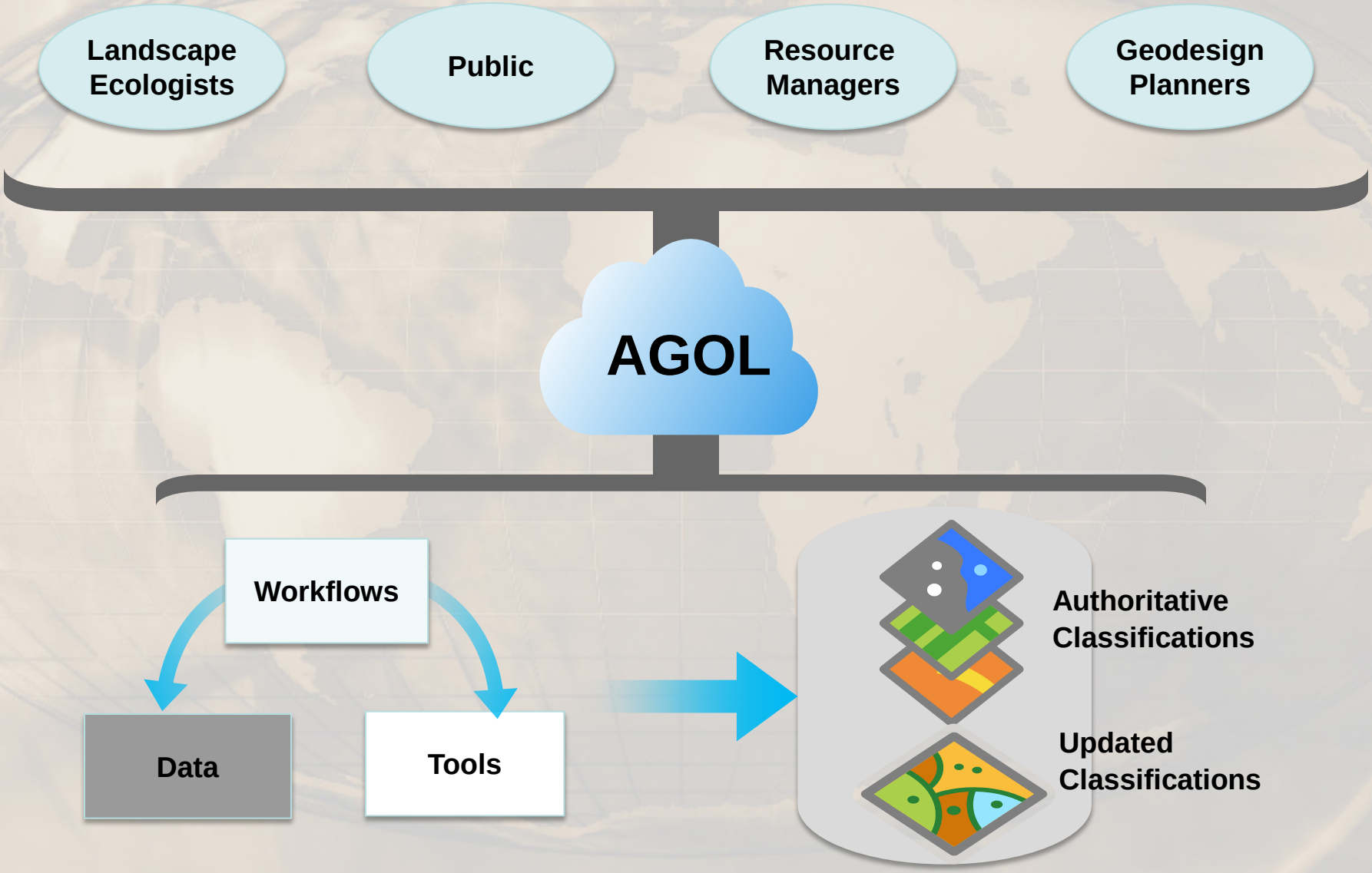
EC-01-C1: Global Ecosystem Classification and Mapping

Develop a standardized, robust, and practical global ecosystems classification and map for the planet's terrestrial, freshwater, and marine ecosystems.

Why Do We Need A Global Ecosystems Map?

- *Assessments of Economic and Social Value of Ecosystem Goods and Services*
- *Biodiversity Conservation Planning*
- *Analysis of Climate Change Impacts to Ecosystems* (*and other impacts e.g. fire, invasive species, land use, etc*.)
- *Global Environmental Security*
- *Resource Management*
- *Research*

Audiences and Architecture



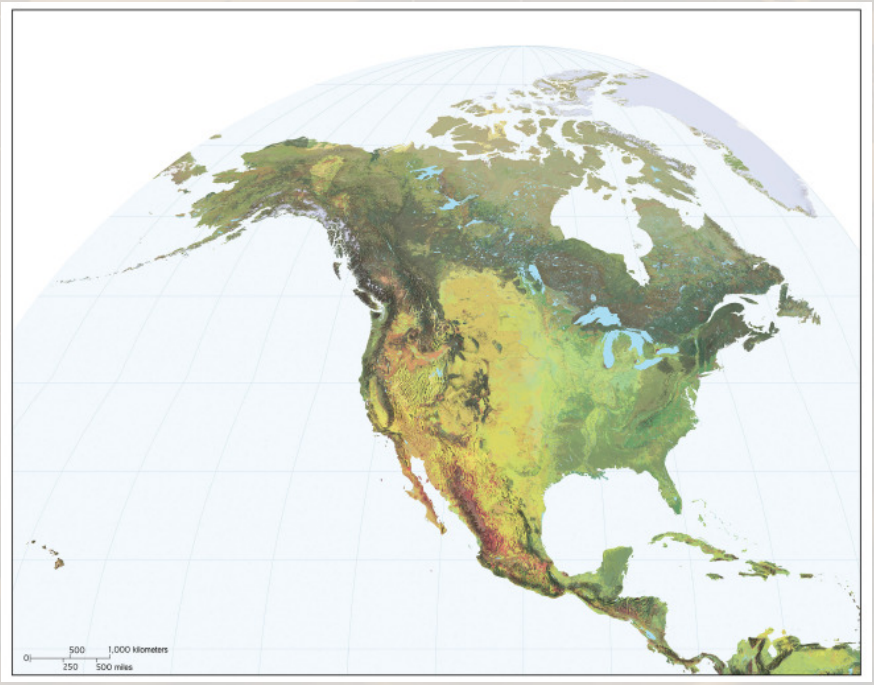
Outreach


USGS
esri
AAG
GEO BON
GEO ECO
New Global Ecological Land Units Map
Bioclimates
Landforms
Lithology
Land Cover

Exposure

WIRED

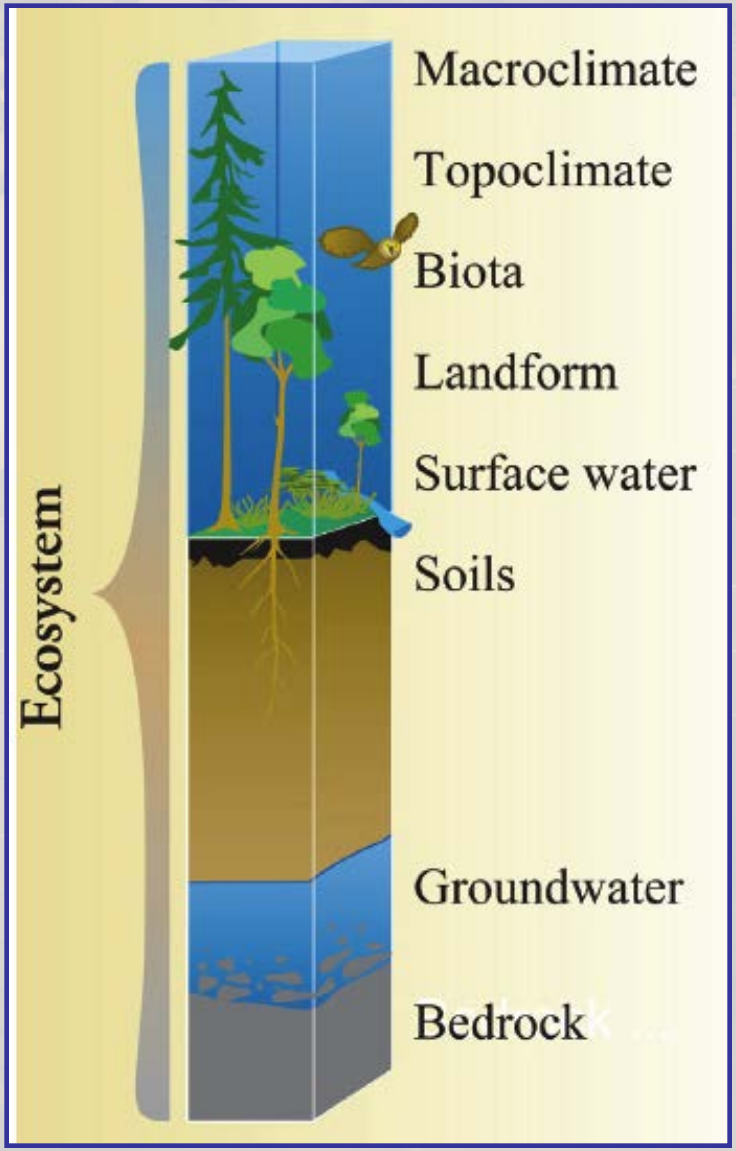
NEW MAP SHOWS THE WORLD'S ECOSYSTEMS IN UNPRECEDENTED DETAIL



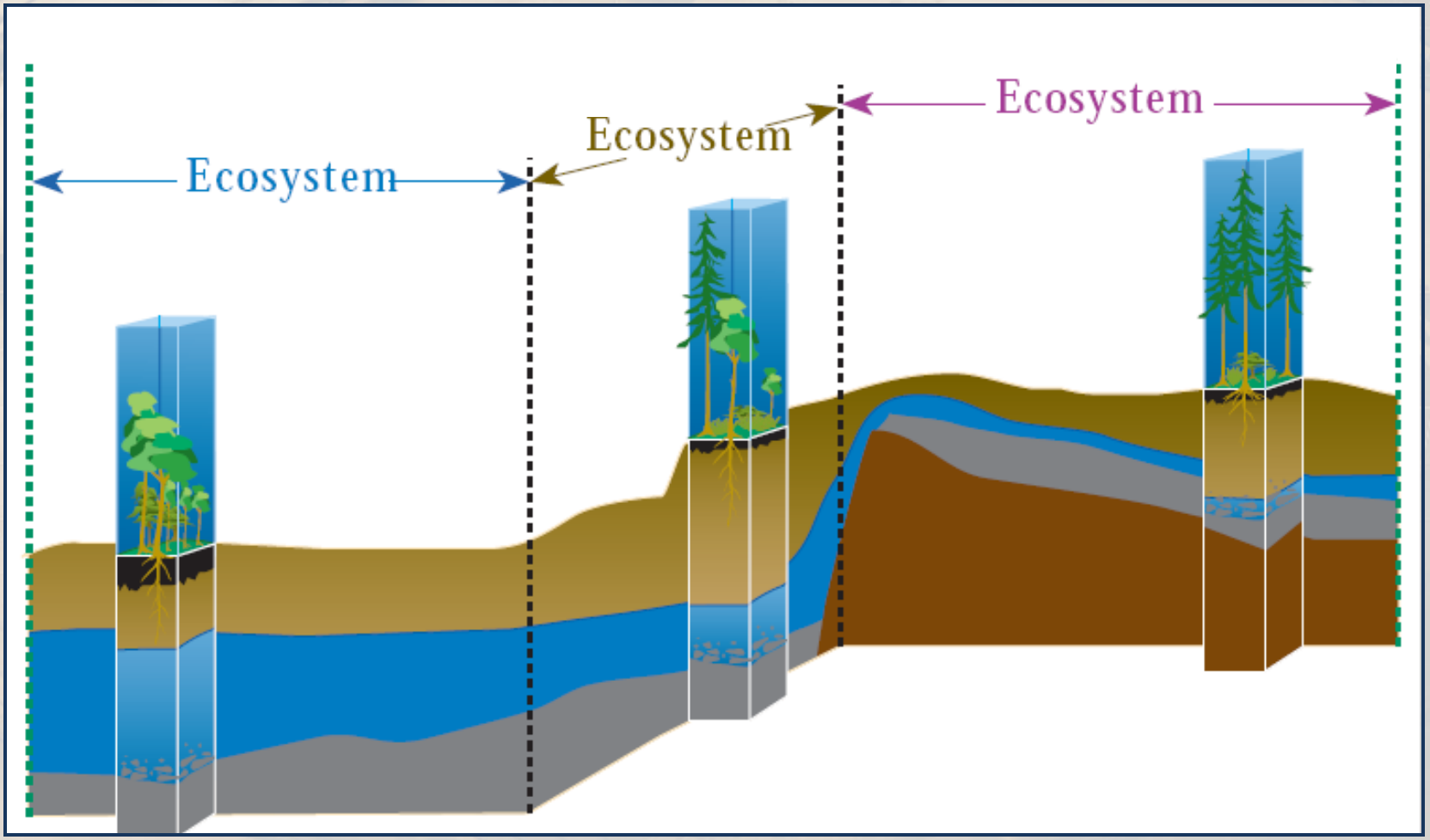
- Secretary of the Interior Sally Jewell announces release of ELUs
- Part of the President's Climate Data Initiative for Ecosystem Vulnerability
- Launched at ACES (A Community on Ecosystem Services) conference in December 2015.

My Desktop Ecosystem

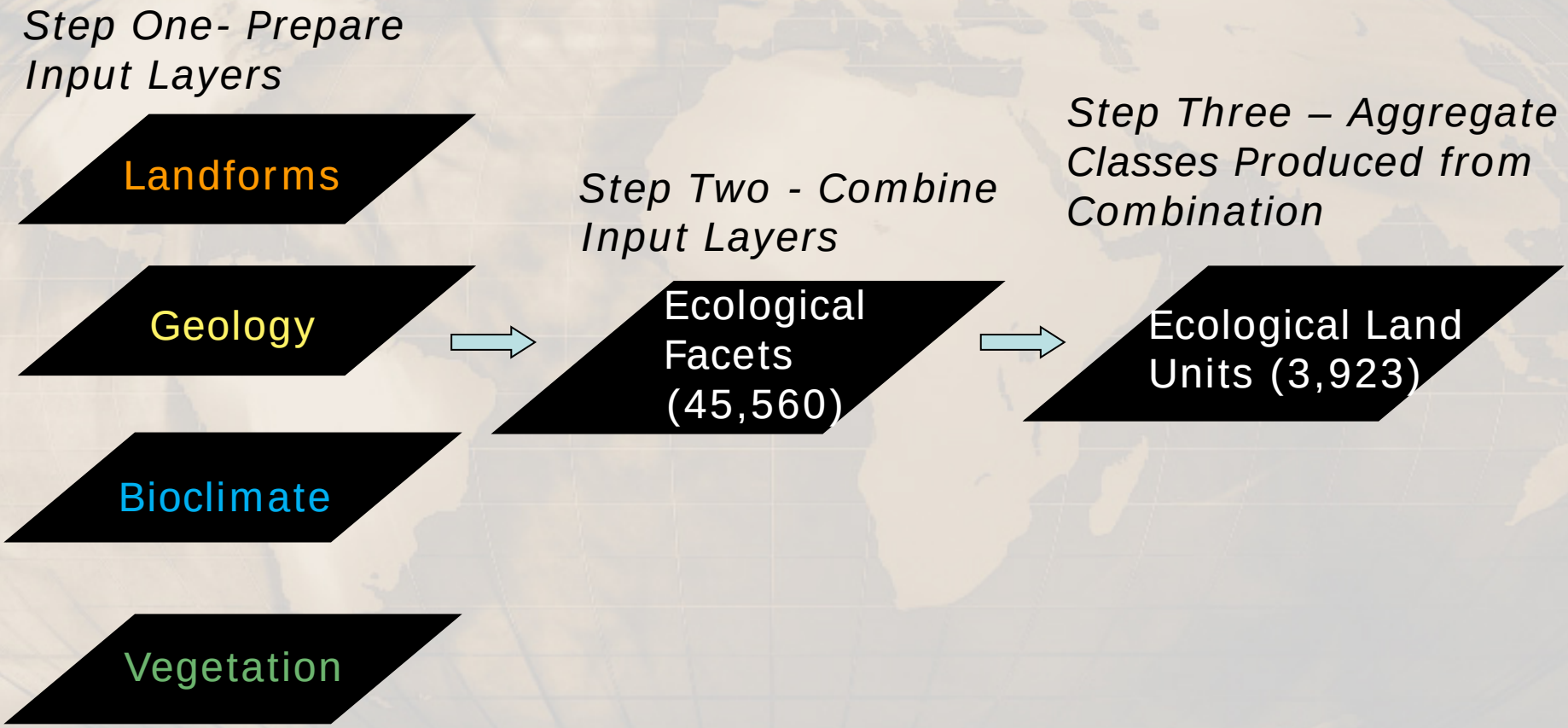
Terrestrial Ecosystems



Ecosystem Structure Varies Geographically



Terrestrial Ecosystems Mapping Model



Terrestrial Ecosystems Mapping Model

Step One- Prepare Input Layers

Landforms

Geology

Bioclimate

Vegetation

Step Two - Combine Input Layers

Ecological Facets (45,560)

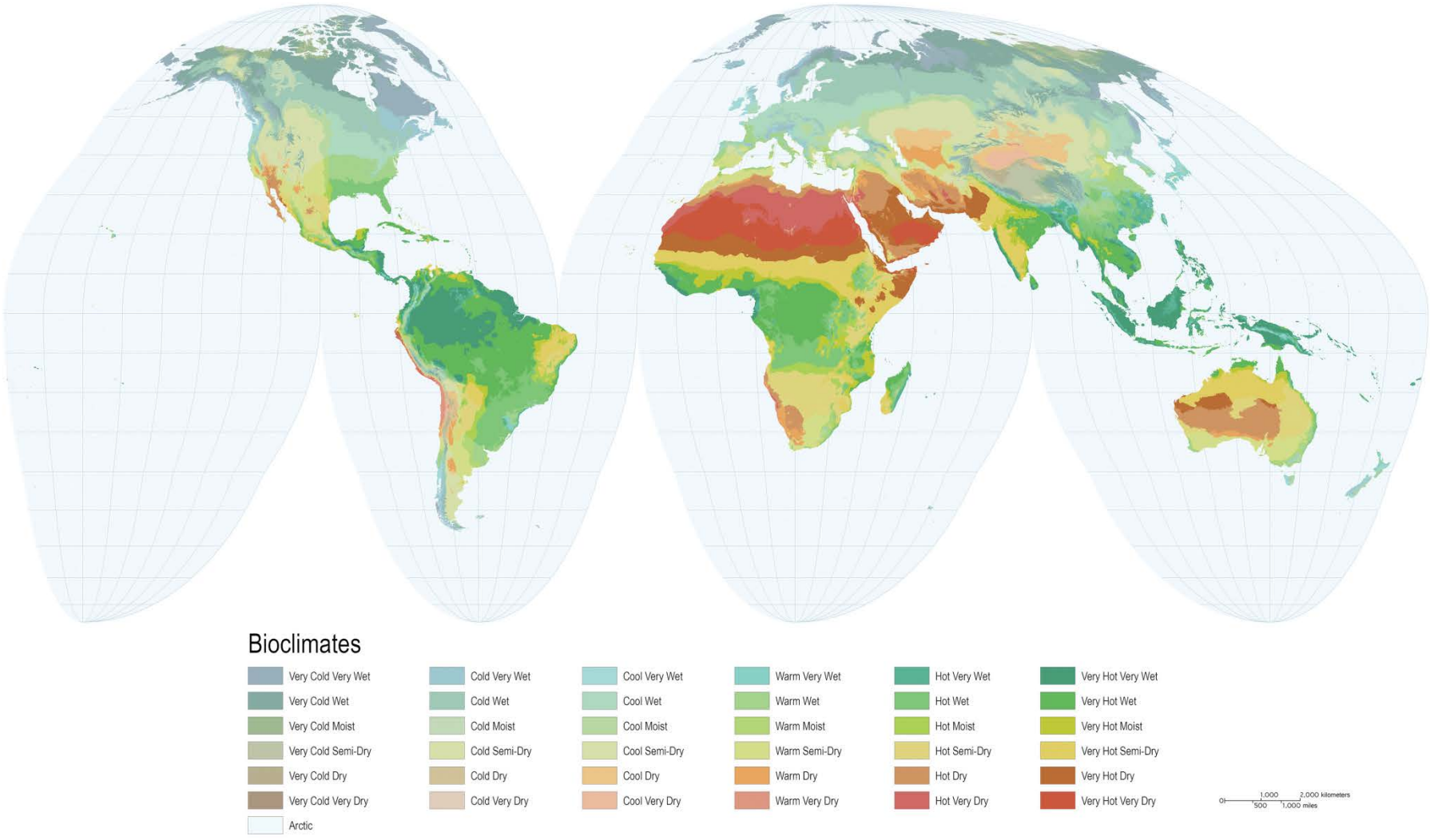
Step Three – Aggregate Classes Produced from Combination

Ecological Land Units (3,923)

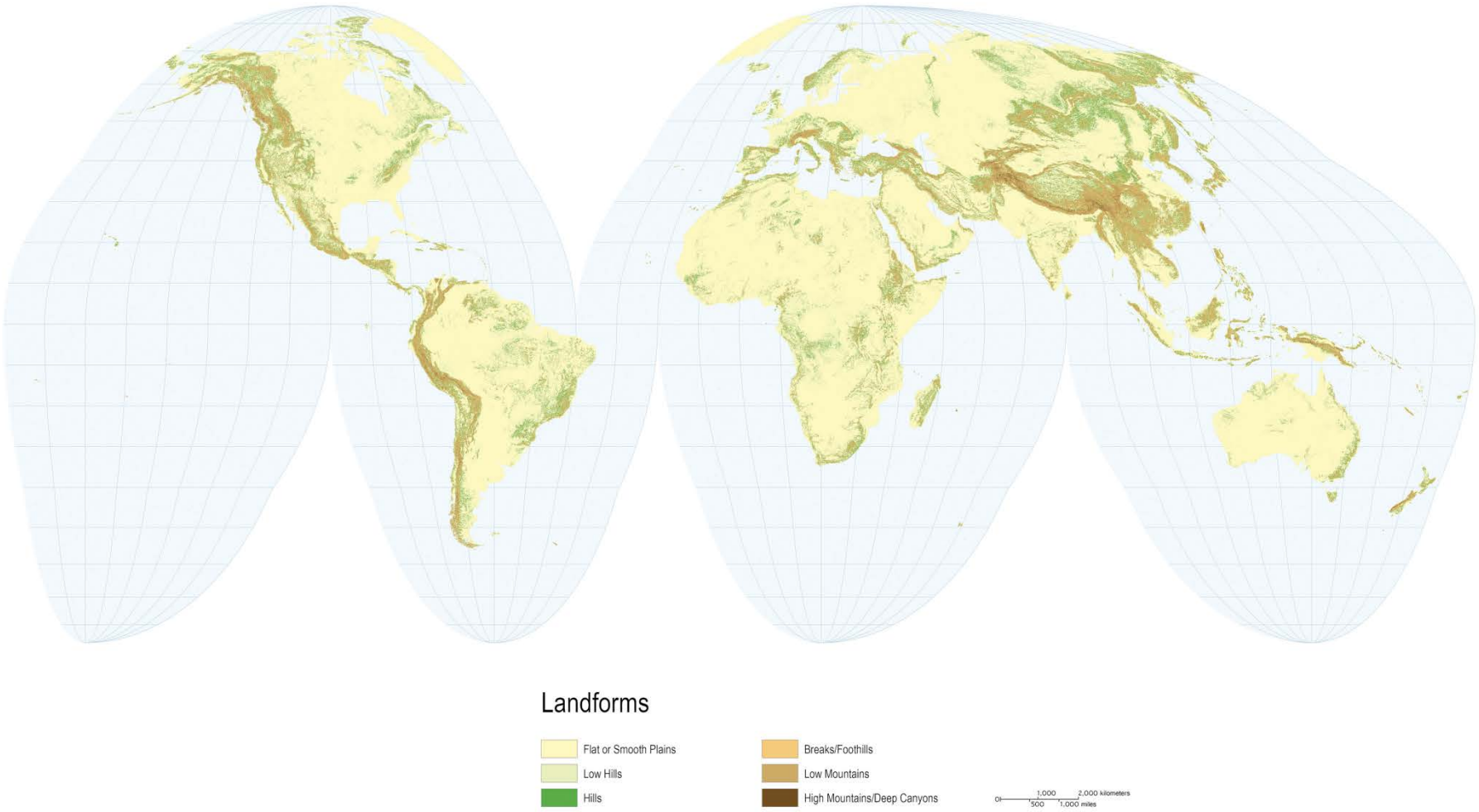
UN SEEA EEA

BSU – 250 m pixels
LCEU – ELUs
EAU – Aggregation of ELUS

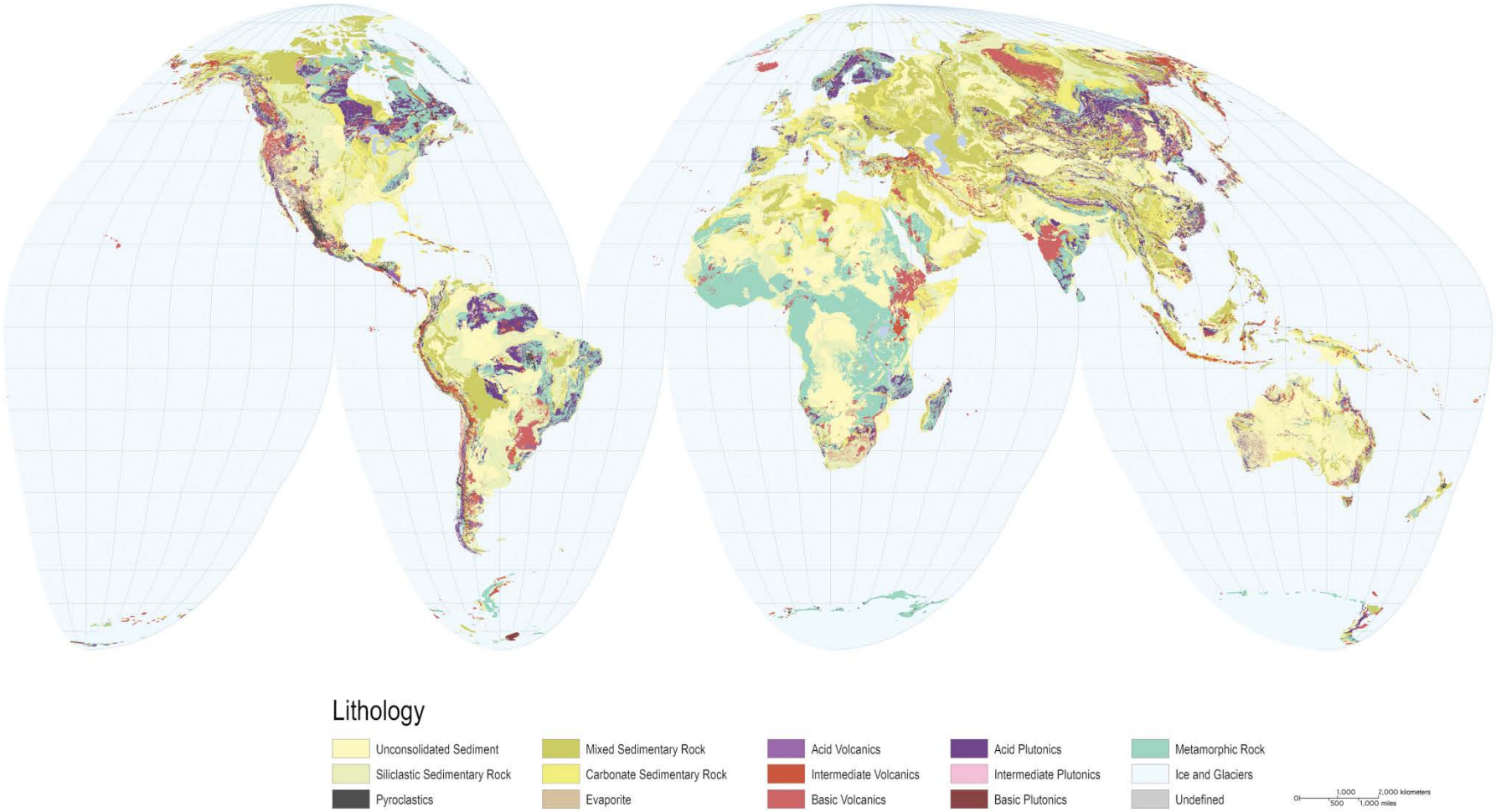
Input Layers - Bioclimates



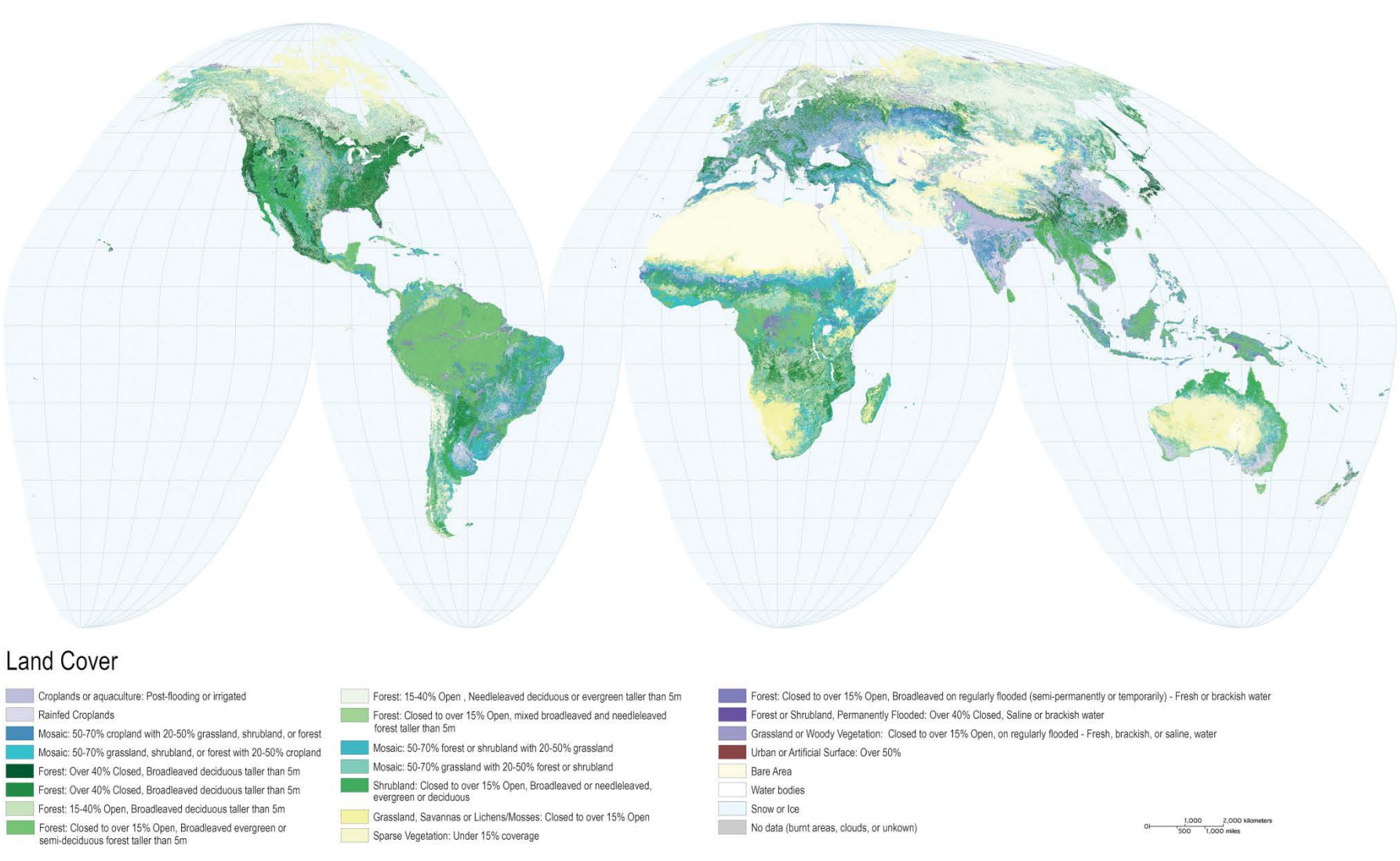
Input Layers - Landforms



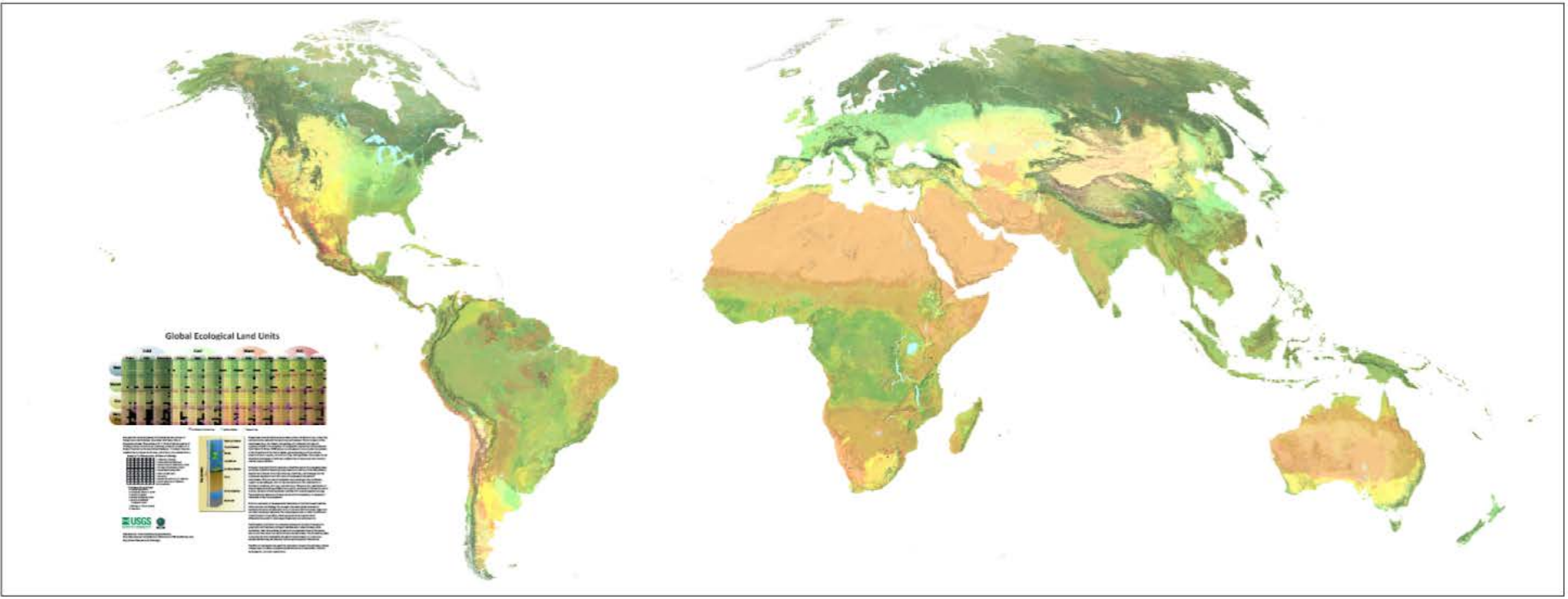
Input Layers - Lithology



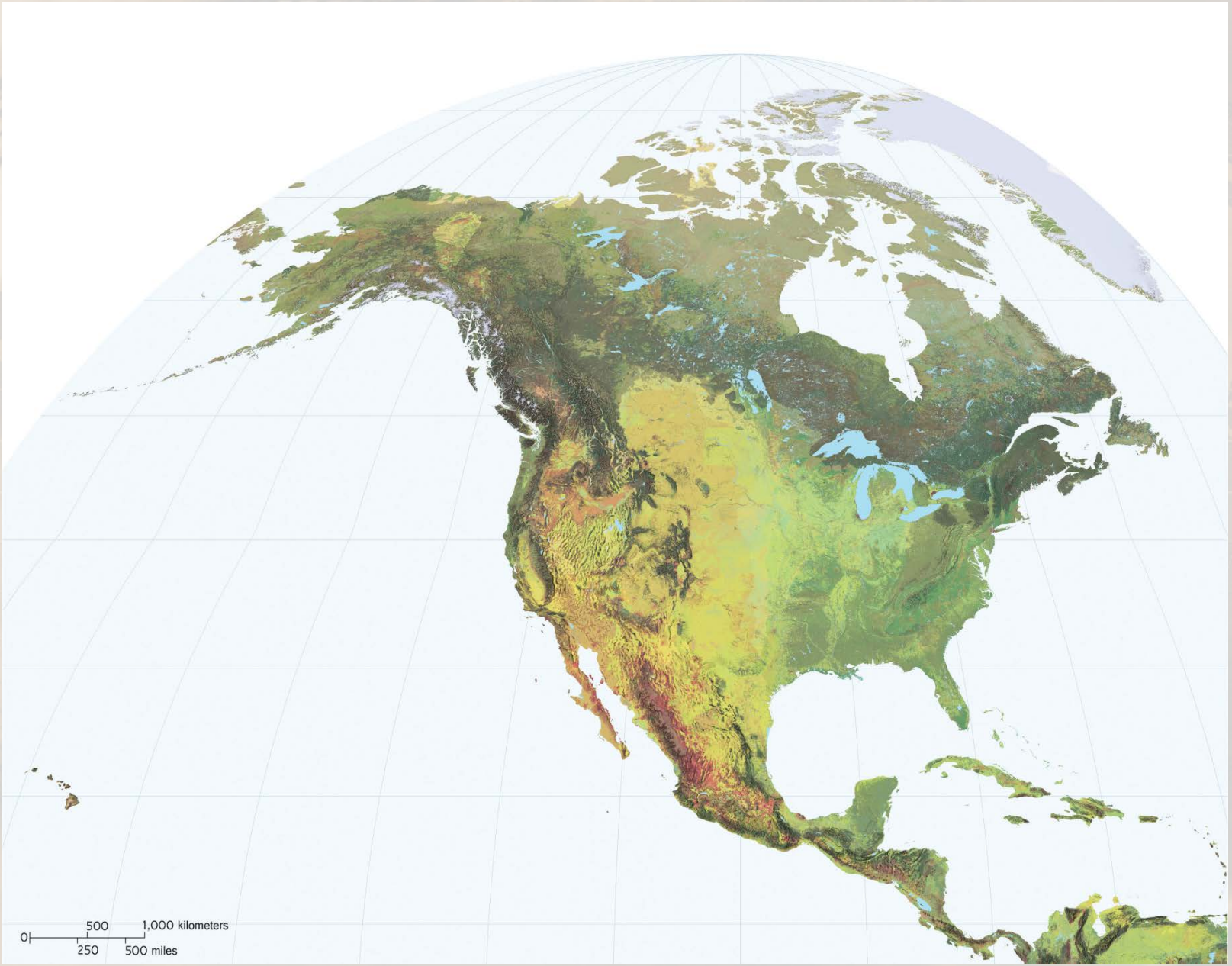
Input Layers – Land Cover



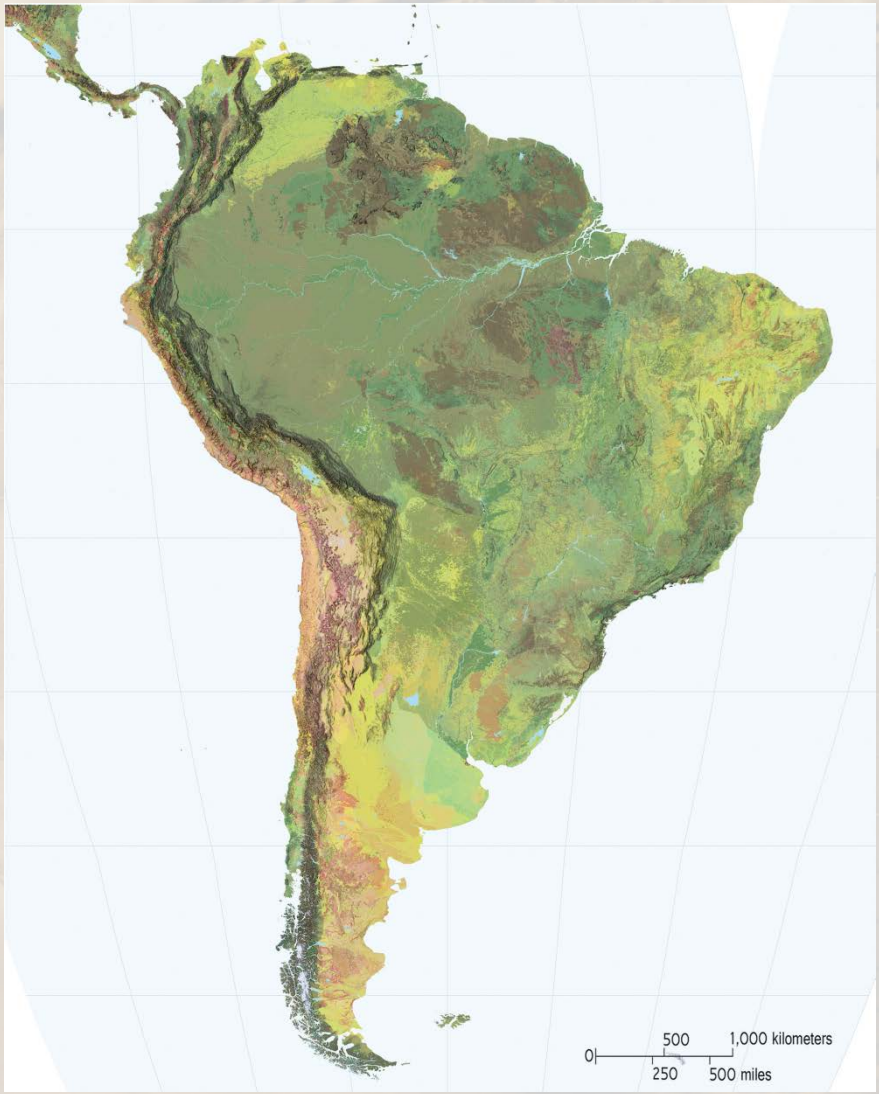
Global Ecological Land Units (3,932)



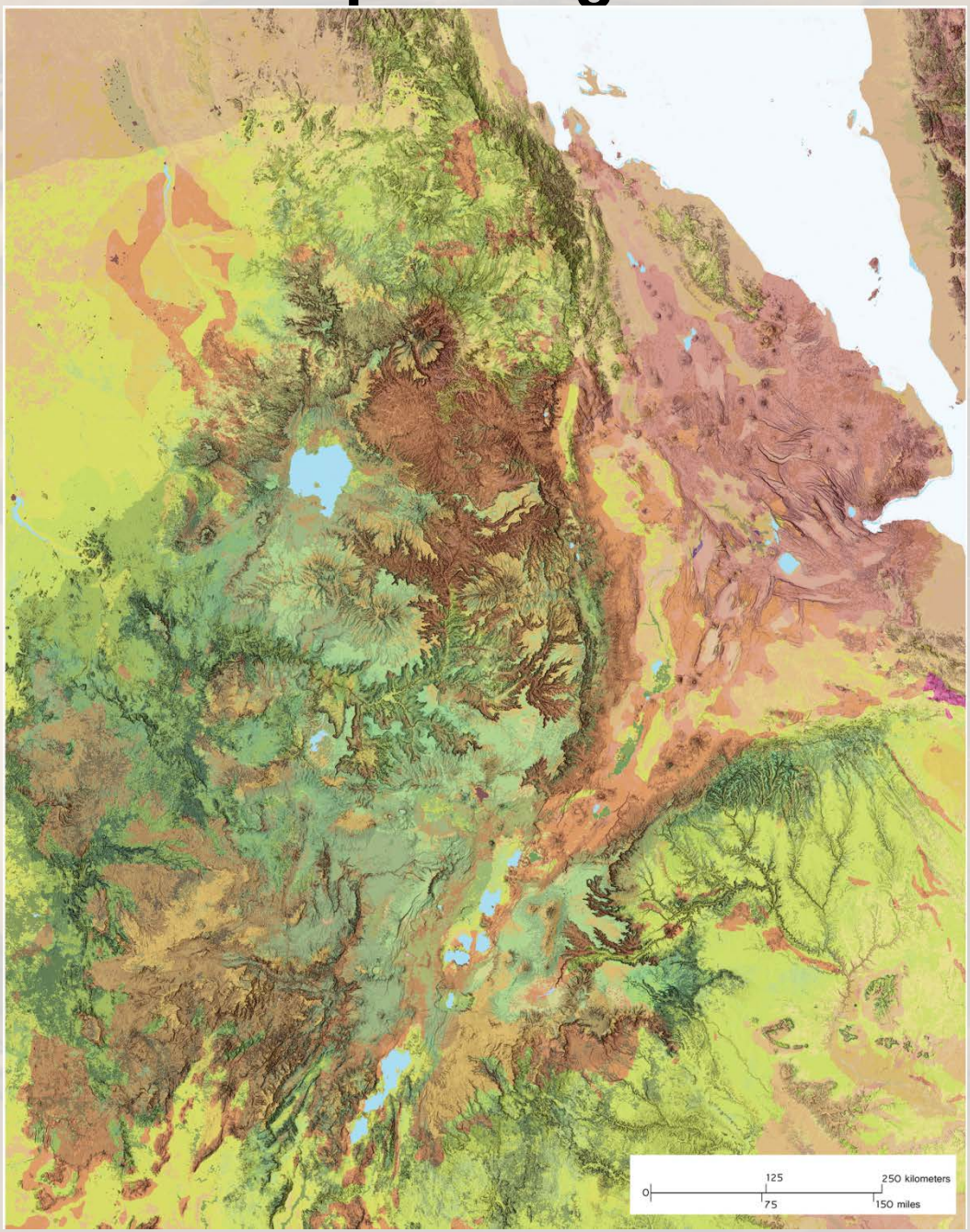
ELUs of North and Central America



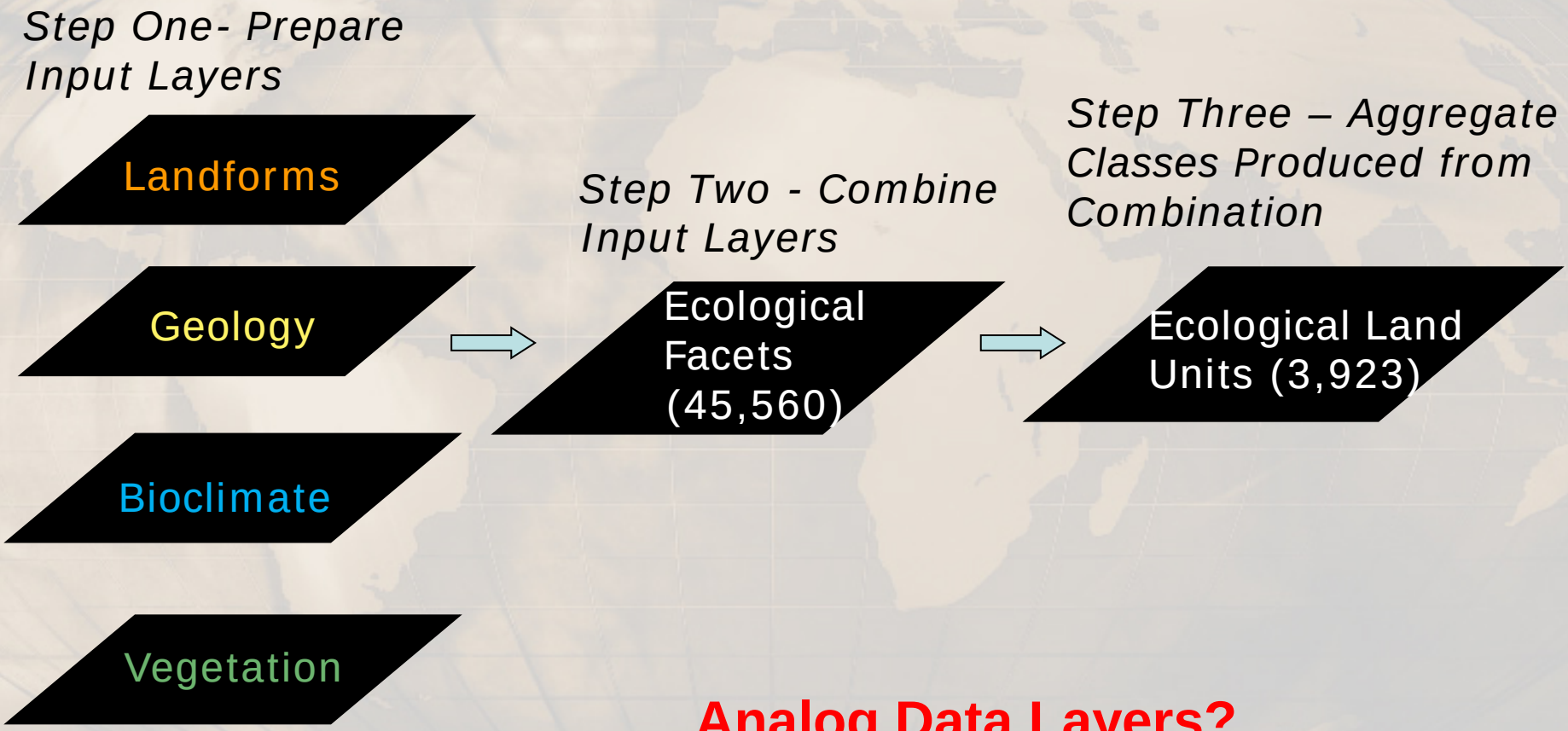
ELUs of South America and Africa



Ethiopian Highlands



Can We Map Global Ecological Marine Units?



Analog Data Layers?
Voxels, not Pixels

Global Ecological Marine Units (EMUs)

Global Ecological Land Units (3,932)