

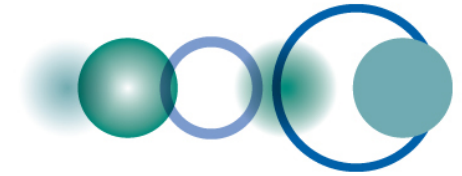
The Importance of Broad, Open Data Policies for Integrated Science and National Economies

International Centre for Earth Simulation (ICES) Biennial Workshop

Geneva, Switzerland
6 November 2015

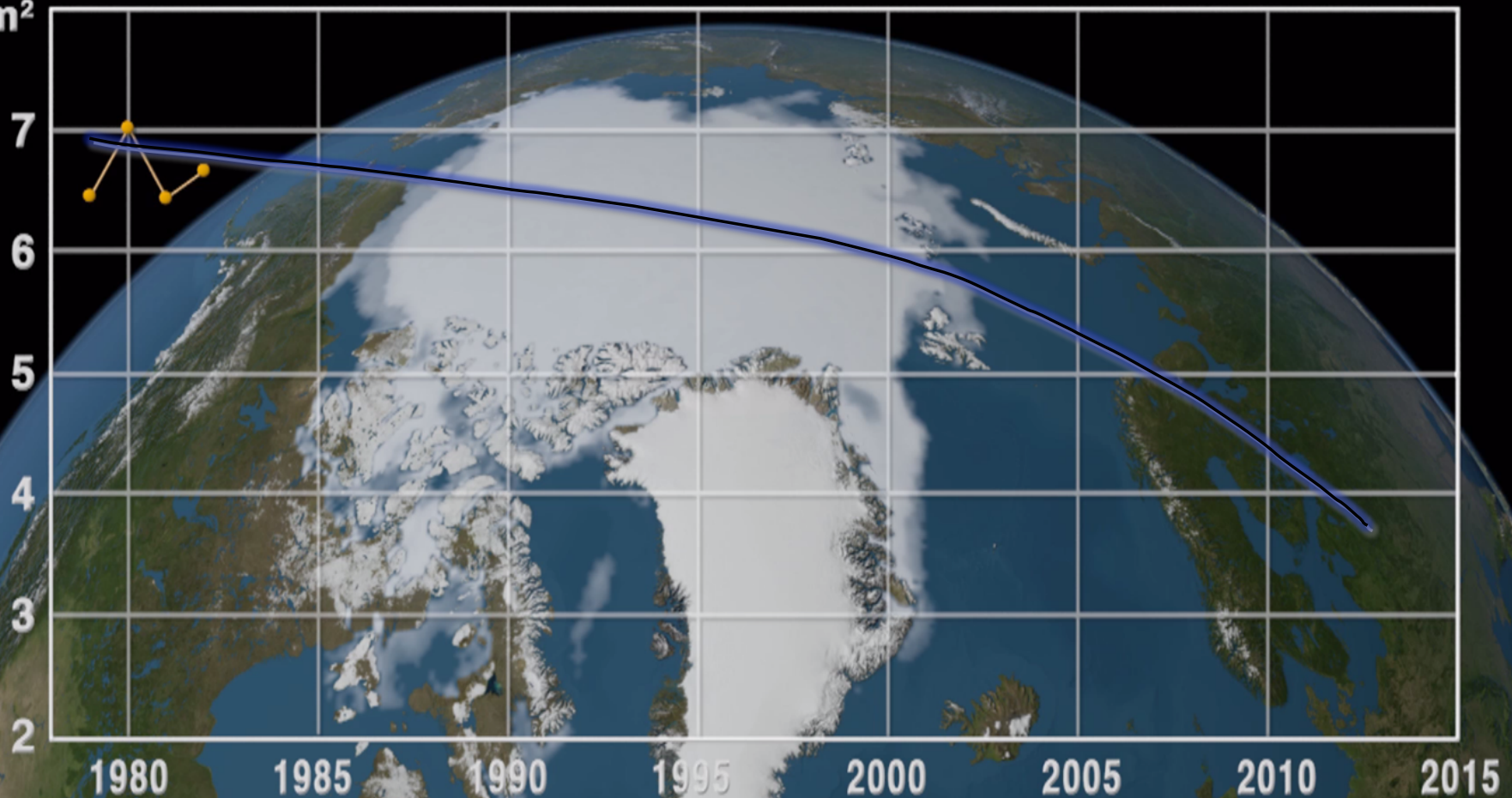
Barbara J. Ryan
Director, GEO Secretariat





ARCTIC SEA ICE AREA

Millions
km²



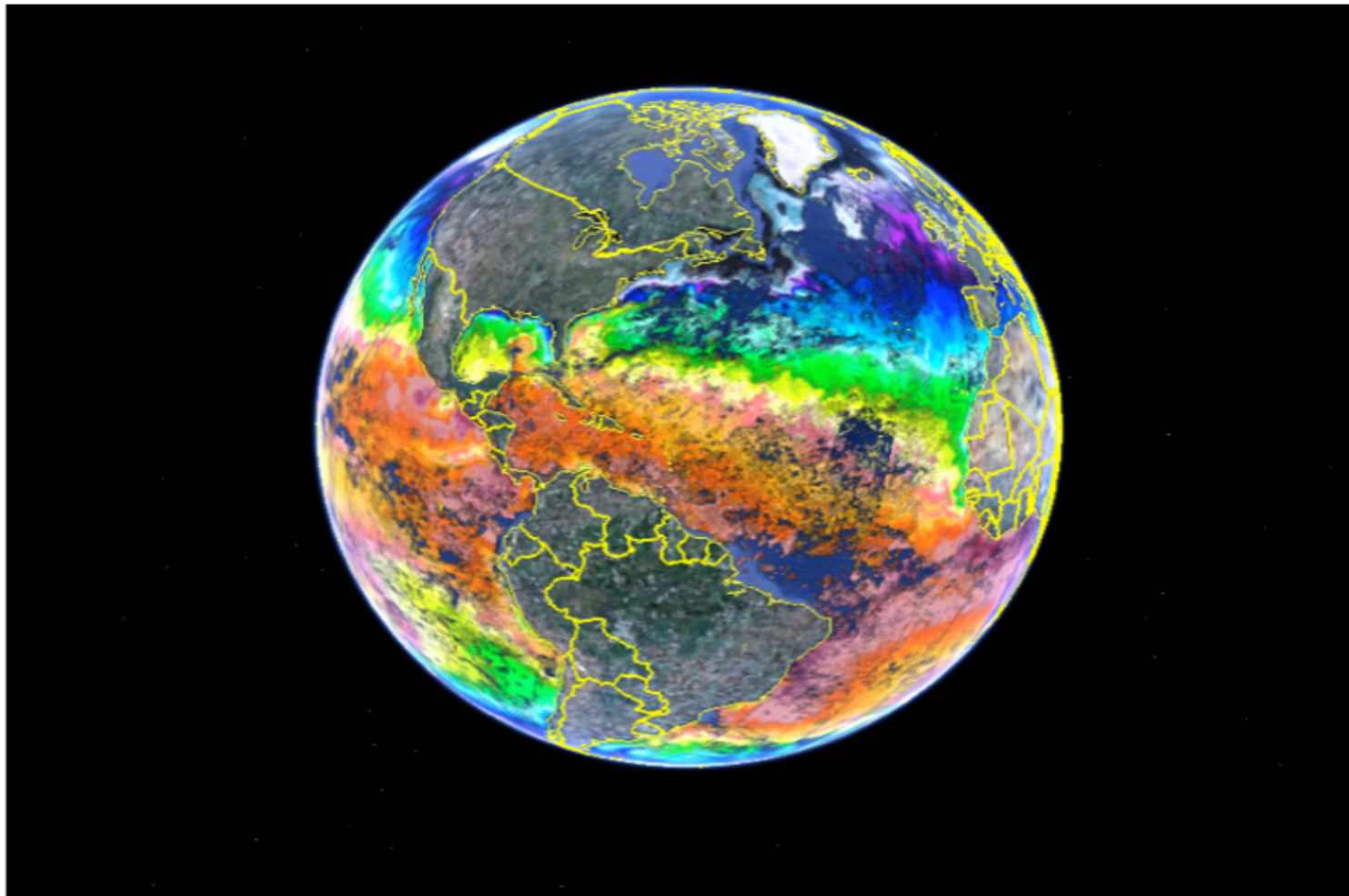


The Arctic Region Impacts the Globe



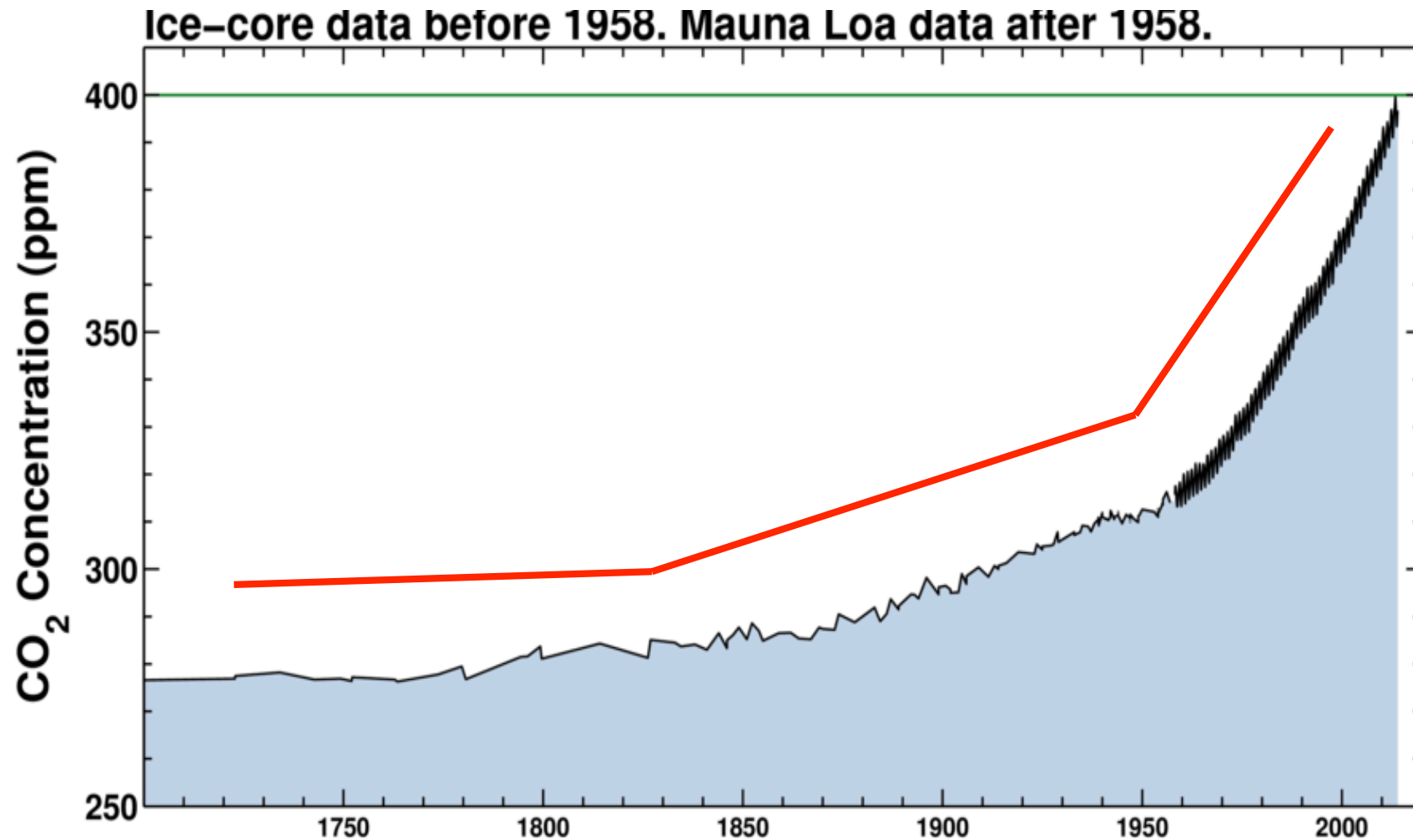


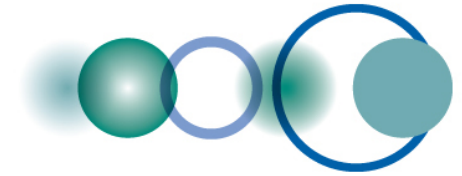
Global Sea Surface Temperatures



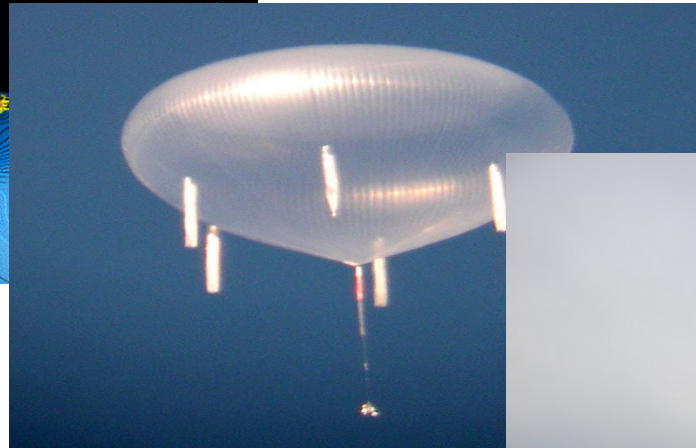
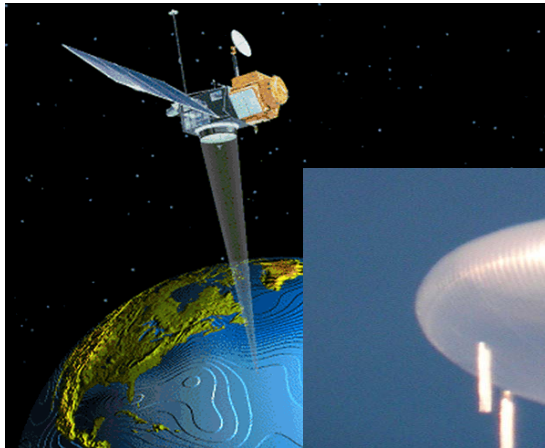


Global Atmospheric Concentrations of CO₂





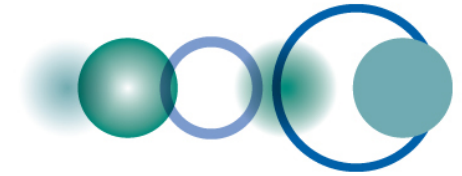
Observations – In, On, and Around the Earth





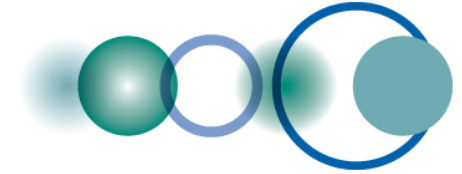
GEO Vision

To realize a future wherein decisions and actions, for the benefit of humankind, are informed by coordinated, comprehensive and sustained Earth observations and information.



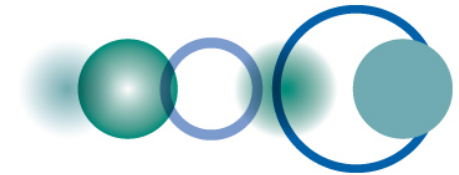
A Global System of Systems



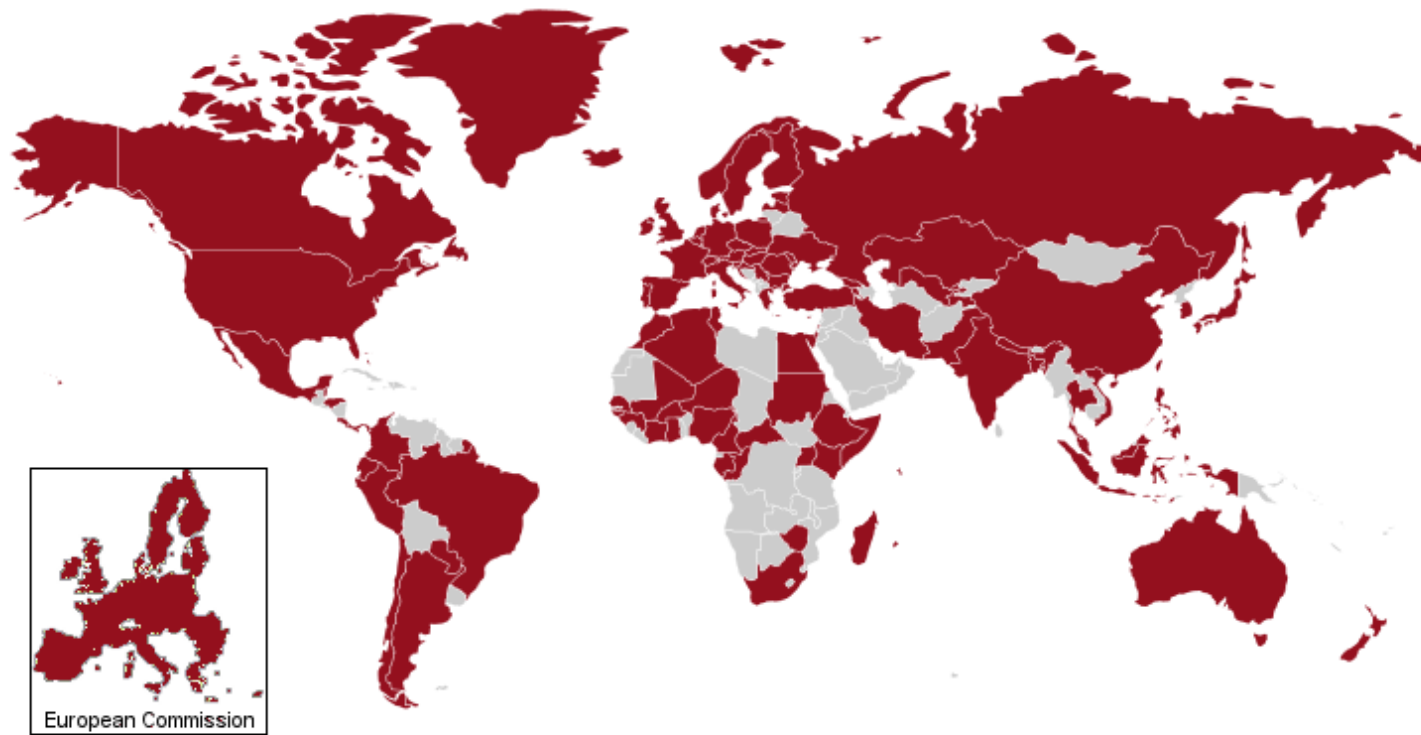


GEO Objectives

- Improve and coordinate observation systems globally
- Provide access to data & information
- **Advance broad open data policies/practices**
- Build capacity



GEO Member Map for the year 2015

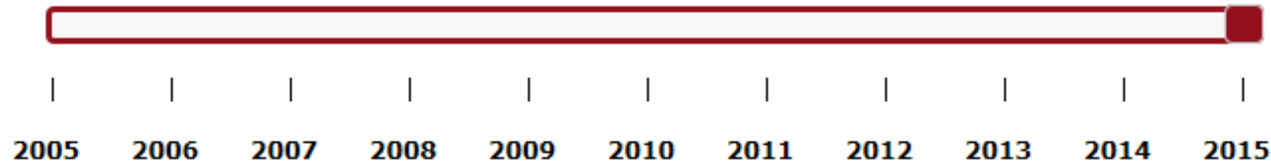
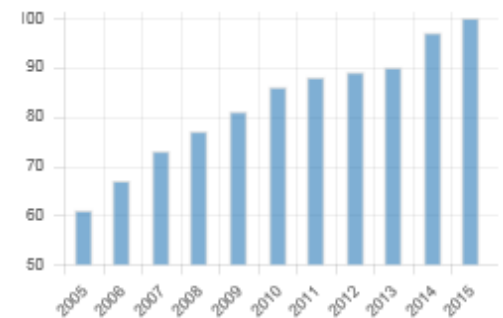


Number of Members (2015)

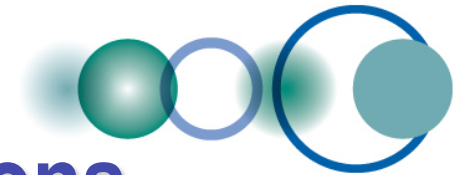
Africa:	27
Americas:	15
Asia/Oceania:	17
C.I.S.:	7
Europe:	34

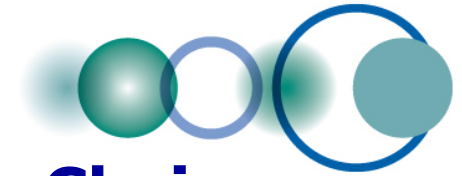
Total:	100
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Number of Members by year



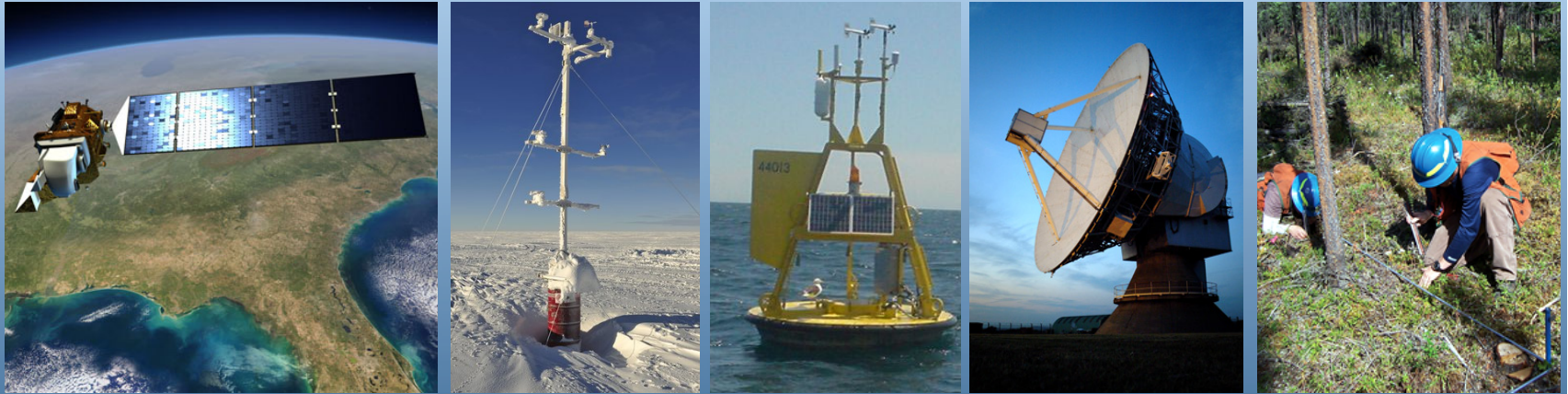
87 Participating Organizations





Spans the Entire Information Value Chain

Data Providers

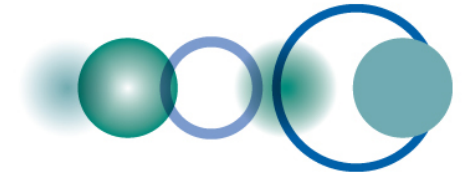


Value-Added Providers



Downstream Users





Tier 3
GEOSS Application Developers

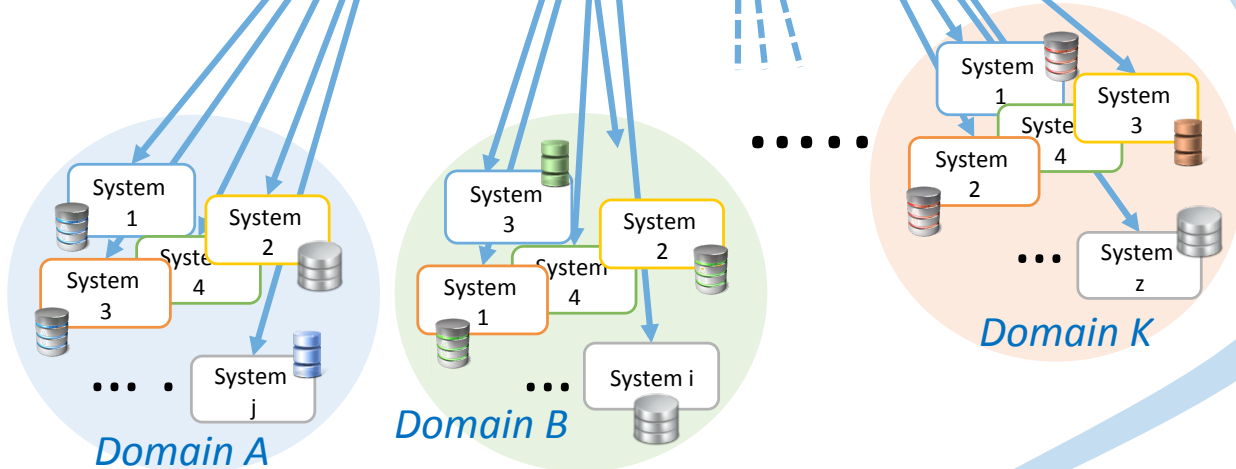
GEOSS Applications

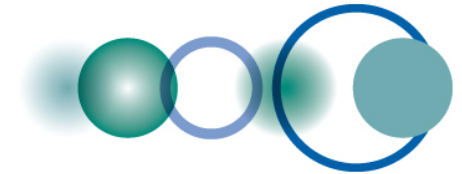


Tier 2
GCI Operations

GEOSS Common Infrast.

Tier 1
GEOSS Providers

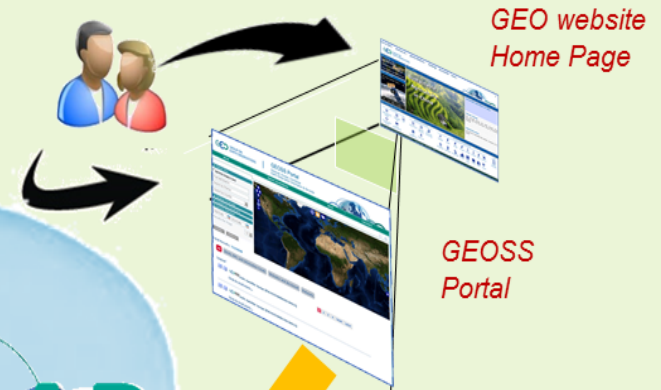




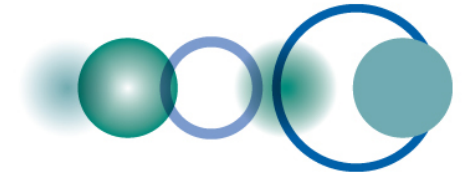
GEOSS Information System

Data Providers Brokered (capacities, systems, networks, etc.)

GEO DAB
The GEOSS Discovery and Access Broker

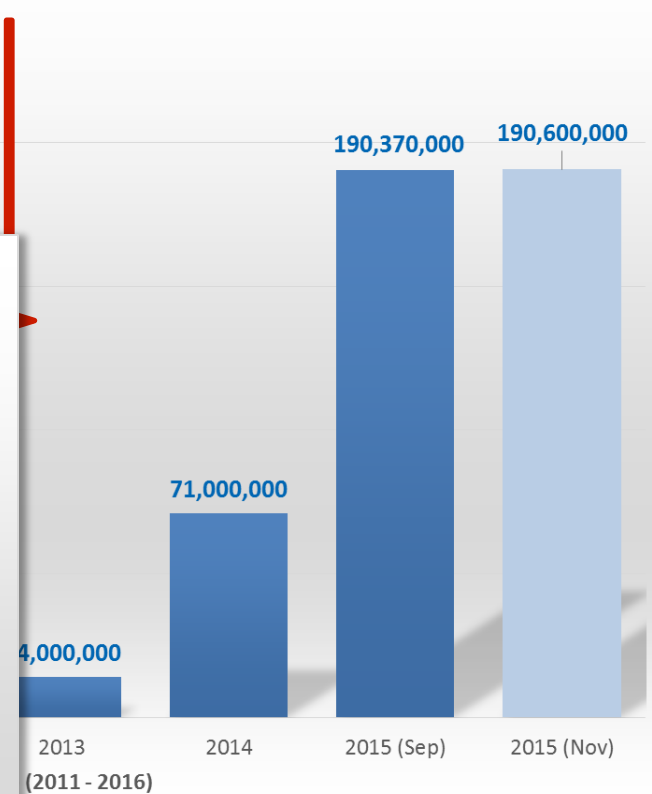


Private sector (tested interoperability)

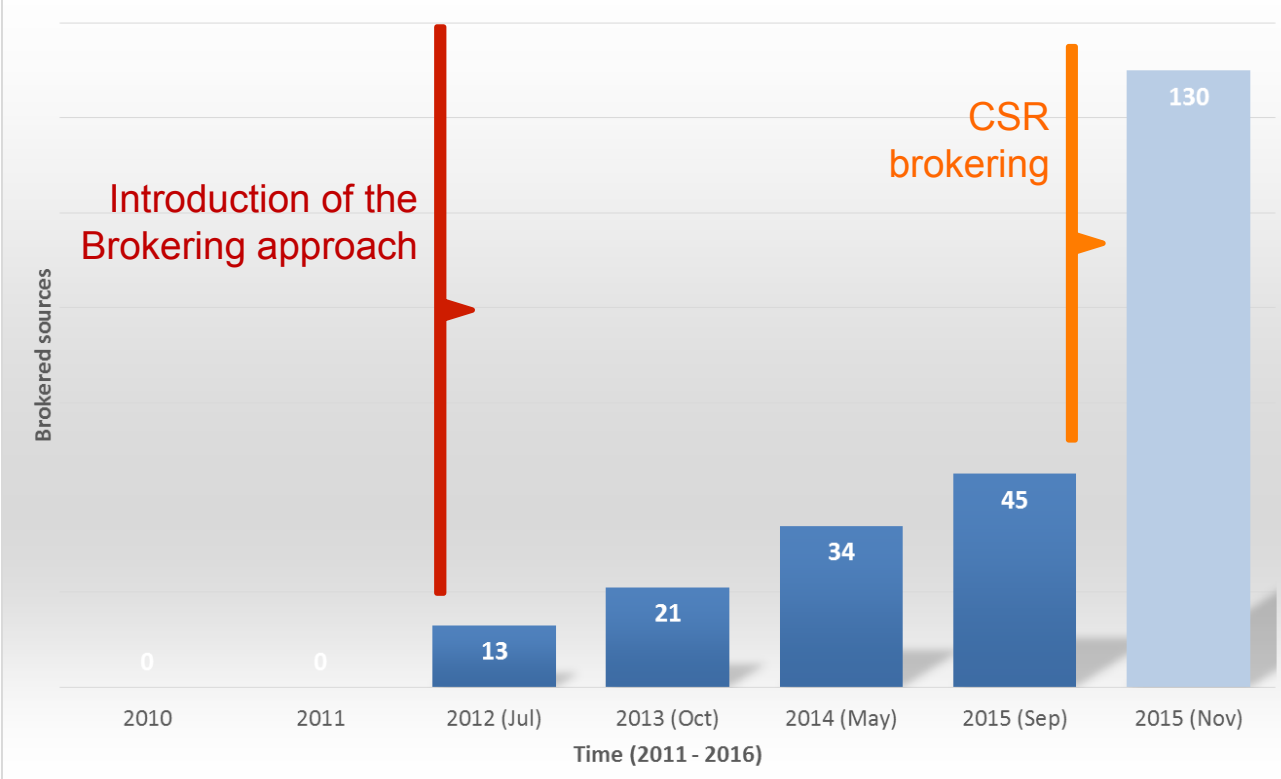


GCI Providers Evolution and Statistics

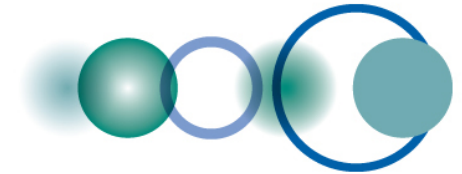
Discoverable and potentially Accessible Elements



Number of Brokered Enterprise Systems



Introduction of the

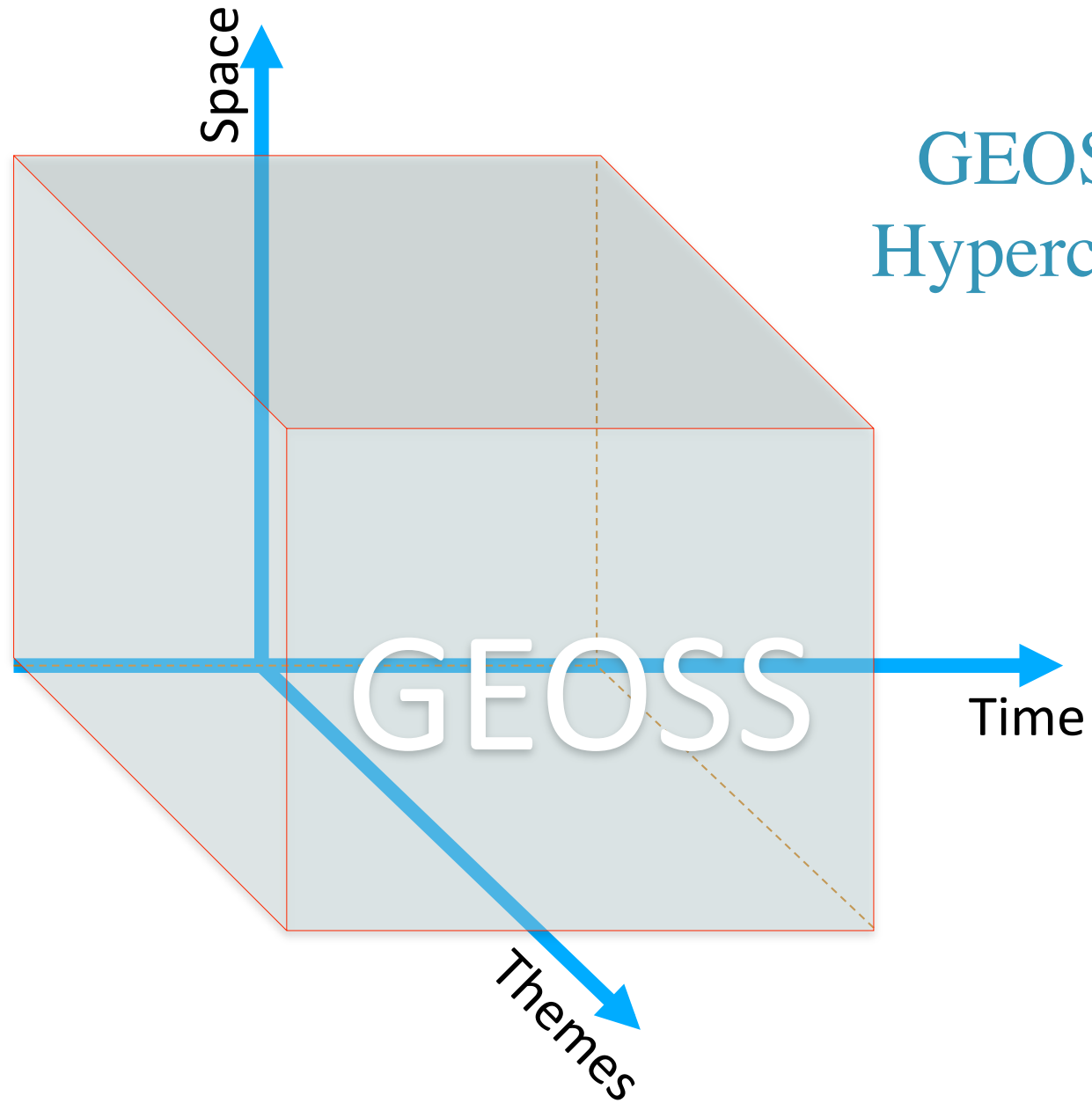
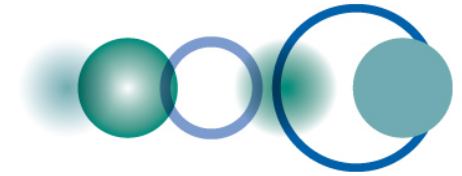


Brokering Organizations

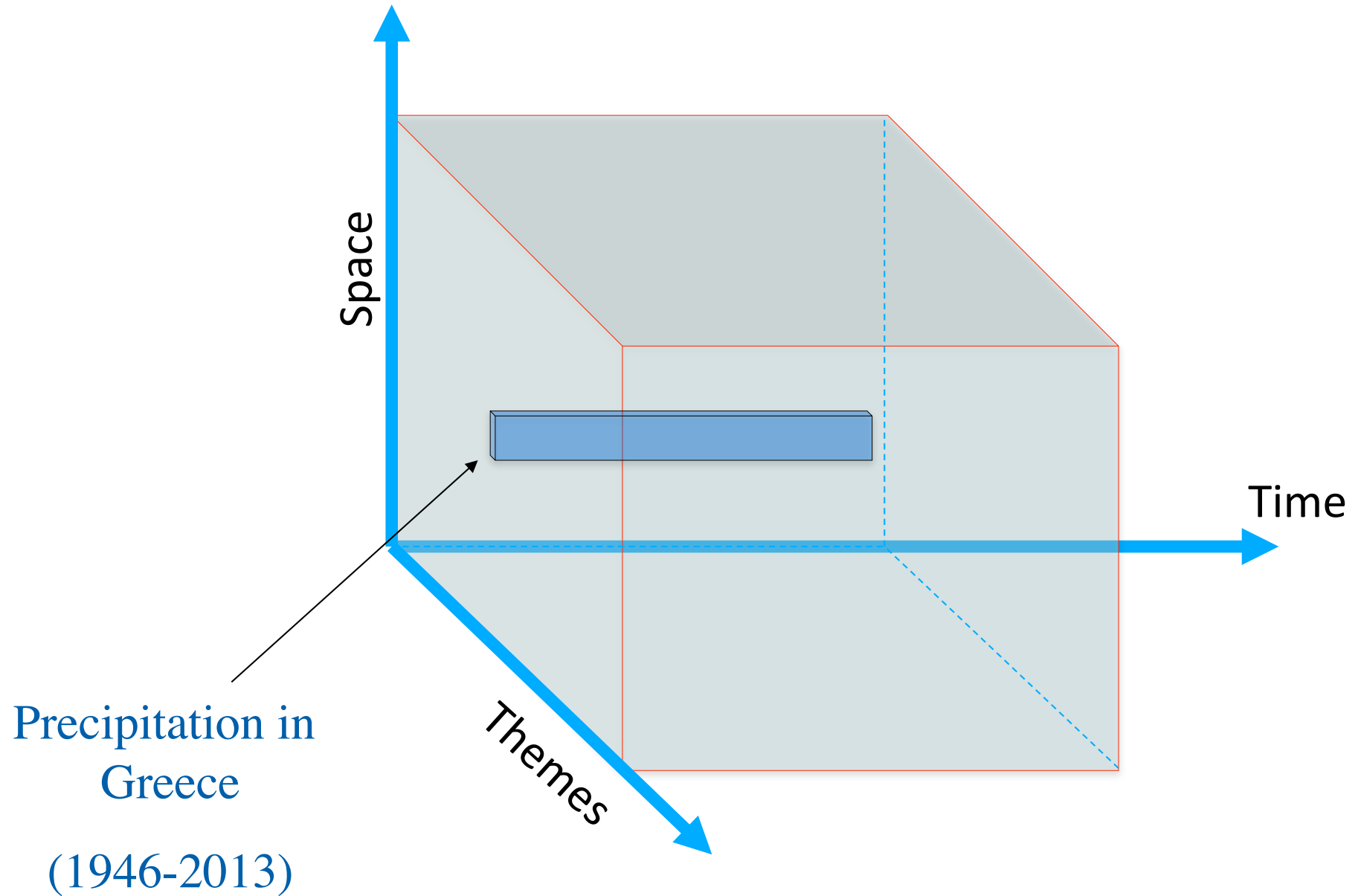
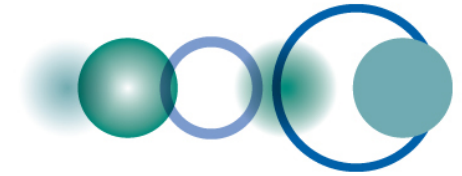
U B E R

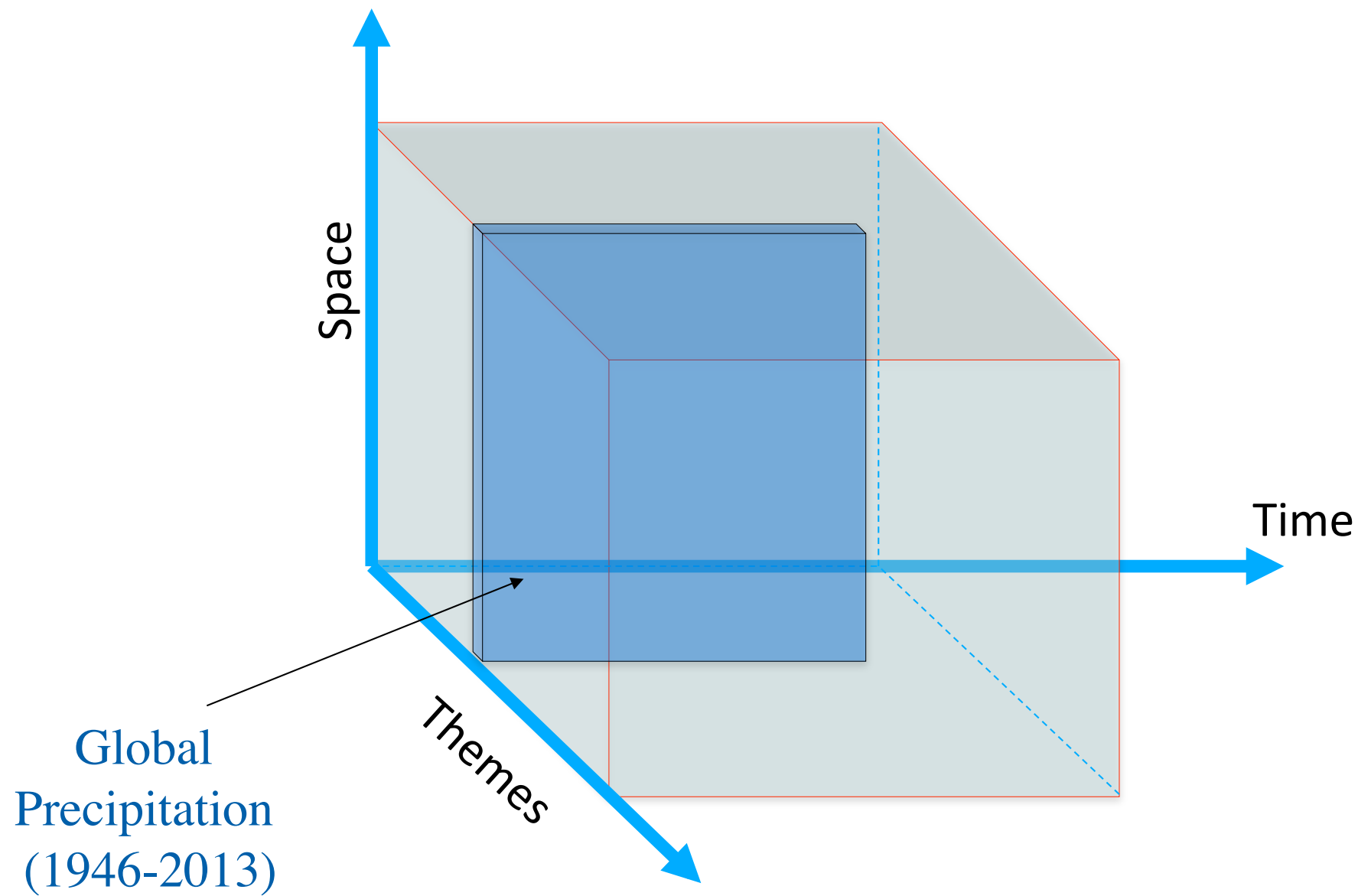
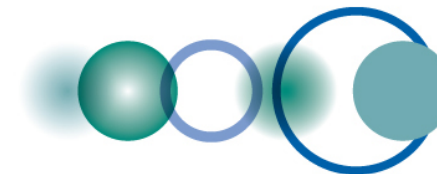


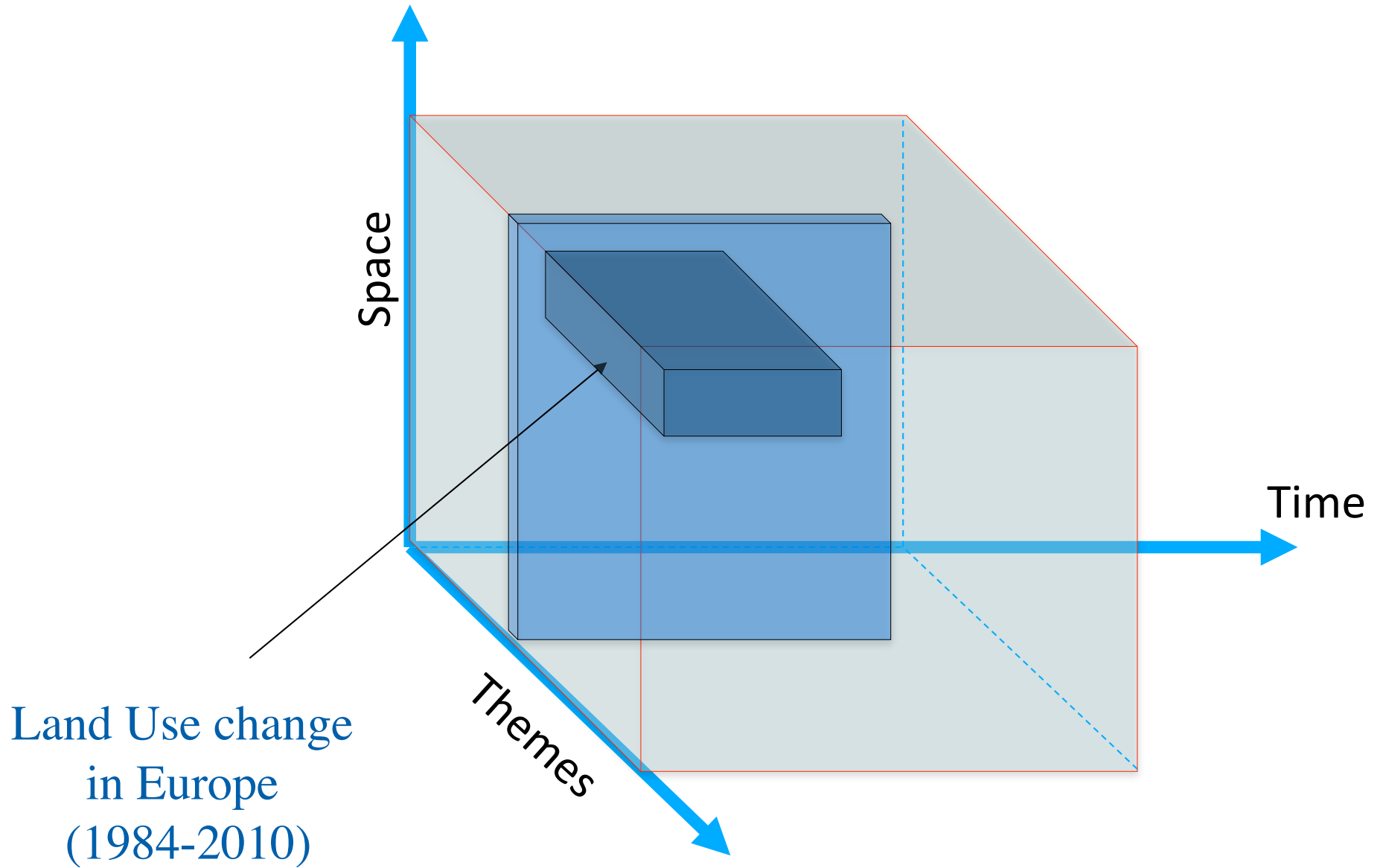
airbnb

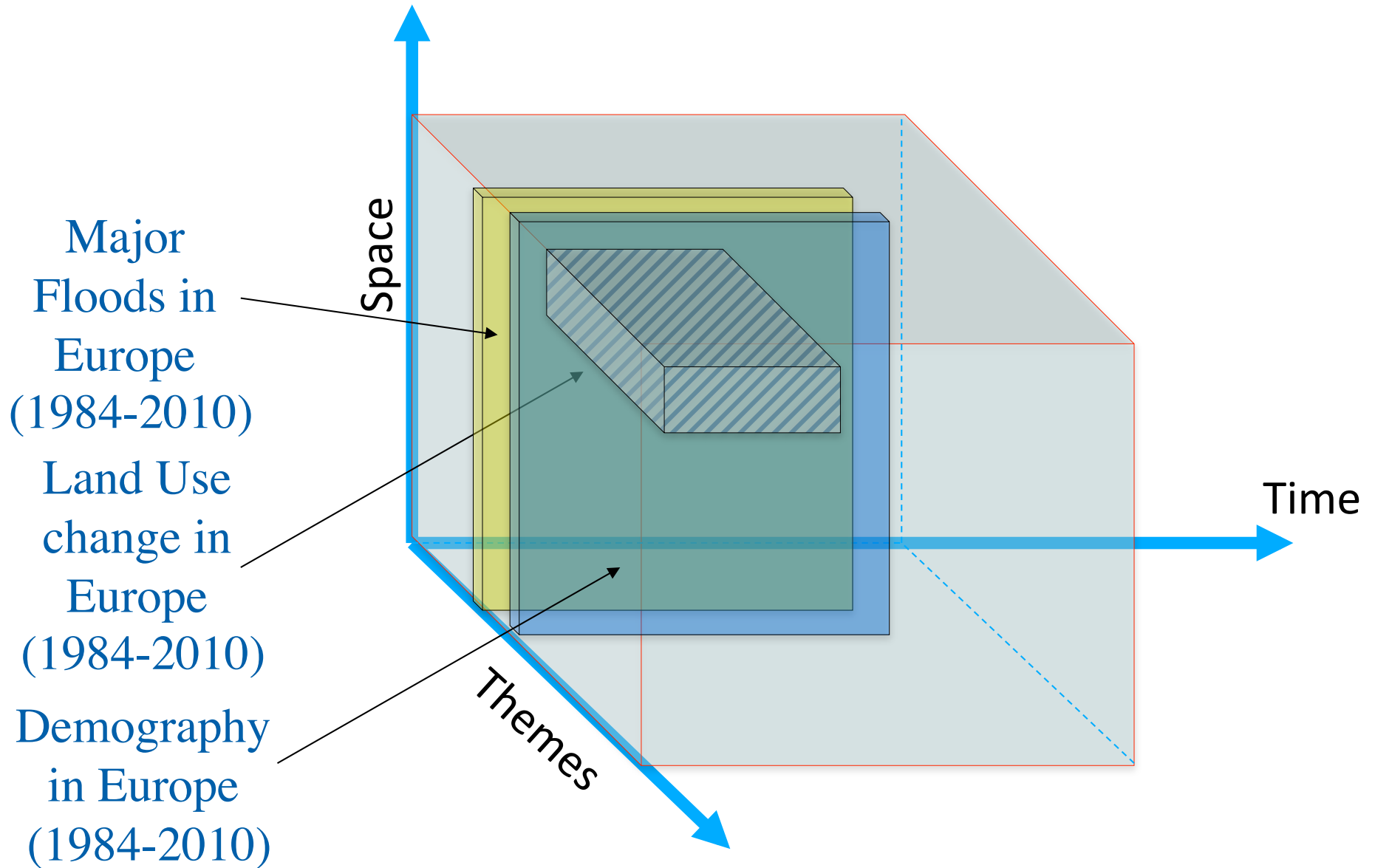


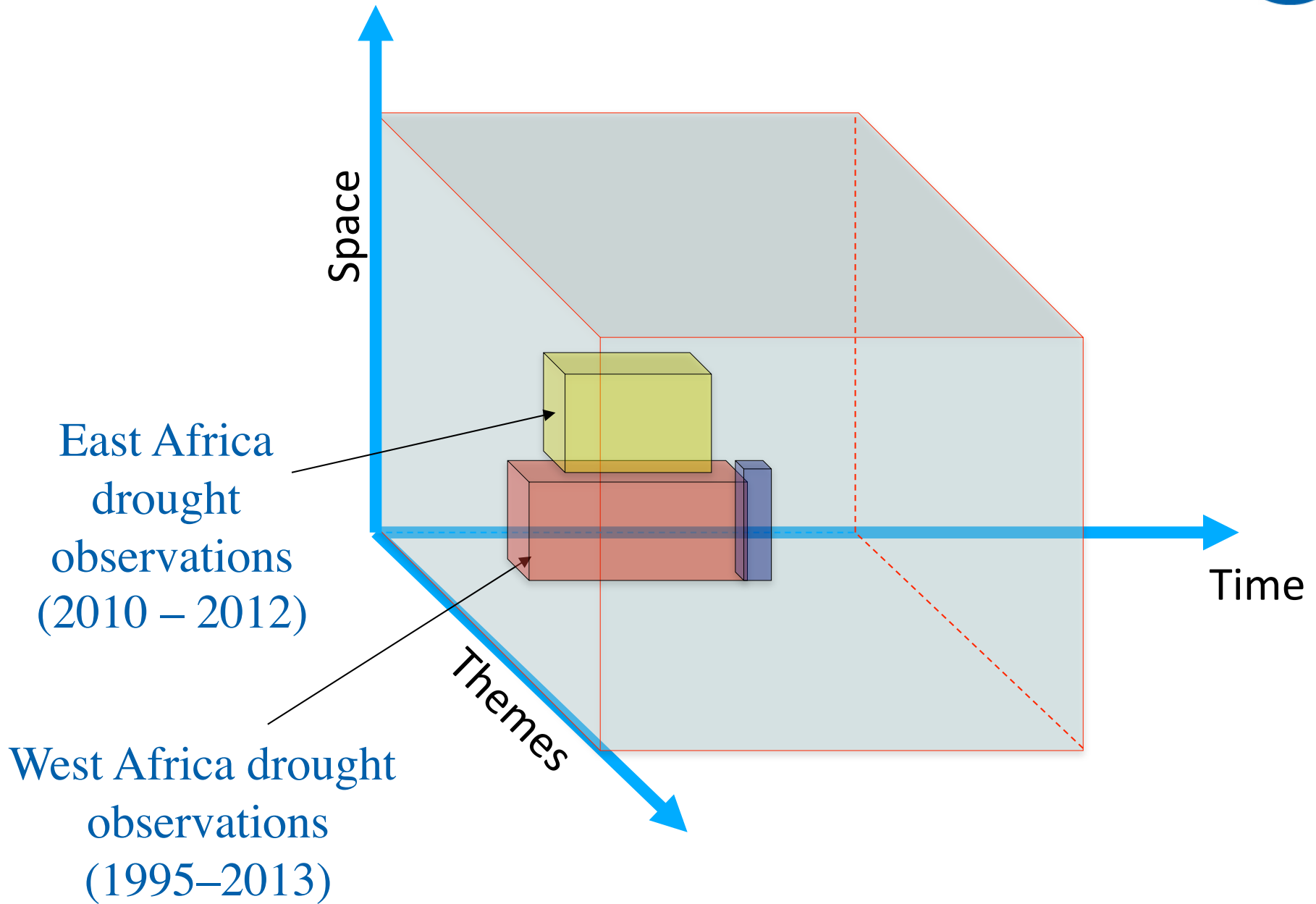
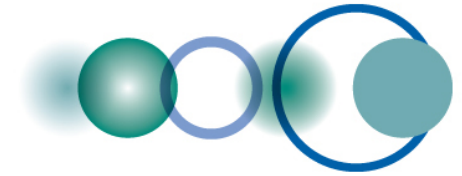
GEOSS
Hypercube

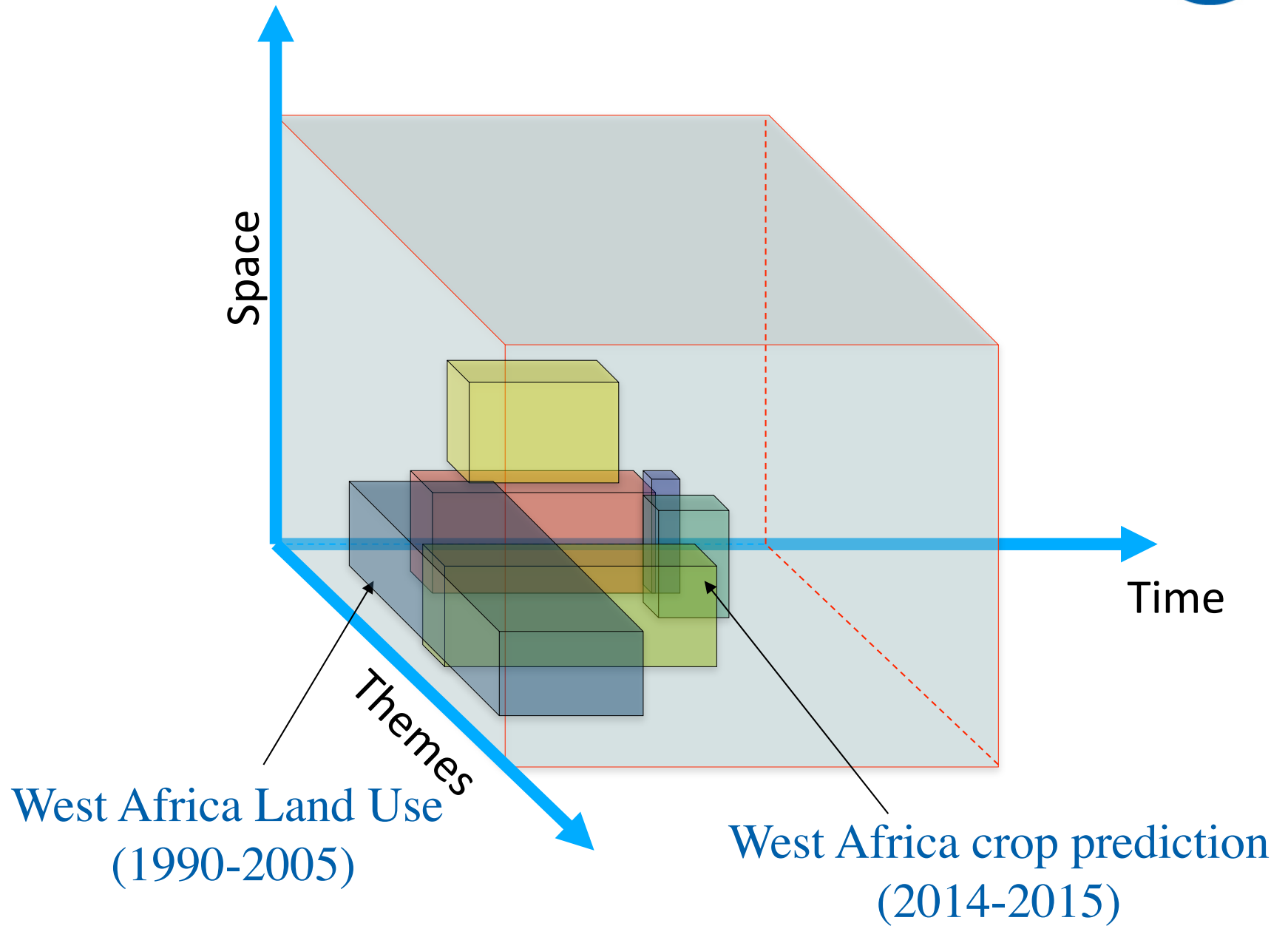
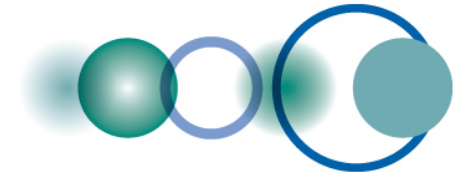


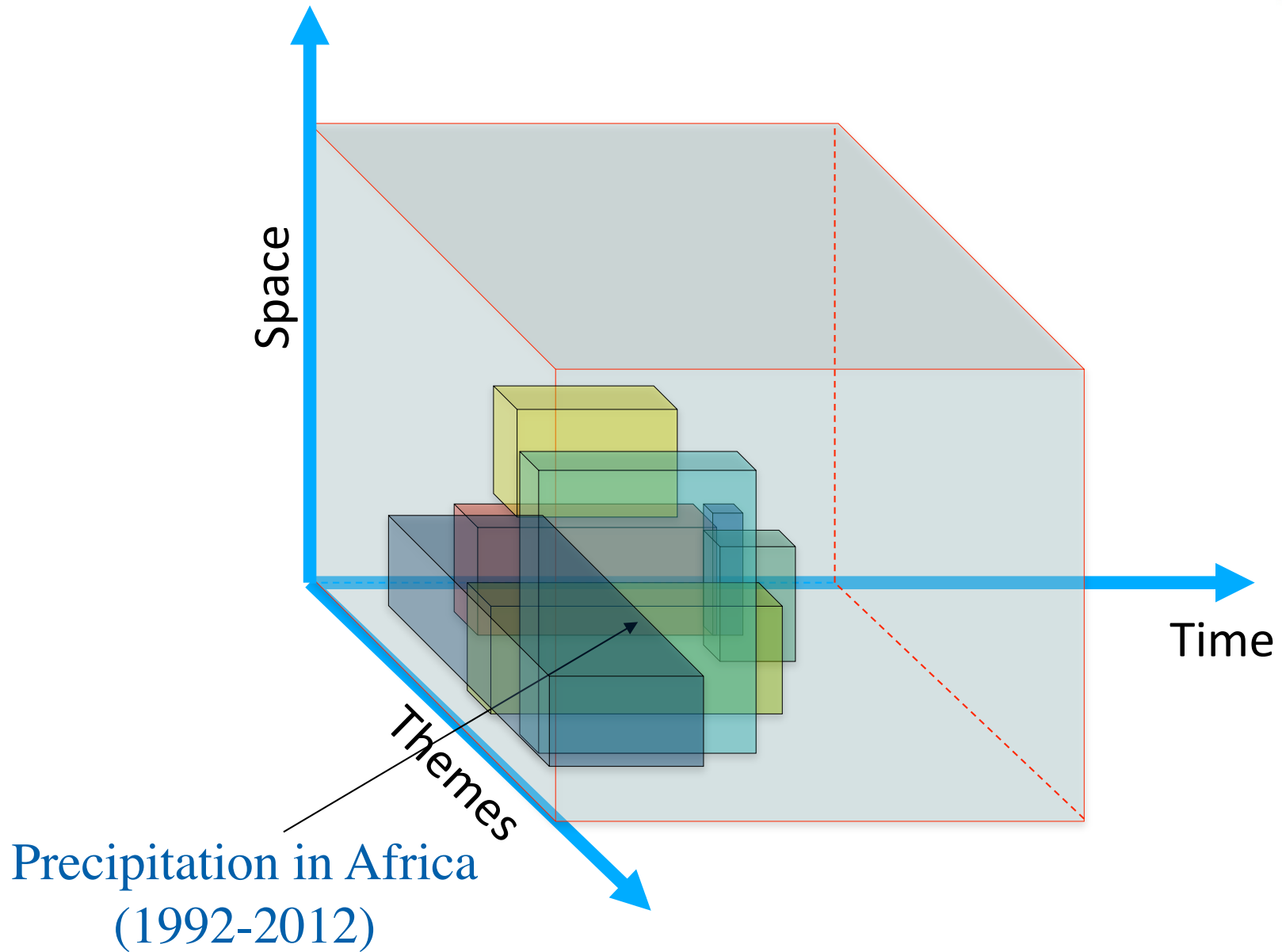
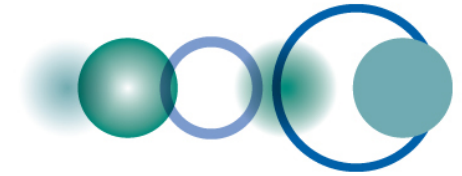


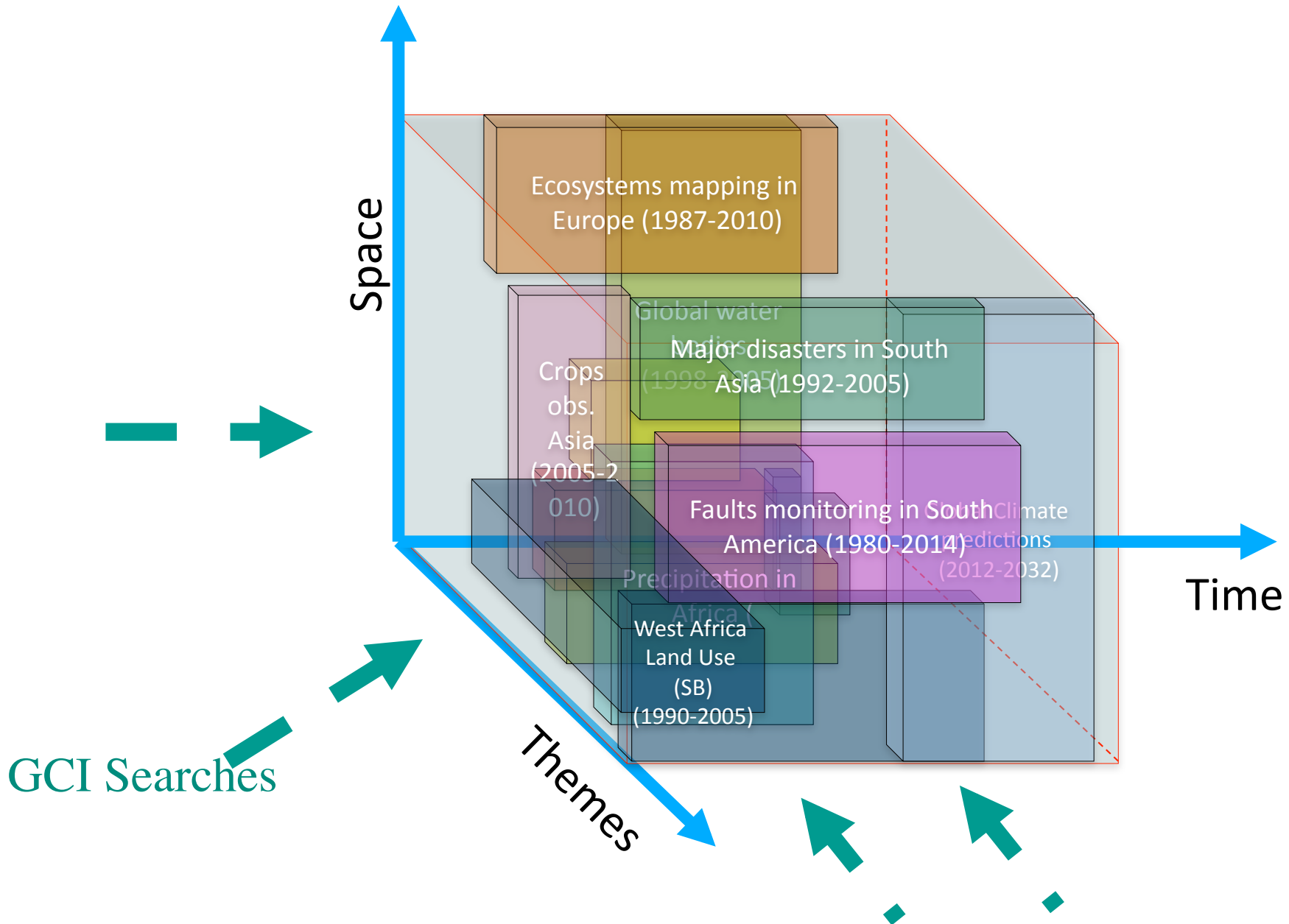
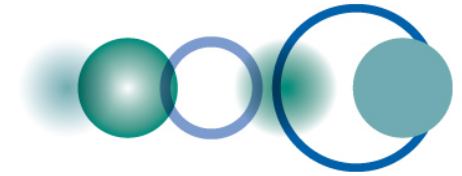














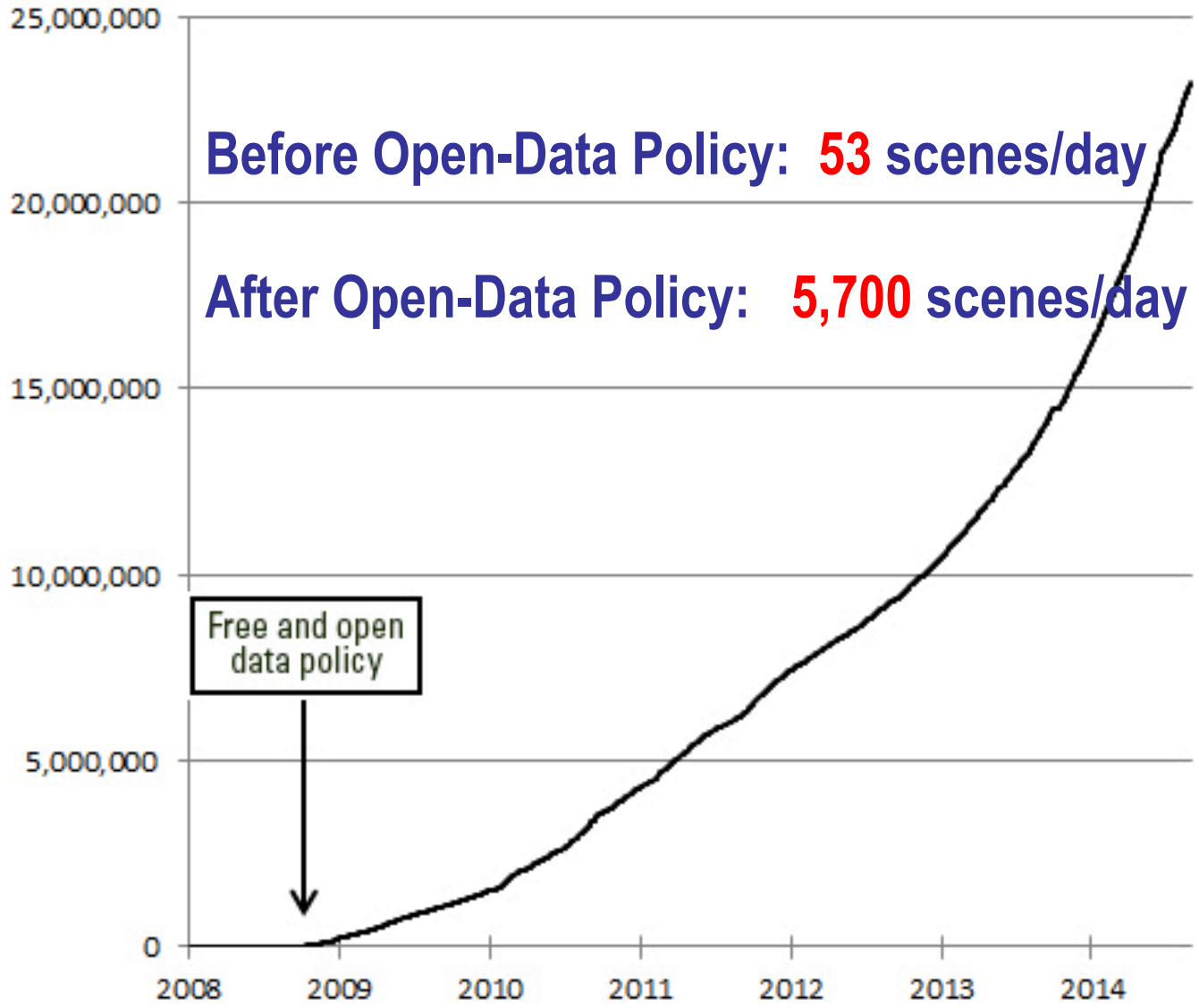
GEOSS Implementation Requires: *Data Sharing Principles*

- **Full and Open Exchange of Data**
- **Data and Products at Minimum Time Delay and at Minimum Cost**
- **Free of Charge or Cost of Reproduction**





Landsat Scenes Downloaded from USGS EROS Center (Cumulative)



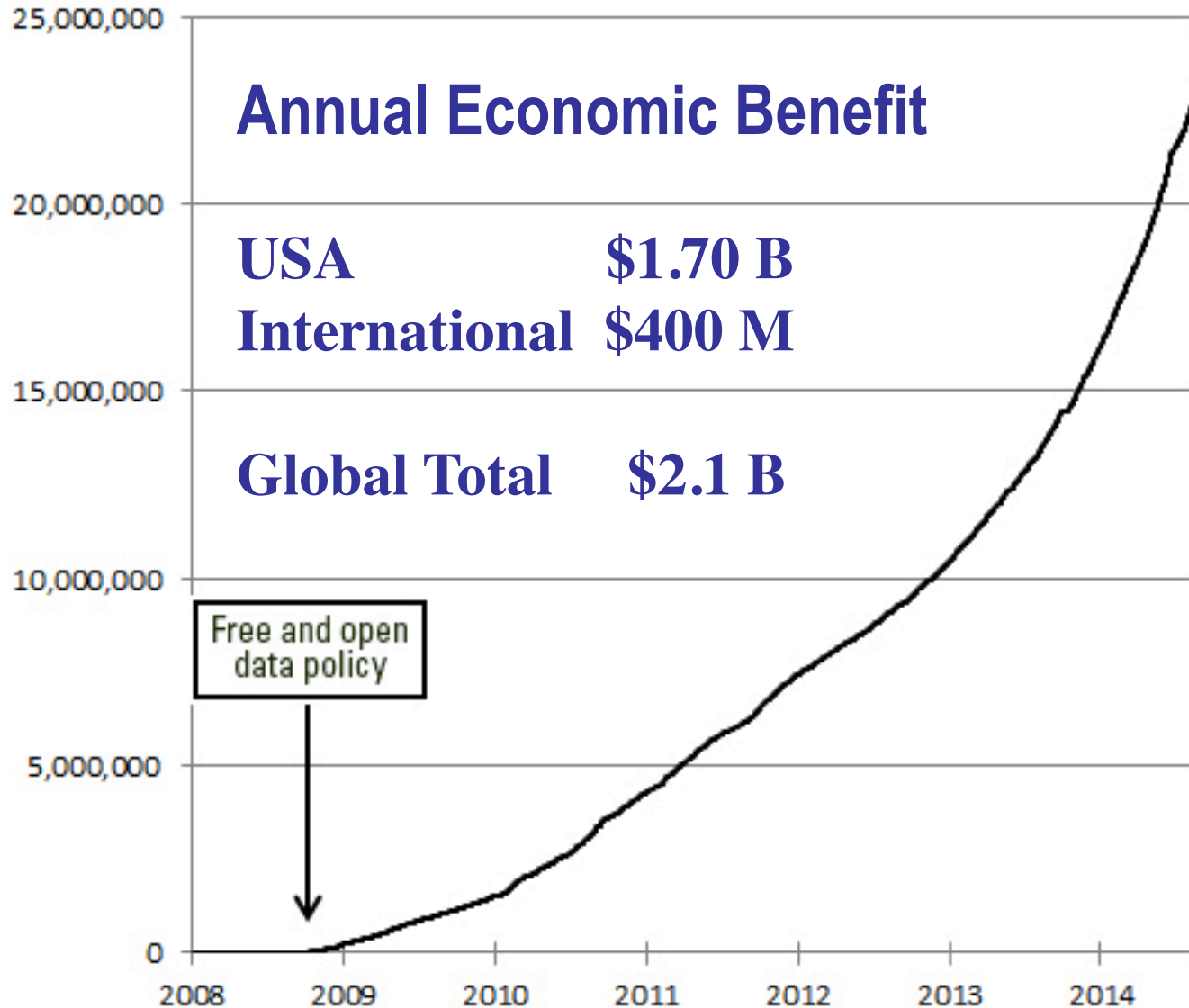
Before Open-Data Policy: **53** scenes/day

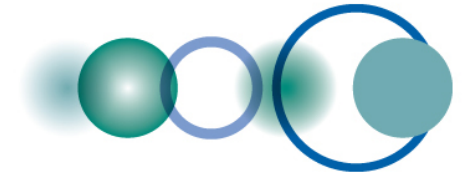
After Open-Data Policy: **5,700** scenes/day

Free and open data policy

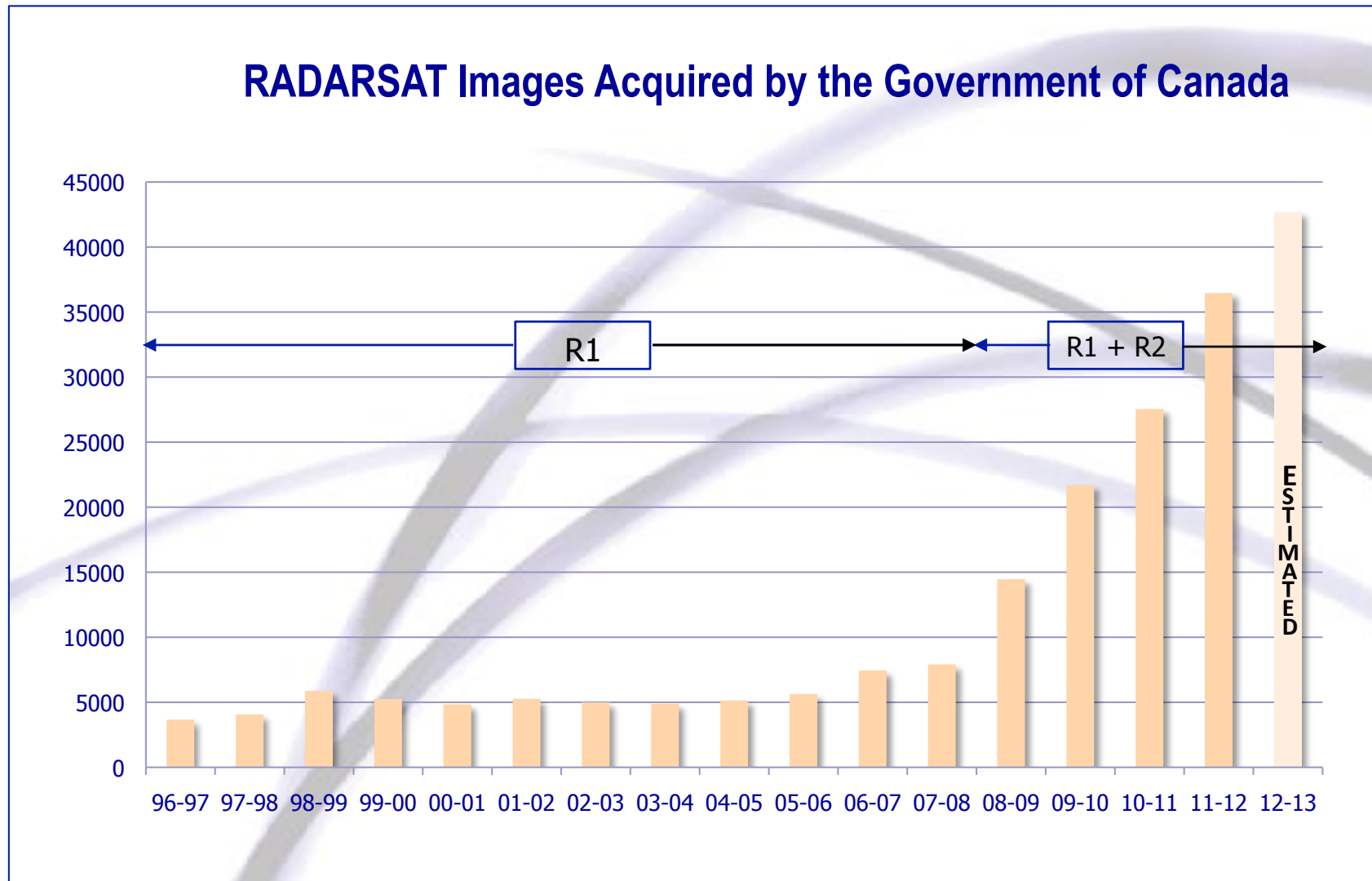


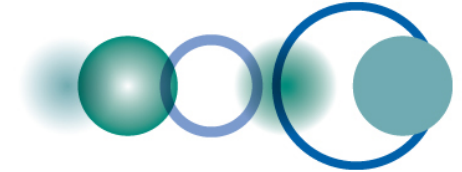
Landsat Scenes Downloaded from USGS EROS Center (Cumulative)





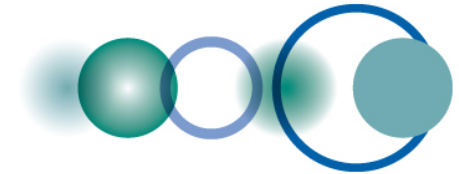
Canada's Experience



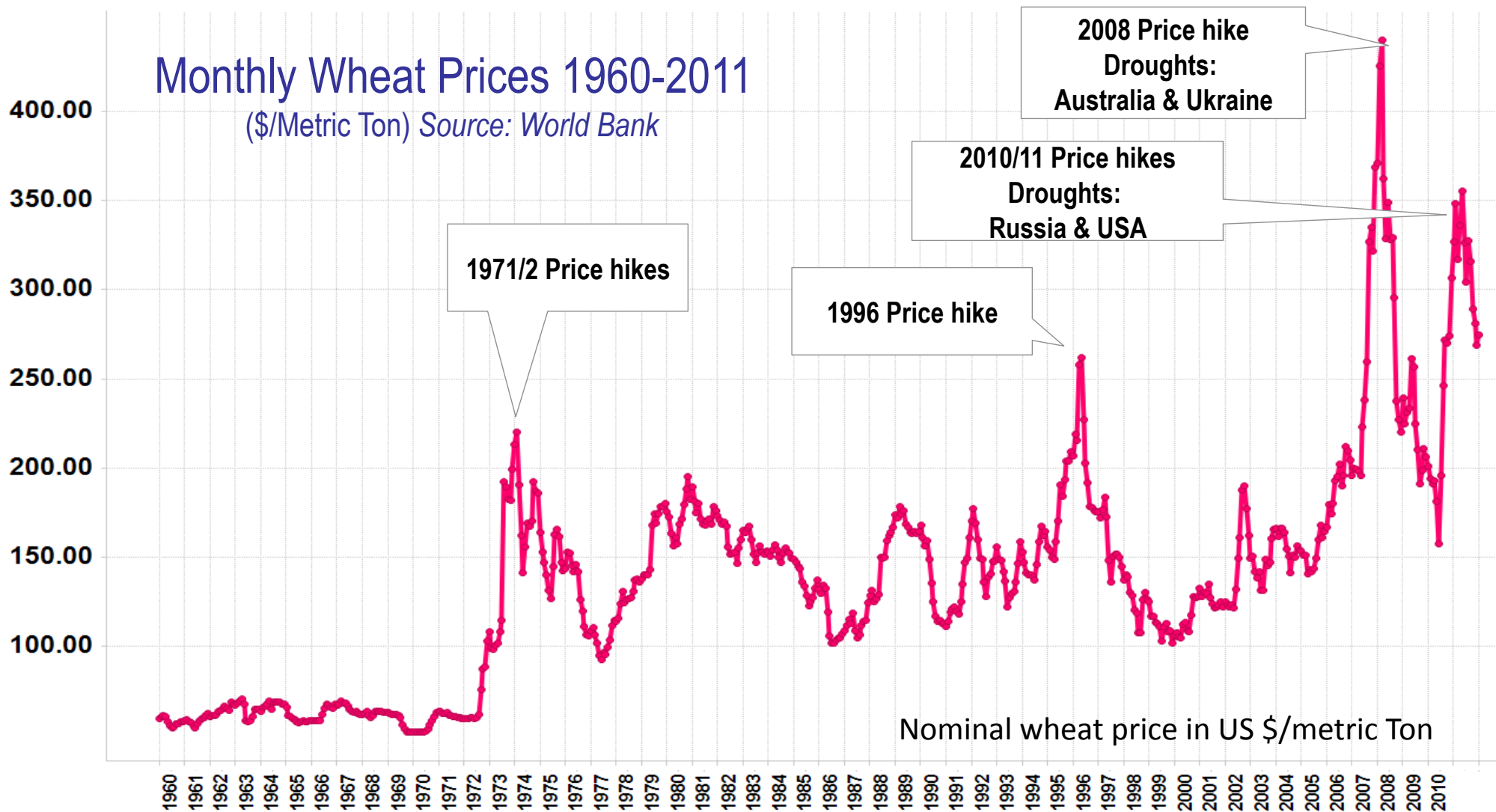


**“Uncertainty is the enemy of investment;
shared information is the antidote to
uncertainty.”**

Dylan Ratigan
Co-Founder, Helical Outposts



Leveraging Earth Observations for Reducing Price Volatility



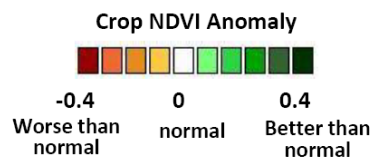
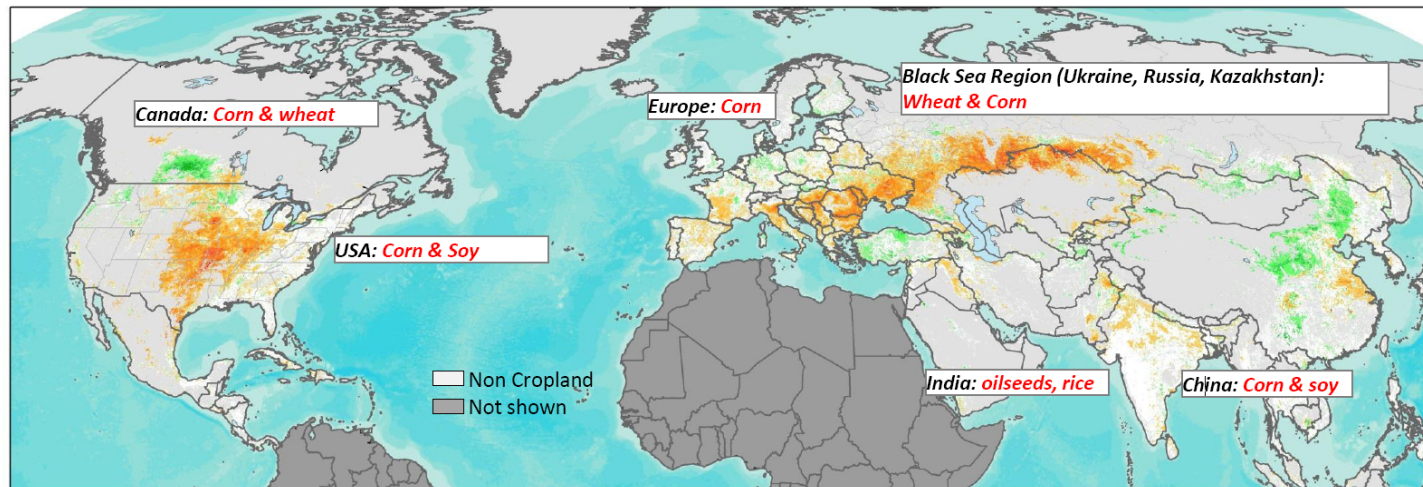


Crop Information for Decision-Making

(Canada, China, EC, France, Japan, Kazakhstan, India, Mexico, Russia, USA, CEOS, FAO, WMO)



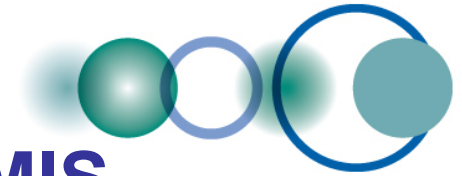
Northern Hemisphere NDVI Crop Anomaly, August 13th, 2012



Observed highlights:

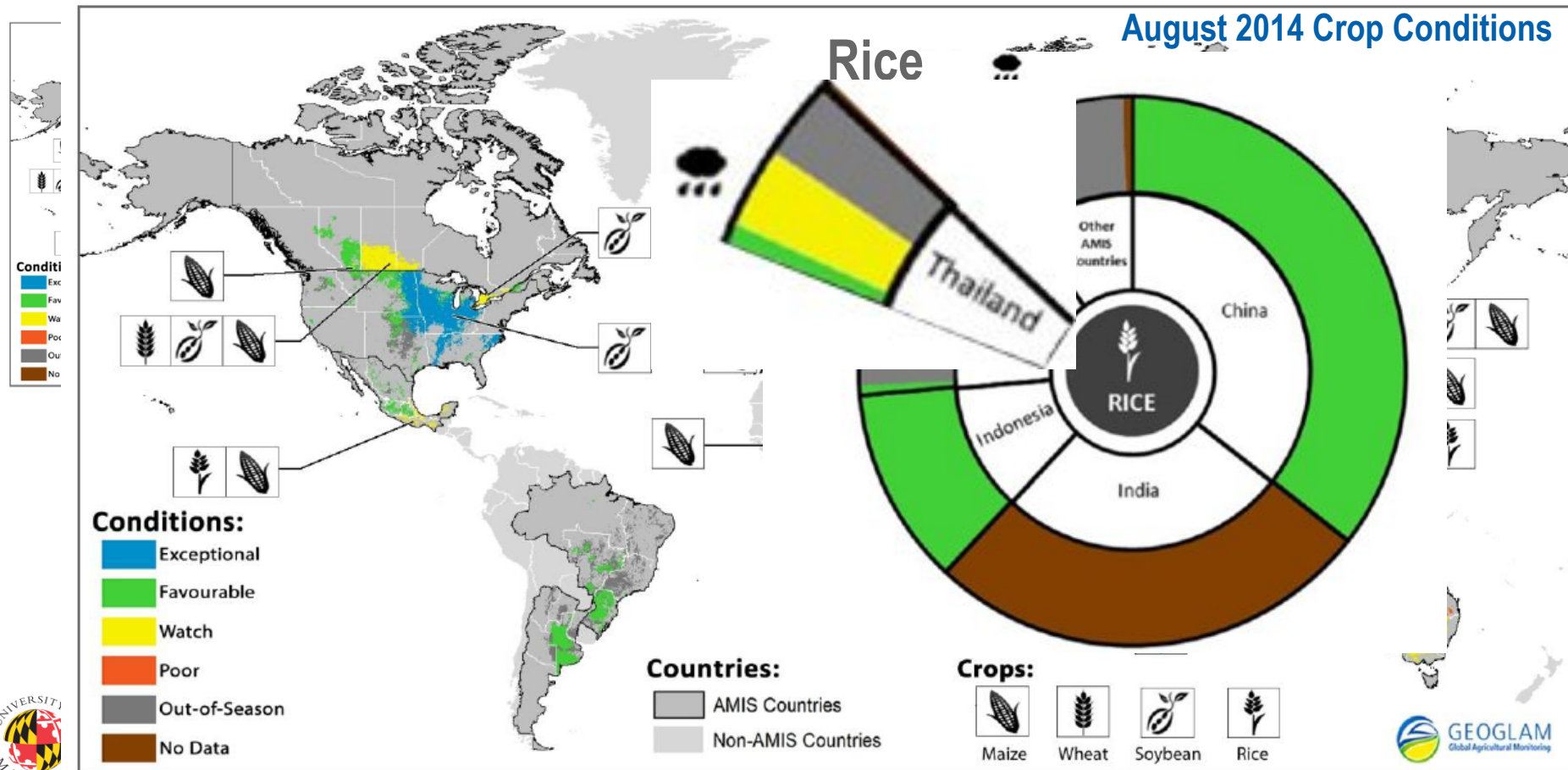
- Drought conditions persist in US, south eastern Ukraine, Russia, and Kazakhstan, with slight improvement in some areas in northern Kazakhstan
- Rains in India mitigate dry conditions

- * **GEOGLAM part of G20 Action Plan on Food Price Volatility**
- * **New crop outlook**
- * **Rice crop monitoring**



GEOGLAM Crop Monitor for AMIS

- Operational since September 2013
- 36 institutions, 22 countries + 7 international organizations
- Global map for the 4 AMIS crops (Maize, Wheat, Soybean, Rice)



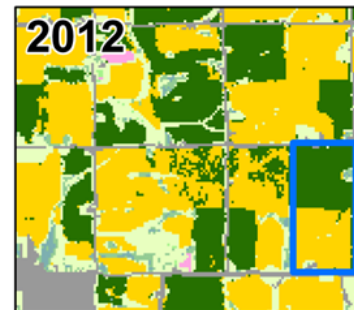
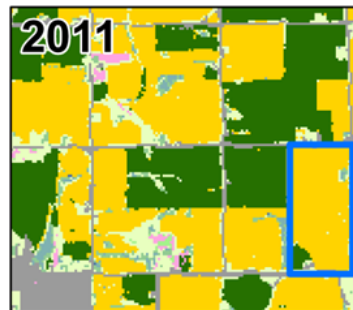
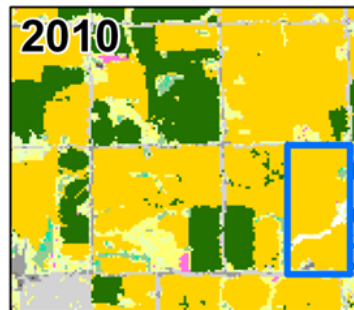
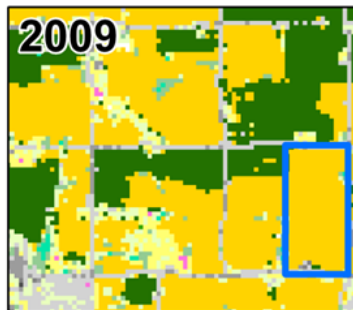
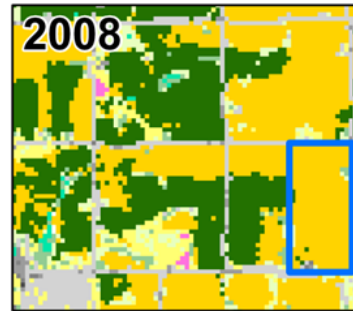
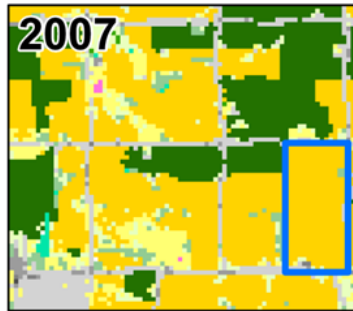
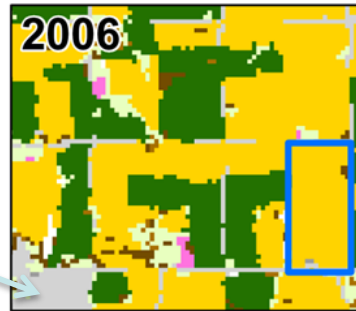
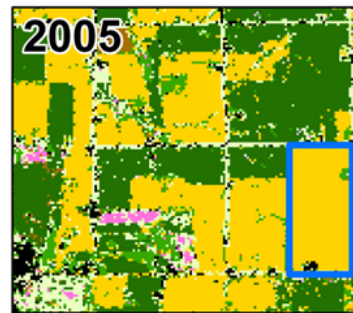
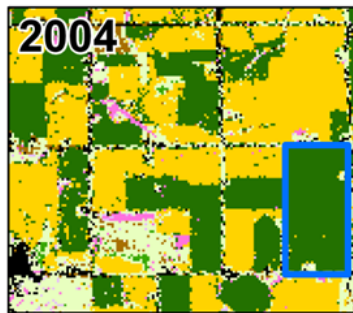
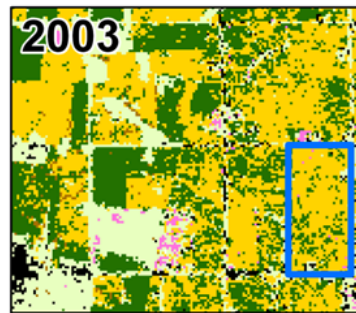
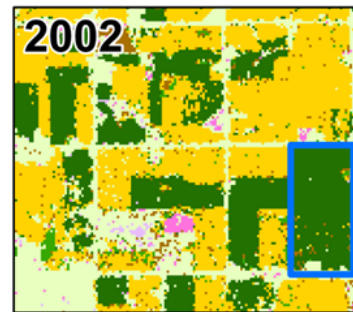
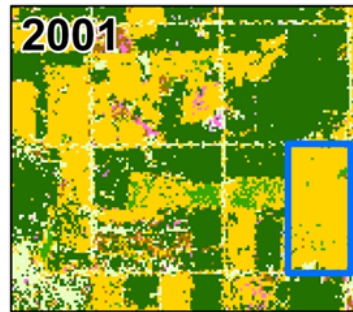
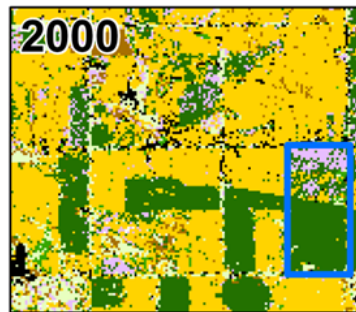
Visualizing the Impact of Public Policy

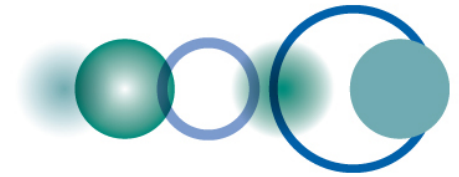
EXPLANATION

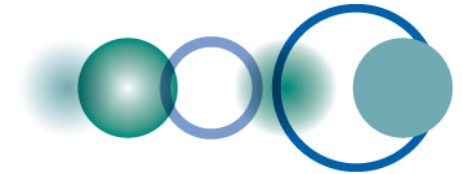
- Corn
- Soybeans
- Small grains / Hay
- Alfalfa
- Fallow / Idle Cropland
- Grass / Pasture / Non-ag
- Woodland
- Urban / Developed
- Developed/Low Intensity
- Developed-Open Space



Waterloo, Iowa







Countries have borders; Earth observations don't.

**Barbara J. Ryan
Director, GEO Secretariat
Adapted from NY Times
September 2015**

Mexico City Ministerial Summit and GEO-XII

GEO Week
9-13 November 2015
Mexico City

bryan@geosec.org

www.earthobservations.org

