



# The Group on Earth Observations (GEO) – Urban & Climate Resilience and Sustainability

## Geospatial World Forum & INSPIRE Conference

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Lisbon, Portugal  
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# A Global System of Systems



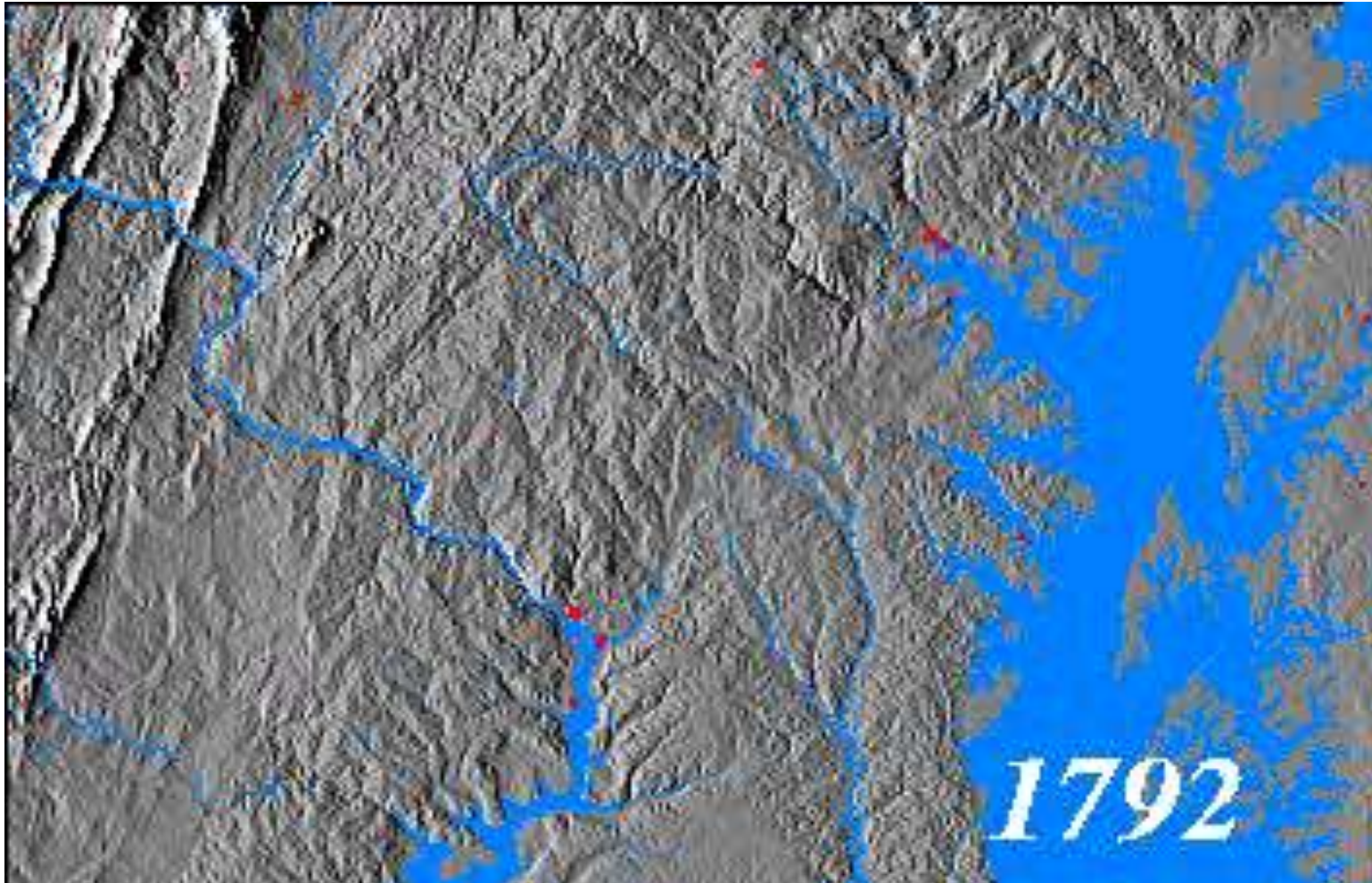


# GEO Objectives

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



# Urban Growth – Baltimore/Washington

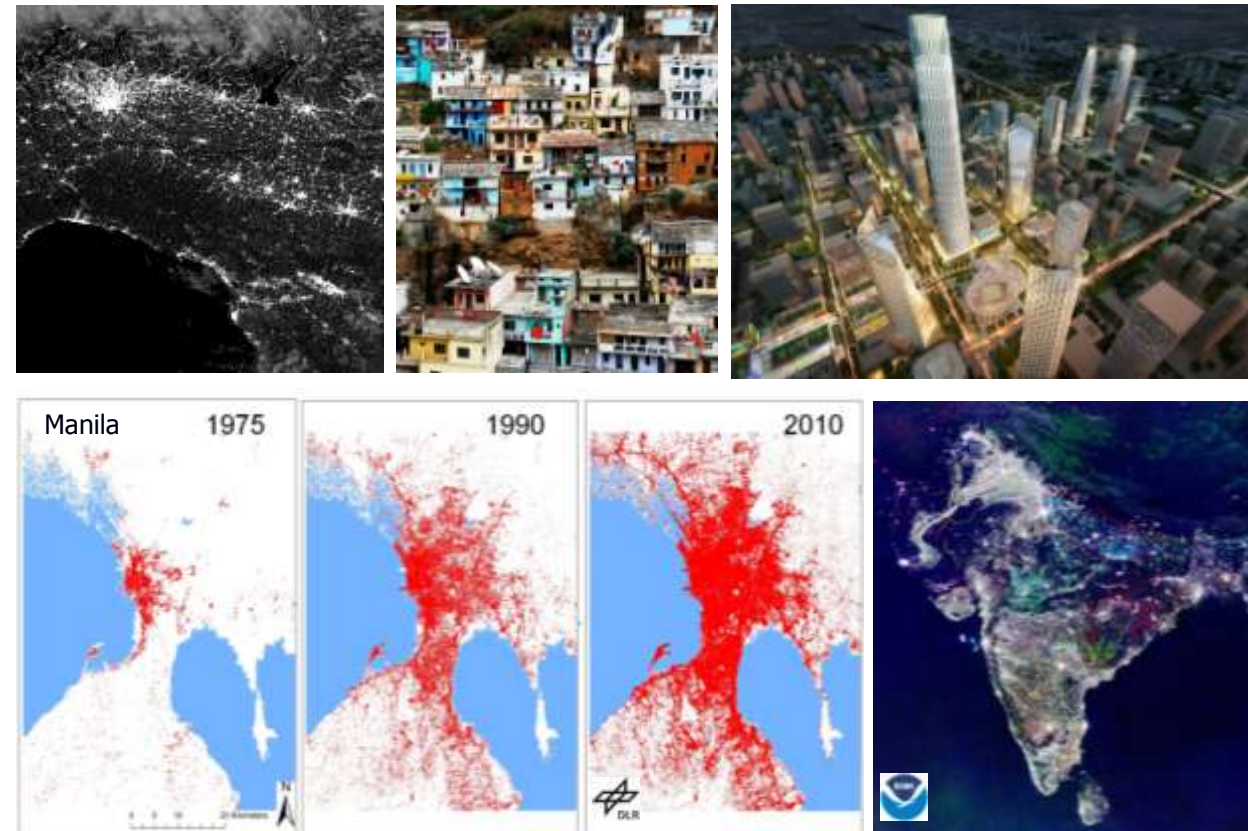




# Global & Local Urban Footprints

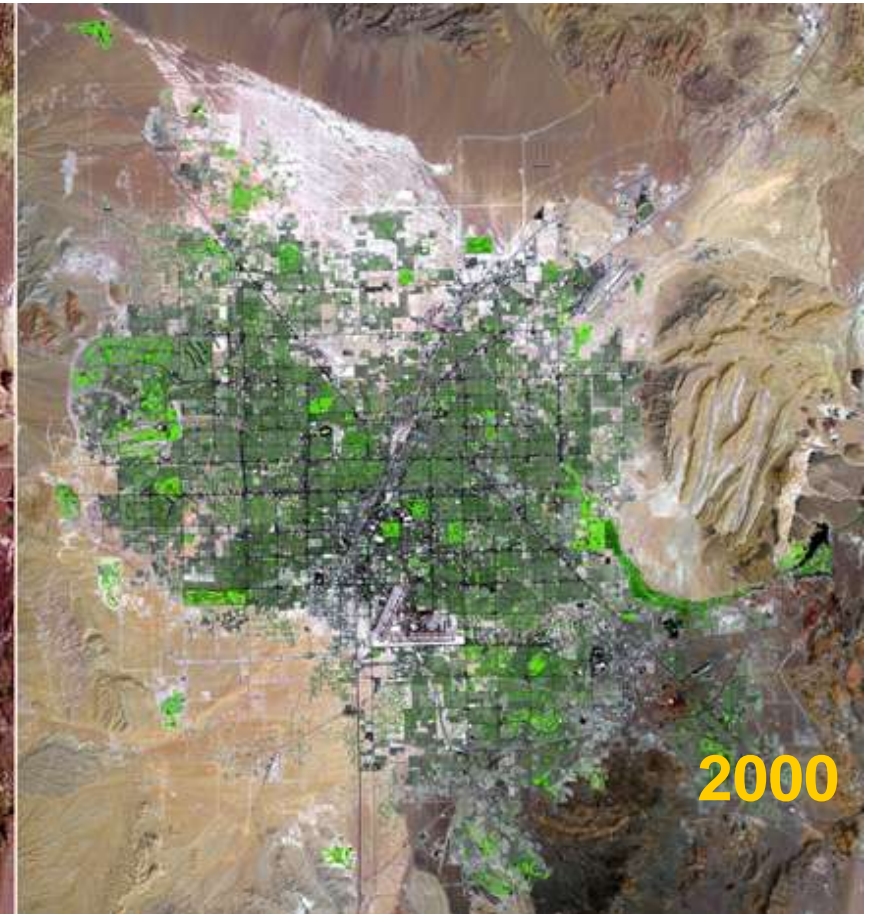
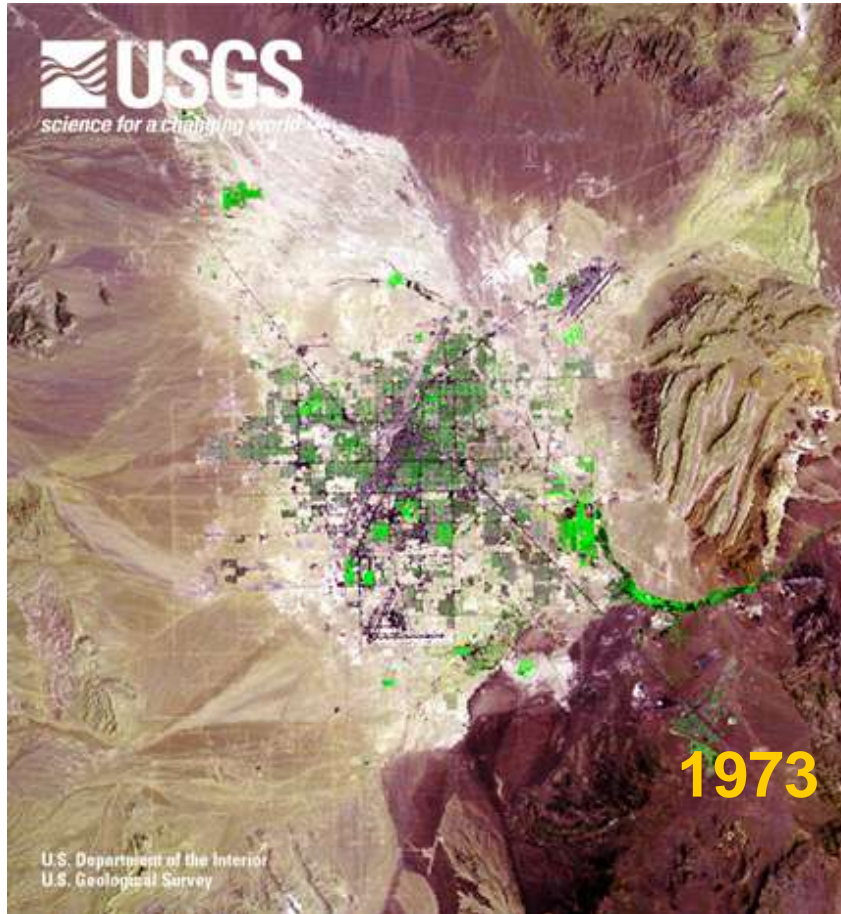
*(China, EC, Germany, Greece, Italy, Pakistan, USA)*

- \* 35-yr evolution of 26 mega-cities
- \* Global night-time lights for 2012
- \* Urban Heat Island patterns
- \* Over 3'700 cities mapped using ASTER (15m)





# Urban Growth -- Las Vegas, Nevada

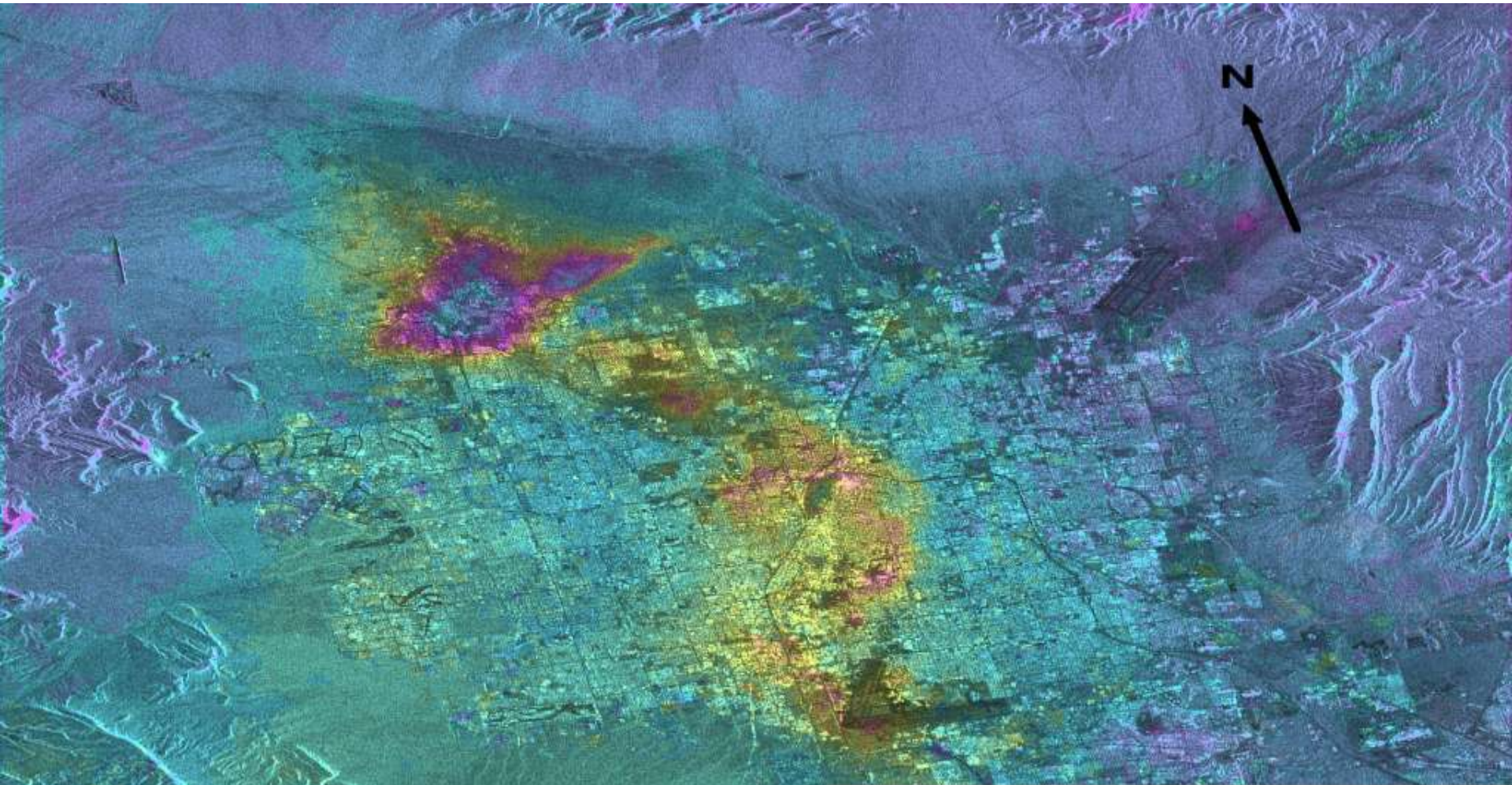


**Population: 358,000**

**1,560,000**



# Ground-water Subsidence -- Las Vegas, Nevada



F. Amelung, D. Galloway, H. Zebker

**LAS VEGAS, NEVADA  
APPARENT SURFACE DEFORMATION  
21 APR 92 - 9 FEB 96**



# Climate Change Detection & Adaptation

(EC, Japan, USA, ECMWF, GCOS, IGBP, WCRP, WMO)

- \* Major reanalysis projects covering 50 yrs or more
- \* 2000-yr regional climate reconstruction
- \* New data portal for seasonal prediction research (YOTC)
- \* CEOS Essential Climate Variables (ECV)

The collage includes:
 

- A photograph of a pier being hit by large waves.
- A satellite image titled "Global Merged IR (30min) 2025EP2006" showing cloud patterns over the Pacific.
- A photograph of a severely damaged building, likely from a typhoon.
- A screenshot of the "Year of Tropical Convection" (YOTC) data portal, showing a world map and data tables.
- A screenshot of the CEOS Essential Climate Variables (ECV) portal, displaying a list of variables and their status.
- A screenshot of the ECMWF YOTC Data Retrieval portal, showing search filters for date, time, and parameters.

Satellite Analysis & Dissemination

Portal to ECMWF Analysis/Forecasts





# **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**



# GEO Infrastructure



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

**GEOSS Portal**

**GEO Home Page**



**GEO Discovery & Access Broker**

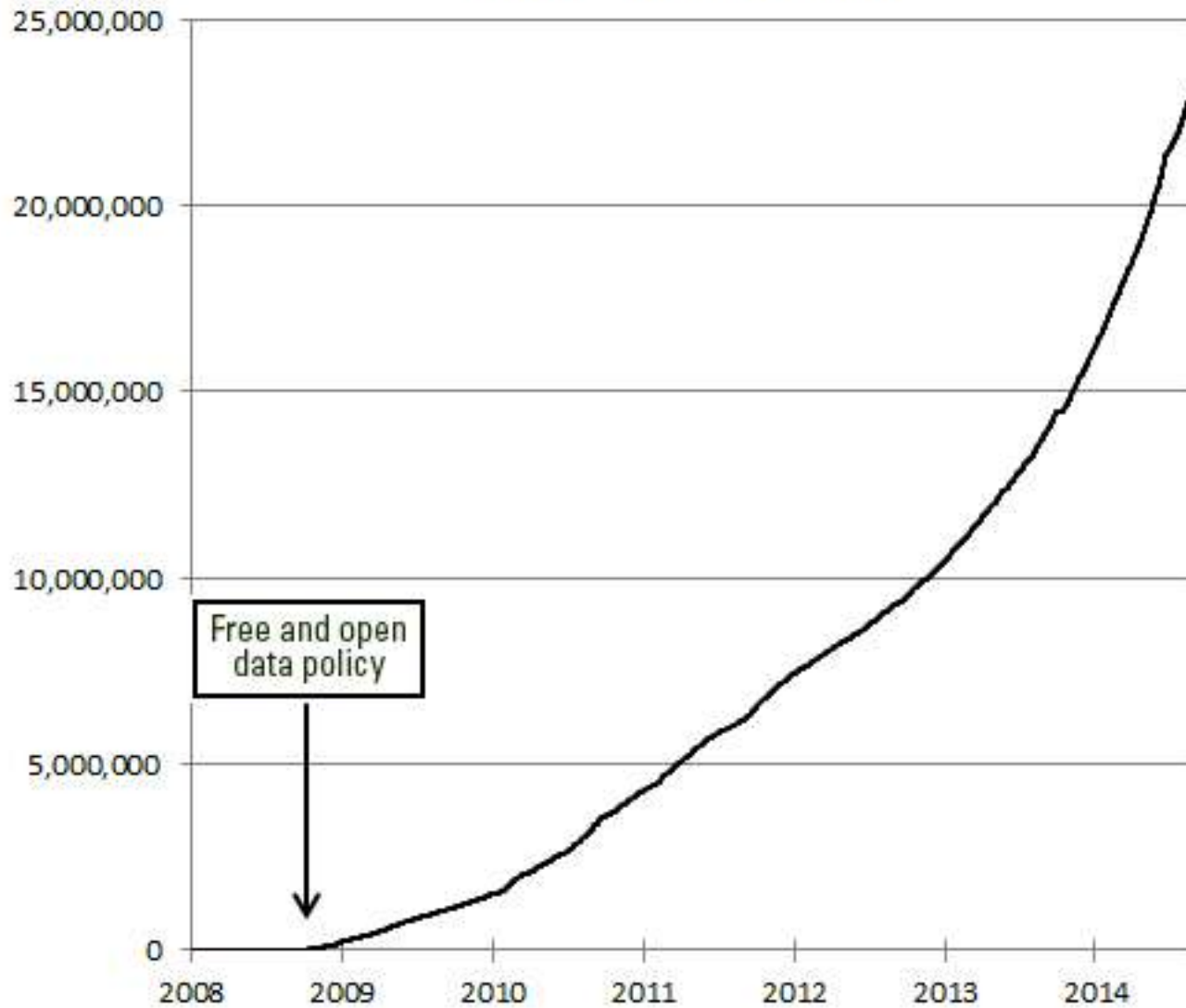
The GEOSS Discovery and Access Broker



**Private Sector (data, services, Apps, etc.)**

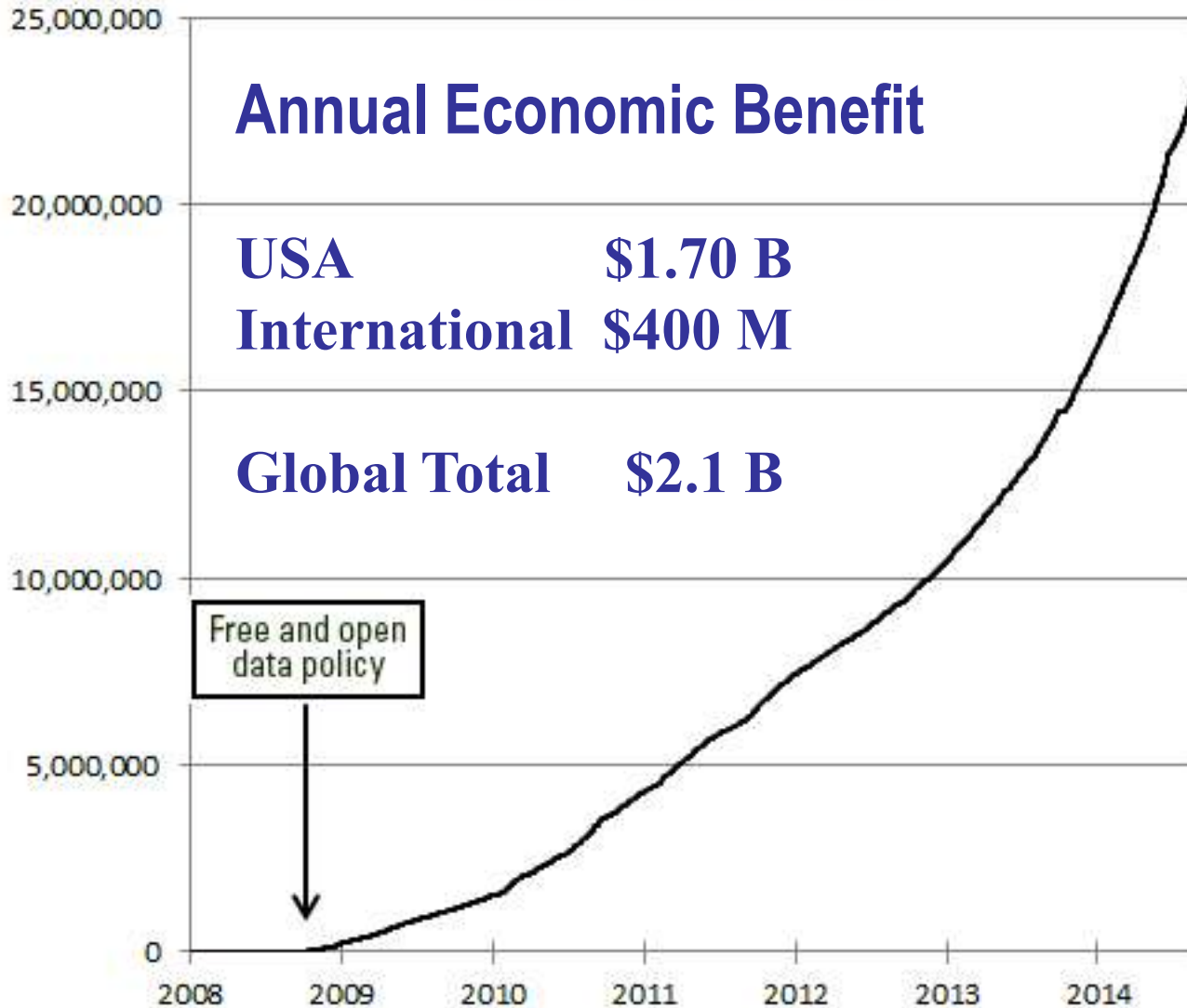


## Landsat Scenes Downloaded from USGS EROS Center (Cumulative)





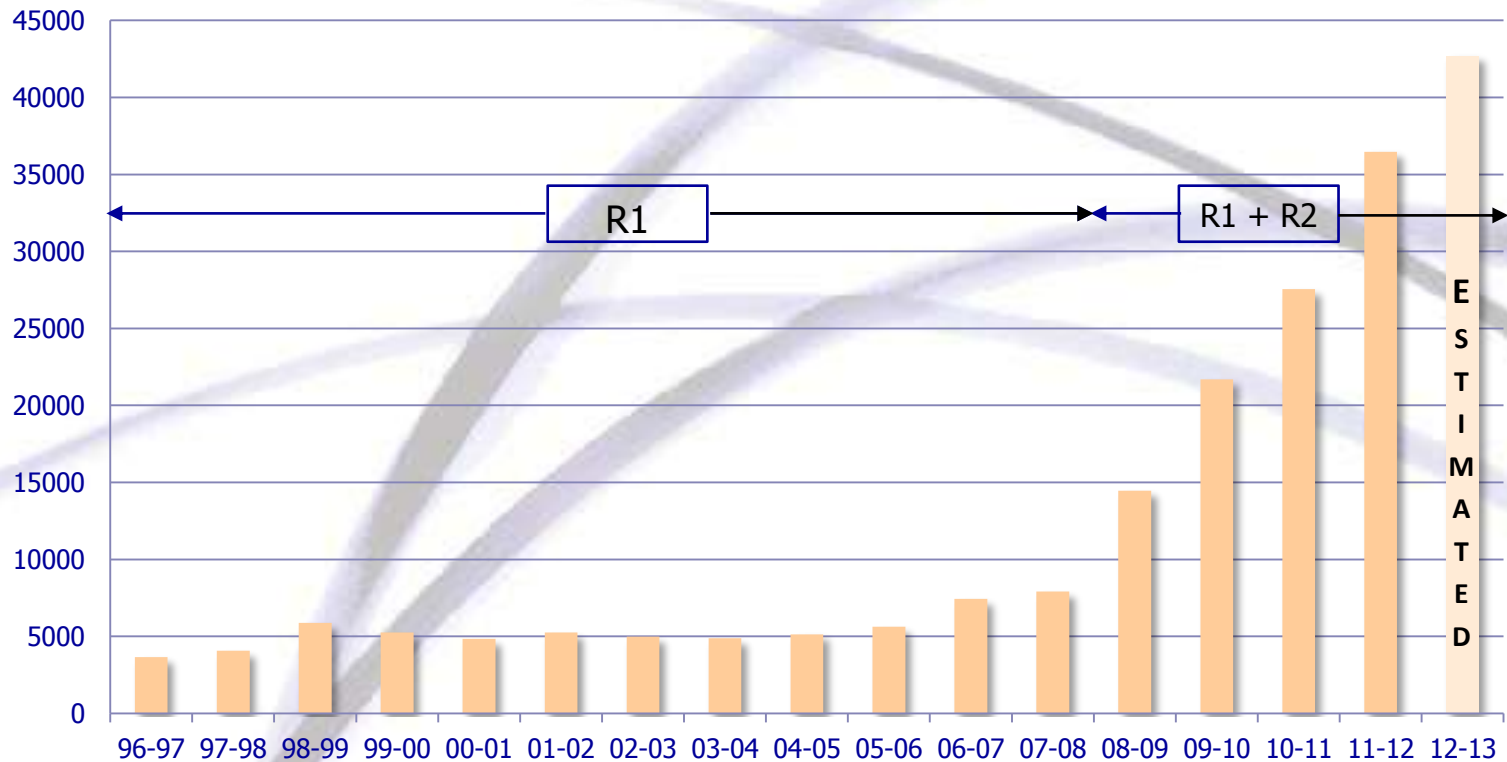
## Landsat Scenes Downloaded from USGS EROS Center (Cumulative)





# Canada's Experience

## RADARSAT Images Acquired by the Government of Canada





# GEO Membership

GEO Member Map for the year 2014

*(Use slider under the map to change the year)*



European Commission

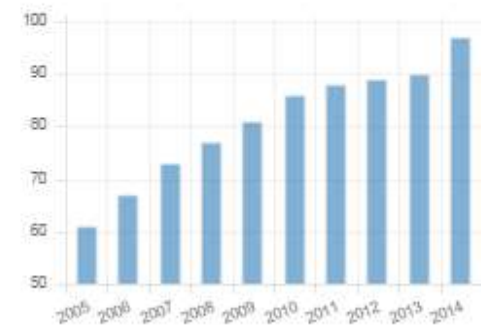


Number of Members (2014)

Africa:	24
Americas:	15
Asia/Oceania:	17
C.I.S.:	7
Europe:	34

<b>Total:</b>	<b>97</b>
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Number of Members by year





# 87 Participating Organizations





# Commercial Sector Spans information Value Chain

**Data  
providers**



**Value-Added  
providers**



**Downstream  
users**





# Mexico Ministerial and GEO-XII

**GEO Week**

**9-13 November 2015**

**Mexico City**

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