Why Space? Six General Principles

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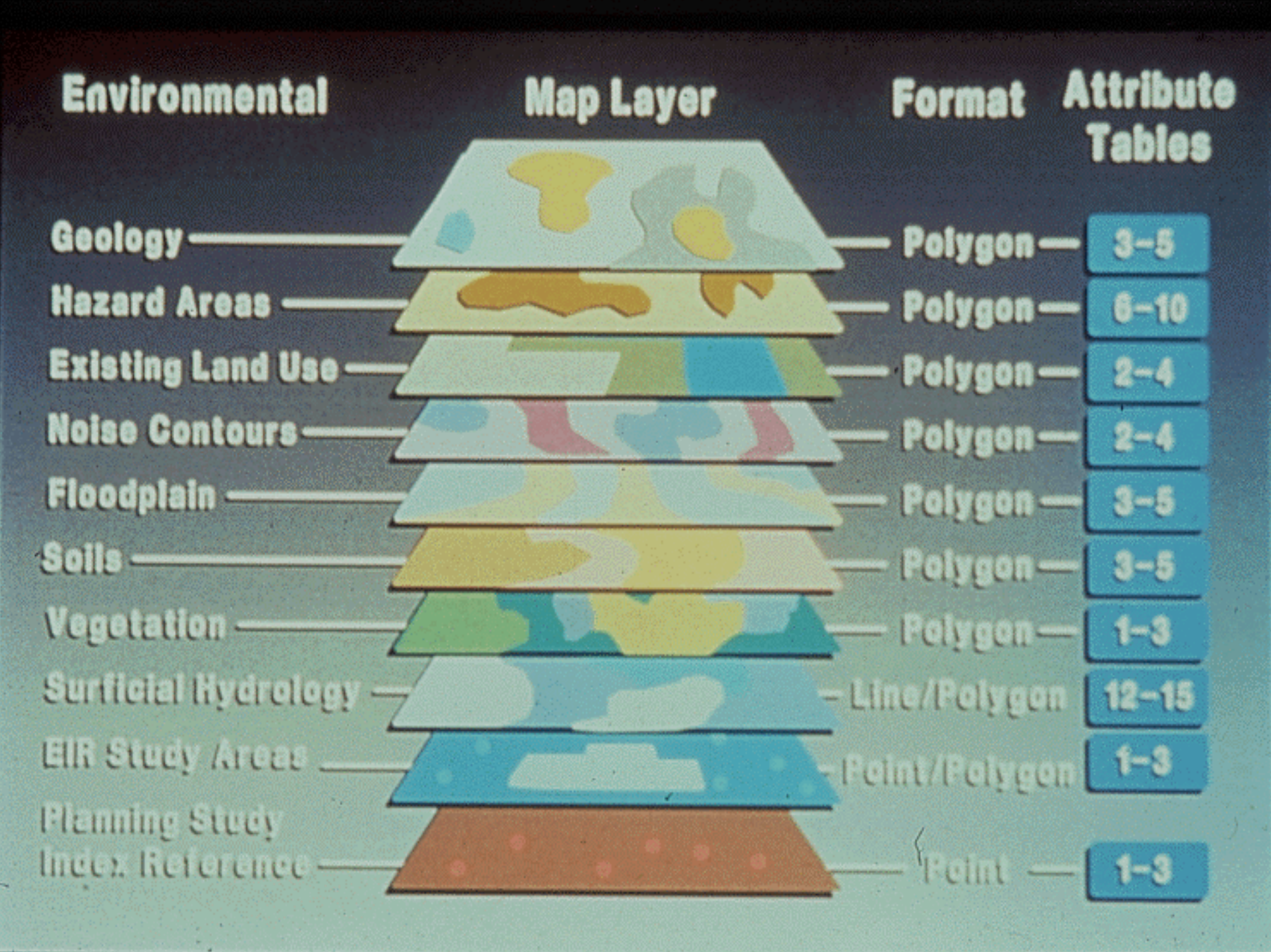
1. Integration

- Linking data through common location
  - the layer cake
- Linking processes across disciplines
  - spatially explicit processes
  - e.g. economic and social processes interact at common locations


Environmental
Map Layer
Format
Attribute Tables
Geology
Hazard Areas
Existing Land Use
Noise Contours
Floodplain
Soils
Vegetation
Surficial Hydrology
EIR Study Areas
Planning Study Index Reference
Polygon
Polygon
Polygon
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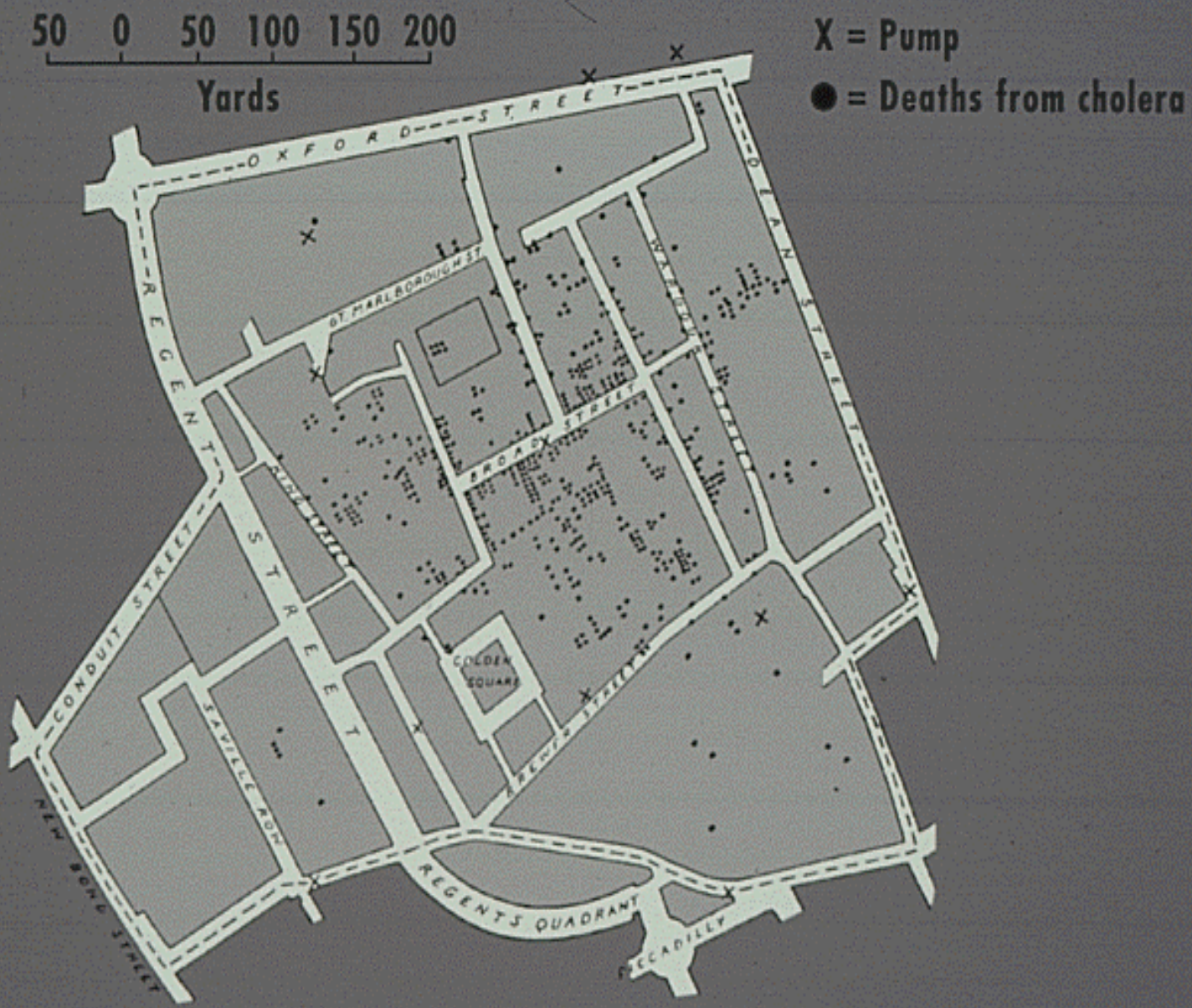
Polygon
Line/Polygon
Point/Polygon
Point
3–5
6–10
2–4
2–4
3–5
3–5
1–3
12–15
1–3
1–3

2. Spatial analysis

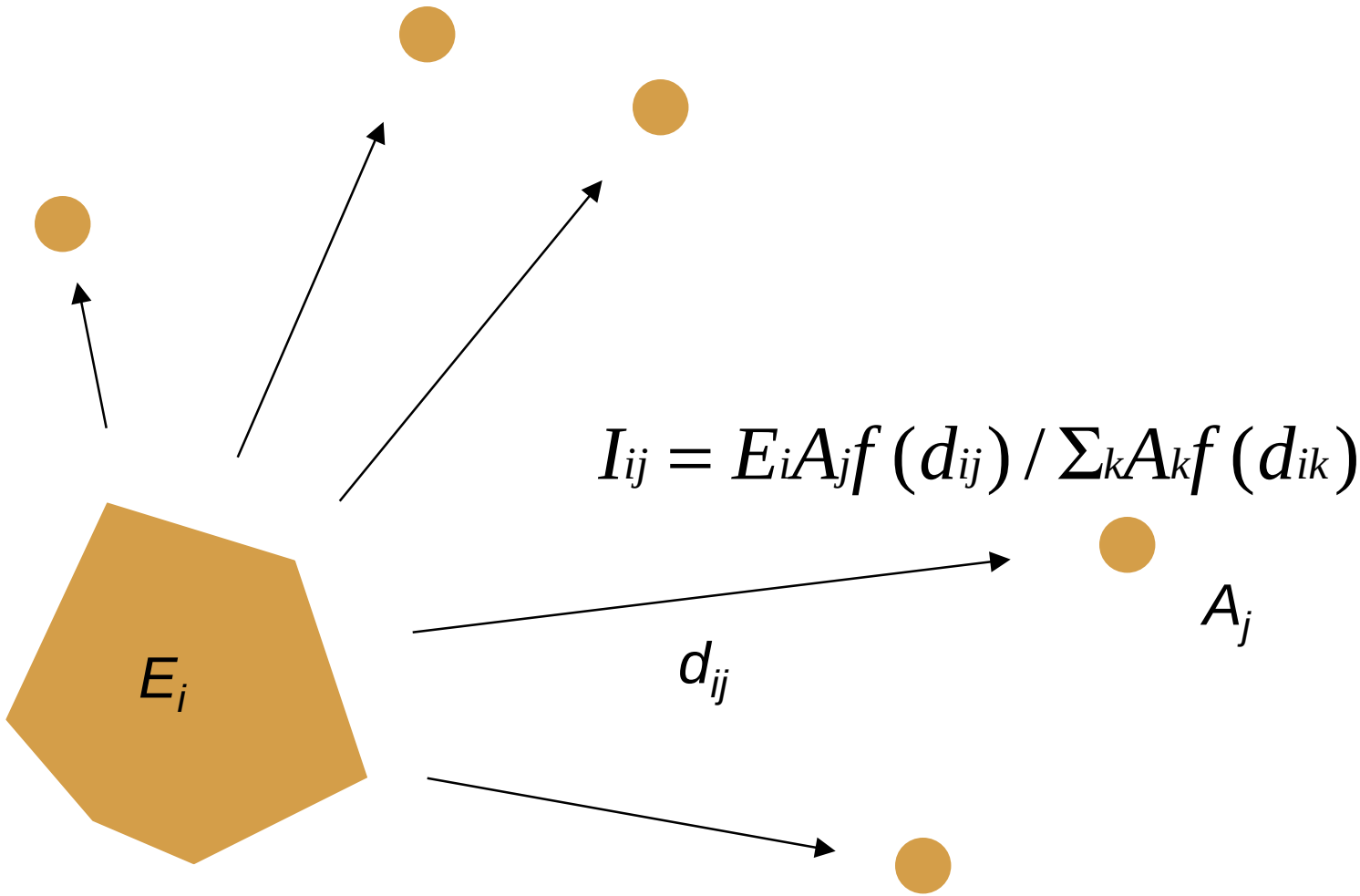
- Social data collected in cross-section
  - longitudinal data are difficult to construct
- Cross-sectional perspectives are rich in context
  - can never confirm process
  - though they can perhaps falsify
  - useful source of hypotheses, insights



The Snow Map of Cholera Incidence in the Area of Broad Street, London, in 1854.
The contaminated water pump is located at the center of the map, just to the right of the D in BROAD STREET.

3. Spatially explicit theory

- Theory that is not invariant under relocation
- Spatial concepts (location, distance, adjacency) appear explicitly
- Cellular automata, spatial agents
- Can spatial concepts ever *explain*, or are they always surrogates for something else?


$I_{ij} = E_i A_j f(d_{ij}) / \Sigma_k A_k f(d_{ik})$
A_j
d_{ij}
E_i

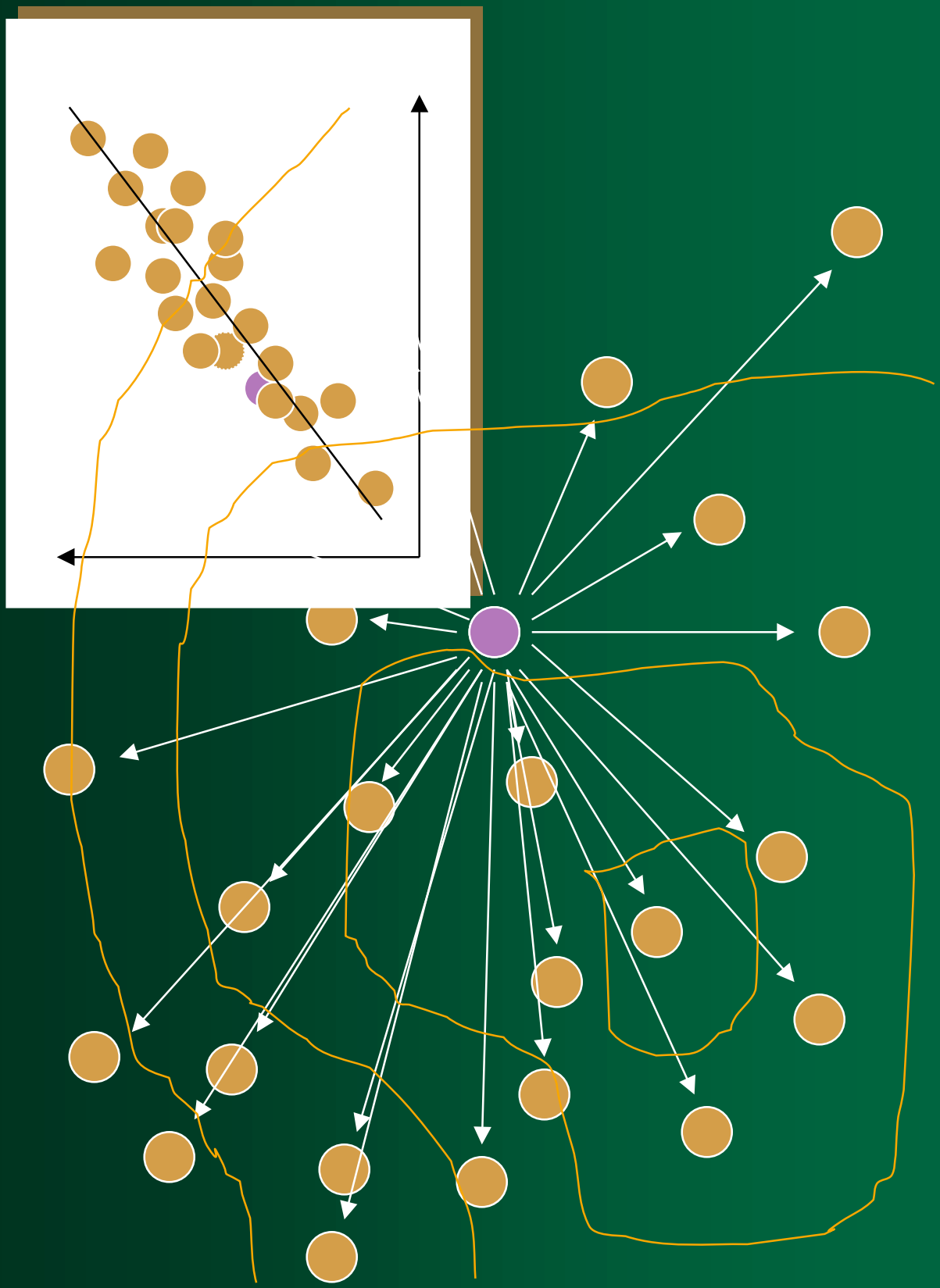
4. Place-based analysis

- Nomothetic - search for general principles
- Idiographic - description of unique properties of places

The Earth's surface

- Uncontrolled variance
- There is no average place
- Results depend explicitly on bounds
- Places as samples
- Consider the model:

$y = a + bx$



5. Knowledge and policy

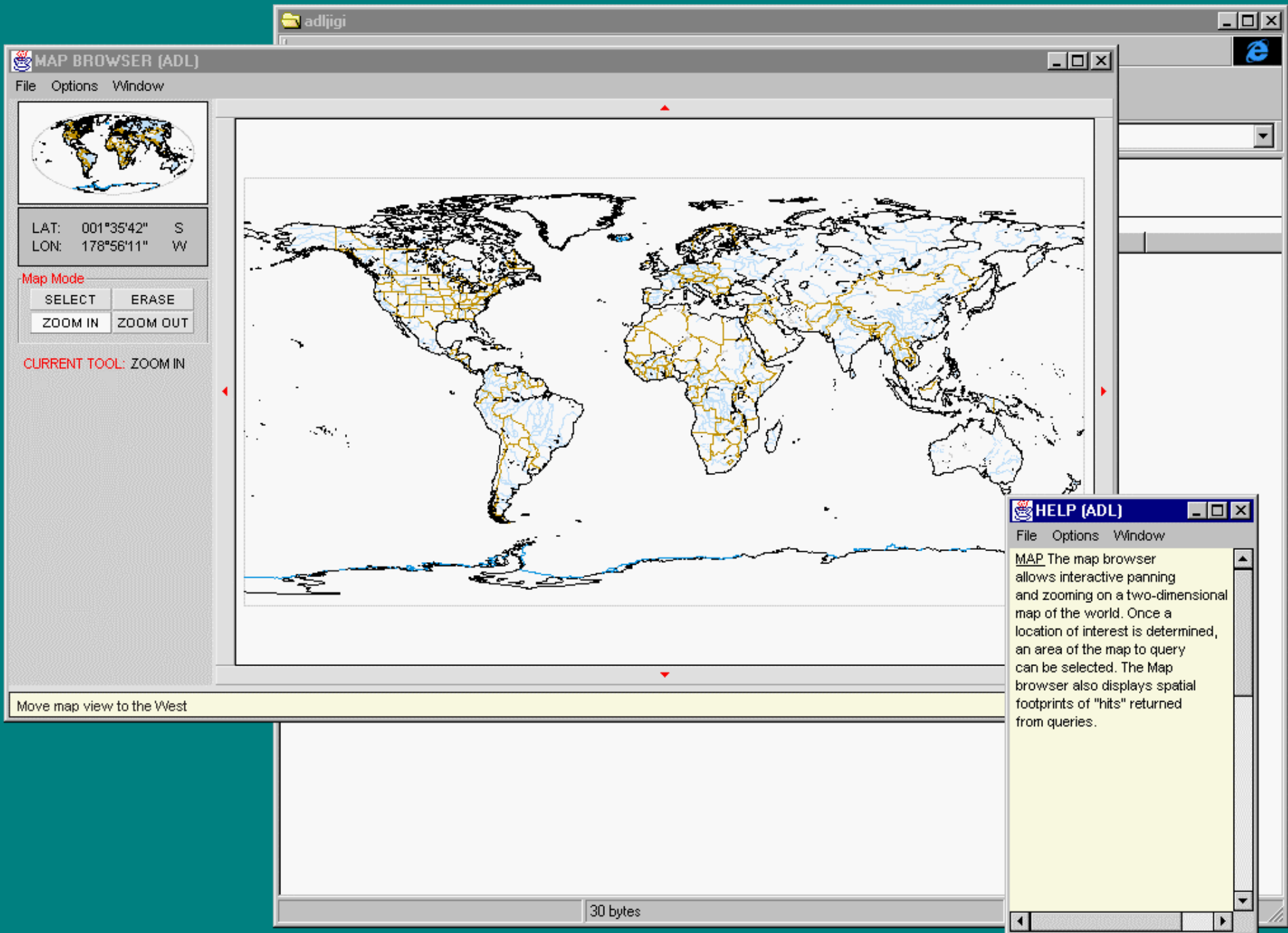
- Policy requires the projection of general knowledge in spatial context
  - the implications of this process in this location
  - alternative futures visualized under local circumstances
- GIS combines the general (processes, models, algorithms) with the specific (database of local details)

6. Place-based search

- Location as an organizing dimension to information
  - much information can be georeferenced
  - much more than maps and images
- The Geolibrary
  - what have you got about *there*?
  - impossible physically, feasible digitally

Prototype geolibraries

- National Geospatial Data Clearinghouse
  - *www.fgdc.gov*
- Microsoft's Terraserver
  - *terraserver.microsoft.com*
- Alexandria Digital Library
  - *alexandria.ucsb.edu*


adljigi
MAP BROWSER (ADL)
File Options Window
LAT: 001°35'42" S
LON: 178°56'11" W
Map Mode
SELECT
ERASE
ZOOM IN
ZOOM OUT
CURRENT TOOL: ZOOM IN
Move map view to the West
HELP (ADL)
File Options Window
MAP The map browser allows interactive panning and zooming on a two-dimensional map of the world. Once a location of interest is determined, an area of the map to query can be selected. The Map browser also displays spatial footprints of "hits" returned from queries.
30 bytes

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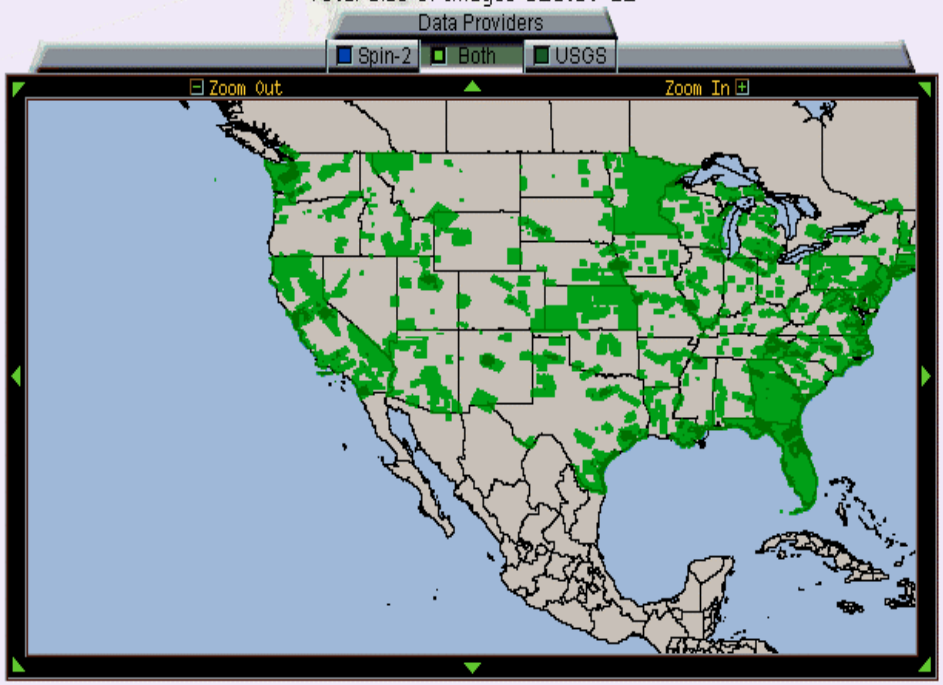
Download TerraServer White Paper (Self-extracting Word document 3,078 KB)

GET Microsoft Internet Explorer

Find a Spot on Earth by Place Name | Map Search | Geo Coordinates

Database Rows covering shaded area **149,757,510**
Total Size of Images **628.67 GB**



Coverage graphic courtesy of the United States Geological Survey.

The green shading on the map identifies the locations covered by images stored in the Microsoft® TerraServer database. Click on a country or state/province you are interested in viewing.

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New initiatives

- The Data Documentation Initiative
  - supporting search within and across archives
  - enriching the spatial components of DDI
    - extent, coverage, completeness
- Interoperability
  - with other digital libraries

CSISS mission

- The CSISS mission recognizes the growing significance of space, spatiality, location, and place in social science research. It seeks to develop unrestricted access to tools and perspectives that will advance the spatial analytic capabilities of researchers throughout the social sciences.