



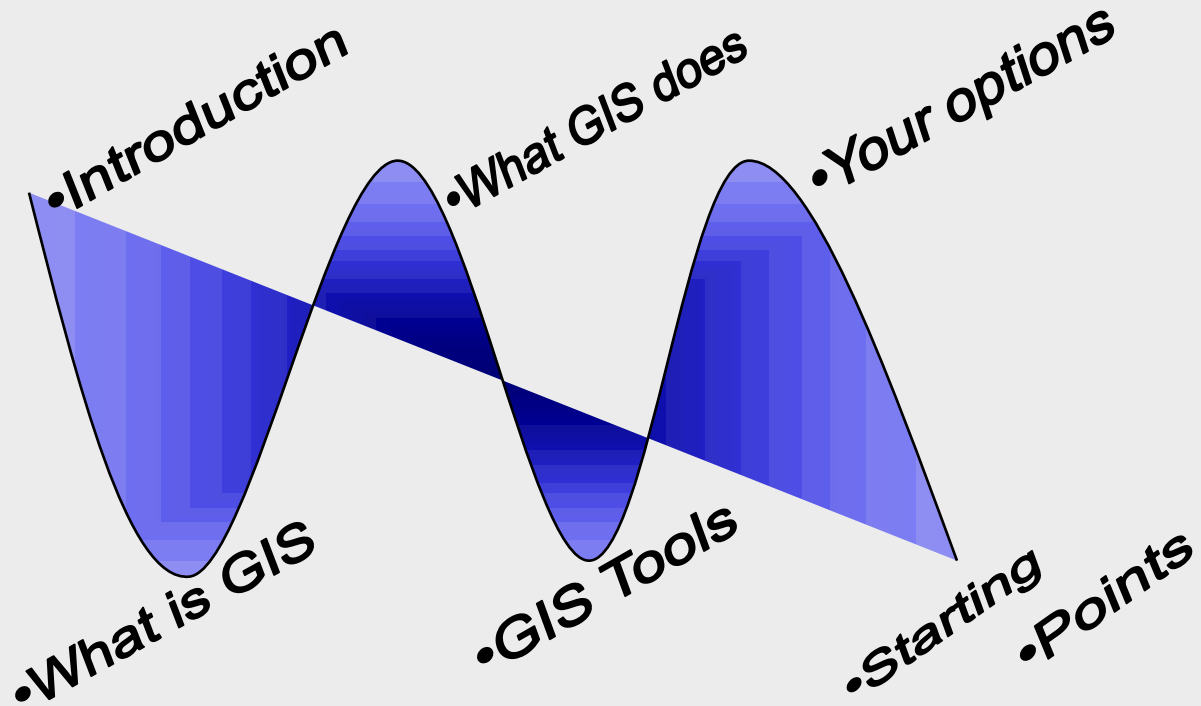
# GIS at UCSD...

what it is and what it means to you

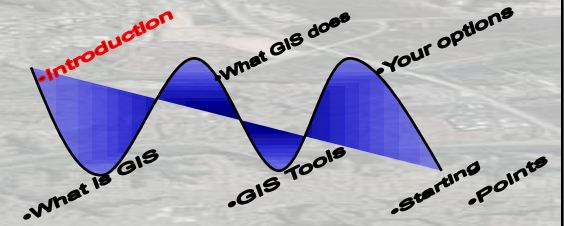
**Tracey Hughes**  
**UCSD GIS Coordinator**  
**2007**

Image from Google Earth

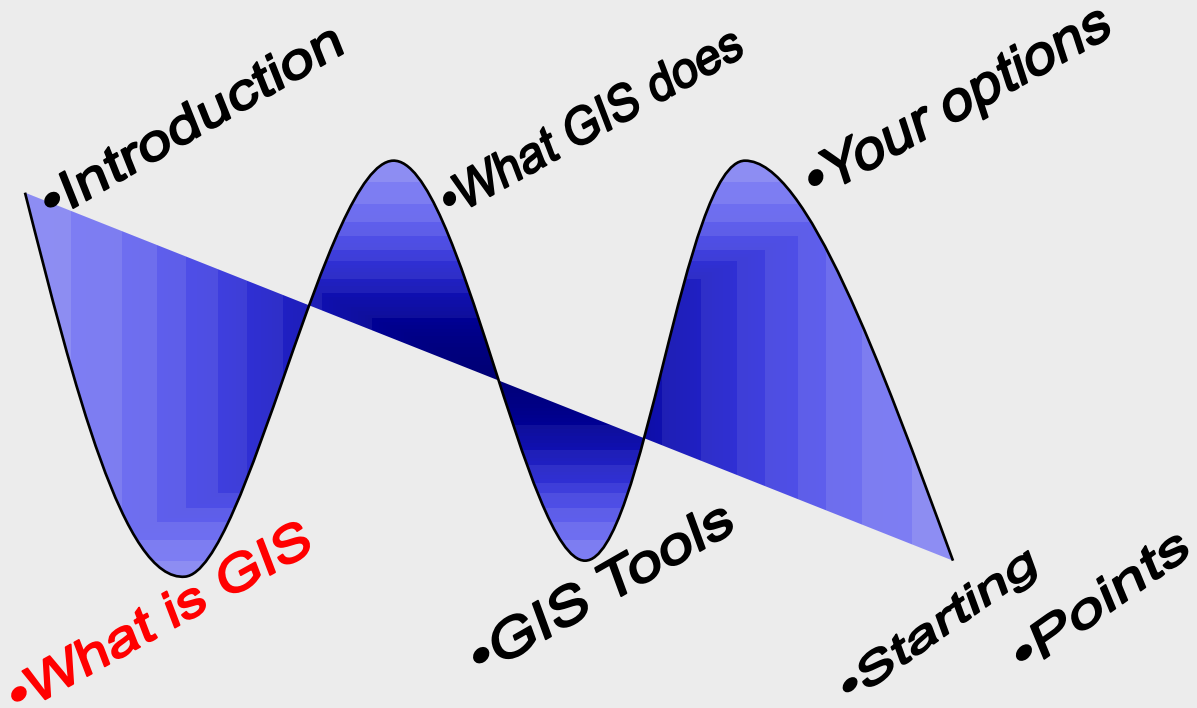
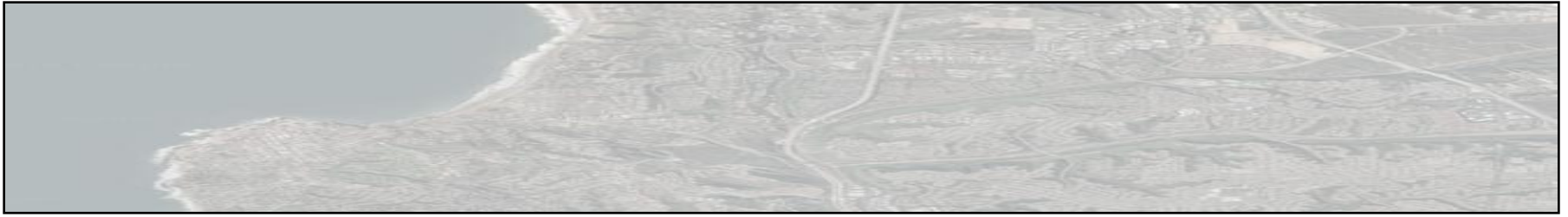
# An outline



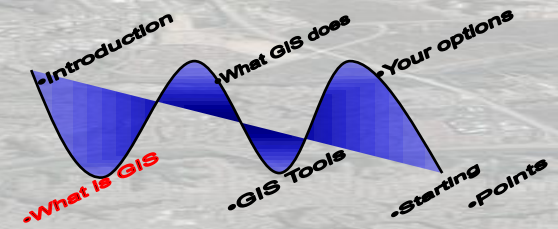
# A little about me



- GIS Coordinator
- Information Professional
  - Librarian
  - Spatial analyst
- AICP Planner

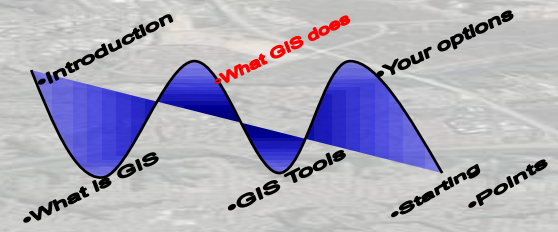


# What GIS is...



- **G**eographic **I**nformation **S**ystem
- Implemented with software tools
- Spatial mindset
  - Spatial analysis
  - Visualization in 2D, 3D, or 4D

# See things in a new way



Percentage of  
population  
below poverty  
level viewed as  
height

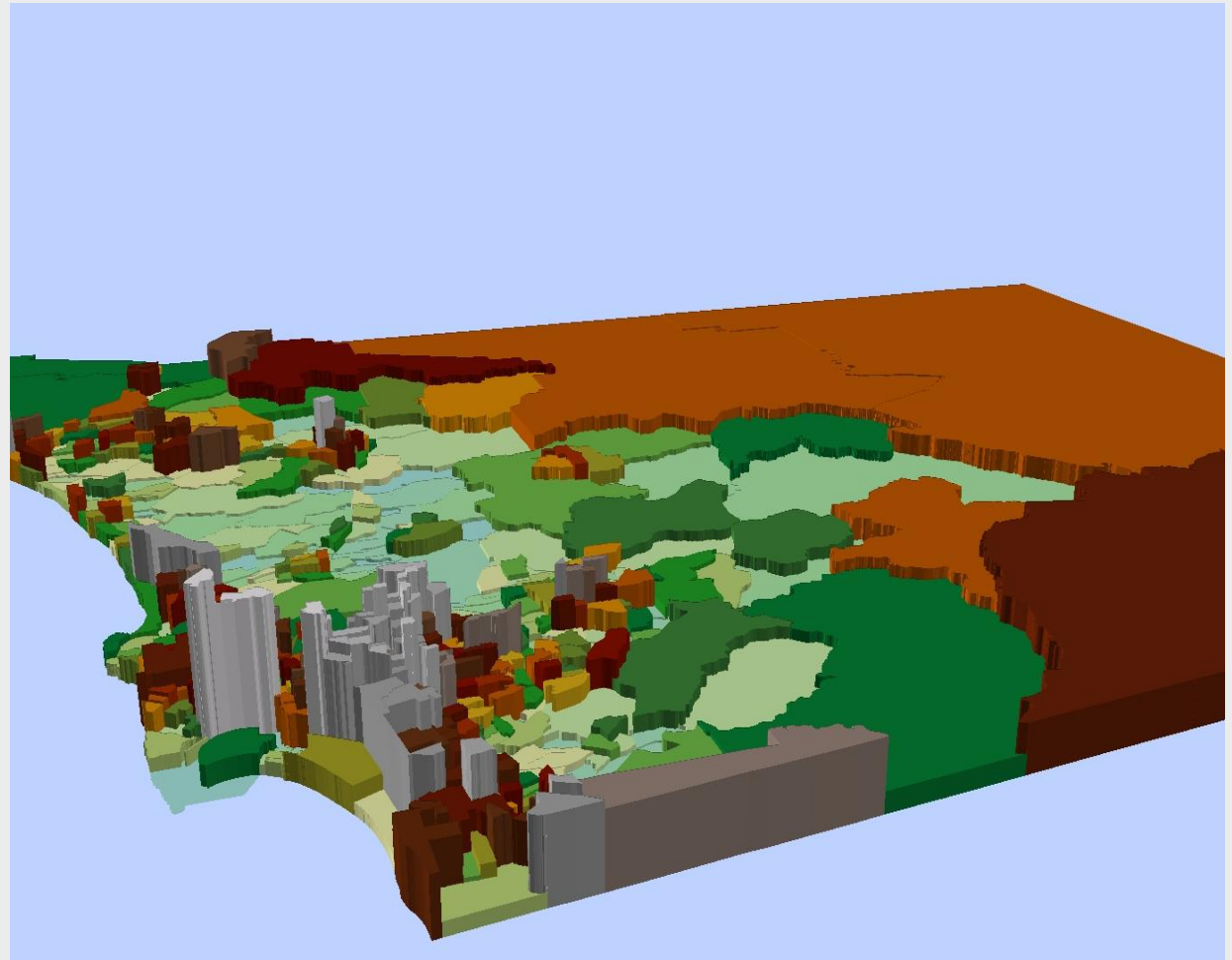
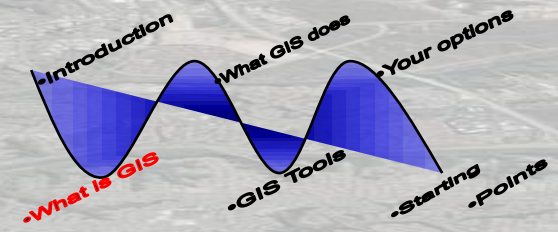


Image created by TELESIS with the Regional Workbench Consortium

# Representation of the 'real' world



- Layers with attributes
- Vector Data
  - Points
  - Lines
  - Polygons
- Raster Data
  - Images
  - Grids

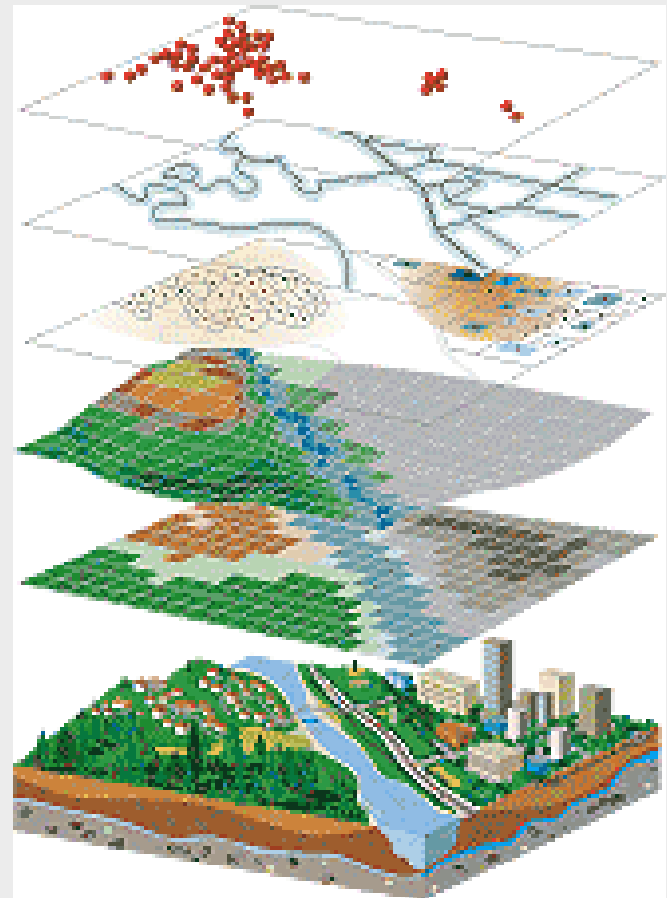
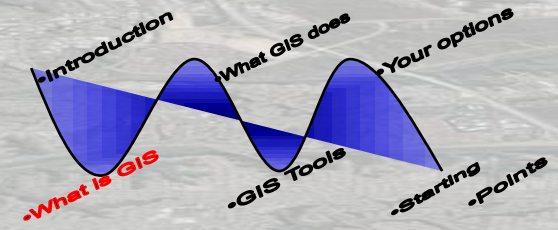


Image from ESRI

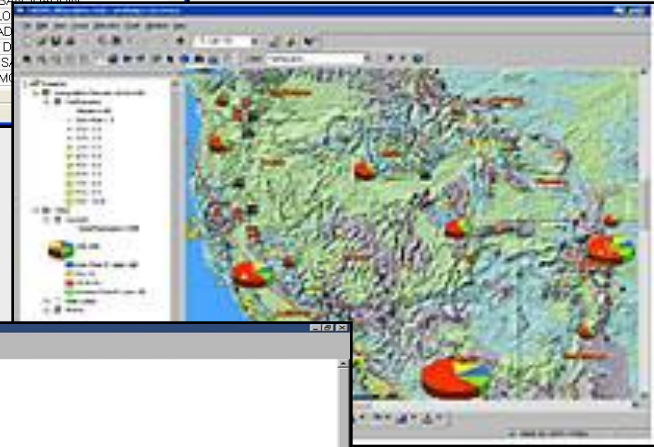
# Three 'views' of GIS



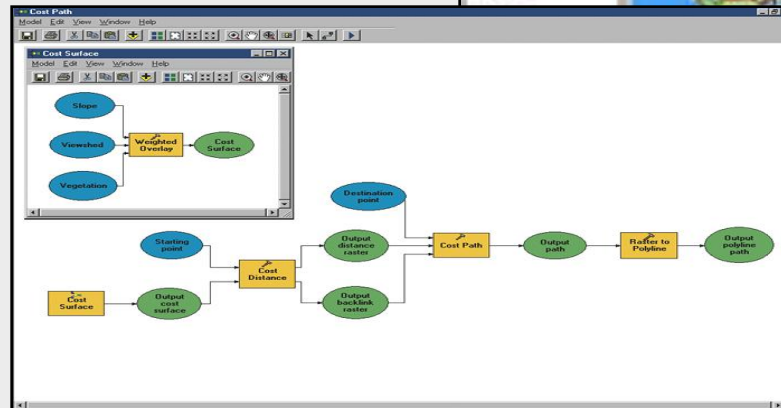
- Database

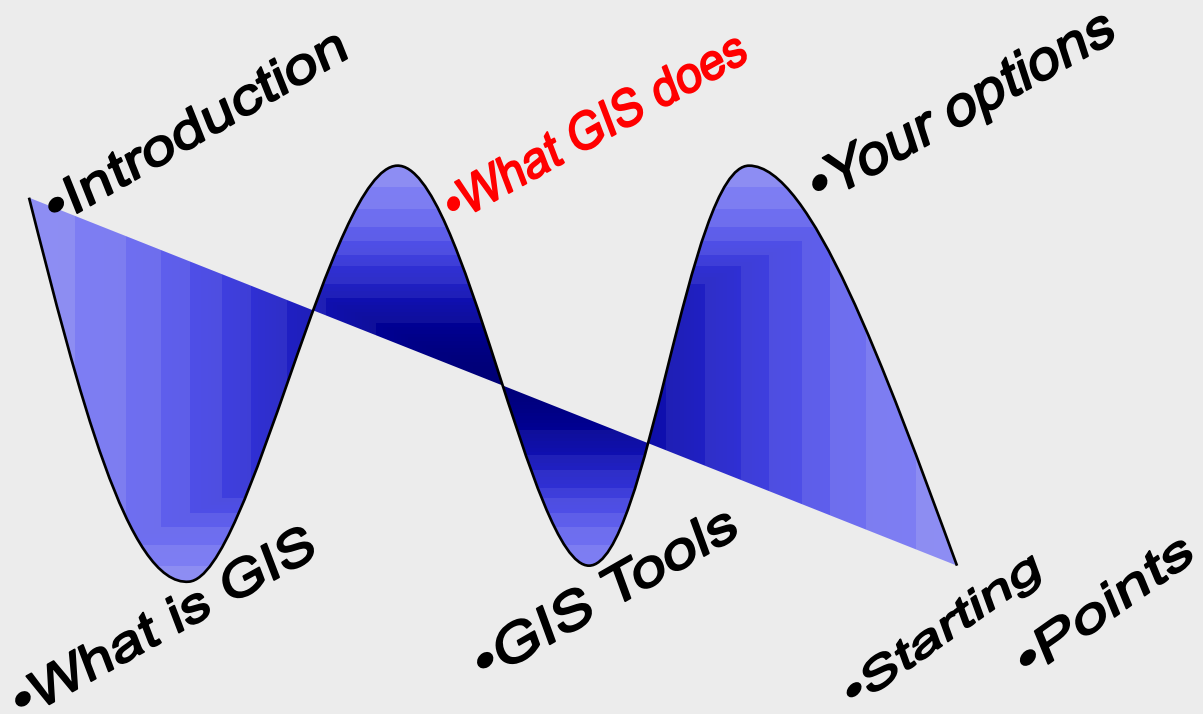
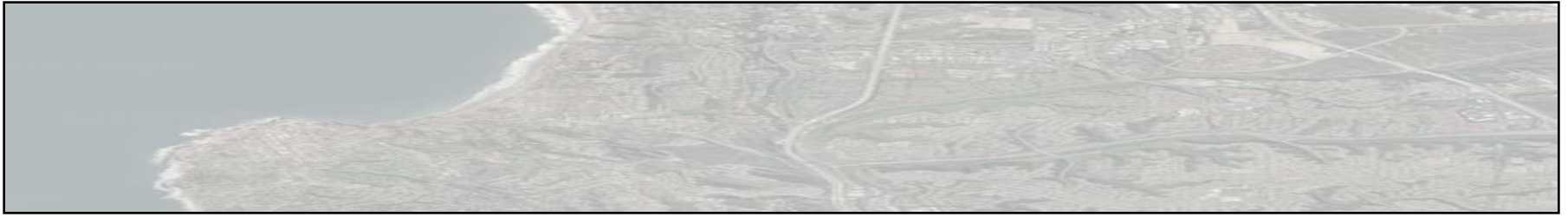
ID	ZIP_CODE	CITY	STATE	AREA_CODE	CITY_ALIAS_NAME
1	00501	HOLTSVILLE	NY	516	HOLTSVILLE
2	00501	HOLTSVILLE	NY	516	IRS SERVICE CENTER
3	00544	HOLTSVILLE	NY	516	HOLTSVILLE
4	00544	HOLTSVILLE	NY	516	IRS SERVICE CENTER
5	00601	ADJUNTAS	PR	787	ADJUNTAS
6	00601	ADJUNTAS	PR	787	JARD DE ADJUNTAS
7	00601	ADJUNTAS	PR	787	URB SAN JOAQUIN
8	00602	AGUADA	PR	787	EXT LO
9	00602	AGUADA	PR	787	AGUAD
10	00602	AGUADA	PR	787	ALTS D
11	00602	AGUADA	PR	787	URB IS
12	00602	AGUADA	PR	787	URB M
13	00602	AGUADA	PR	787	URB M

- Map

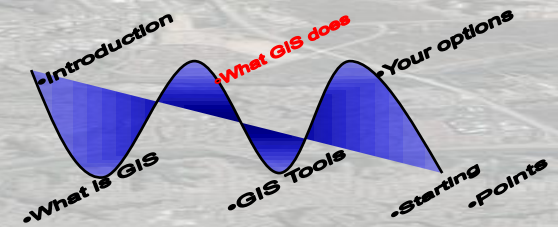


- Model



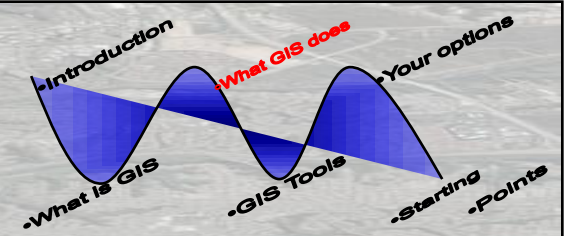


# The GIS Process



- Ask a question
- Obtain necessary data
- Determine best method of analysis
  - Temporal
  - Spatial
  - Attribute
- Analyze
- Present results

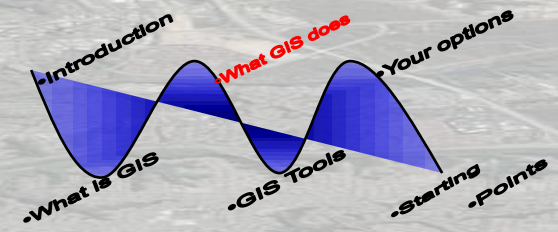
# The questions you answer with GIS



- **Measurement**...How far apart are chimp nests in Tanzania?
- **Location**...Where are all the neuroscience research centers?
- **Condition**...Find parcels zoned residential with slopes over 7%.
- **Proximity**...Identify census tracts within 1 mile of a floodplain.
- **Pattern**...Is there a correlation between temperature and crime?
- **Visualization**...in 2D, 3D (height/altitude), or 4D (3D plus time)

...as you all know, a picture is worth a thousand words!

# How GIS relates to **you**



## Visualize, explore and shape environments

### Social environments

- Education
- Social equity
- Interaction spaces

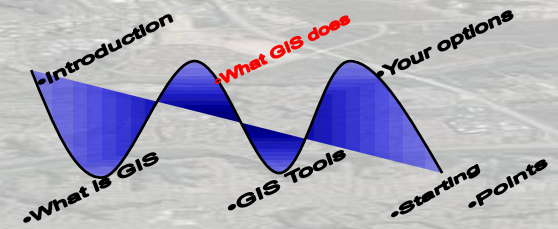
### Natural environments

- Environmental justice
- Earth
- Atmosphere
- Ocean

### Built environments

- Urban & regional planning
- Economic & community development
- Architecture
- Culture

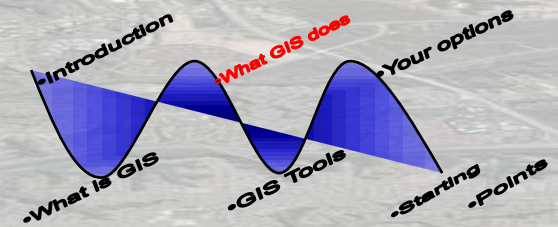
# Explore spaces



“...how spaces developed on the edges or in the barrios of major cosmopolitan spaces are specifically addressing issues such as **marginalization, gentrification, and cultural tourism.**”

3/2/06 - <http://visarts.ucsd.edu/~drupal/event/>

# Communicate

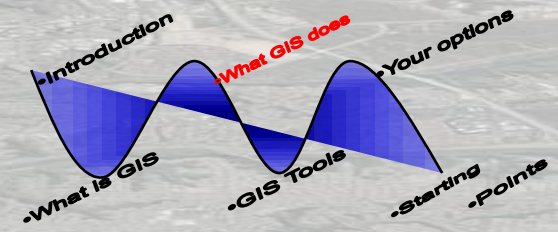


“ [GIS] incorporates the **geographic visualization** of databases, metadata and history, and has **become a fundamental communication modality** to government, academic and nonprofit agencies.”

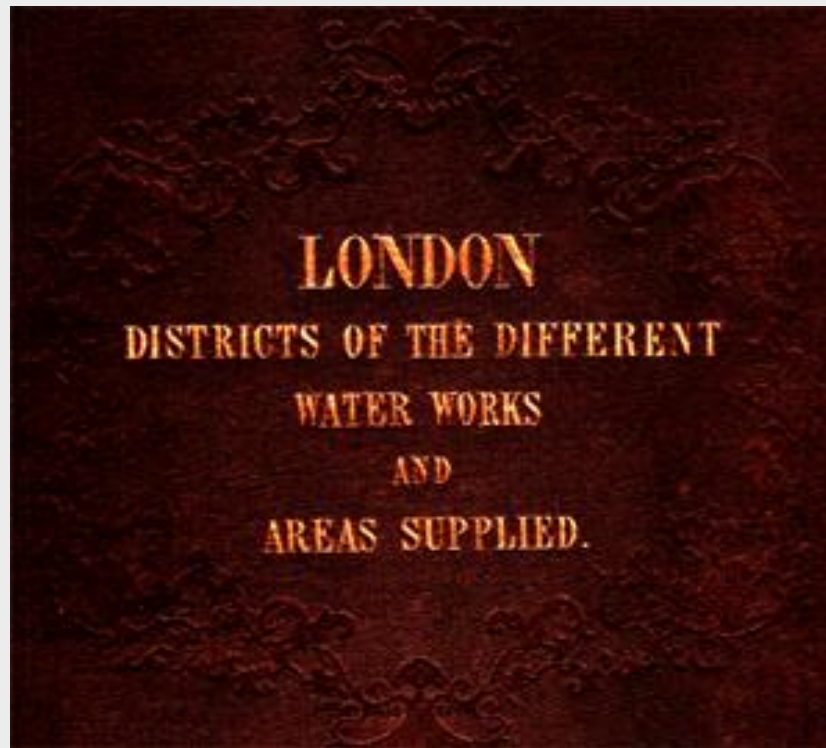
--Rosemary McKeon, UCSD Visual Arts Graduate

Accessed on 10/18/06  
at <http://jupiter.ucsd.edu/%7Erose/teaching.htm>.

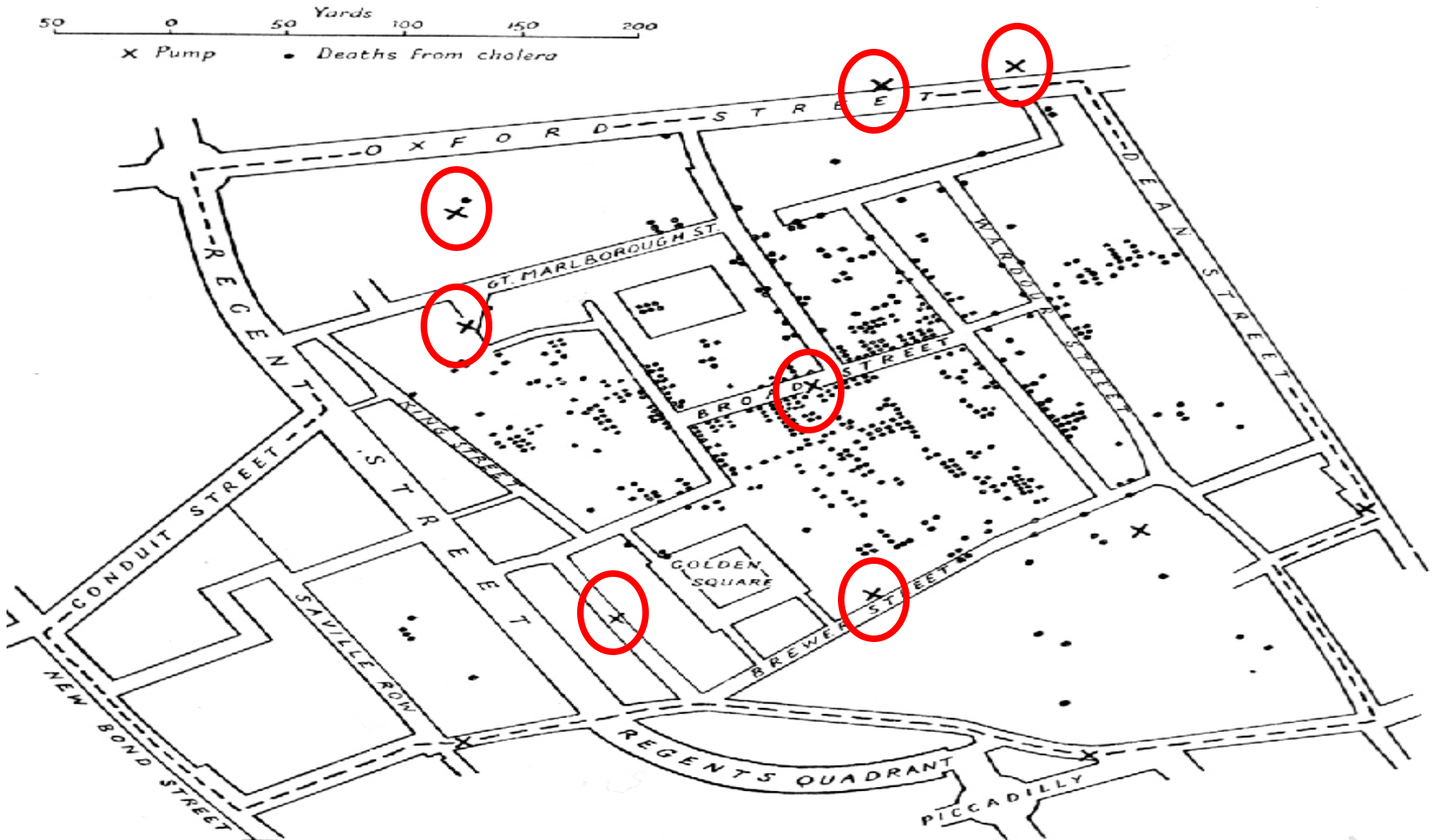
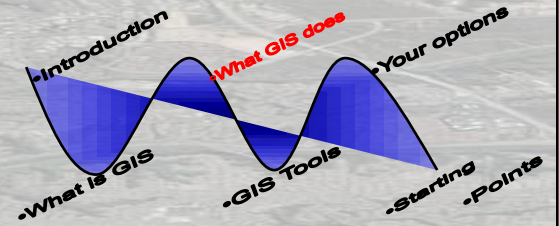
# GIS in action



- London Cholera Epidemic of 1854



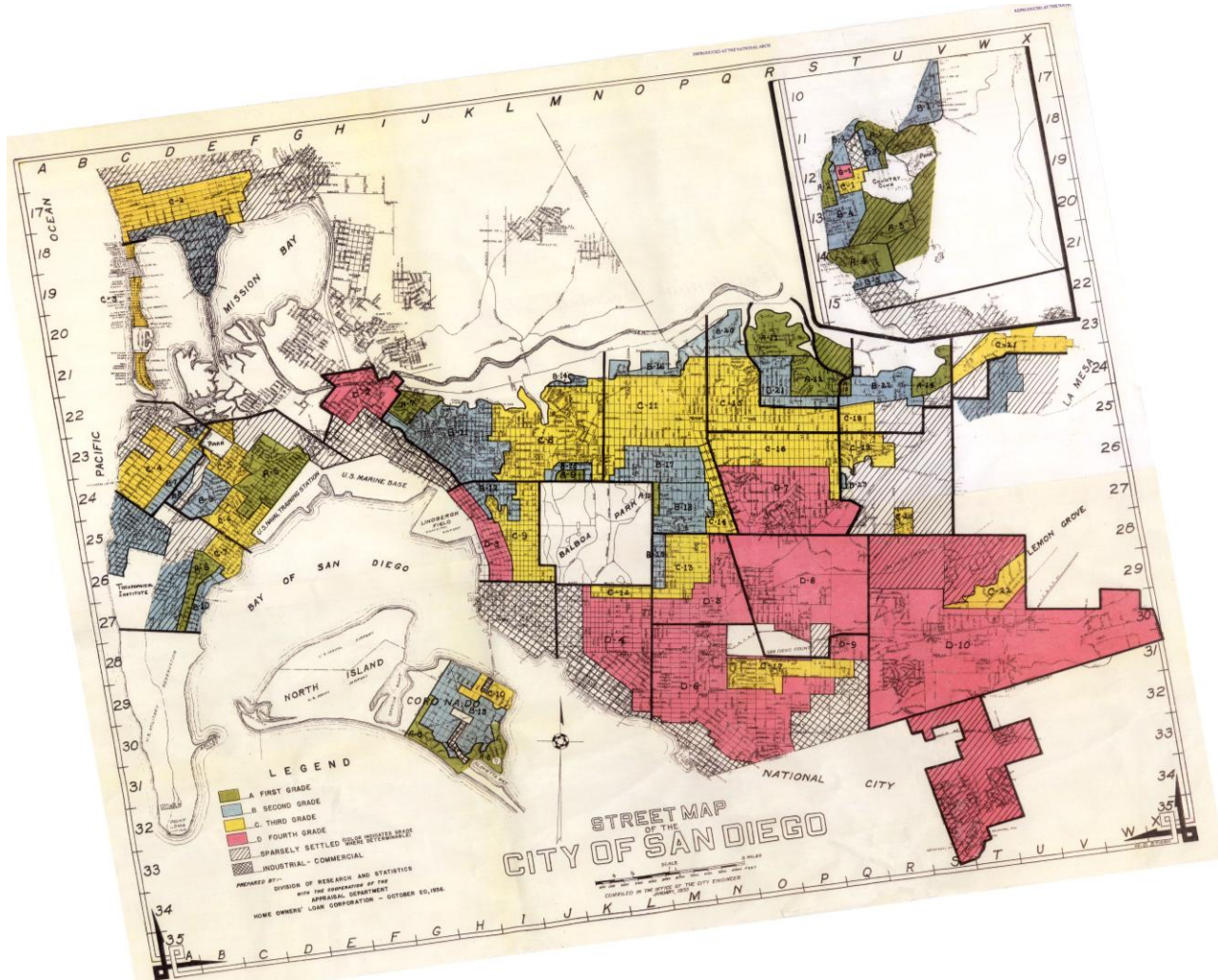
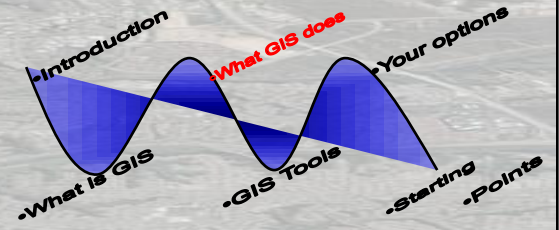
# A spatial issue?

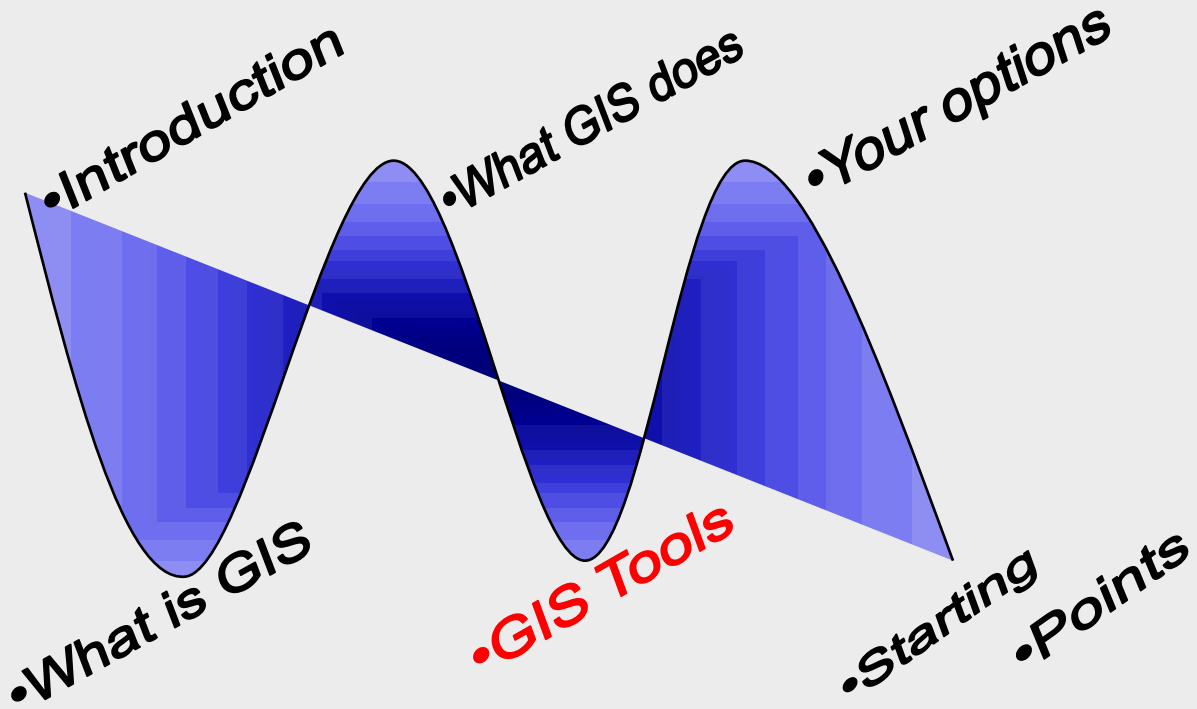
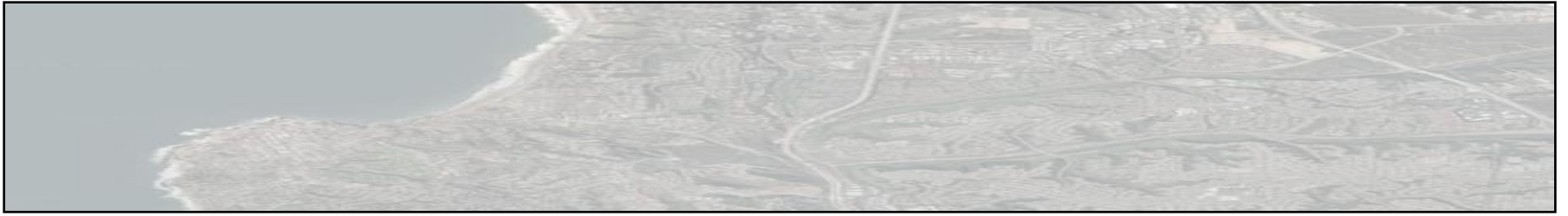


Each dot represents one death from cholera.

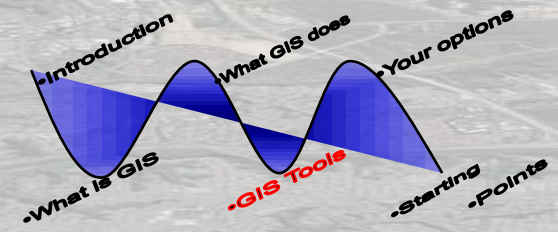
500 people died in the epidemic, caused by a contaminated well.

# GIS & the Built Environment

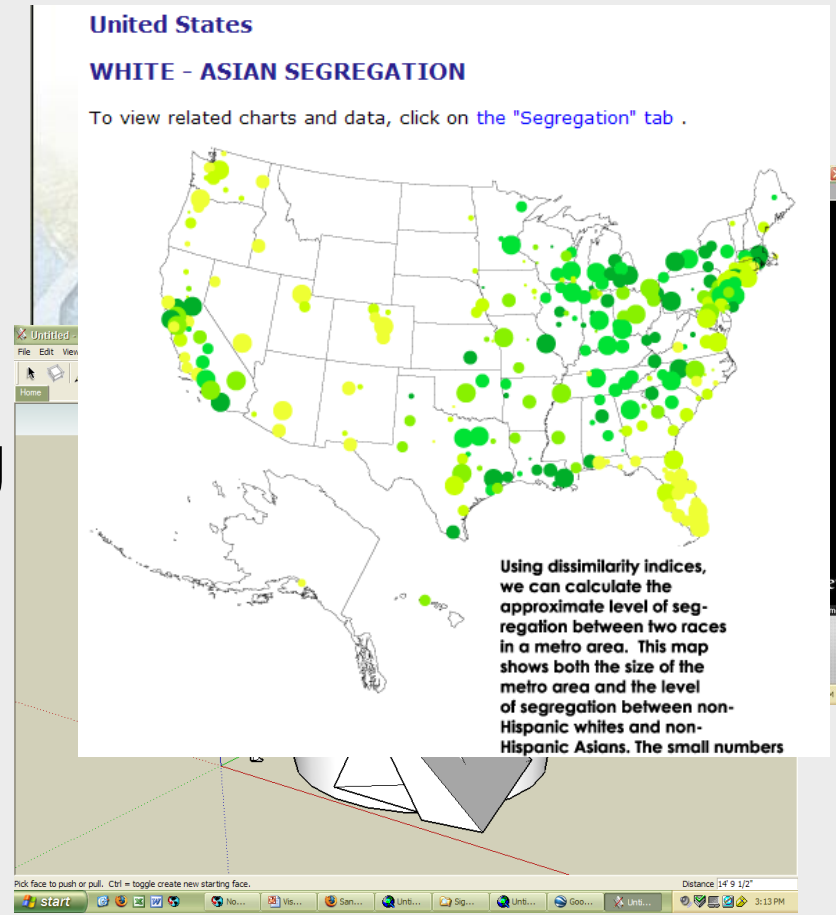




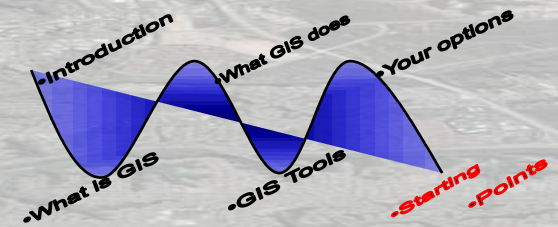
# GIS Tools



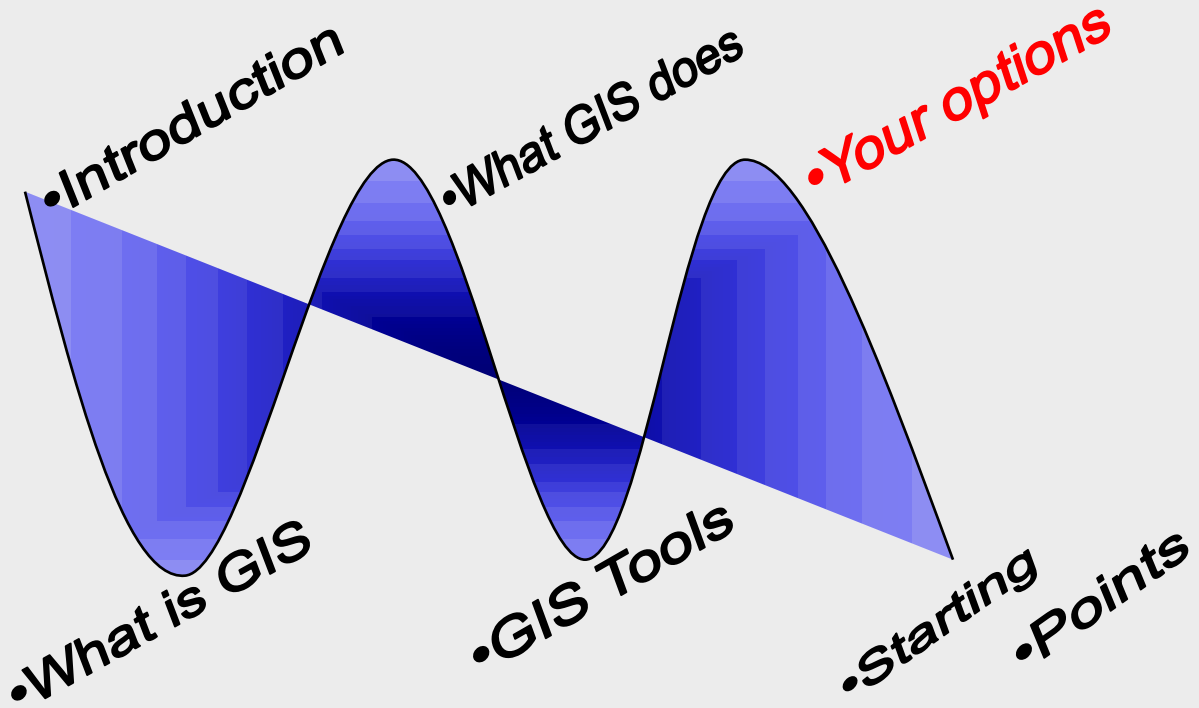
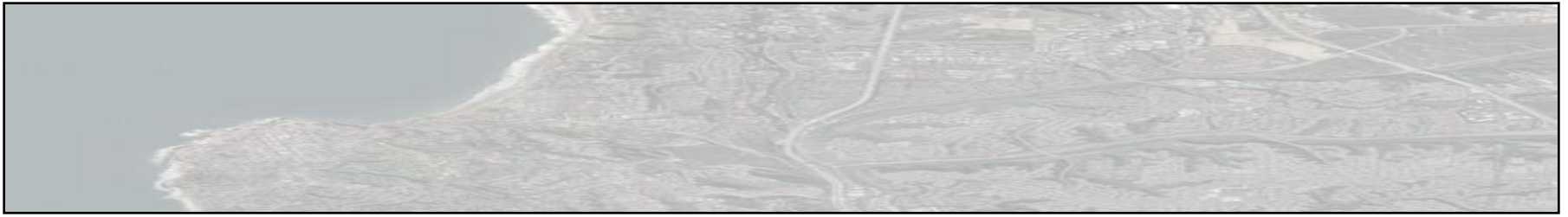
- ArcGIS Desktop
- Google Earth
- Google Sketch Up
- Interactive mapping websites



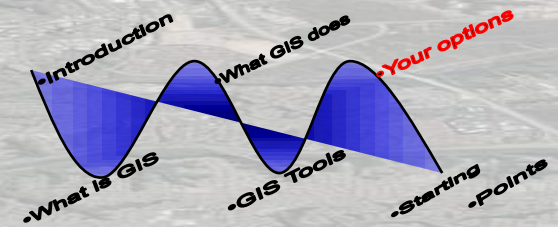
# More on the tools...



- ArcGIS
  - Virtual Campus course (<http://www.campus.esri.com>)
  - Specific task instruction
- Google Earth & Sketch Up
  - Download it (<http://earth.google.com>)
  - Specific task instruction
  - Play with it!
  - Create your own data

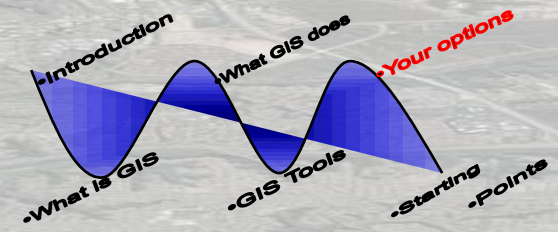


# GIS Resources



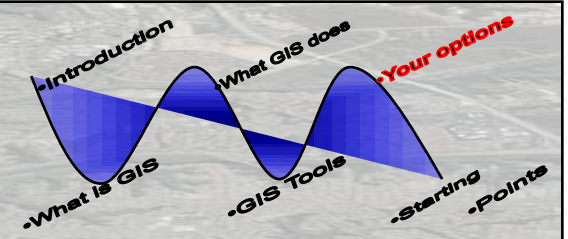
- **Geisel GIS Lab**
  - Computers, printers, scanner
- **Instruction**
  - Online & workshops
- **Software**
  - ArcGIS Desktop
- **Data**
  - Some already there, some in progress
- **Community**
  - Lunches, discussion forum
- **Me!**

# More freebies



- Free consultations to determine how GIS can fit with your research
- Free tailored assistance with data collection & analysis
- Free feedback on poster design
- Free final poster printing if you use GIS in your assignment

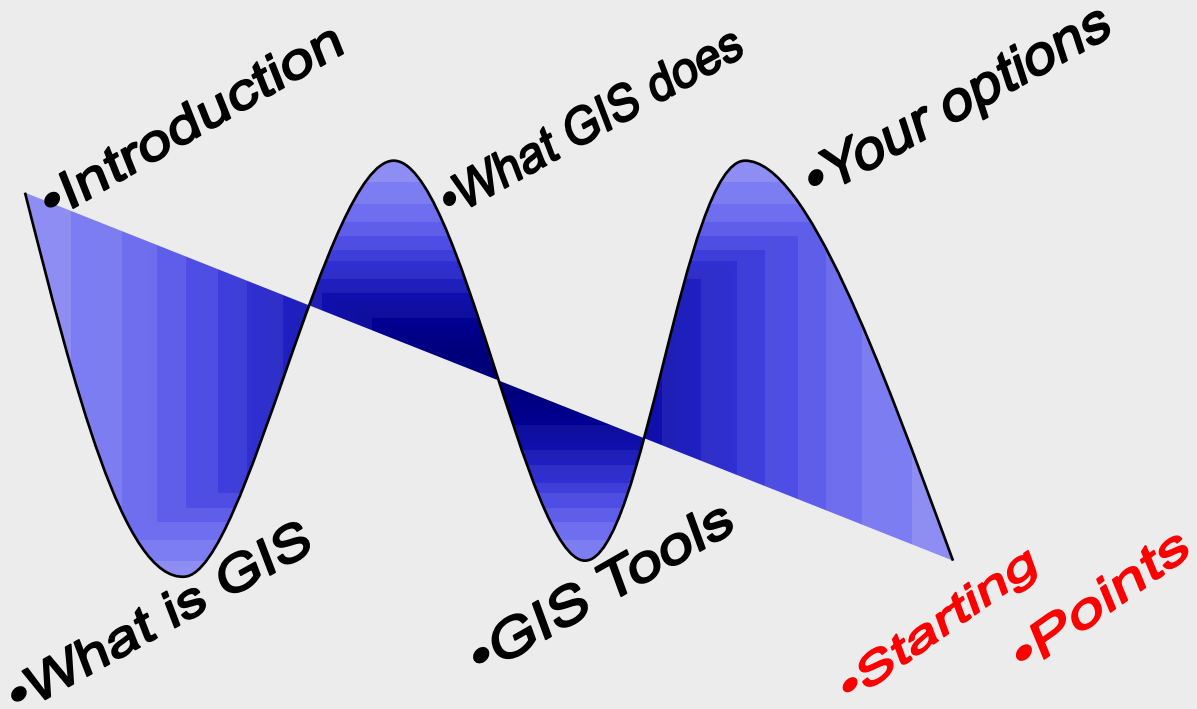
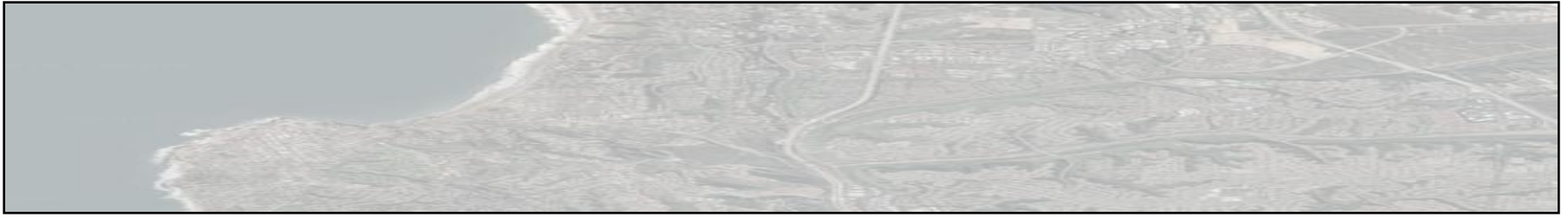
# The real limitations



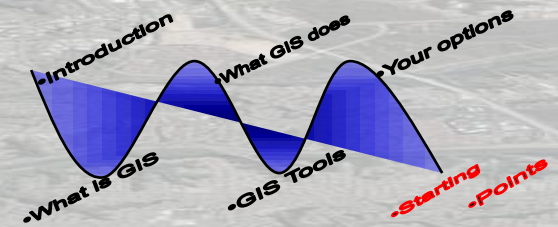
- Data

- Time

- Desire

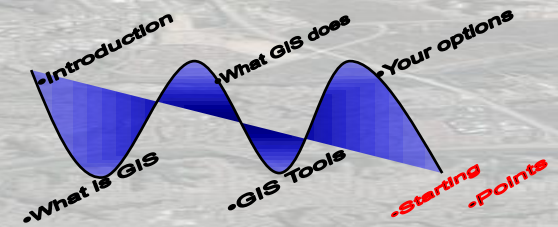


# VIS213 Specific



- **All kinds of information (San Diego)**
  - The Library!!
  - Data, Government & Geographic Information (<http://govinfo.ucsd.edu/>)
    - GIS Specific: (<http://govinfo.ucsd.edu/gis/>)
  - Social Sciences & Humanities Data Center (<http://ssdc.ucsd.edu/>)

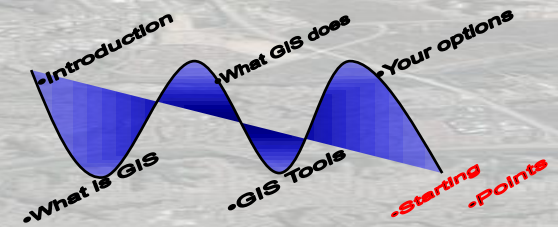
# VIS213 Specific



- **All kinds of information (San Diego)**

- City of San Diego: Community Planning pages (<http://www.sandiego.gov/planning/community/plans.shtml>)
- City of San Diego Official Zoning Map (<http://www.sandiego.gov/development-services/zoning/zoninggridmap.shtml>)
- County of San Diego: Department of Planning (<http://www.sdcountry.ca.gov/dplu/index.html>)
- SanDAG →Resources (<http://www.sandag.org/>)
- SanDAG's Data Warehouse (<http://datawarehouse.sandag.org/>)
- City Planning & Community Investment (<http://www.sandiego.gov/cpci>)
- Community Development Block Grants – click on 'Funded Projects' (<http://www.sandiego.gov/cdbg>)

# VIS213 Specific



- **All kinds of information (General)**

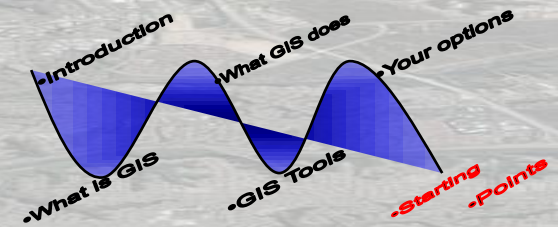
- American FactFinder

- (<http://factfinder.census.gov>)

- All Urban Studies course guides, esp. USP 193

- (<http://ssh1.ucsd.edu/instruction/guides/usp193.html>)

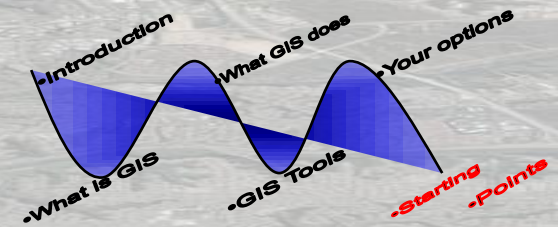
# VIS213 Specific



- **GIS Data**

- Data on server accessed in Geisel GIS Lab
- SanDAG → Resources → GIS  
(<http://www.sandag.org/>)
- SanGIS (City & County data):  
(<http://www.sangis.org/>)
- National Historical GIS (<http://www.nhgis.org/>)

# VIS213 Specific



- Interactive Mapping

- City and County of San Diego via SanGIS

- ([http://www.sangis.org/sangis/IntMapping\\_main.htm](http://www.sangis.org/sangis/IntMapping_main.htm))

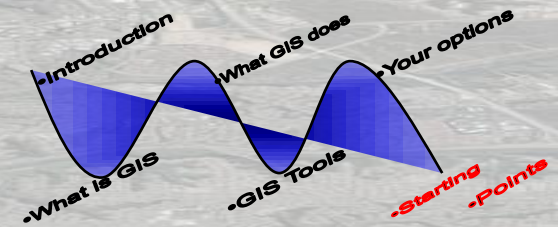
- REDI: a tool from SanDAG where you can zoom easily to particular SD areas

- (<http://cart.sandag.org/redi/>)

- San Diego Quality of Life Mapper

- (<http://www.qolsandiego.net/maproom.htm>)

# VIS213 Specific



- Interactive Mapping

- Social Explorer: Quick maps at Census tract level & race time series of LA

- (<http://www.socialexplorer.com>)

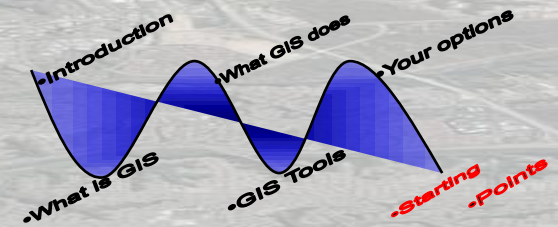
- CensusScope: Maps, trends , rankings and racial segregation based on Census data

- (<http://www.censuscope.org>)

- Historical Census Mapper: Can create maps easily

- (<http://fisher.lib.virginia.edu/collections/stats/histcensus/>)-

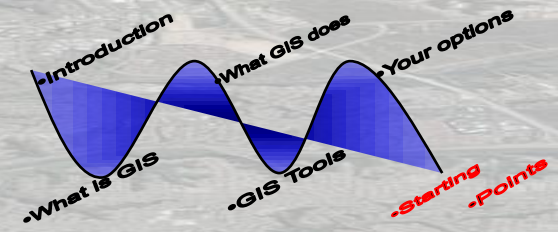
# VIS213 Specific



- Ideas for GIS & Visual Arts

- <http://www.c5corp.com> (Visiting artist to UCSD in Feb 2006)
- <http://activecampus2.ucsd.edu/explorientation/> - your own Adrienne Jenik
- [www.regionalworkbench.org/databank/project\\_files/24/sandagmorph.htm](http://www.regionalworkbench.org/databank/project_files/24/sandagmorph.htm) - visualization of urban change over time for San Diego region
- <http://www.davidrumsey.com/> - rare maps from 17<sup>th</sup> & 18<sup>th</sup> century...all in all a cool site!
- <http://mapsofwar.com/> - Let your mind wander to your own research.

I'm here for you!



**Tracey Hughes, GIS Coordinator  
Geisel Library**



**[t2hughes@ucsd.edu](mailto:t2hughes@ucsd.edu)**

**(858) 534-1266**



How can **you** use GIS?



**“The application of GIS is limited only by the imagination of those who use it.”**

*Jack Dangermond, ESRI President & Founder*