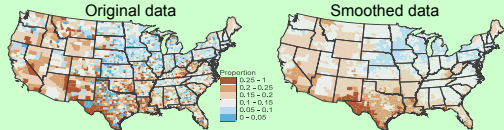


III. Geovisualization Tools Development

Weighted Nonparametric Smoothing (Headbanging)
Proportion of residents with no health insurance
CDC Behavioral Risk Factor Surveillance System



Data: Pickle & Su, *American Journal of Preventive Medicine*, 2002
Headbanging: Mungiole et al., *Statistics in Medicine*, 1999

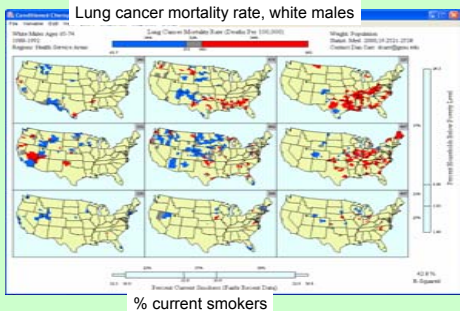
Tools implemented as ArcGIS Extensions

- Headbang smoothing
- Color choices (ColorBrewer.org)
- Utility to format SEER*Stat data for mapping
- SaTScan clustering



Conditioned choropleth maps*

- Decomposes a single choropleth map into strata according to 1 or 2 other factors
- Interactive tool – users control classifications of mapped variable (red/gray/blue) & stratifiers by sliders

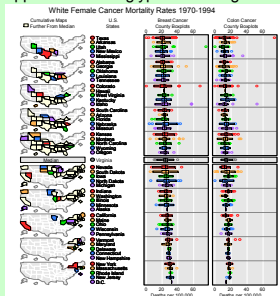


% current smokers

*Carr, Wallin, and Carr, *Statistics in Medicine* 2000

Linked micromap plot*

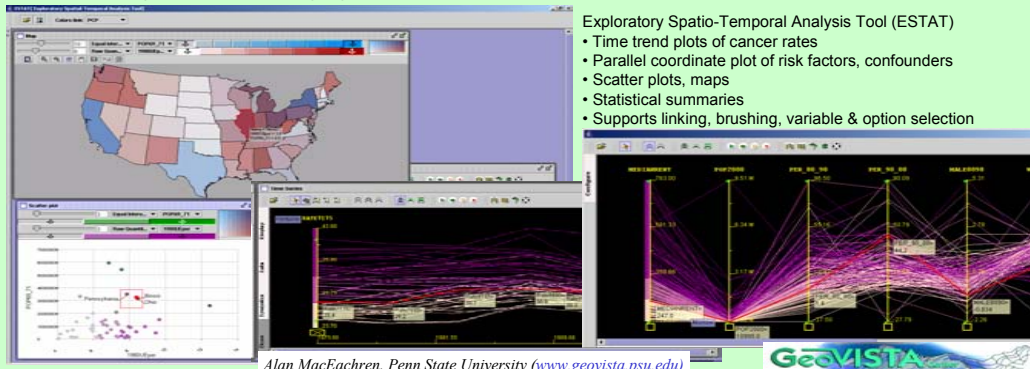
- Color links statistical graphs & maps
- Micromaps show spatial patterns
- Supports different glyphs & sorting



Combining statistical clustering algorithms with new visualization tools

Exploratory Spatio-Temporal Analysis Tool (ESTAT)

- Time trend plots of cancer rates
- Parallel coordinate plot of risk factors, confounders
- Scatter plots, maps
- Statistical summaries
- Supports linking, brushing, variable & option selection



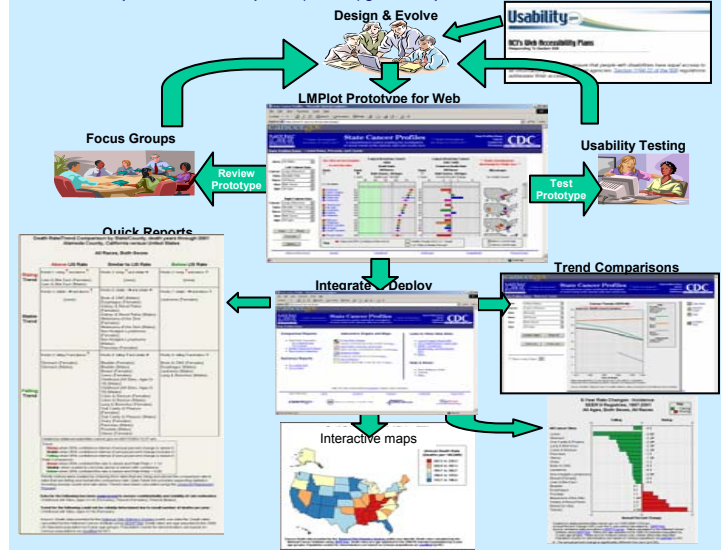
Alan MacEachren, Penn State University (www.geovista.psu.edu)



IV. Communication of georeferenced statistics

A. State Cancer Profiles (statecancerprofiles.cancer.gov)

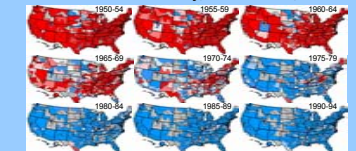
- **Goal:** Focus cancer control efforts on places and persons who can most benefit.
- **Audience:** Health planners, policy makers, and advocates.
- **Approach:** Use interactive data visualization tools to explore the U.S. cancer burden.
Example: Linked Micromap Plots (LMPlots) go from Paper to the Web



B. Cancer mortality atlas

(cancer.gov/atlasplus/)

Cervix uteri cancer mortality, white females, 1950-94



- Electronic version of book
- Dynamic, accessible graphs
- Interactive maps
- Downloadable data

Zooming capabilities

