

# Visual Tools for Investigating Idiosyncrasy

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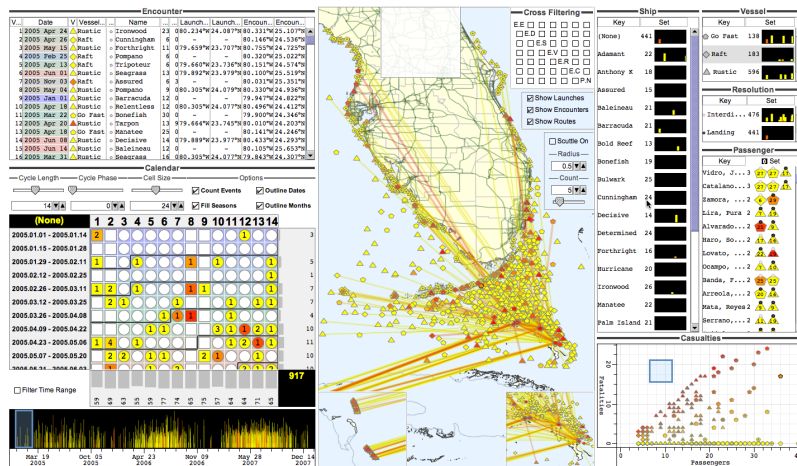
## Objectives

- Develop visually and interactively centered methodologies for identifying and characterizing complex webs of idiosyncratic structure in social, natural, and built systems.
- Develop visual techniques for expressing sequences of complex multidimensional set queries (including spatial, temporal, quantitative, categorical, and nominal data).
- Establish a digital context for recording, recalling, restoring, and relating the questions, queries, and interpretations of an ongoing collective visual exploration and analysis process.

## Results

- Multiple techniques for drilling-down into multidimensional data by interactively filtering across dimensions.
  - Cross-filtered views
  - Cross-highlighted views
  - Attribute relationship graphs
- A model of graphical data representation and interaction that extends data selection to allow negation of objects and space (inspired by conjunctive normal form in boolean logic).
- An emerging model and system of rules for translating visual queries into natural language questions.

## Example: migrant boat interdictions (synthetic data)



## Recent Related Publications

- Chris Weaver. "Cross-Filtered Views for Multidimensional Visual Analysis". IEEE Transactions on Visualization and Computer Graphics, 16:2, 192-204, March-April 2010. [doi.ieeecomputersociety.org/10.1109/TVCG.2009.94]
- Chris Weaver. "Conjunctive Visual Forms". IEEE Transactions on Visualization and Computer Graphics, 15:6, 929-936, November-December 2009. [doi.ieeecomputersociety.org/10.1109/TVCG.2009.129]
- David Fyfe, Deryck W. Holdsworth, and Chris Weaver. "Historical GIS and Visualization: Insights from Three Hotel Guest Registers in Central Pennsylvania, 1888-1897". Social Science Computer Review, 27, 348-362, Fall 2009. [dx.doi.org/10.1177/0894439308329762]
- Chris Weaver. "Look Before You Link: Eye Tracking in Multiple Coordinated View Visualization". BELIV '10: BEyond time and errors: novel evaluation methods for Information Visualization, April 2010.