



An Online Tool for the Visualization and Education of Isoline Mapping

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Overview:

- i) larger context **Democratization of Cartography**
- ii) specific problem **Isarithmic Mapping**
- iii) isoline engine **Feature Set and Demo**



Democratization of Cartography:

goal of providing the ability to make maps to **Everyone**

but...

most tools are **Expert** systems designed by **Experts** for **Experts**



Powerful Tools + Little Guidance = Potential Trouble

But this is not a **Straw Man Argument**
(**Harrower**: “like faulting the **Knife** for making a poor **Spoon**”)



Specific Problem – Isarithmic Mapping

there are literally hundreds of packages for **Isarithmic Mapping**

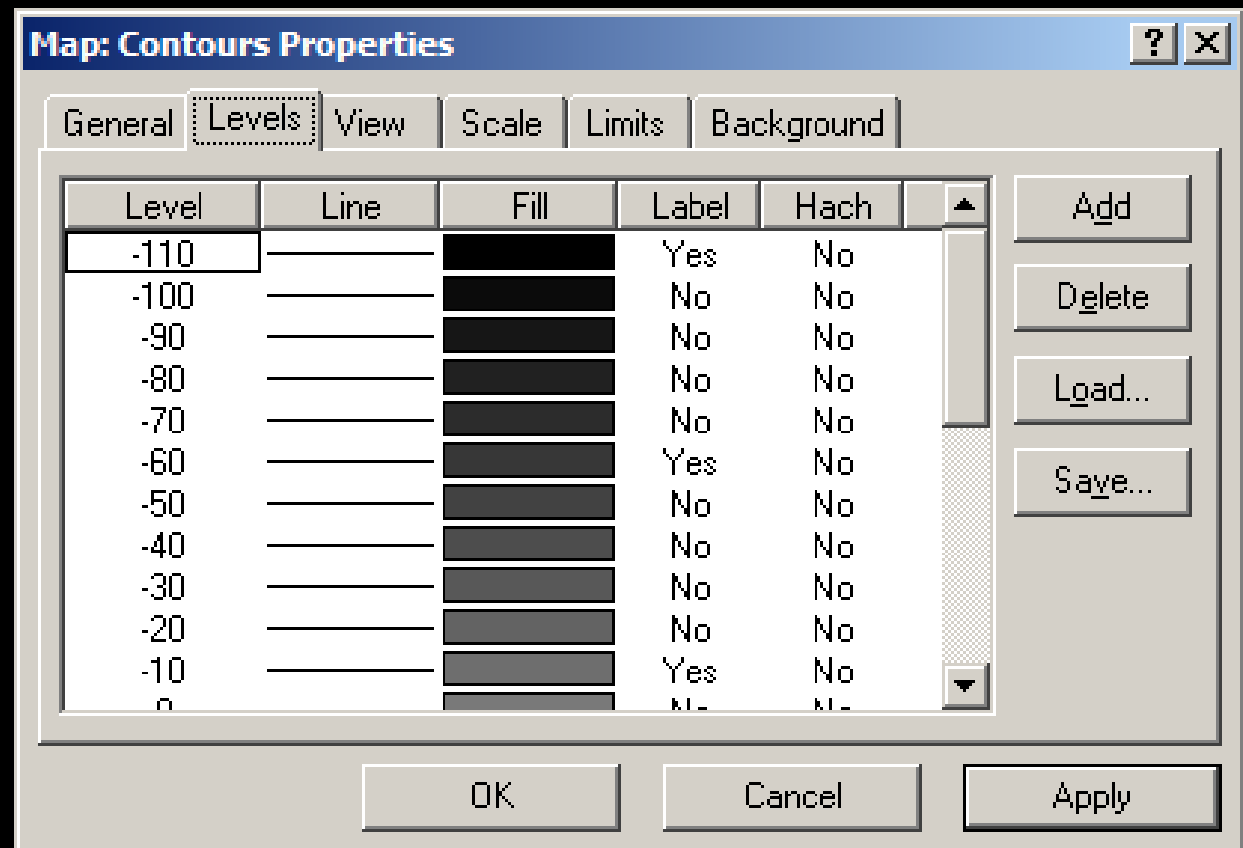
many domain specific in such fields as **Geology, Hydrology, Meteorology, etc.**

also several universal software with isarithmic capability such as **ArcGIS and Surfer**



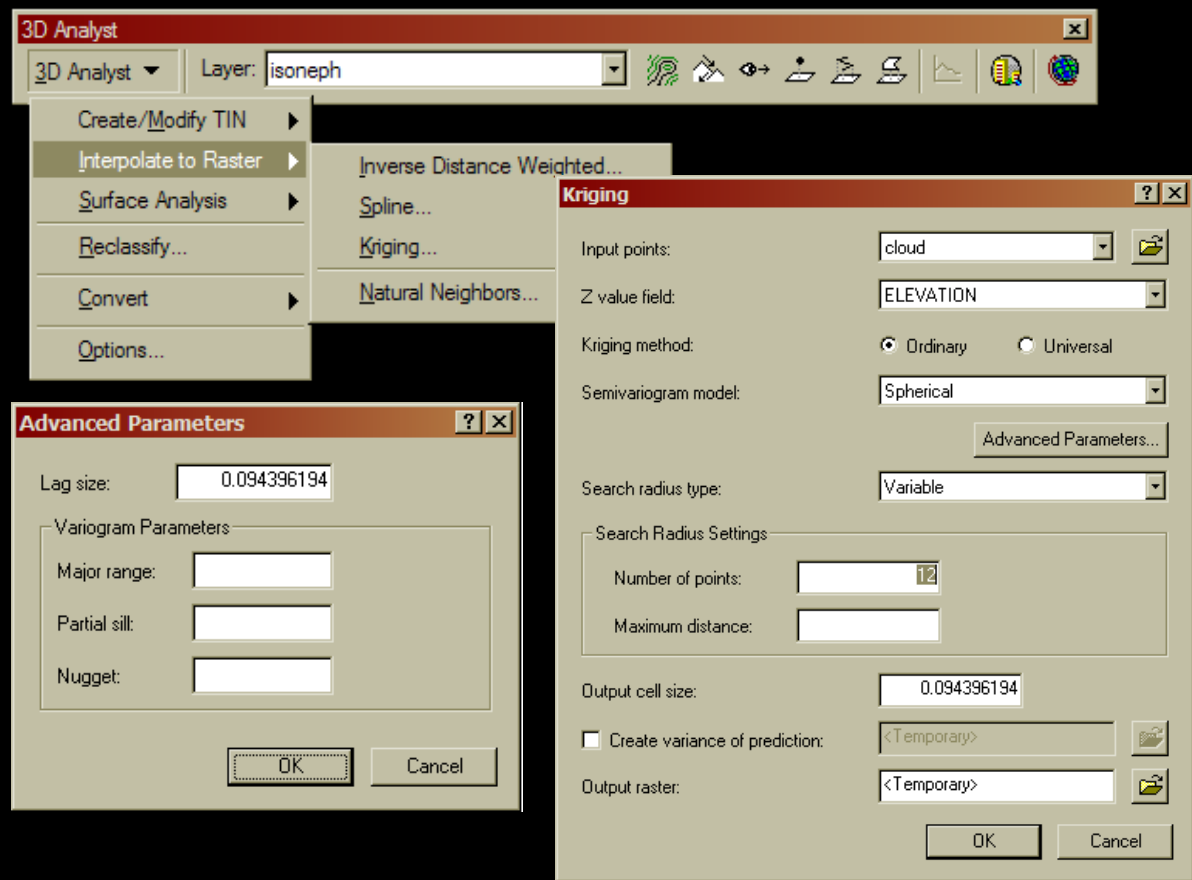
but this software is difficult for novice users because:

1) there is an insane amount of parameters



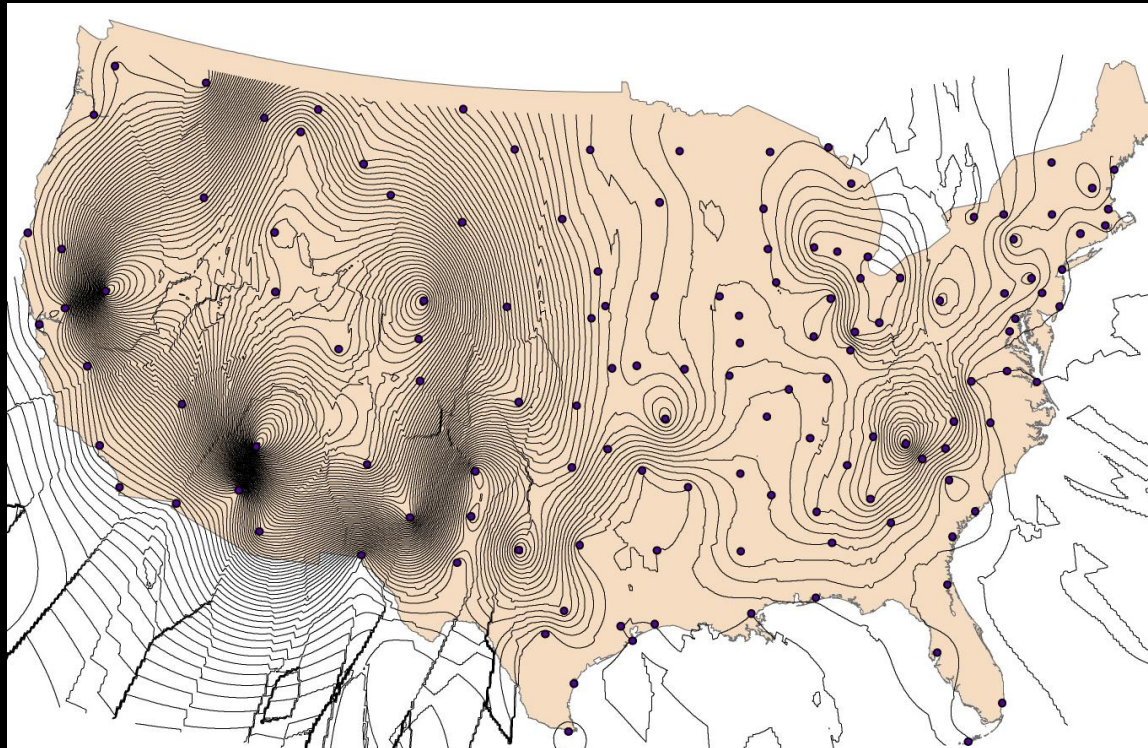


but this software is difficult for novice users because:



2) the deeply nested structure of these parameters

but this software is difficult for novice users because:



3) the lack of immediate visual feedback of parameter changes

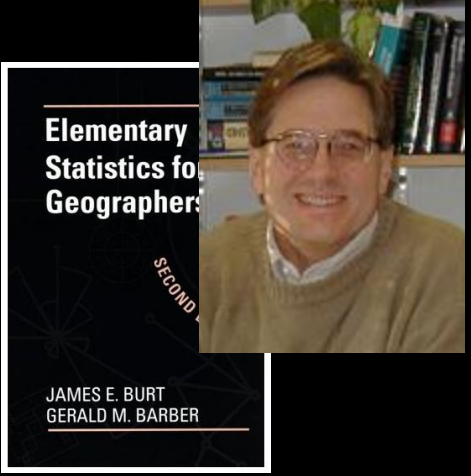


Isoline Engine

the goal: to create a web-based digital assistant to help novices and experts alike create more effective isarithmic maps

isoline engine should:

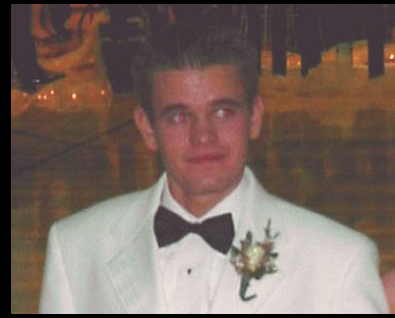
- * act as a spatially referenced help system
- * provide immediate visual feedback when altering parameters
- * keep all interface controls visible to promote exploration of parameter combination



Mark: principles of representation and map design



Jim: statistical background for spatial interpolation



Rob: slave labor and yes man



isoline engine **Map Brewer**

- ***Focus on a specific cartographic design challenge (i.e., not a general lesson)***
- Organize design choices around a set of established mapping principles
- ***Offer only suitable choices (i.e., nothing too extreme or irrelevant)***
- Encourage learning about design choices
- Not be software-specific
- Only require basic skills with mapping software
- Offer tips on the suitability of choices
- Encourage users to be critical of their choices through an interactive, graphical display

Brewer (2003)



Powerful [Isarithmic] Tools + [Isoline Engine's] Guidance = Success¹

¹Hopefully



Isoline Engine: Core Feature Set

smart Help System:

- term definitions, warnings, data suggestions, links to in depth explanations

lesson Interpolation Parameter:

- interpolation method, sample size and distribution, interval value

lesson Display Settings:

- line coloring, hypsometric tinting, labeling, index lines, smoothing

lesson Data Focusing:

- fulcrum value, maximum/minimum value

ISOLINE ENGINE

Help for making isarithmic maps

isoline engine Demo

The screenshot displays the 'ISOLINE ENGINE' software interface. The main window shows a map of North America with white isotherm lines overlaid on a dark background. The interface includes several control panels on the left and right sides.

ISOLINE ENGINE help for making Isarithmic Maps

current view: nearest neighbor with no tinting

lesson Interpolation Parameters

- Interpolation Method: Nearest Neighbor
- Control Points: 100
- Compare Lines
- Identify Isoline

lesson Display Settings

- Tinting Method: No tinting
- Show Point Distribution
- Show Lines
- Color Lines
- Show Basemap

lesson Data Focusing

-23°F min 30°F fulcrum 84°F max

term Defintions

How to use this map

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

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Isoline Engine: Extra Topics

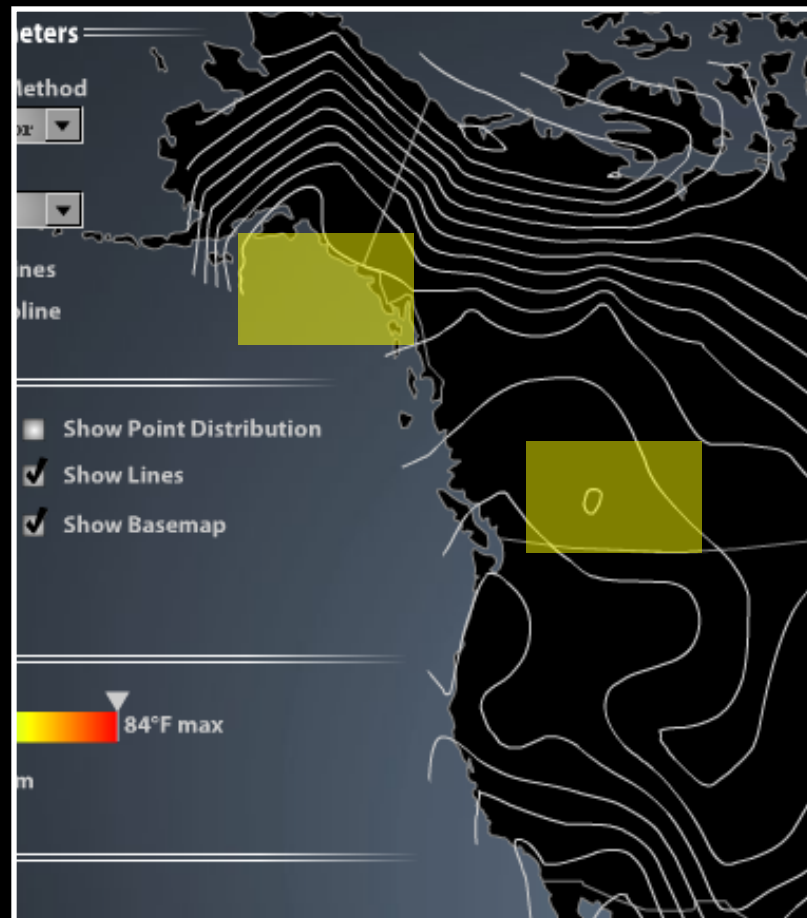
animation

smoothing

embedded warning boxes

*extrapolation

*island effects





discussion **Questions and Suggestions?**

~thanks!

Rob, Mark, and Jim