# Senior Project - S.M.A.G.

## Sparkle Magic API for Graphics

*Senior Project: 2005-2006*

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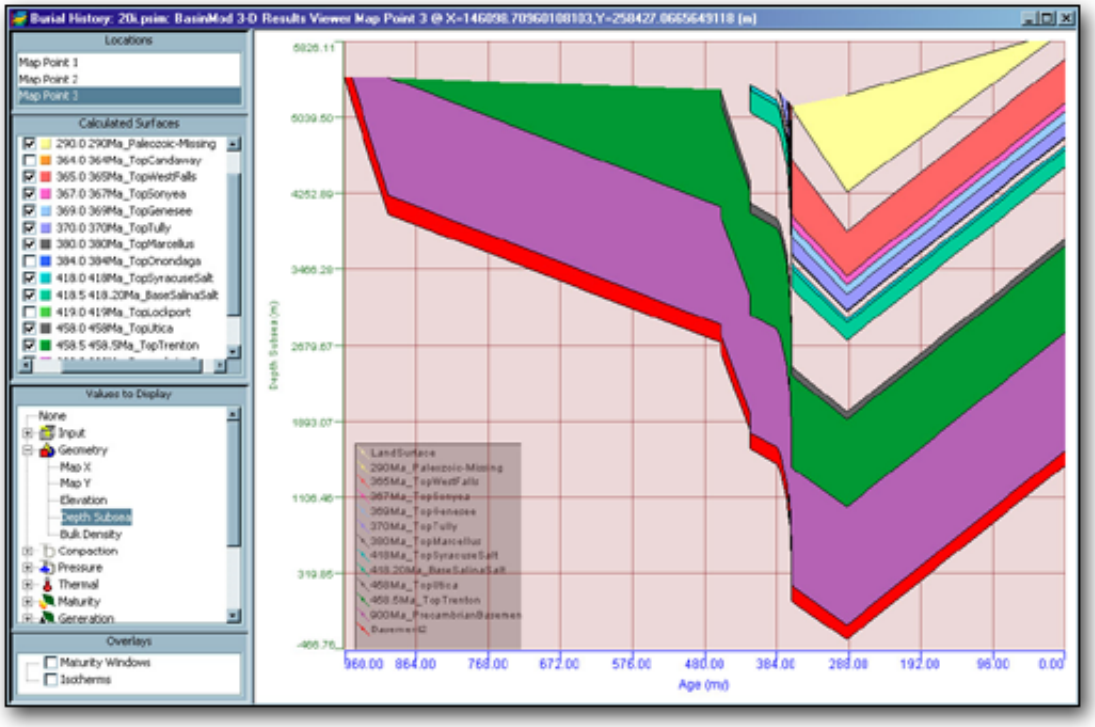
Platte River Associates (PRA) is the creator of a software product used by petroleum exploration groups to model and display geologic information. Currently, PRA uses a library written in ANSI C to generate graphics for their model display. The problem with this approach is that the modeling software is now written in Java, and a JNI layer has to be used to connect the two pieces of software -- this imposes severe limits on updates and additions to the library. This project was aimed at alleviating that problem by creating an enhanced display framework in Java that can be easily extended and that allows more control over display and layout of graphical items.

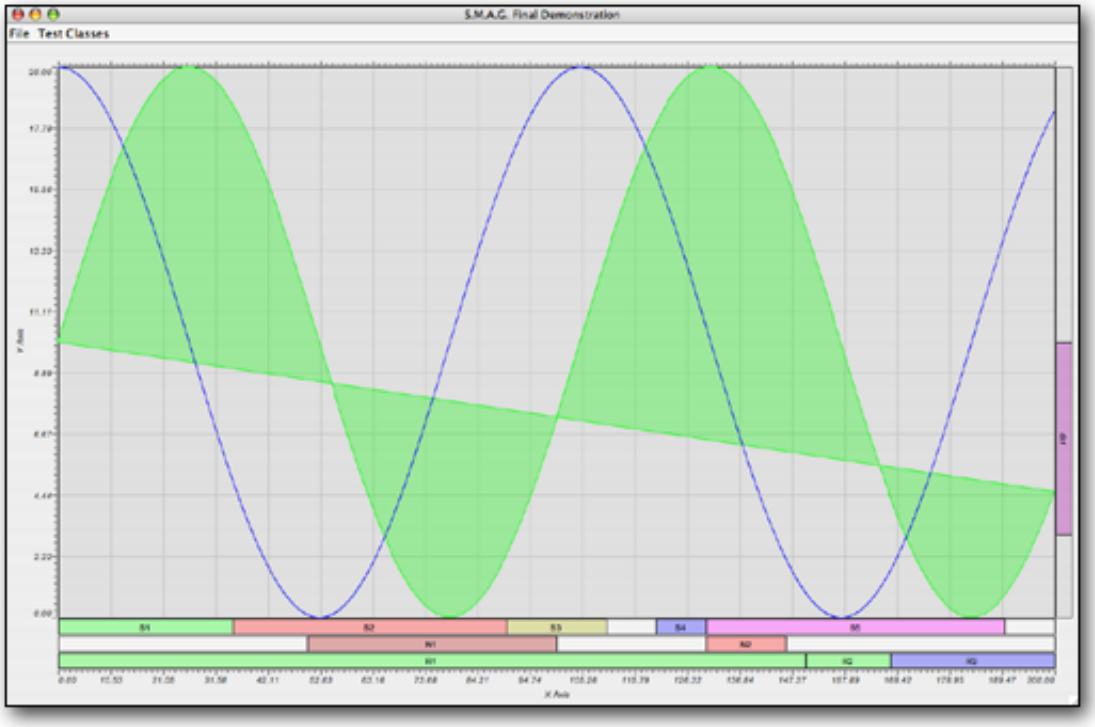
The framework duplicates the functionality of the existing C library, including the ability to create plots of data provided by the model objects and to manage the layout of various pieces of the plots. The plot types include

- simple X-Y point and line plots
- radar plots
- contour maps
- log-axis graphs

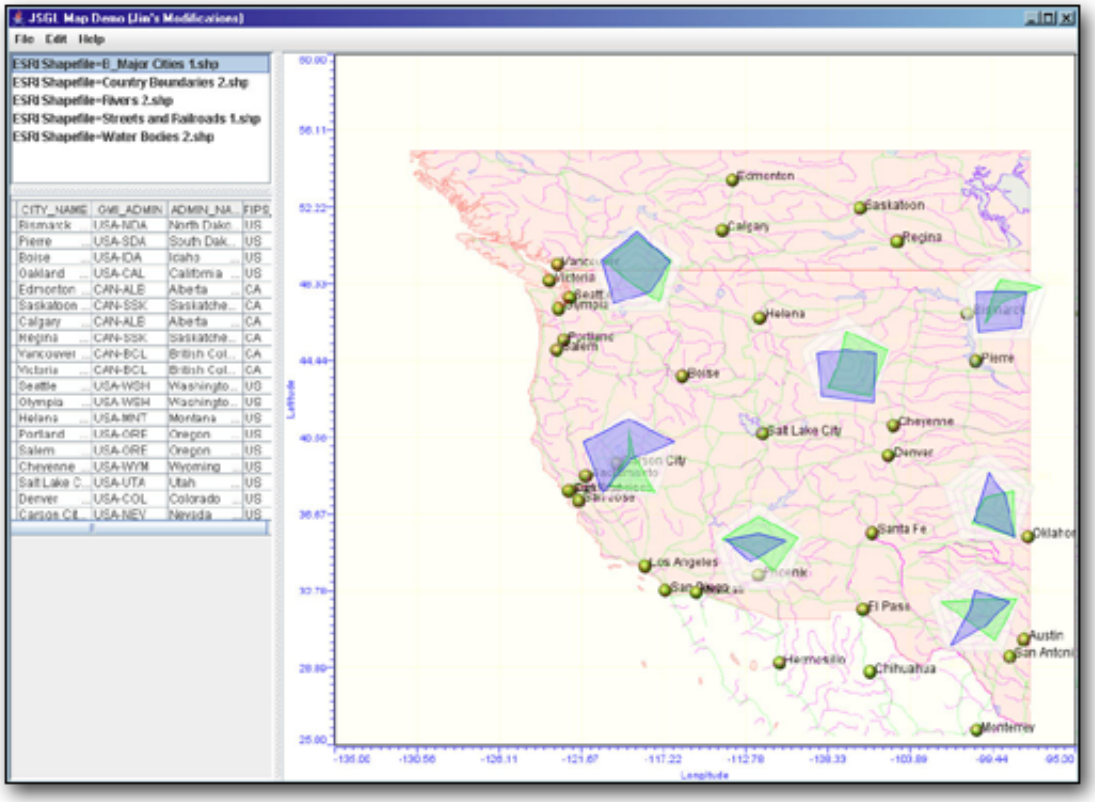
The system also allows the creation of complex plots composed of sub-plots of the four basic plot types. In addition to creating the plots, the software is capable of generating plots in a resolution-independent way. For example, a plot created on a small computer screen can be as detailed as possible at that resolution; if that same plot is exported to a 36-inch pen plotter, the plot will contain the highest amount of detail that is possible at the new resolution.



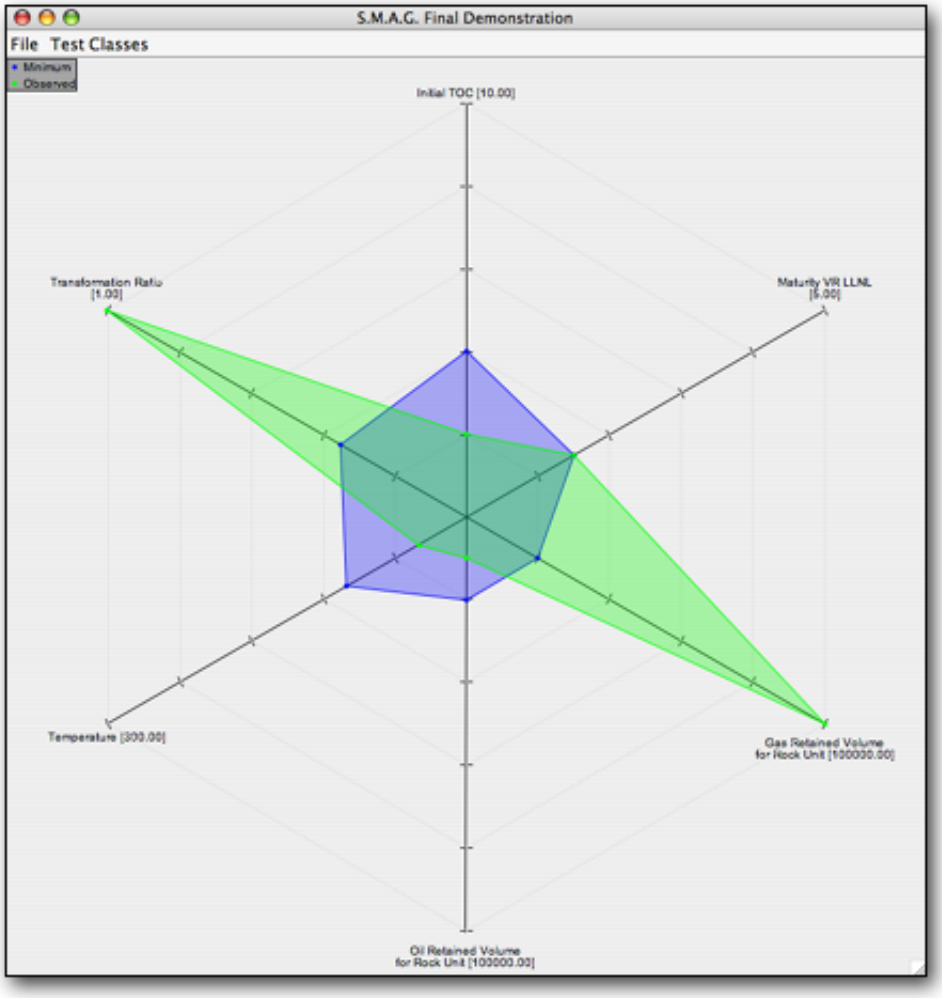

**Burial History**



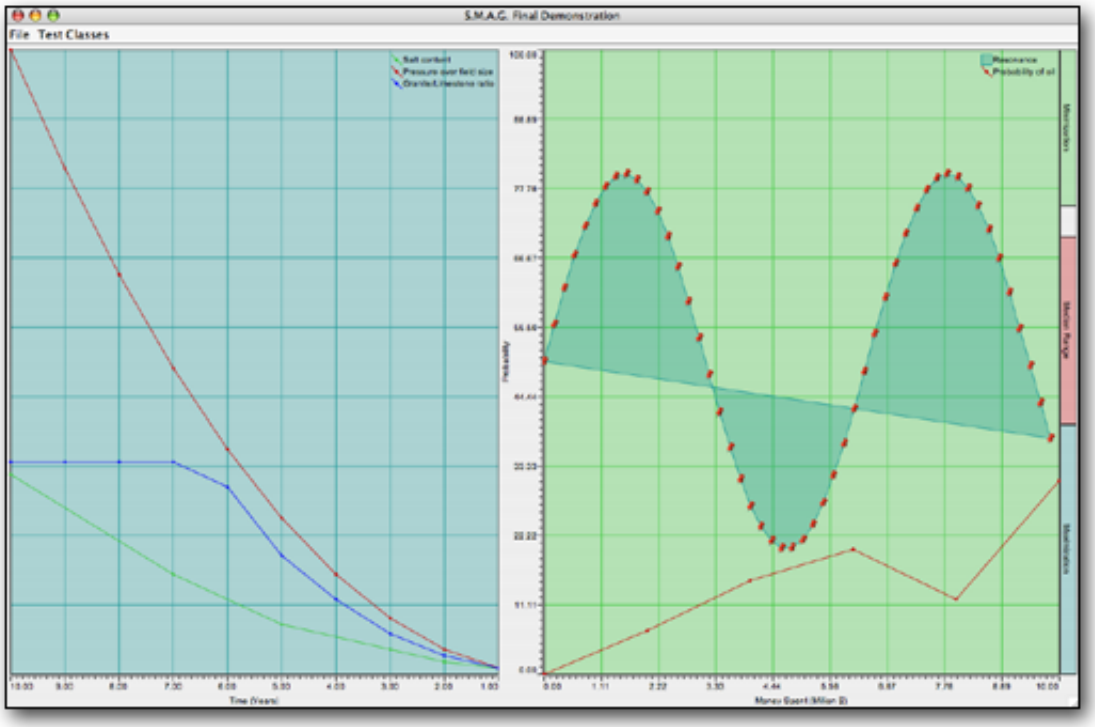

**Segment Plot**




**Map Plot**


S.M.A.G. Final Demonstration
File Test Classes
Minimum
Observed
Initial TOC [10.00]
Maturity VR LLNL [5.00]
Gas Retained Volume for Rock Unit [100000.00]
Oil Retained Volume for Rock Unit [100000.00]
Temperature [300.00]
Transformation Ratio [1.00]

**Radar Plot**


S.M.A.G. Final Demonstration
File Test Classes

**Combination Plot**

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**Questions/Comments?**
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