Java OceanAtlas Background

Graphic representations have long been a key to examining scientific data. Appropriate plots permit the eye to pick out the salient features of the data. The original inspiration for development of OceanAtlas (the predecessor to Java OceanAtlas) was the great printed atlases of maps and sections found in oceanographic libraries and in many oceanographer's offices. The 'Atlas of Oceanographic Sections, temperature - salinity - dissolved oxygen - silica, Davis Strait - Labrador Basin - Denmark Strait - Newfoundland Basin, 1965-1967', by A.B. Grant [Report Atlantic Oceanographic Laboratory, 68-5: 80pp, 1968 (unpublished manuscript)] was particularly interesting because the author wisely printed some of the most critical data values on the contoured sections, allowing the reader to compare parameters from the same water sample by paging through the sections. In the 1980s we asked: What if this sort of data exploration could proceed in an even more nearly *ad hoc* fashion, despite the ever-increasing volume of data we now have?

In the mid-late 1980s the evolution of the microcomputer with color display and the wealth of applications for these computers put onto the desktop the capacity to hold and examine large quantities of ocean data. We began outlining a move to the Macintosh of the mainframe data holdings, search engine, and calculation and plotting software used by Professor Joseph L. Reid at the Scripps Institution of Oceanography. The task was daunting.

It was Peter Rhines' demonstration in 1990 of his IBM-PC application *Atlast* which rekindled our imagination and drive. His inspiration to work with section-oriented data, avoiding the pitfalls inherent in mapping data onto surfaces, was just what we needed at the time, especially when one realizes the wealth of section data to be found in the archives. Literally the same day that we saw *Atlast* we were at work on OceanAtlas for Macintosh. Naively we thought that 'we would simply port Atlast to the Macintosh'. But by the time we completed OceanAtlas 1.0 in early 1991 only the algorithms for potential temperature and density remained, and the applications had already diverged, each taking advantage of the strengths of its native operating system.

OceanAtlas went public with version 1.0 in early 1991 and evolved through version 2.5.1 in 1994. This was all carried out with bits and pieces of support, mostly from NSF and NOAA, with NSF ultimately supporting work on a new application, Java OceanAtlas, which continues to evolve.

Java OceanAtlas is our educational tool for *ad hoc* real-time visualization of oceanographic data, designed to permit easy exploration of the oceans in new ways, visualizing facets and features of the oceans of interest to the examiner. As such, Java OceanAtlas is not so much a data presentation application, but is more nearly a data exploration application.