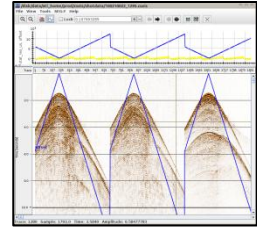


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## SeaSeis: A simple open-source seismic data processing system



Back in 2005 when I started looking at openly available processing systems, I found that commercial systems were overpriced while typically offering only limited geophysical functionality and low quality visualization tools. Some commercial systems posed severe restrictions on the hardware and operating system they could be used with. Free systems on the other hand almost completely lacked graphical tools, and were complicated to operate unless you were a programmer and UNIX wizard. Free systems also lacked functionality required to efficiently and safely process large amounts of data in a production environment, likely because their developers –being mostly in academia– did not have those needs. I also had the chance to work with pricy commercial graphical libraries which had at most modest quality and performance but regardless were widely used in the industry to build graphical visualization tools, apparently driven by large companies' management to out-source “low-level” software development.

The above explains some of my motivation to start writing a new data processing system in 2005, catering the specific needs not met by other openly available systems. Obviously things have moved on since then and I'm looking forward to get an update on other open-source systems in this workshop.

I had some lofty goals when starting to write the SeaSeis system, and clearly haven't been able to achieve all, if any. Here is what I believe are **current advantages of SeaSeis compared to other systems**:

- Easy to learn for both users and module programmers
- Good base functionality to run large number of flows for large number of data sets
- Provides logging and other functionality facilitating QC and reproducibility of processing flows
- Platform independent, only requires standard ANSI C/C++ compiler and Java (JRE)
- 2D seismic viewer SeaView has high usability with acceptable performance. SeaView is also non-restrictive, i.e. it doesn't define fixed rules about how input data has to be organized or sorted

### **Current disadvantages of SeaSeis compared to other systems:**

- SeaSeis currently only provides very limited geophysical capabilities for data processing
- Not straightforward for new users to figure out which modules have been implemented thoroughly, and which ones are mere place holders with rudimentary functionality only
- SeaSeis is not optimized for performance/parallel processing, or very large data sets. However it has an underlying design allowing building in such extensions in the future
- Lacks graphical user interface for building & submitting jobs. Again, the underlying design & structure would allow SeaSeis to easily plug into a graphical user interface
- Hardly adopted by anyone; no existing user base

In the presentation, I will briefly go through the capabilities of SeaSeis and discuss weaknesses and strengths. I also intend to give a demonstration and possibly explain some source code.

For more information on SeaSeis, please visit [www.seaseis.com](http://www.seaseis.com).