“some lead, others follow” !

SONAR XP

SonarLite processing software

For most small boat applications the Sonar2000 software provides a complete solution that lets the user combine Depth, Position and Tide data to produce a processed final survey data set. The software package is normally provided with the SonarLite echo sounder or the TidaLite tide gauge instruments as the download, editing and processing software.

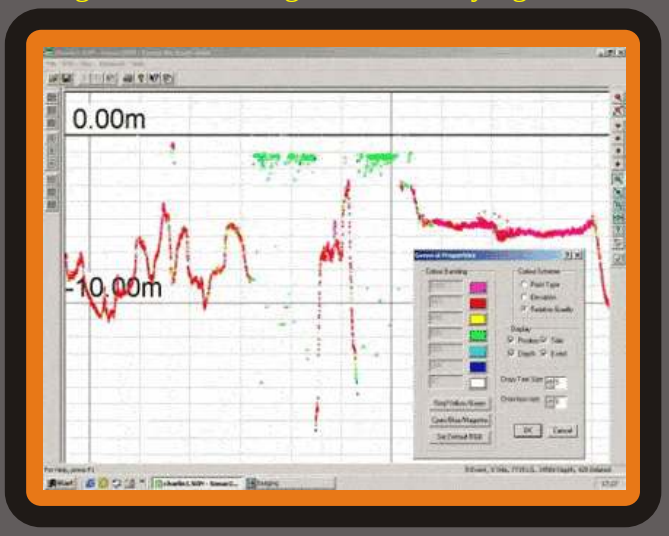
For most small boat applications the SonarXP software provides a complete solution that lets the user combine Depth, Position and Tide data to produce a processed final survey data set. The software package is normally provided with the SonarLite echo sounder or the TidaLite tide gauge instruments as the download, editing and processing software. The program is designed for use on PCs running the Windows ME, Windows 2000 or Windows XP operating systems.

zQA processing

SonarXP software enables the user to communicate directly with the instrument processor to download the stored data and make settings on the instrument such as the time and date used by the data logger. On fetching the data, the program checks the time difference between the two processors to within 10ms, data can be time adjusted to bring the downloaded data into the same temporal frame as the position data already stored on the computer. In addition to downloading data the SonarXP software can import position, depth and tide gauge data in a variety of different file formats. All data brought into the program is sorted by time and visually presented as a time series long section together with a plan view. The popular SonarLite/Mite portable echo sounder together with its associated SonarXP software processing package has been upgraded to version 4 within its on going development program. Improvements to the design include the measurement of zQC values with every depth, re-designed electronics, a new higher frequency ‘Flash’ transducer and improved internal battery arrangements. Additional software features include the ability to work in conjunction with popular RTK systems providing added advantage when surveying in locations with large gradients or swell on the water surface.

Data Editing

Once the data is all present within the program the software can be used to edit the data, remove spikes and apply dimensional and temporal offsets independently to any of the main data elements of tide, depth and position. The software then interpolates intermediate values such as tide and position for depths, tide and depth for positions etc. When complete the user can export the processed data to a wide variety of datafile formats including ASCII XYZ and 3D DXF for import to CAD packages.



Colour by QA Value

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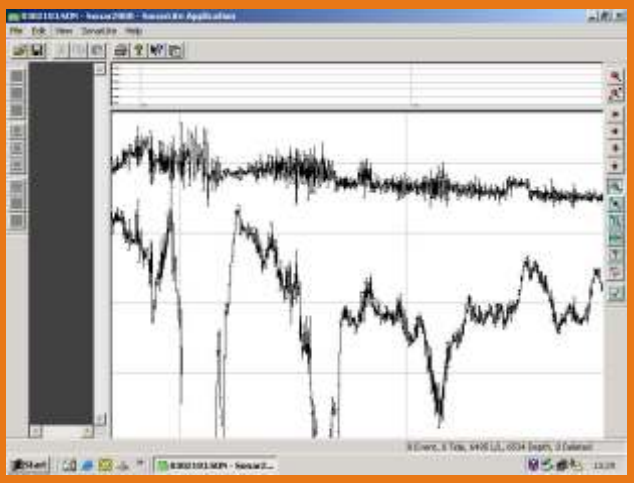
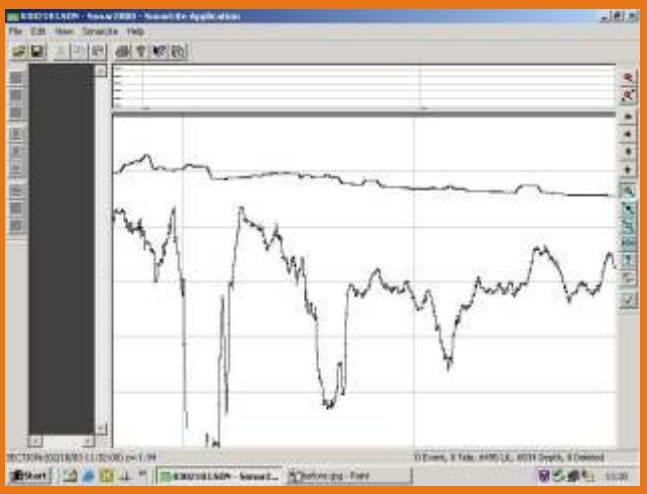
Filtering of Waves

The combination of high resolution GPS, lightweight vessel and working in choppy exposed conditions produced an unforeseen residual effect in the bathymetric data, small amounts of latency in depth measurements becoming an artefact in the bottom data. Latency in bathymetry is a known effect in that depth measurement takes a small amount of time compared to the speed/position of the vessel. Normally the Z effect of wave motion is compensated by the mass of the vessel or by working in relatively calm conditions. In this case the flat bottomed JetSki was required to take measurements even in 'choppy' conditions as can be seen in the example data shown below. To compensate this effect a software wave filter was added to the SonarLite data processing software to filter the Z values of the GPS prior to the depth measurement being subtracted.



BEFORE FILTER



AFTER FILTER

Effects of Wave Filter

The screen shots of the software show a section of the data before and after the filter was applied. Before the filter was applied it is clear that waves seen by the GPS antenna are also apparent as artefacts in the bottom (bathymetric) trace. After filtering the waves from the GPS height values the resulting bottom trace is the more normal smooth trace. Another important feature of the RTK Z data is that in addition to high frequency waves (1 Hz) distinct patterns of wave grouping can clearly be seen at about 60 second intervals. This information although effected by the boat mass was also useful information for another part of the analysis showing wave patterns, tidal gradients and swell measurement.

Ohmex is a company formed to manufacture and distribute products designed by L.M.Technical Services. This company established in 1982 was founded on technological innovation and design. The company prides itself on being the first to produce products in the field of instrumentation and software used within the Earth Science sectors. Achievements to date include DGM ,the first digital ground modeling software to run a standard PC, SONARLITE, the first truly portable echo sounder, TIDALITE the first portable Tide Gauge, EDAS, Integrated tide and weather networked software for use by ports and harbours. WinSTRUMENTATION - The integration of Instrumentation, Wireless networks and modern portable computer equipment.

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