



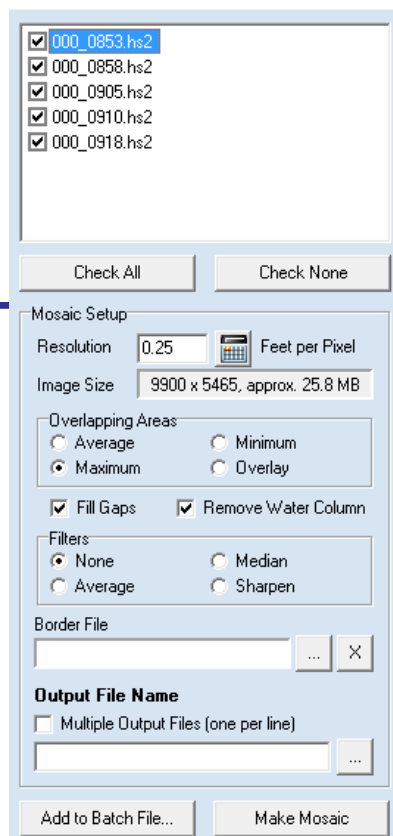
# HYSCAN Mosaic Calculator & Single-Step Mosaicking

By Dave Maddock

HYSCAN now sports two nice improvements to third-phase processing. First, a streamlined mosaicking process simplifies the interface, eliminates the tedious "Next" button pressing, and reduces mosaicking to a single step. Second, we have added a new optimal resolution calculator so you can easily determine the best mosaic resolution to expect from your data.

## INTERFACE IMPROVEMENTS

Previously, mosaicking was divided into four stages: file selection, calculating image size, generating the mosaic, and saving to TIFF. Each stage would require you to click "Next" to move on. This has been replaced with a single "Make Mosaic" button and the dual-column file selection method with checkboxes. Changing the selected files or mosaic resolution will immediately update the displayed image size. Of course, the output file name can now be configured up-front and the TIFF will be saved automatically when completed. Although, if this is not set you can still make the mosaic and HYSCAN will prompt you for a filename when complete.



## CALCULATOR

The new calculator utility can be opened from the main "Tools" menu or via the icon on the mosaic window. If opened using the icon, the "maximum resolution" parameter will be copied into the mosaic resolution field when closed.

To accurately calculate the physical limits to the resolution imposed by the sonar, you should set the sonar properties (frequency, pulse length, array length, aperture, and antenna inclination) as provided by the sonar manufacturer. The average altitude, range, and speed are detected from the loaded data, but they can be overridden if desired.

The digitization resolution is the ratio of imagery samples to range in the across-track direction. For analog sidescan, this determined by the HYPACK® Analog Monitor program during acquisition; in the case of digital sidescans, by the sonar manufacturer. This number should always be smaller than the along- or across- track resolution in practice, but in the event that it is bigger it determines the maximum resolution possible.

The along- and across-track resolution fields are limited by physics according to the characteristics of your sonar. The along- track is also dependent on the speed of the vessel during collection. Generally, the across-track will be the smaller of the two. As such, the maximum resolution will typically be the across-track resolution.