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Water Column Advances in HYSWEEP®

By Mike Kalmbach

If you have the difficult job of midwater target detection, or if you just really like data, we have some updates for you; version 17.1.3 of the HYSWEEP® program group. The changes (1) allow logging of compressed Reson data and (2) log data from both heads of Reson dual head systems. People have been asking for compressed WC for a long time and we've finally got it working.

NOTE: Be careful with program versions as the dual head change increases our WC beam limit. See "Version Restrictions" at the end.

COMPRESSED DATA

Many surveyors (most in my experience) view water column as too much data. Reson compression is one method of cutting back. It works well. The down sample option can decrease file size by a factor of five. Ignoring water column beyond bottom detection is also effective, as well as saving 8 bits per sample instead of 16.

Figure 1 shows uncompressed water column from a Reson T20P. Figure 2 shows the same with compression. It's true that the uncompressed data gives higher resolution, but the figures show dockside pings in very shallow water. In deeper water, compressed and uncompressed displays look quite similar.

FIGURE 1. *Uncompressed Water Column. This is the complete amplitude data for every beam.*

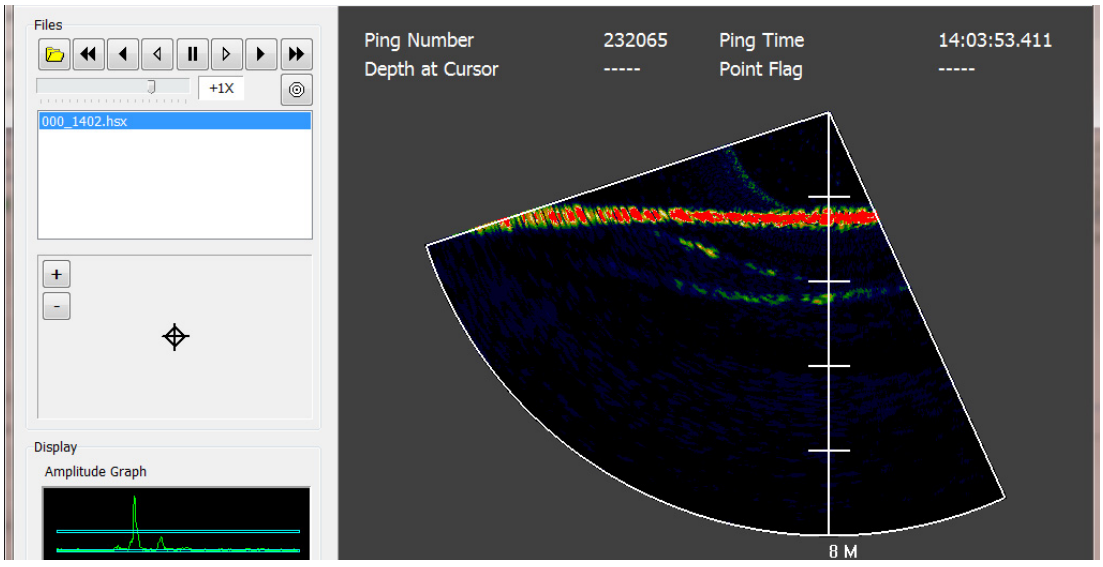
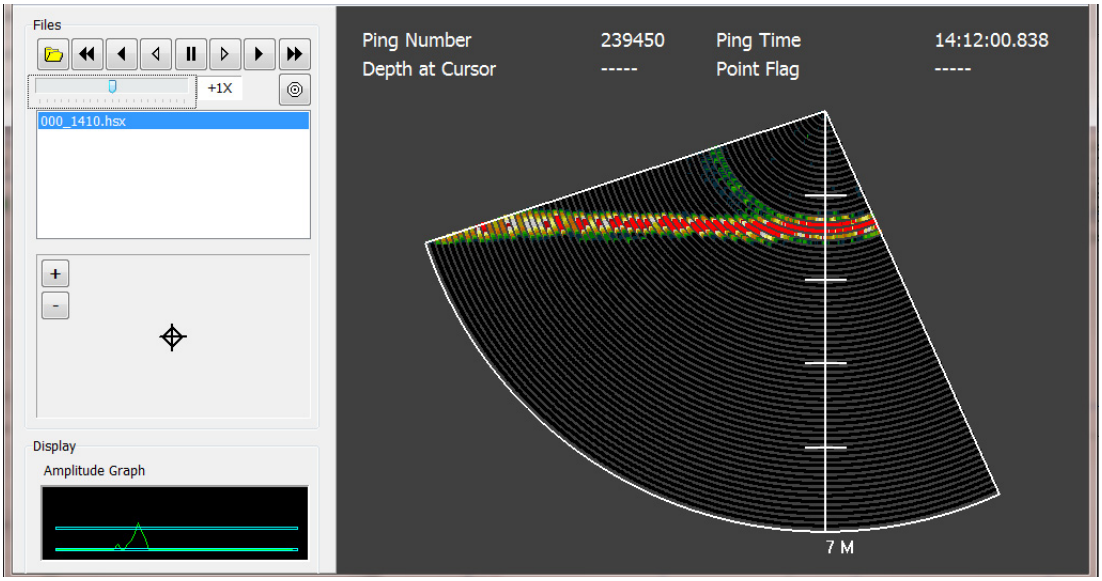


FIGURE 2. *Compressed water column. This shows all the compressions; 8 bits per sample, 5x down sampling, ignore data beyond bottom detection. Looks blocky dockside but better in deeper water.*

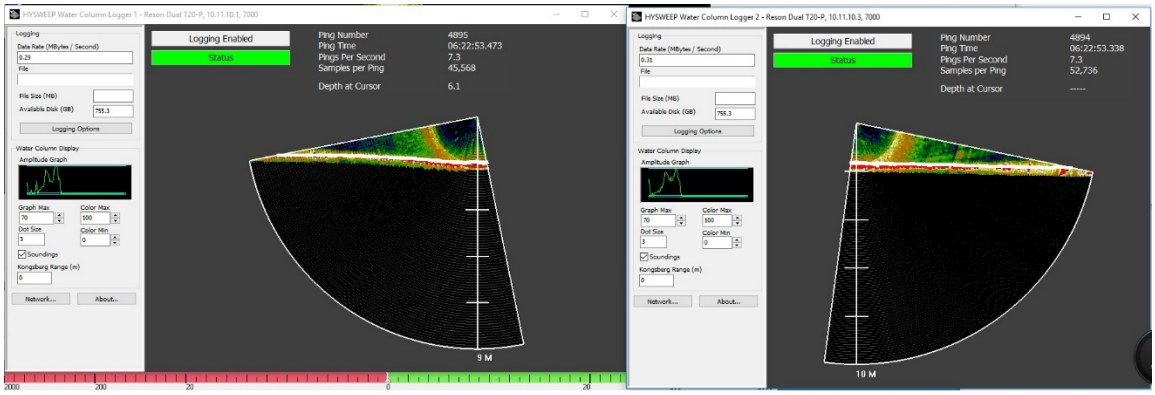


DUAL HEAD LOGGING

HYSWEEP® can now log water column from both heads of a dual Reson (Figure 3). Why would anyone do this? I figure it's for those who want to use the full capability of their sonar and don't mind managing multiple terabytes (petabytes?) of data. Compression makes dual head logging more realistic.

Be cautious with this option because HYPACK® / HYSWEEP® does not post process dual head water column data. I've heard that Caris, does but have never seen the results. Still, it can be a useful QC tool and HYSWEEP® Playback is nice for review of logged data.

FIGURE 3. *QC display from dual head system, heads 1 and 2.*



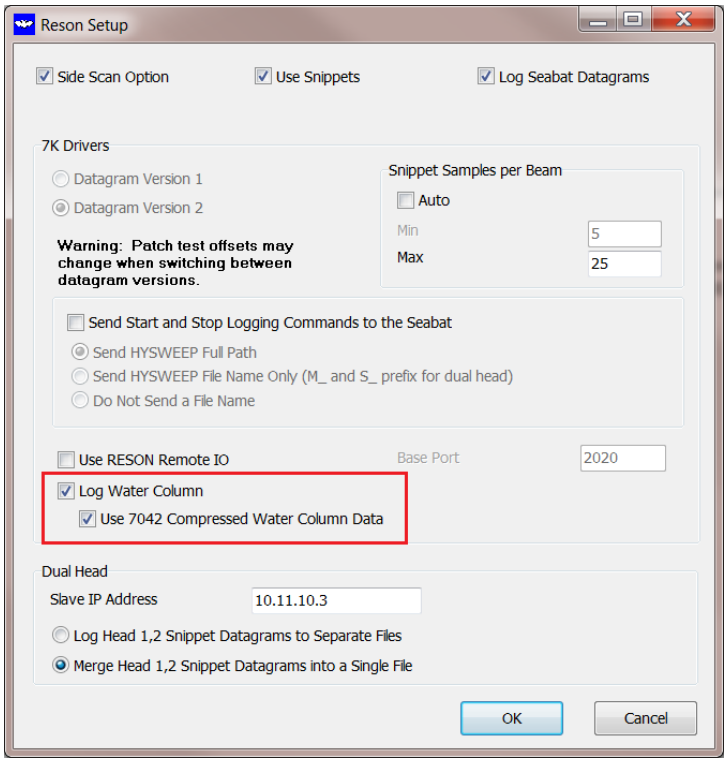
DRIVER SETUP

Figure 4 shows Reson driver setup in HYPACK® HARDWARE.

Select the 7042 Reson datagram for compressed water column data and deselect for full water column (datagram 7018).

NOTE: As sometimes happens, it's not obvious what is configured in HYPACK® and what is configured in the sonar control. In HYPACK®, we are selecting the datagram type, either 7042 compressed or 7018 uncompressed. The actual compressions (down sampling, ignore beyond bottom detection, etc.) are selected in the Reson control.

FIGURE 4. *Reson Driver Setup is Used to Enabled or Disable Water Column and to Select Compressed vs. Uncompressed Data.*



VERSION RESTRICTIONS

Dual head logging required us to increase the maximum number of beams per water column ping, adding version requirements.

HYSWEEP.EXE (HYSWEEP® SURVEY) 17.1.3 or higher requires water column logger (WCHYSWEEP.EXE) 17.1.3 or higher.

The reverse is also true; WCHYSWEEP.EXE 17.1.3 or higher requires HYSWEEP.EXE 17.1.3 or higher.

The full program group (all 17.1.3 or higher) required for compression and dual head is:

- HYSWEEP.EXE
- MBHARDWARE.DLL
- SWPWARE.EXE
- WCHYSWEEP.EXE
- WCPLAYBACK.EXE
- MBMAX64.EXE