



HYPACK
a xylem brand

Sounding Better!

Using Multiple SVP Casts

By Mike Kalmbach

HYPACK® 2016 included new features for working with multiple SVP (sound velocity profile) casts. *Sounding Better!* article “[Upcoming SVP Changes in HYSWEEP®](#)”, March 2015, gave a good overview.

The 2016 features in MBMAX64 allowed you to interpolate between SVP casts based on position. Time interpolation was there all along but position was new. Also new was an option to bypass interpolation.

A question I got this morning was “How exactly does the interpolation work?”. It’s a good question because there are many ways to go about it. Here is the long answer.

INTERPOLATION METHODS

Figure 1 shows SVP options and files. It’s under MBMAX64 Read Parameters, Corrections tab, VEL file. You can see the multiple cast files, each with time and location.

FIGURE 1. *Interpolation Methods and SVP Cast Files (VEL).*

Multi SVP

Interpolation Method

☒ None ☐ Time ☐ Time and Position

☒ Use Most Recent ☐ Use Nearest in Time ☐ Use Nearest in Position

Enter Cast Time (24 Hour)

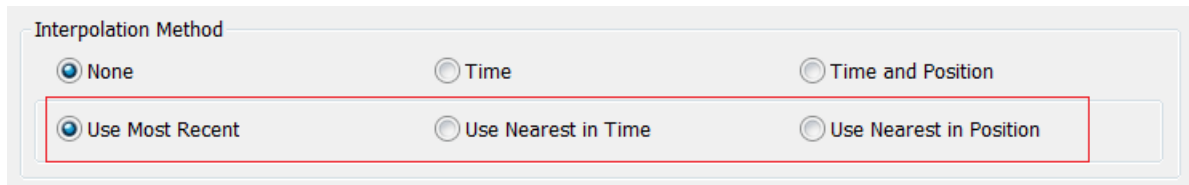
	Time	Date	X	Y	File
1	09:33	06/20/2008	275787.1	909720.0	SVP_0933_06202008.VEL
2	12:02	06/20/2008	275588.4	910342.8	SVP_1202_06202008.VEL
3	12:24	06/20/2008	274872.9	909548.0	SVP_1224_06202008.VEL
4	13:00	06/20/2008	275085.5	909262.8	SVP_1300_06202008.VEL
5	13:51	06/20/2008	273638.4	907224.2	SVP_1351_06202008.VEL
6	14:33	06/20/2008	275335.3	908708.1	SVP_1433_06202008.VEL

Get File Create Times Get File Write Times OK Cancel

INTERPOLATION METHOD = None

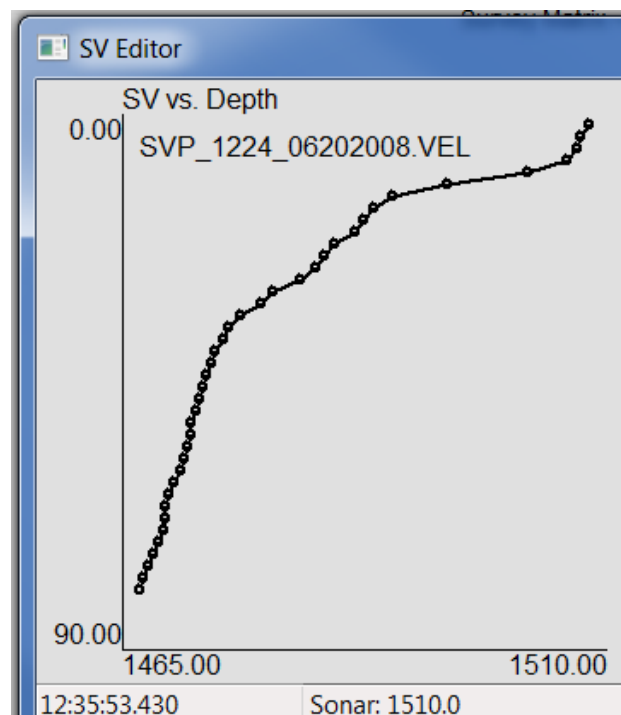
Setting the Interpolation Method to None bypasses interpolation altogether. MBMAX64 chooses the most recent cast or the nearest cast in time or position based on the option you've selected (Figure 2), and ping time and position.

FIGURE 2. Options Available When not Interpolating.



The graph in Figure 3 shows the VEL file chosen for a ping. Access it with the “SV” button on MBMAX64 left side panel.

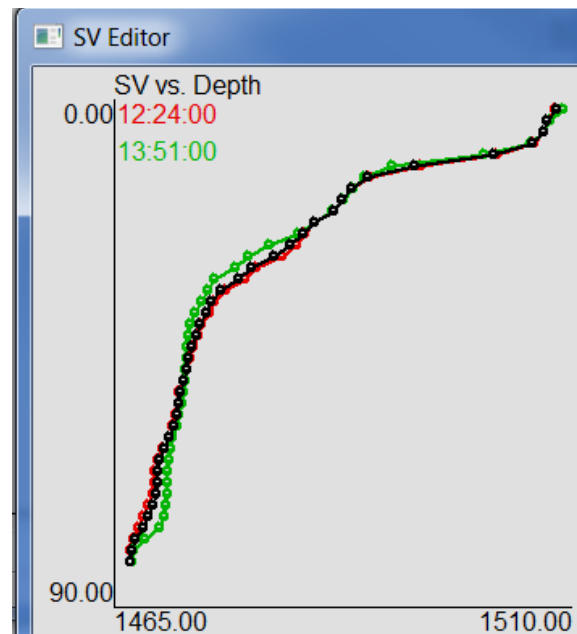
FIGURE 3. SVP Graph, No Interpolation.



INTERPOLATION METHOD = TIME

Based on ping time, the casts before and after are used as the basis for time interpolation. The graph (Figure 4) shows the casts in red and green and the interpolated profile in black. In this case, the interpolation closely resembles the red because ping time 12:43:59 is closer to 12:24 than it is to 13:51. But it's clear that both casts influence the interpolation.

FIGURE 4. Time Interpolation Between Casts Taken at 12:24 and 13:51.



INTERPOLATION METHOD = TIME AND POSITION

There are two steps to this method. First the casts before and after ping time are picked. Second, interpolation is based on the distance ratio of boat to casts. So a cast 2x closer to the boat will have 2x weighting. Figure 5 shows the boat much closer to the 13:51 cast but again both casts influence interpolation.

FIGURE 5. Time and Position Interpolation Between 12:24 and 13:51 with Position Weighting Toward the Latter.

