Upcoming SVP Changes in HYSWEEP

By Mike Kalmbach

Work is underway on upgraded SVP features in HYSWEEP. These will make it easier to work with cast files and provide new interpolation options. The changes:

- A slight format change (HYPACK *.VEL file) to save cast position and time / date.
- New option in HYSWEEP Survey to write extra cast info to VEL files.
- Similar change to the Shell Sound Velocity program.
- MBMAX64 will read the extra cast info and support a new interpolation method; interpolate SVP by position.

After thorough test, SVP changes will be available as an update to HYPACK 2015.

VEL Format Change

Figure 1 shows the existing VEL file format. Contains an identifier (FTP NEW 2) then the profile. Unchanged for 15 years at least.

FIGURE 1. *Existing VEL format contains the sound speed profile but no information about the cast.*

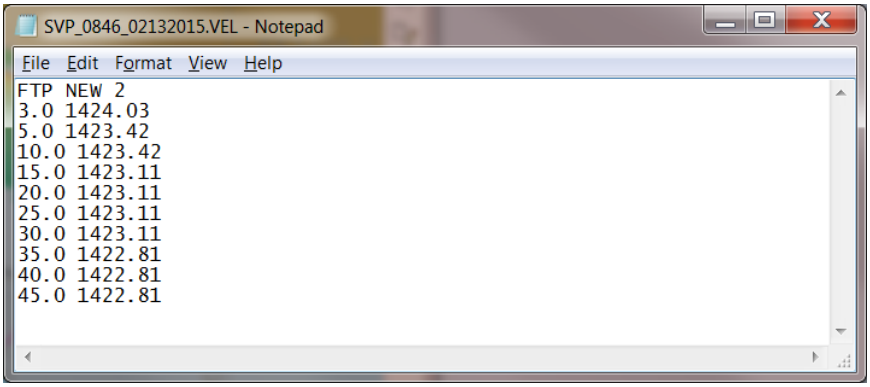
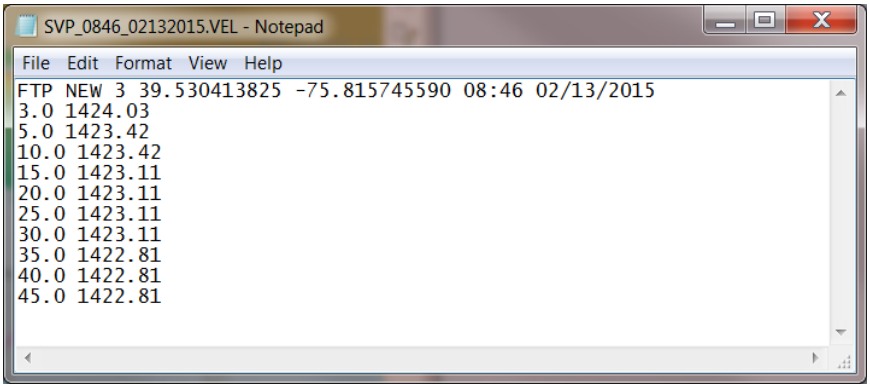


Figure 2 shows the new format. The identification number 2 has changed to 3. After that comes cast position as WGS84 latitude and longitude followed by cast time and date.

FIGURE 2. *VEL format contains the SVP plus cast location, time and date.*

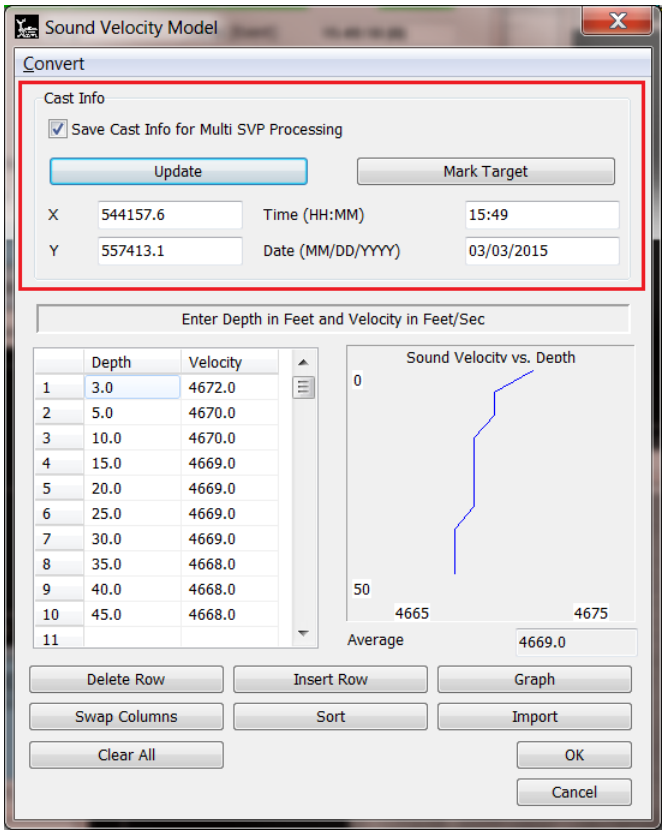


There shouldn't be compatibility issues. HYPACK 2015 and earlier programs read the new format while ignoring the extra information. Updated programs will use cast info if there while continuing to support the old format.

HYSWEEP SURVEY

Figure 3 shows SVP corrections in HYSWEEP Survey with the extra cast info. Check the box to save it. Click update to use current boat position and time / date. You can mark a target if you want to track cast locations.

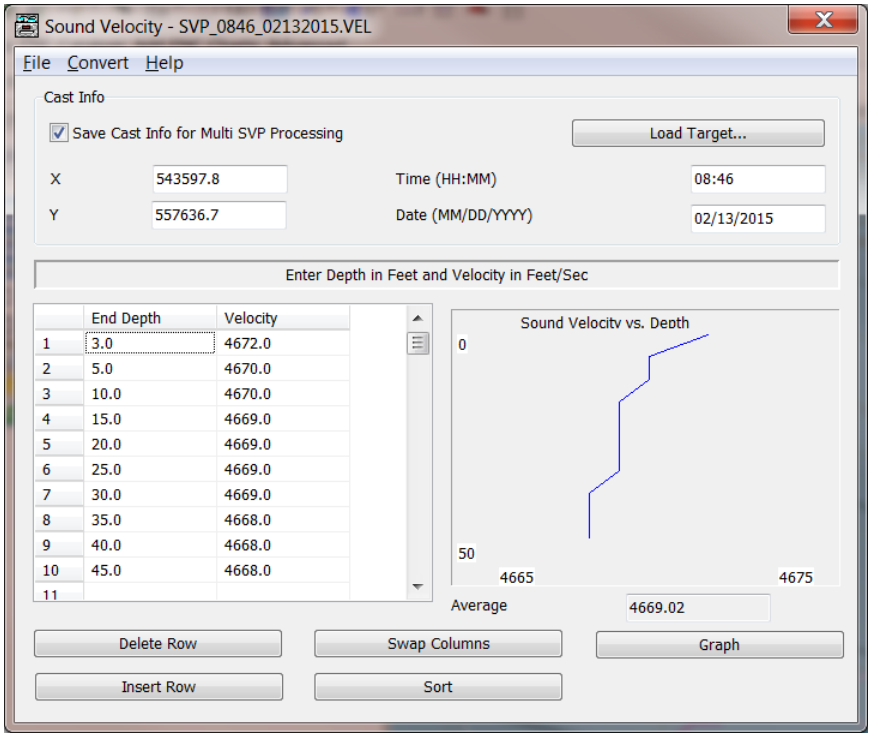
FIGURE 3. *SVP Corrections in HYSWEEP® SURVEY with Extra Cast Info.*



HYPACK SHELL, SOUND VELOCITY PROGRAM

Similar changes to track cast information and save to VEL file. Cast position can be obtained by selecting a target.

FIGURE 4. *HYPACK Shell Sound Velocity program.*



MBMAX64

The changes all feed into our 64 bit multibeam editor.

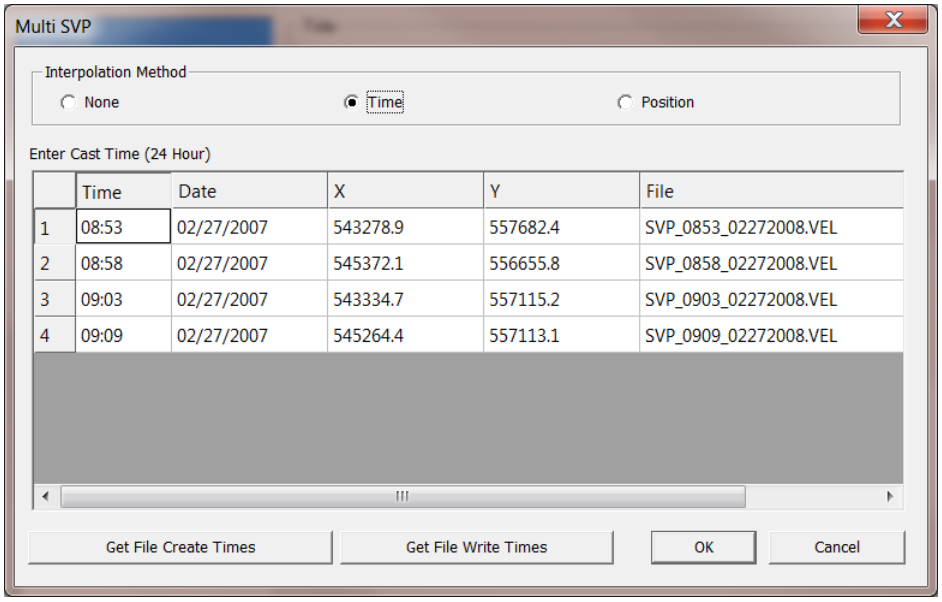
Figure 5 is the Multi SVP spreadsheet. It shows up when multiple SVP files are selected for processing. The time column has always been there but date, X and Y are new. Date allows surveys to span multiple days, which we will support someday, maybe. X and Y are of course cast location.

All fields are populated when reading from the new VEL format. The old format is supported but obviously not useful with cast info.

Also new is Interpolation Method. Here are the options:

- **None (new)**. Every ping uses the SVP that precedes it in time.
- **Time**. What we've had all along. The profiles before and after ping time are determined then interpolated between using ping time.
- **Position (new)**. The profiles before and after ping time are determined then interpolated between using boat position at ping time.

FIGURE 5. *Multi SVP spreadsheet in MBMAX64. New interpolation methods (None and Position) and spreadsheet columns (Date, X and Y).*



MBMAX 32 BIT

Will not be updated to read cast information from the new VEL format or interpolate SVP by position. It's not possible for us to support and upgrade two multibeam editors.

SUMMARY

The HYSWEEP® programs are being upgraded with new SVP features. The VEL file format will contain additional cast information; time, date and position. HYSWEEP® SURVEY and the Shell SOUND VELOCITY program will fill in the new information, with support from targets if you want to go that way. MBMAX64 will read the new cast info (less typing!) and optionally interpolate between SVPs by position.