



Be Careful With Automatic Filters

By Mike Kalmbach

Automatic filters clean multibeam data quickly. Our MBMAX64 (64-bit HYSWEEP® EDITOR) has quite a few auto filters. All modern editors have them. Some sonar systems can apply multibeam filters on the fly, removing perceived sounding errors before they get to data collection.

Filters are very good at removing bad soundings. That's never been a problem. The difficult part is to remove the bad while keeping the good. I can't imagine a set of filters that will do that with 100% accuracy and believe me, I've tried.

The survey lines below offer a good illustration. They were provided by Jason Grey of S/V Cherneski at USACE Philadelphia. In Figure 1, you can easily see noise in the water column. Figures 2 and 3 show data after median auto filtering. Cleaned up nicely and it only took a few seconds. Right?

FIGURE 1. Section Before Median Filter.

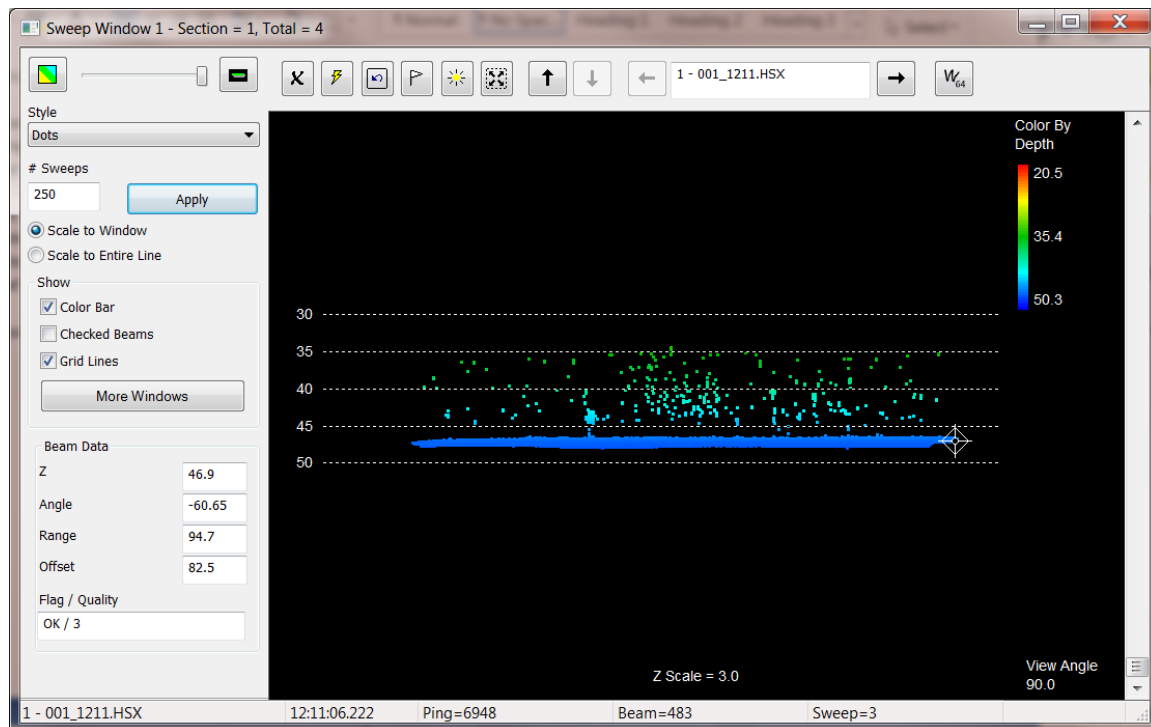


FIGURE 2. Section after median filter

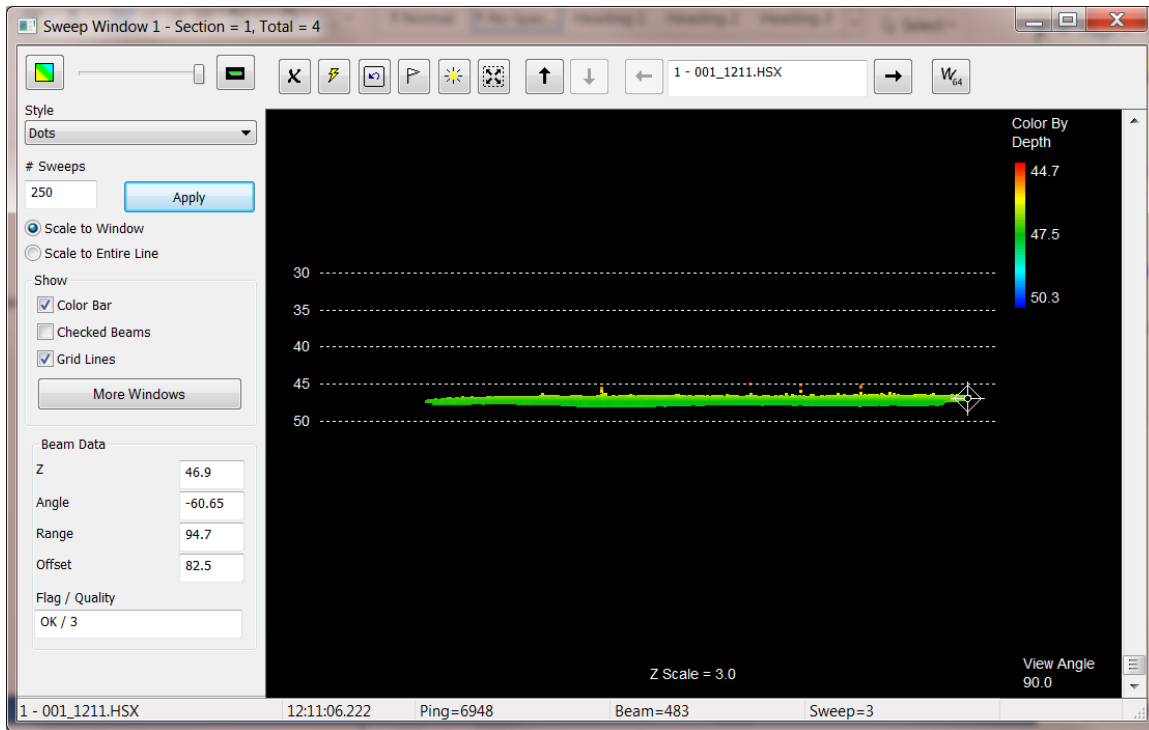
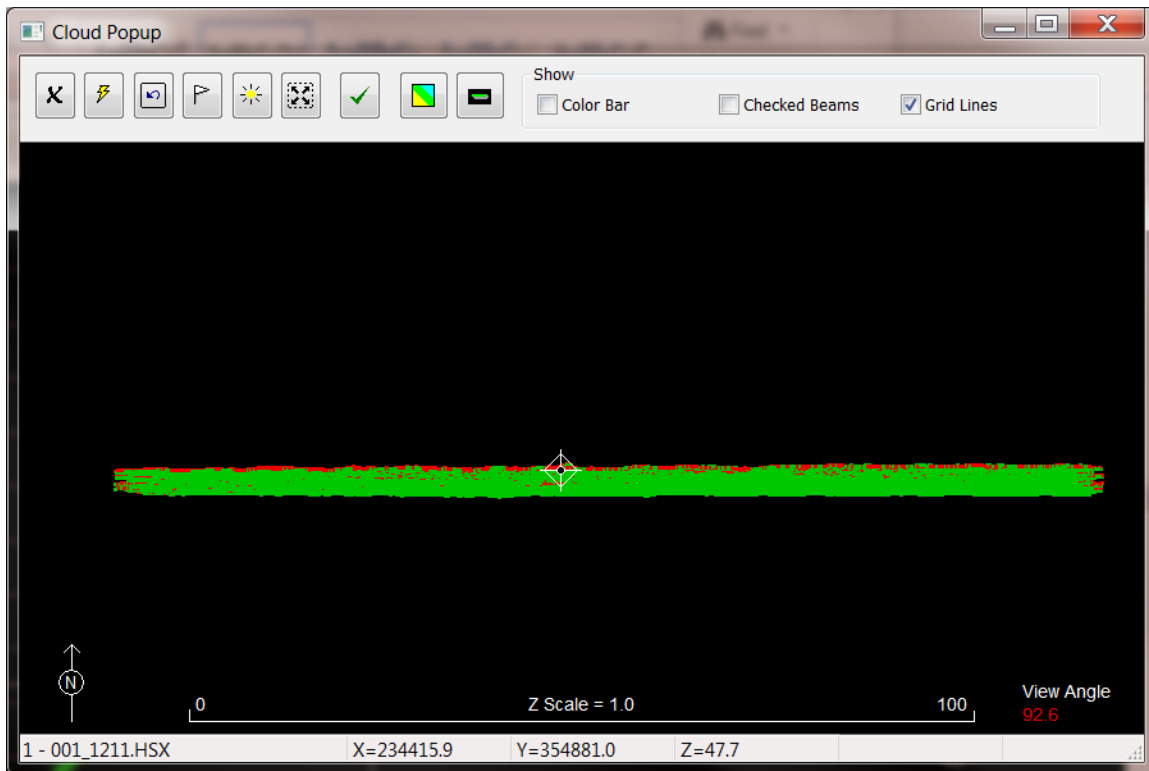


FIGURE 3. Cloud view after median filter.



If we had taken the time to look we would have seen something different. Figure 4 shows an object that was detected by overlapping survey lines. This was a pipe that had fallen overboard and stuck at an odd angle. In the middle of the main channel and above project depth (Figure 5). In this case, auto filter would have failed badly. And to Jason's credit, it didn't get by him.

FIGURE 4. Cloud view without median filter.

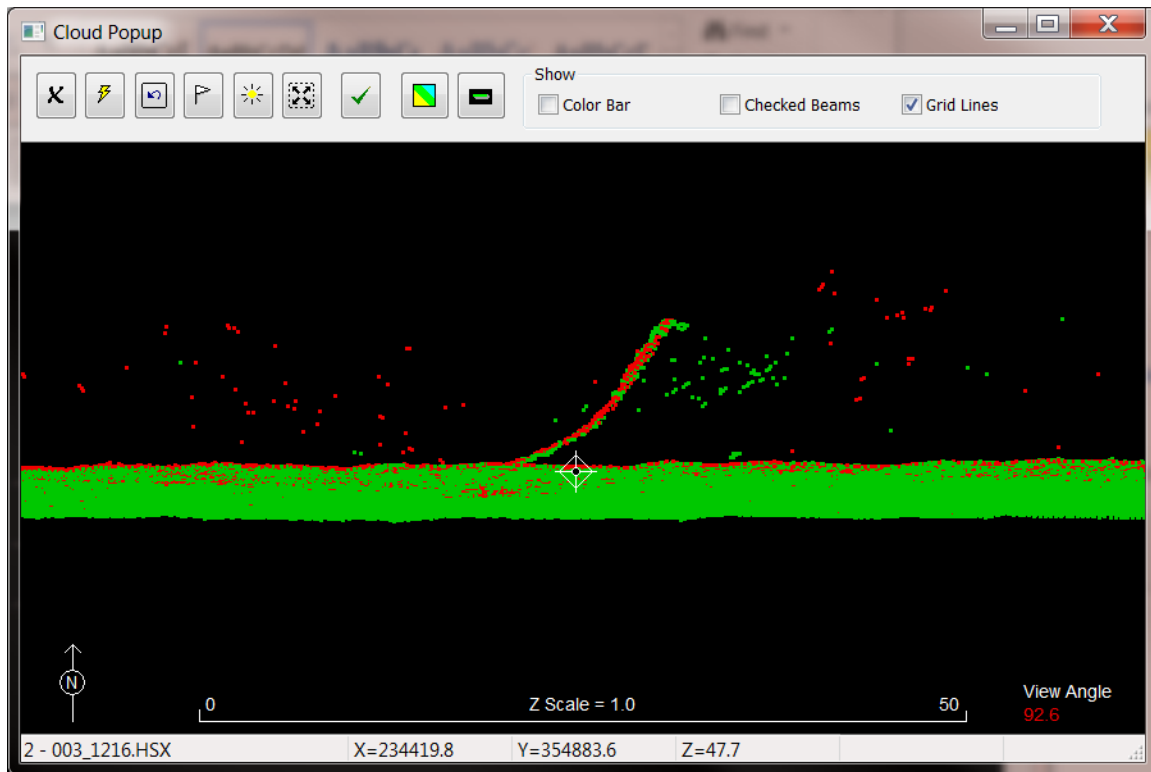


FIGURE 5. Object location.

