

Q. I experienced that bac is bringing sometime details into shadow areas, are these artefacts?

Hard to say without looking at your data. Shadows are no-data areas, so be careful.

Q. Can I apply a low frequency filter for SSS? to reduce the noise?

The destripe filter is a band-pass filter that may serve that purpose. Otherwise, we do not have a low-frequency filter for SSS data.

Q. What is the gain that give best contrast to make a classification of the seabed?

EGN

Q. Can I do the same procedure for backscatter data from MBES data?

Yes. The Backscatter processing dialog offers EGN, AGC, destripe and nadir filters.

Q. Would it be a good upgrade to the Auto TVG to use data 'on both sides'? now the algorithm goes from the start to end of file

I'm not sure I follow. Both sides of what? If you mean the survey area, that is starting to act like EGN. If you mean both sides of the line, there is an option to use the same curve on the port and starboard side, but this doesn't work well if you hit a bolder or rocky patch on the port side but not on the starboard side.

Q. Why does bac need to work in blocks, can't it be implemented fluently (eg like agc)?

BAC builds a table of angles vs intensity (2D table), EGN uses angle and range vs intensity (3D table). Otherwise, you can consider EGN a "fluent" version of BAC. I agree that BAC seems to work better at nadir. I was looking at the math and don't fully understand why.

Q. How about EGN constructing a table using beam angle instead of range (both + fish altitude), would that improve the EGN?

EGN does use beam angle. My diagram in the presentation was re-projected so the table was easier to explain. It looks quite odd as beam angle vs range.

Q. Is BAC a theoretical version of EGN?

Both use the angle vs intensity data so neither are theoretical, they are statistical (TVG is theoretical). EGN is an evolved version of BAC that uses the entire data set instead of blocks of 255 pings. EGN also corrects for grazing angle much better than BAC when the transducer is not held at a constant altitude above the seabed. Finally, EGN is designed to work in real-world units, not relative values, so the output intensity values should be very similar to the input values.

Q. Since EGN is using data from all files, do outliers in a specific file (i.e a corrupted section on one side of the file from transducer problems) have a chance to get applied to other files, potentially messing those files up?

Yes, outliers can be a problem in exactly this way. The solution is to feed lots of data into the table so the good data overwhelms the outliers; or you can remove the lines with outliers. I see this most often if you run EGN on a line-at-a-time instead of on the whole survey dataset.

Q. Could you program the beam angle correction for nadir but then cut it after say 5 degree ?

You can't do that presently in SonarWiz, but it is a good idea. I have wanted to merge BAC and EGN to try to knock out that nadir zone.

Q. You also mentioned the temperature being a function in TVG, where is that pulled from to use with salinity?

When you click that AutoTVG button in the TVG dialog, SonarWiz extracts the frequency and temperature from the sonar file if available. If not, it assumes 10' C. The absorption loss algorithm is the model by Francois-Garrison taken at the surface (1m). The defaults are:

Depth: 1m

Salinity: <dialog value> or 34.7

Frequency: <file value> or 200 kHz (low frequency) or 520 kHz (high frequency)

Temperature: <file value> or 20C

See [Calculation of absorption of sound in seawater \(npl.co.uk\)](http://npl.co.uk)