More than you ever wanted to know about GEOCODER™ Blending

By Dave Maddock

GEOCODER™ has a complex and powerful method for handling the blending of areas where lines overlap based on numerous factors including distance from nadir, blending method, and mosaic style options. What these options are and how they affect the resulting mosaic is the focus of this article.

PRIORITY

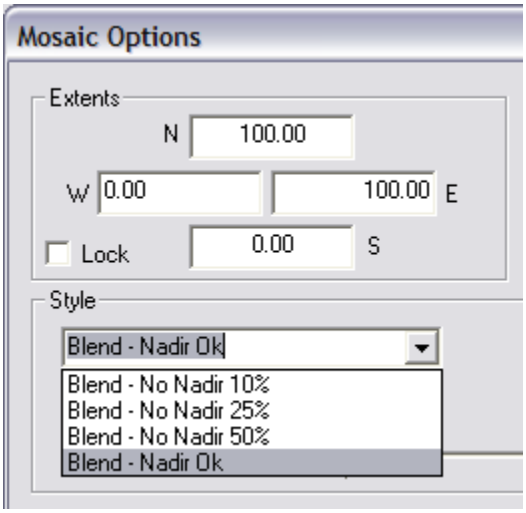
In GEOCODER™ each backscatter sample is given a priority value which is used to weight the importance of each sample relative to its neighbors. Depending on circumstances and settings, it may make an either/or choice or some calculation (mean, weighted average) based on priority.

Keep in mind that the above blending options affect overlapping areas. The nadir or edge of a swath may be assigned a low priority, but will still display if it is the only data in the area. You may see little difference between the various 'No Nadir' options if the blended areas only happen to be the edges of adjacent lines.

NADIR AND THE BLEND STYLE

iThere are four blending styles available in the Mosaic Options menu:

- Blend -- No Nadir 10%
- Blend -- No Nadir 25%
- Blend -- No Nadir 50%
- Blend -- Nadir Ok



(In older versions of GEOCODER™ these were ambiguously named “No Nadir if possible”, “No Nadir if possible 2”, “Blend”, and “Nadir OK”.) All four of the above options do basically the same thing: allow blending between lines. They differ in the weighting they assign to each backscatter pixel relative to its distance from nadir. The associated percentage denotes the percent of the swath under nadir which is going to be underweighted during blending. The chart below illustrates these four functions and how they favor different areas of the swath (higher is more favorable).

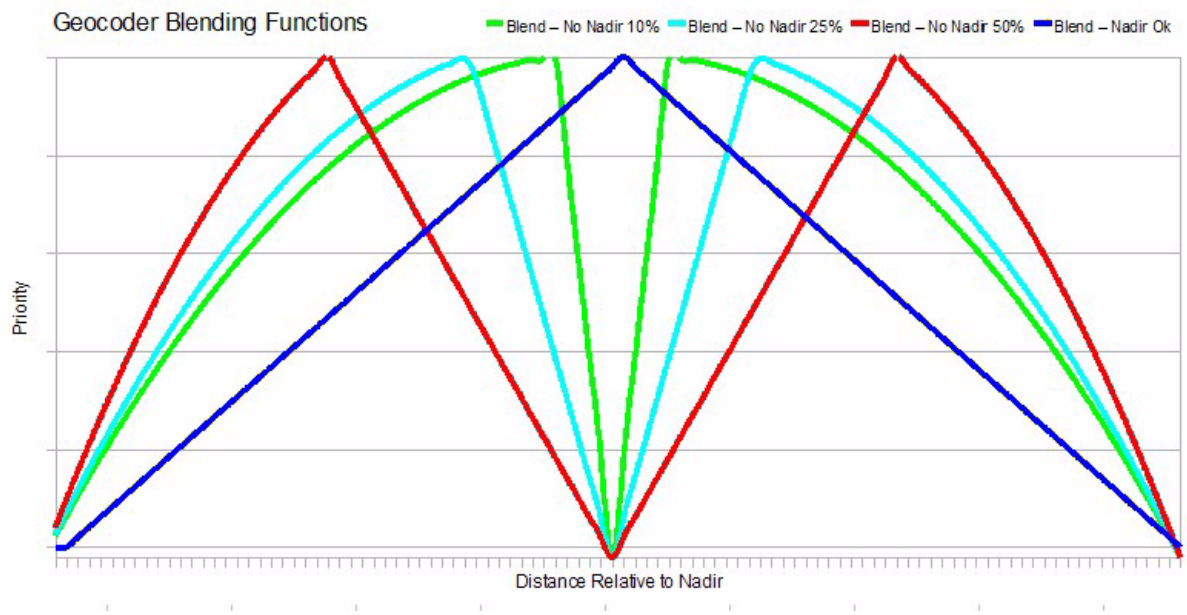
MEAN VS. FILTER BLENDING METHOD

Okay, so we have overlapping imagery that has been rated by priority, how then does GEOCODER™ decide what the corresponding pixel in the mosiac will be? It combines the overlapped data using a blending method. As the name suggests, ’**Mean**’ will do a simple

average of the two potential pixels. **Filtered** blending averages the imagery of the overlapped area, weighting each backscatter sample by its priority value.

In short, filtered blending honors the relative priority values of the samples being blended while mean does not.

FIGURE 1. *Blend+ No Nadir 10% (Green), 25% (Aqua), 50% (Red), Blend+ Nadir OK (Blue)*

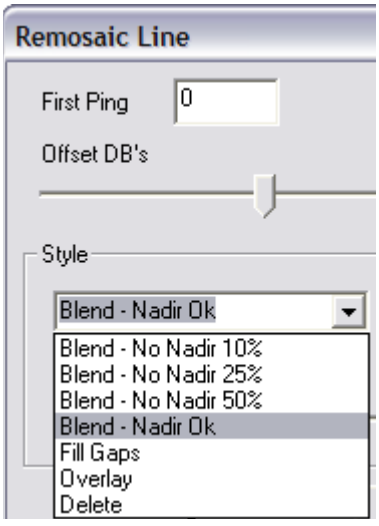


OTHER STYLE OPTIONS

So far I have only addressed blending style applicable to the entire mosaic. However, there are three more style options when remosaicing a single line.

To remosaic a single line, select the line in the list and press the icon of two arrows pointing at each other.

A dialog box will pop up that allows you to select a portion of the line to remosaic, give the line a dB offset, and change the blending style. The three additional options provided are:



- **Fill Gaps** will always favor other lines over the line you are remosaicking, unless your line is the only one with data at the pixel in question. This is useful if you have a line with a few holidays. You can re-run the same line, but remosaic the second one with the fill gaps option and it will only be used to fill in the spaces you missed on the first pass.
- **Overlay** forces the line to the top and will not blend with neighboring lines.
- **Delete** removes the line from the mosaic altogether until otherwise directed (eg. you re-make the whole mosaic).

HANDY SHORTCUTS

There are several shortcuts for previewing changes to the mosaic layering that you may find helpful in experimenting with these blending options. By holding a key and double-clicking on the navigation of a line, you can temporarily change how it is displayed.

- Alt-double-click will force the line to the top
- Shift-double-click forces the line to the bottom
- Ctrl-double-click forces delete

This state is for display only and will revert back to the original view when the screen redraws (eg. Zooming in/out, panning, changing a view option, etc.).

FINAL THOUGHTS

Of course, blending is just one facet of GEOCODER™ which can improve the quality of your mosaics. Other features worth exploring to squeeze every bit of juice out of the program include extracting and applying a beam pattern, AVG, area correction with a DTM, changing color palettes, modifying the mosaic histogram, and applying dB offsets. I will try to cover some of these topics in future Sounding Better articles.