

Creating an Area Filter (AngSeg)

120.01.1001.UG

Oct 23, 2016

Creating an Area Filter (AngSeg)

With Ideal Pattern Radials and occasionally Measure Pattern Radials, vectors can be placed in un-reasonable locations like overland due to issues like noise and interference. For this reason, Radial Processing can filter vectors to be within a defined area. For historical reasons plus that radials are naturally referenced by range and bearing, the area filter is defined as a set of angular coverage segments on a per range step basis; hence, the AngSeg naming.

Radial Processing uses two possible area filters. The first one is **AngSeg.txt** for which a default 0 to 360 coverage filter is installed. Replacing this with a limited filter will remove out-of-bound vectors from the radial output files. The second **preferred** one is an optional **AngSeg_XXXX.txt** where XXXX is the site code. This filter will keep the vectors and instead flag them as out-of-bounds. This way, SeaDisplay can be told to show these vectors which is a useful indicator of whether the pattern has changed or the ideal pattern is likely not good enough.

Wave processing for Release 8, can now be optionally configured for more complicated coastlines. This also requires specially named AngSegs be created for the coastline boundary and expected wave bearing limits. These are done by creating an AngSeg and saving it into RadialConfigs as **CoastlineCutoff.txt** to reflect the coastline boundary and as **WaveBearingLimits.txt** to limit the wave bearings. Note that these AngSegs, require a single sector per range step, that is all points for a range are consecutively enabled.

Creating or editing an area filter (AngSeg) is done in SeaDisplay by opening the site map for the area. Under the File menu, select Create/Edit Area Filter. This will bring up a floating window to edit the area settings and a default filter shown on the map represented a grid of radial points where black are within the area to keep and red are the area to filter out.

Radial Filter Editor

Radial Filter

Site: LOBO

☐ Edit Origin

Origin: 37°47.009'N, 122°30.692'W

Spacing: 4 km Resol: 5°

Max Range: 80 km Ranges: 20

Point Edit Mode

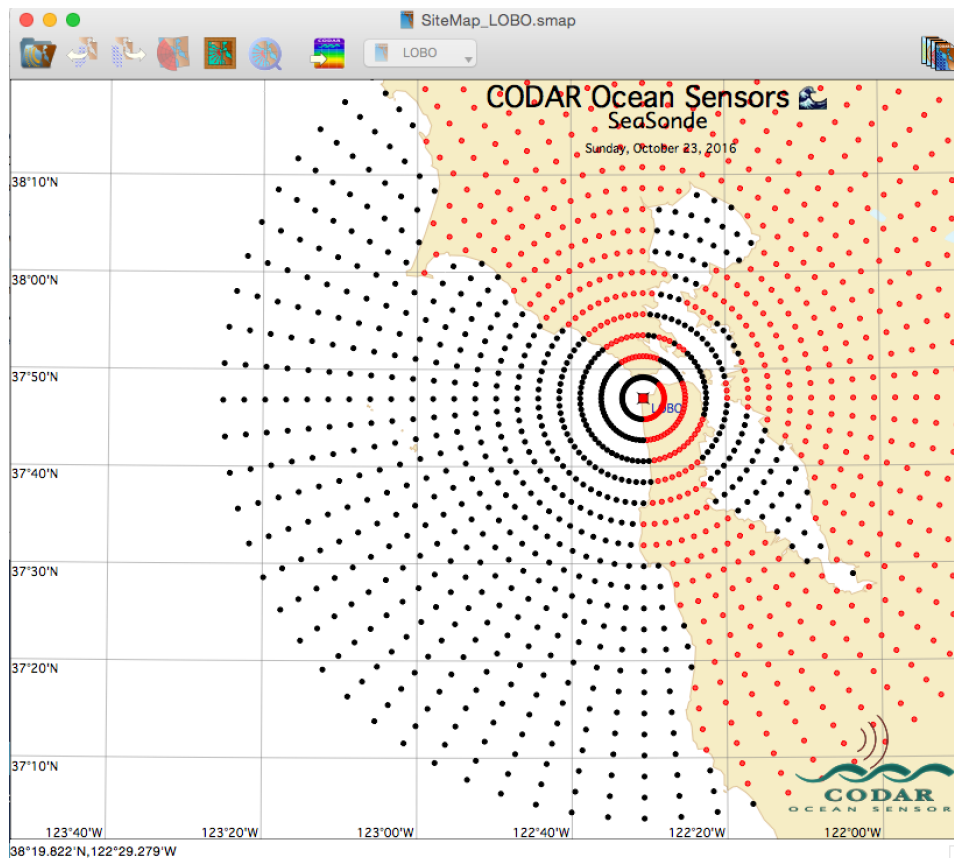
**Edit points on map using arrows keys to change selected point.
Hold shift key down to disable point (red).
Hold ctrl key down to enable point (black).**

☒ Automatically disable points over land

Enable all points for 360°

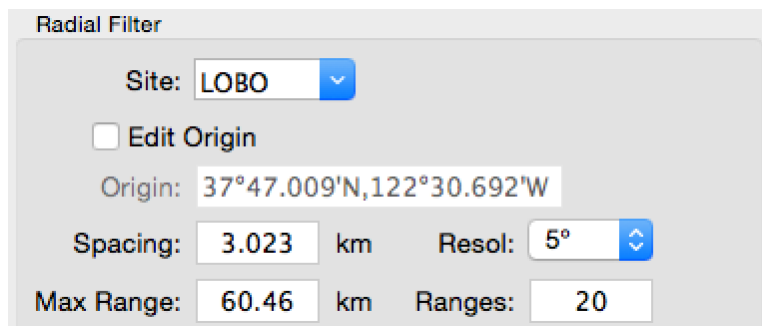
Sector 0 °T CW to 360 °T

Grid Visibility



The first item in the dialog is a selector for the site. If you have multiple sites, click the drop down arrow to select the desired site that you've already defined in the Sites settings; otherwise, you can enter any site code.

The second item is for the site's origin. The angular segments are referenced from this origin, so it's important that this matches the actual site. The **Edit Origin** checkbox is normally unchecked to prevent accidental editing or double clicking on the map to move the origin.



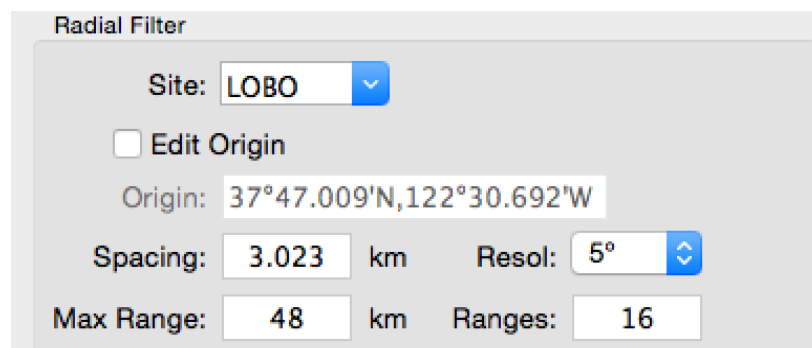
The screenshot shows the 'Radial Filter' dialog box. It contains the following fields and controls:

- Site:** A dropdown menu with 'LOBO' selected.
- Edit Origin:** An unchecked checkbox.
- Origin:** A text field containing the coordinates '37°47.009'N,122°30.692'W'.
- Spacing:** A text field with '3.023' followed by a 'km' unit label.
- Resol:** A dropdown menu with '5°' selected.
- Max Range:** A text field with '60.46' followed by a 'km' unit label.
- Ranges:** A text field with the value '20'.

Next is to edit the **Spacing**;, if needed, to be the same as the range cell step for the site.

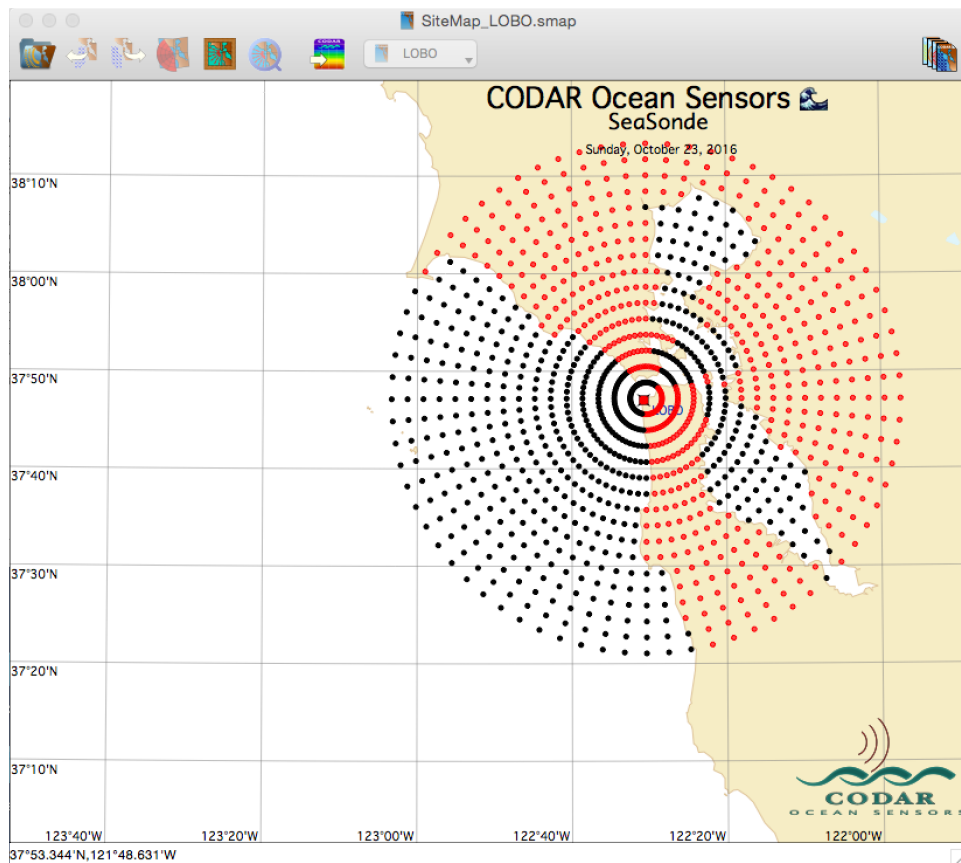
Resol: sets the angular resolution for editing the area. If you need a more detailed edge on the area, select 1 degree.

Max Range: should typically be set to the expected maximum range of the SeaSonde site, but it can be set under, as the radial processing will extend the last sector forever meaning it's an open boundary. We can use this here to easier filter points past Point Piños which juts out on the northern coastline beyond which we don't expect to see any vectors near the coast.



This screenshot shows the 'Radial Filter' dialog box with the same fields as the first image, but with different values:

- Site:** A dropdown menu with 'LOBO' selected.
- Edit Origin:** An unchecked checkbox.
- Origin:** A text field containing the coordinates '37°47.009'N,122°30.692'W'.
- Spacing:** A text field with '3.023' followed by a 'km' unit label.
- Resol:** A dropdown menu with '5°' selected.
- Max Range:** A text field with '48' followed by a 'km' unit label.
- Ranges:** A text field with the value '16'.



Ranges: is an alternate way to set **Max Range:** by setting the number of ranges at the **Spacing:** entry.

Next we'll jump past the point edit controls for now, to focus on limiting the overall view.

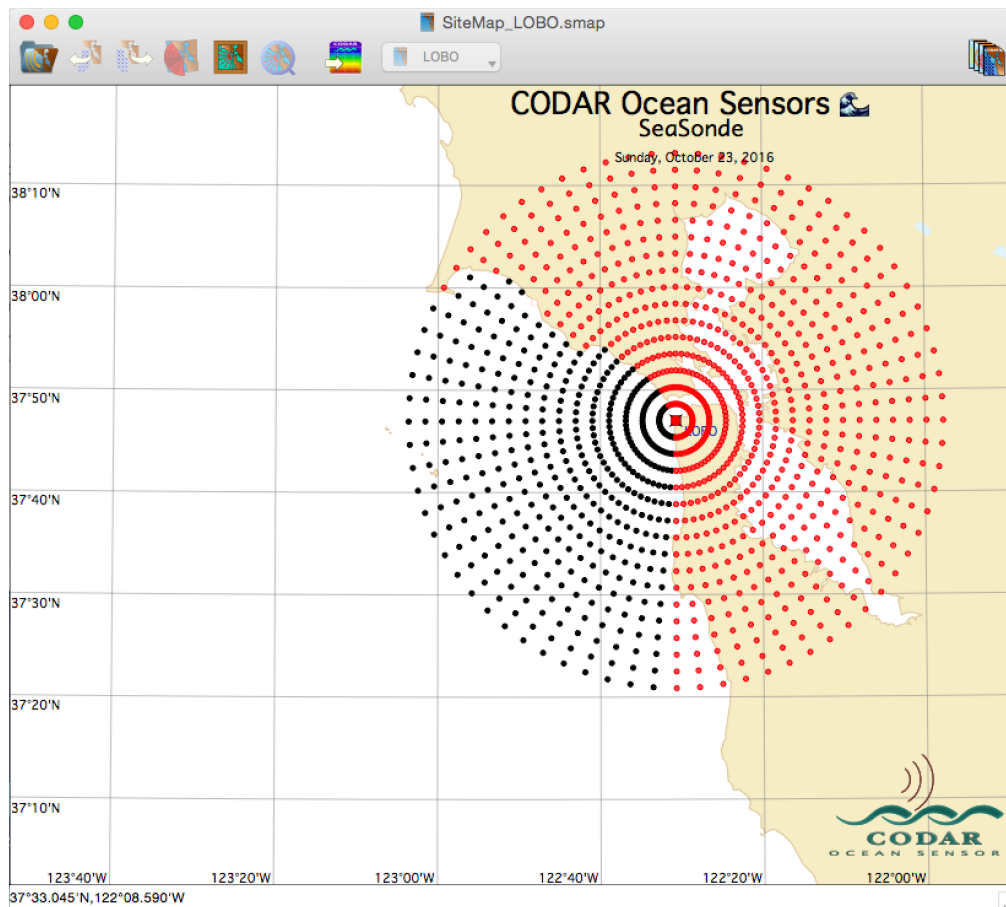
You'll notice that all the points inside of San Francisco Bay are enabled (black) while our site which is located just outside of the Bay should never see radials in the Bay. We could just hand edit and disable every point, but it's much simpler to just enter a sector which will exclude these. Do that by dragging the cursor from the site to the left hand side down the coast and enter that angle into the Sector first edit box. Then drag the cursor from the site's right hand side to the north and enter that angle into the second Sector edit box.

☒ Automatically disable points over land

Allow All Enable all points for 360°

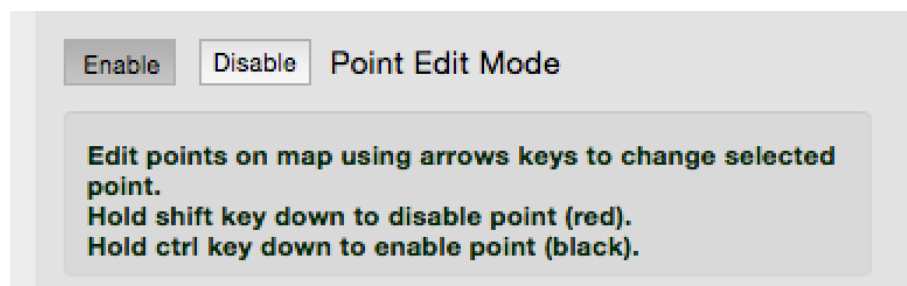
Single Sector 185 °T CW to 330 °T

Then click on the **Single** button. This disables all points not within the entered sector.

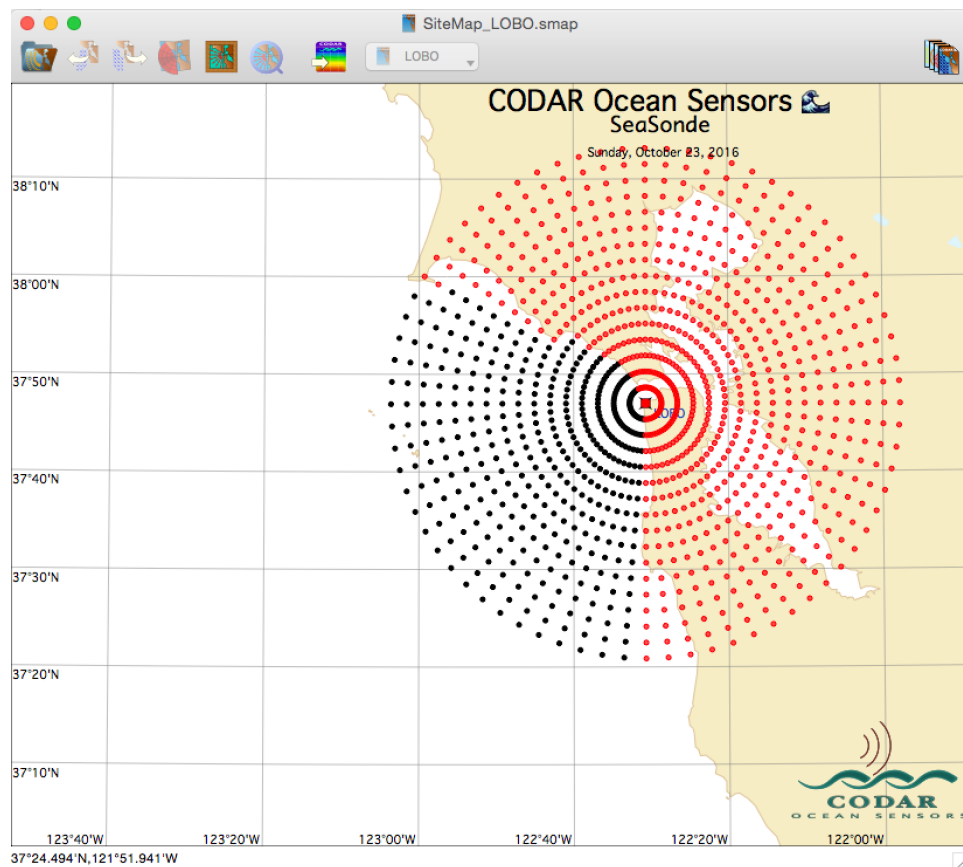


If you over limit the sector, you can click the **Allow All** button, which will enable all points and turn off the **Automatically disable points overland**. You can then enter the **Single** sector again.

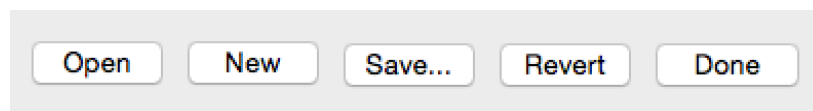
The last step is to fine tune the points, if necessary, by entering the **Point Edit Mode**. When you click the **Enable** button it will turn dark, indicating it's active and one of the points on the map will start blinking. This blinking point is a cursor that can be moved by using the arrow keys and disabled or enabled by holding down the shift or control key. The up and down arrows move the edit cursor in range while the left and right arrow keys move the cursor in bearing.



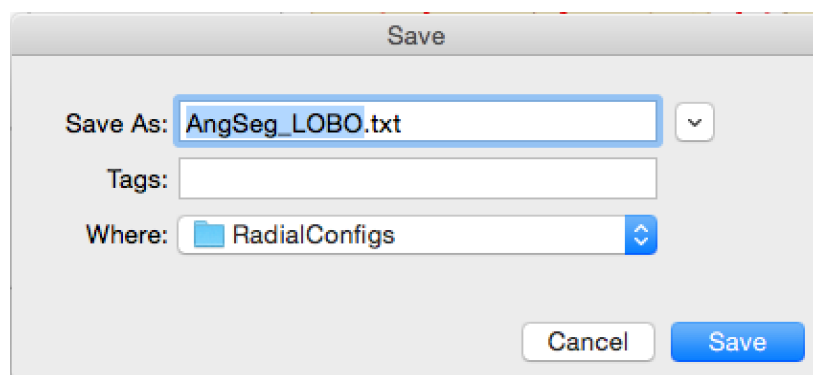
Here, points to the north before Point Piños, points that are not likely to see coverage have been disabled.



Last step, is to save the filter by clicking on the Save... button.

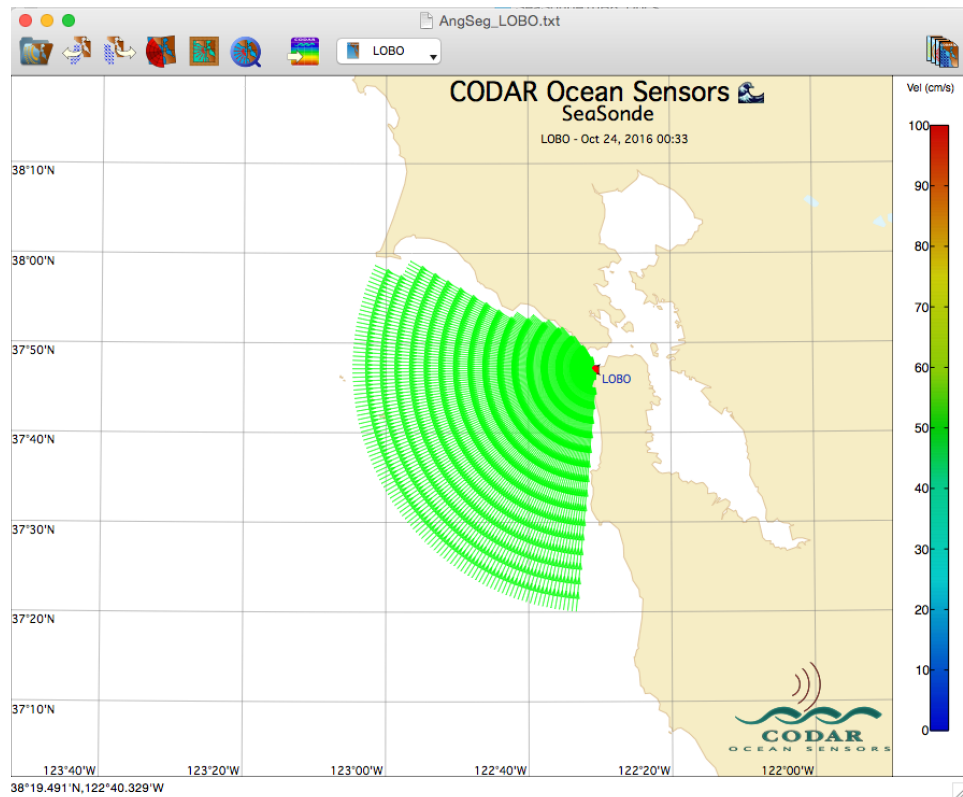


The save dialog will set the default filename for filtering Radials.



After saving, click the Done button to exit the area filter mode.

Lastly, you can examine any AngSeg filter by dropping the file onto SeaDisplay. This will plot a simulated radial with a vector at every 1 degree within the AngSeg area.



Revision History

First Draft Oct 23, 2016

Copyright and Disclaimer

This document is copyrighted(c) by CODAR Ocean Sensors, Ltd and cannot be copied or reproduced in all or partial without expressed written consent by CODAR Ocean Sensors, Ltd.