



## SeaSonde Radial Site Release 6 SeaDisplay Ver6 Application Guide

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SeaDisplay plots SeaSonde radial, elliptical, and total vectors overlaid on a site map of the area of interest. SeaDisplay supports the LLUV format as well as the classic radial format.

Site maps created with SeaDisplaySetup are used as the background. If no site map exists, then SeaDisplay will plot just the data on a white background and auto scale to fit.

Release 6 SeaDisplay 6.2 and later uses a new site map format. The new site map is a bundled document with a filename extension of .smap. SeaDisplaySetup can be used to update previous SeaDisplay\_Site\_XXXX files to the new .smap format.  
*(A bundled document is a folder that acts like a file. You should probably right and Compress the smap to a .zip before transferring over email to another computer platform to keep from misplacing any of the contents.)*

Release 6 SeaDisplay 6.2 has been rewritten from the ground up to be much simpler to use; however, some features of the previous version have not yet been added to the new version. Please be patient as most of these features will be in coming updates.

SeaDisplay can

- Plot current vectors as velocity size scaled arrows with optional color scaling.

- Plot current vector distribution over time as color scaled intensity.

- Plot current vector uncertainties as color scaled intensity.

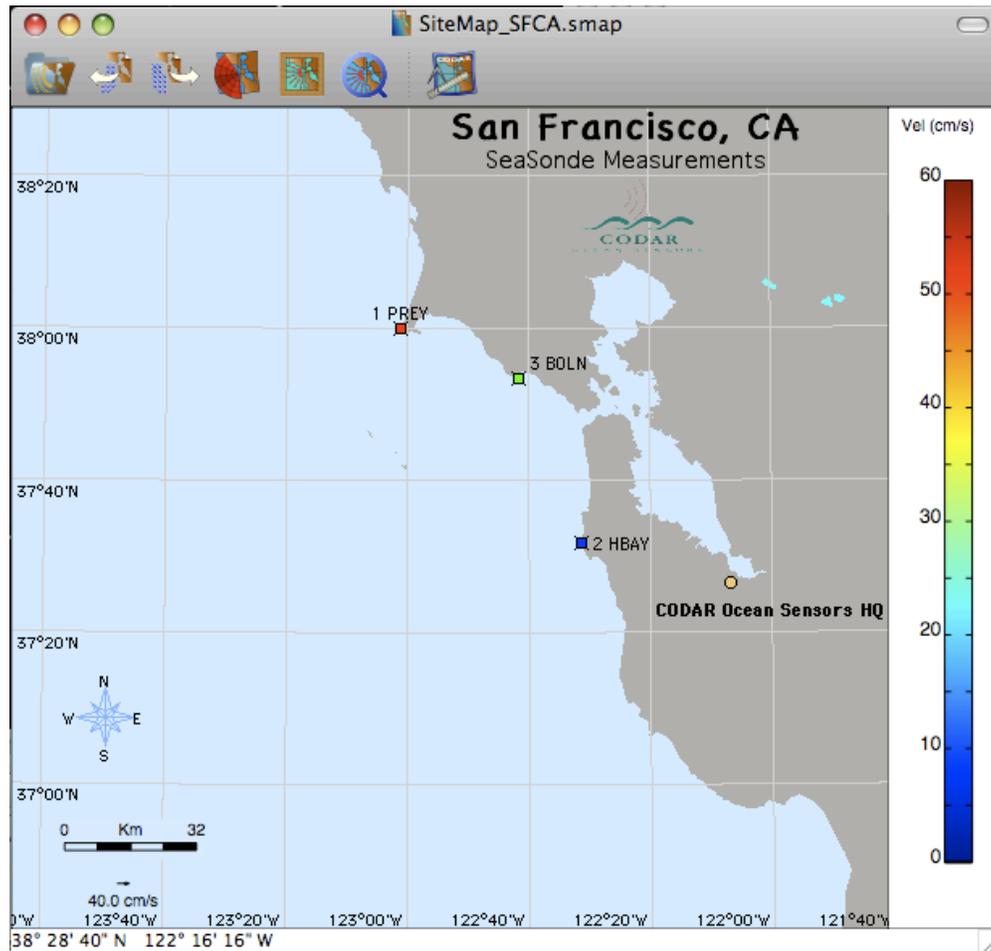
- Create Plot image files (PNG format is the default)

- Create QuickTime® movies of current vectors over time.

- Display detailed information about any current vector.

## Basics

When SeaDisplay is opened it will automatically load the first found site map in the SiteDefinitions folder.



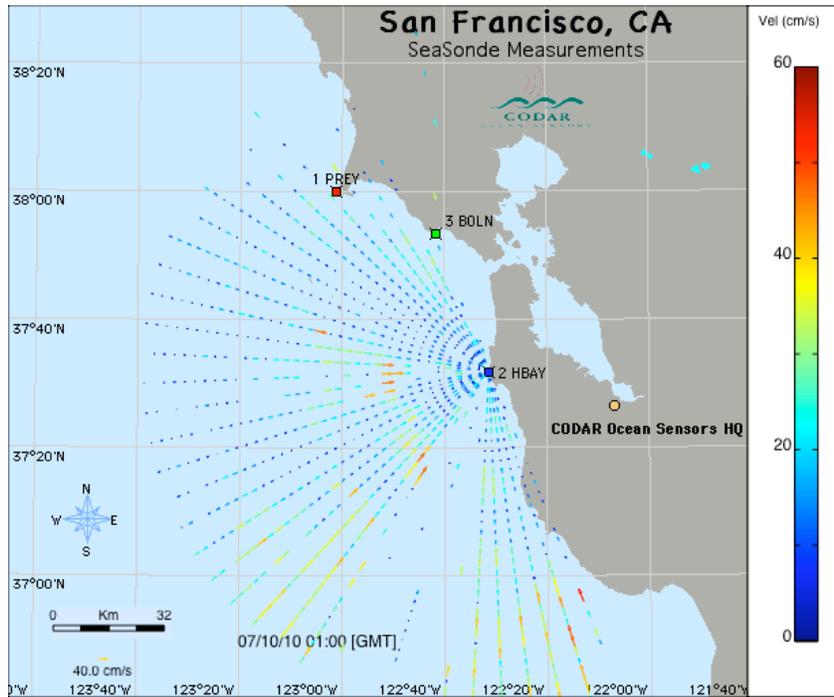
On a newly installed site, this map might be the SiteMap\_SFCA.smap supplied by the SeaSonde Suite installer as an example map. You will probably want to move this site map to the PreviousSites folder and create your own with SeaDisplaySetup.

You can manually open any site map by drag and drop the smap file onto SeaDisplay icon or on any SeaDisplay window or by using the open menu. Site maps are normally located in / Codar/SeaSonde/Configs/SiteDefinitions/.

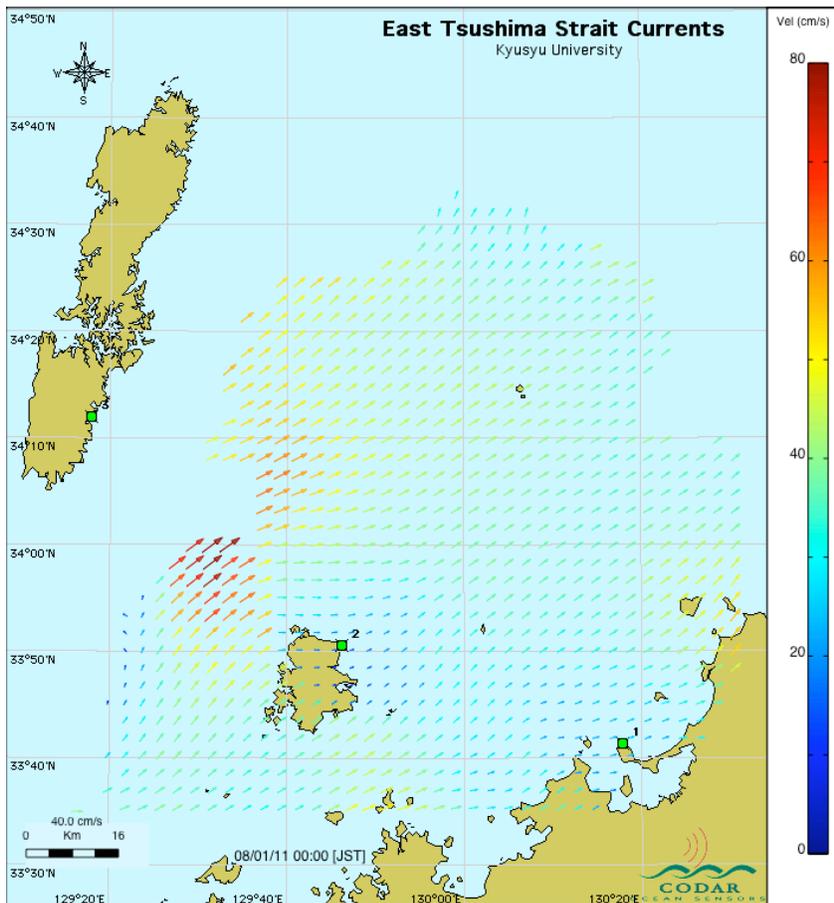
You can use menu File-> Open or drag and drop a current vector file onto SeaDisplay and it will automatically try to open the correct site map.

As you move the mouse around the map, the lat,lon of the cursor location is shown in the status bar at the bottom of the map. If you click and drag the mouse, you will see a straight red line with the great circle distance and bearing from the starting click location. If you click on a current vector, it will be outlined with a circle and basic info will be shown in the status bar on the bottom of the map and if vector info is enabled then also detailed information on the map. If you click elsewhere, the selected vector will be deselected.

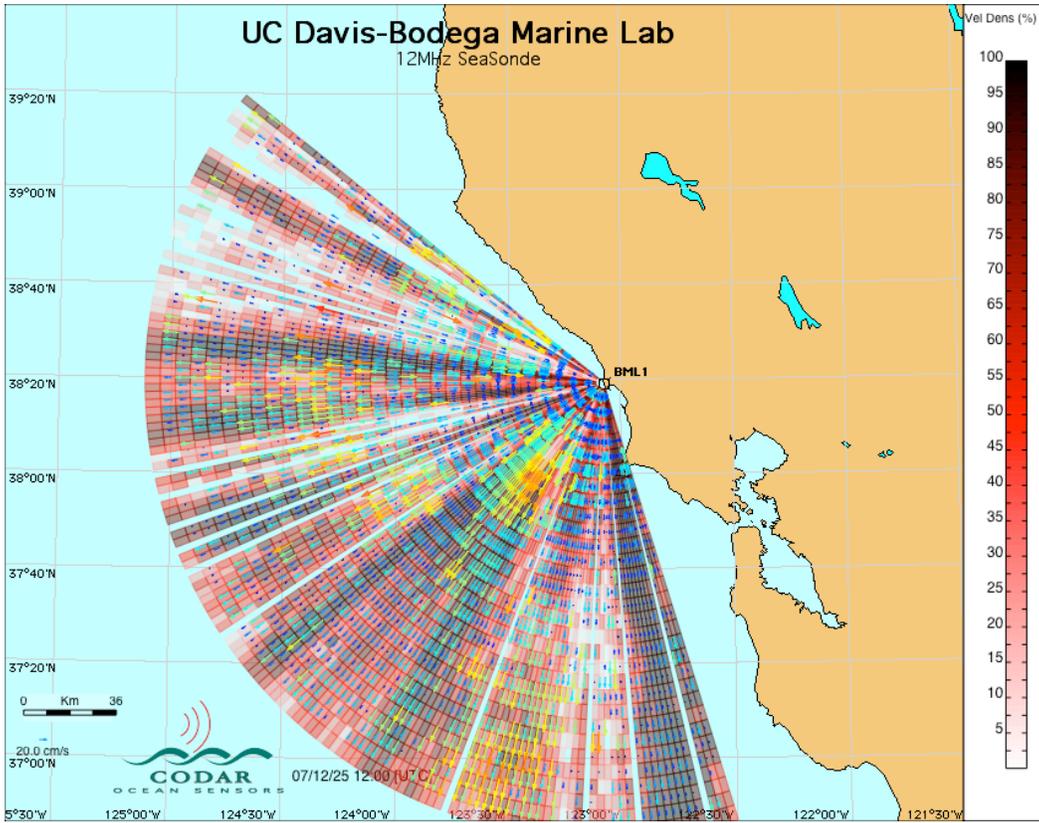
## Radial Example



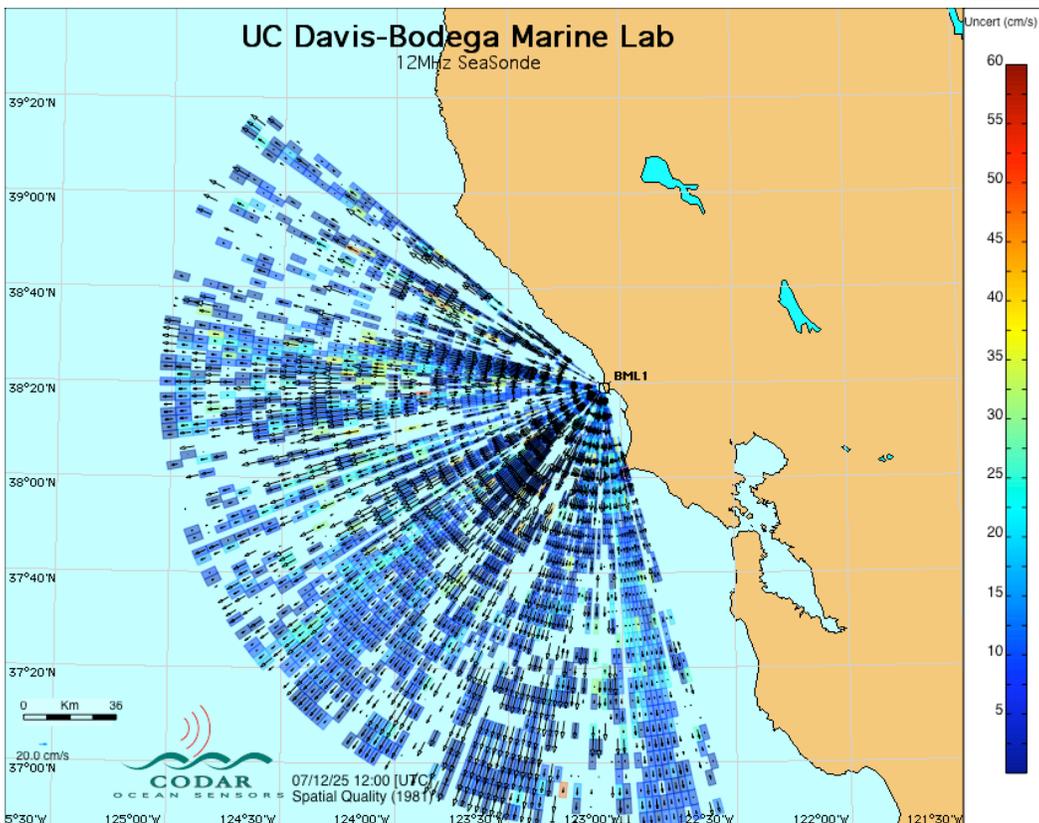
## Total Example



Radial Distribution example with vectors on top.  
(The missing spokes indicate a problem with the antenna pattern)

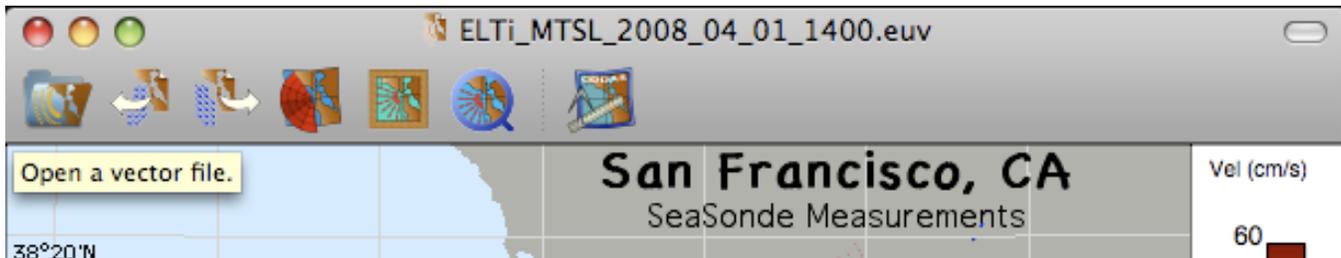


Radial Spatial Uncertainties example with vector on top.



## Toolbar

Every map window has a toolbar of common functions. When the cursor hovers over one of these icons, a yellow text box will appear showing the icon's function. Click on the icon to perform that function.



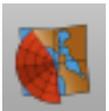
Open dialog for opening new current vector file.



Open earlier vector file in same folder as current vector file.



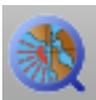
Open later vector file in same folder as current vector file.



Calculate and plot distribution of all vectors files in same folder as current vector file. Clicking the icon again will turn off the distribution plot. Clicking the icon yet again will turn the distribution back on.



Create an image file of the current display. A file dialog will prompt for filename and location to save the image file.

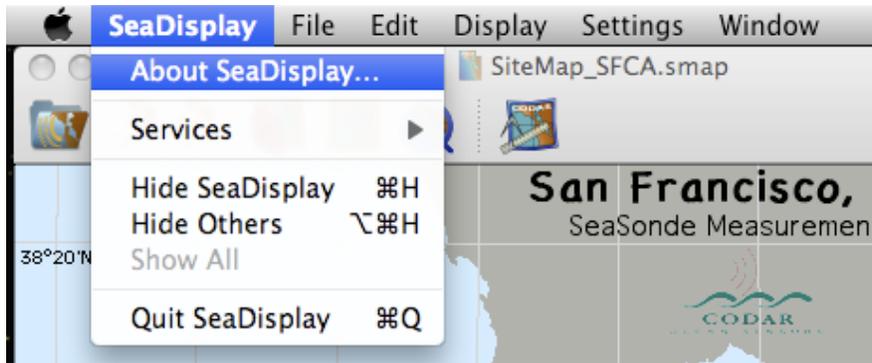


Create a QuickTime movie of all vectors files in same folder as current vector file. A file dialog will prompt for filename and location to save the movie. (Menu Settings->Movies changes the compression settings for the movie.)

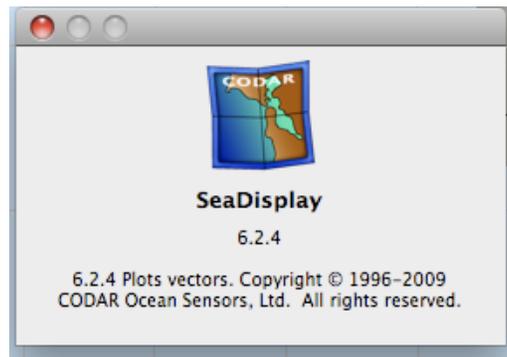


Open the current site map in SeaDisplaySetup.

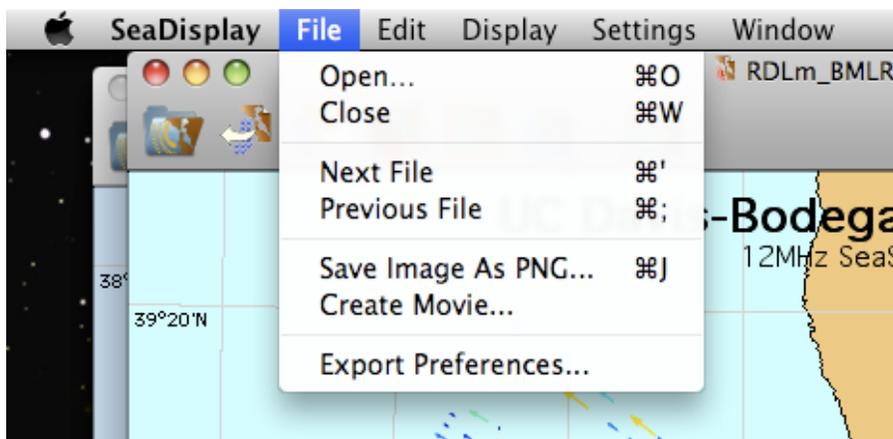
## SeaDisplay Menu



About SeaDisplay....



## File Menu



**Open...**

Open file dialog to open a new vector or site map file.

**Close**

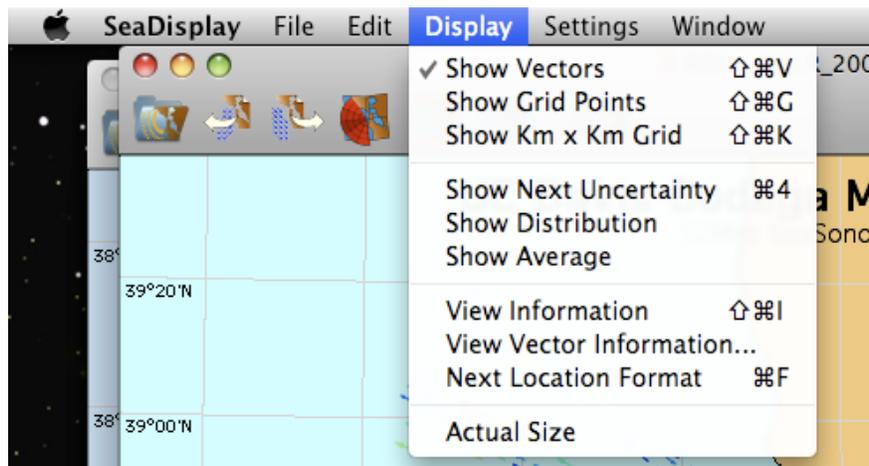
Close the front window.

**Next File**

Open the next latest file in the same folder as the current vector file.

- Previous File**                      Open the previous earlier file in the same folder as the current vector file.
  
- Save Image As PNG...**        Save the front window as a png image file.
  
- Create Movie**                    Create and Save a Quicktime movie of all the vectors in the same folder as current vector file. (Menu Settings->Movies changes the compression settings for the movie.)
  
- Export Preferences...**        Save a copy of the current settings for the front window as plist. *This plist is useful as it can be used by the command line SeaDisplayTool. To customize the RadialWebServer display export to Configs/RadialWebConfigs/RadialDisplay.plist.*

## Display Menu



- Show Vectors**                    Toggles whether the current vectors are plotted or not. This menu is check marked if the vectors are plotted. When doing distribution, average, or uncertainties it is often desirable to turn off plotting the vectors for the current file.
  
- Show Grid Points**                Toggles whether to plot a small circle for every possible vector point.
  
- Show Km x Km Grid**            Toggles whether to plot a cartesian distance grid on top of the map.
  
- Show Next Uncertainty**        Toggles plotting of Uncertainty factors as color block behind the current vectors. This cycles through the possible uncertainties for each file type. Radials and Ellipticals cycle through spatial, temporal, and none. Totals cycle through eu, ev, covariance, and none.

## Show Distribution

Toggles plotting a distribution of all the vector files in the same folder as the current vector file as a clear (no vector) to dark red(100%) block behind the current vectors.

## Show Average

Toggles plotting the averaged vectors of all the vector files in the same folder as the current vector file. You might want to turn off Show Vectors so you can see the average only.

## View Information

Opens a floating window which shows detailed information about the current map and vector file.

## View Vector Information

Opens a floating window which controls if selected vector information is displayed on the map.

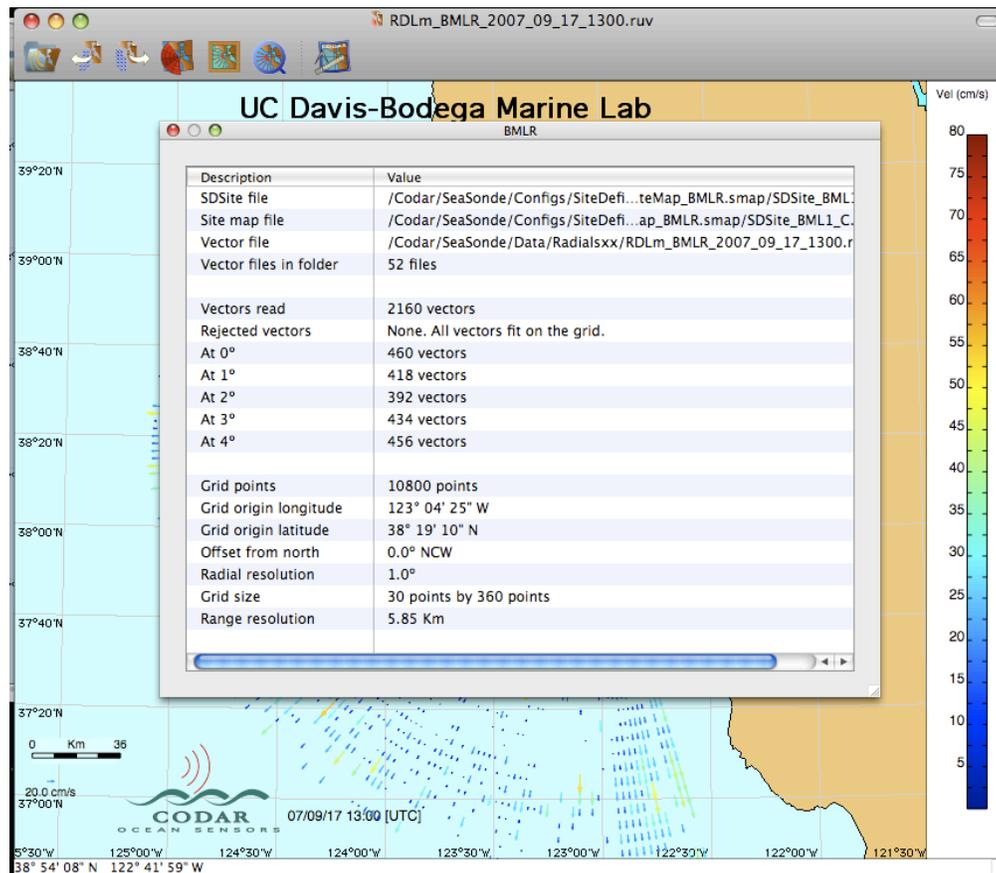
## Next Location Format

Cycles through various lat lon formats displaying where the cursor is on the map at the bottom of window.

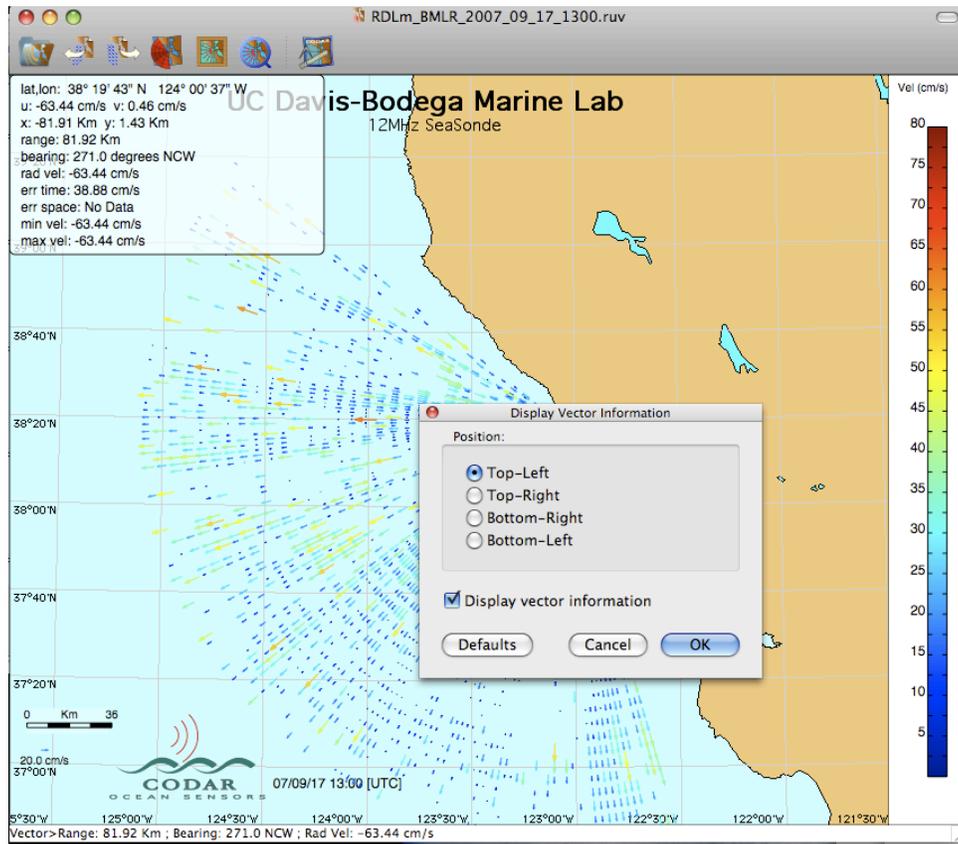
## Actual Size

Restore the front map window to its original size after resizing the window. The original size is the native resolution for the map as other sizes are bit scaled to fit. Creating images and movies use the current size of the window.

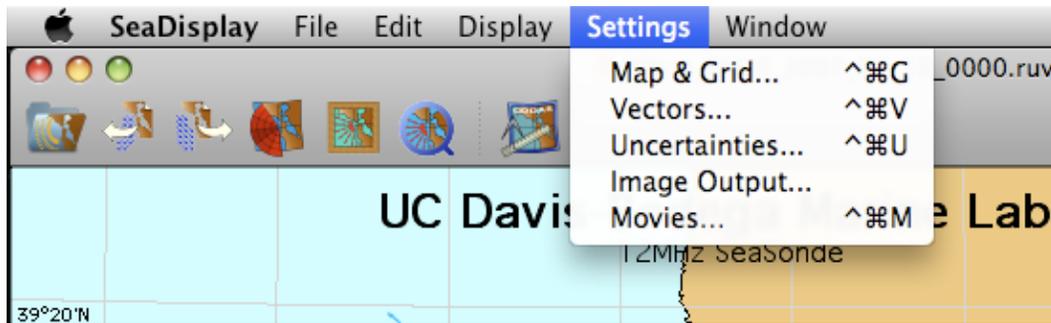
### Information floating window



## View vector information control window and selected vector on site map.



## Settings Menu



- |                          |  |
|--------------------------|--|
| <b>Map &amp; Grid...</b> | Open a window to change the Map & Grid Settings      |
| <b>Vectors...</b>        | Open a window to change how vectors are shown.       |
| <b>Uncertainties...</b>  | Open a window to change how Uncertainties are shown. |
| <b>Image Output...</b>   | Open a window to change how images are created.      |
| <b>Movies...</b>         | Open a window to change movie compression settings.  |

## Map & Grid Settings

**Background Map** controls how the map is displayed.

**Show background map** controls whether the map is display or not. If not shown, the the background is white.

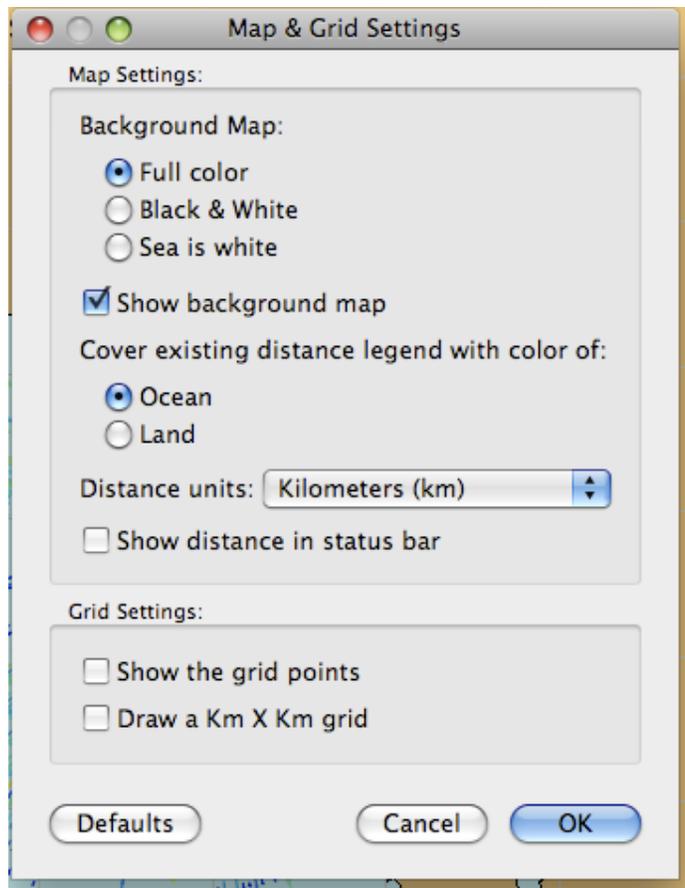
**Cover existing distance...** controls how the distance legend is drawn on top of the map. If the legend was positioned over water then choose Ocean otherwise choose Land.

**Distance units:** selects which either kilometers, nautical miles or miles to display when showing distance.

**Show distance in status bar** controls whether to have x,y and distance from the center of the map shown in the status bar at the bottom of the map window.

**Show the grid points** controls whether a dot is drawn for each possible point in the vector file. (Same as menu Display -> Show Grid Points)

**Draw a Km X Km grid** controls whether a cartesian grid is overlaid on the map.



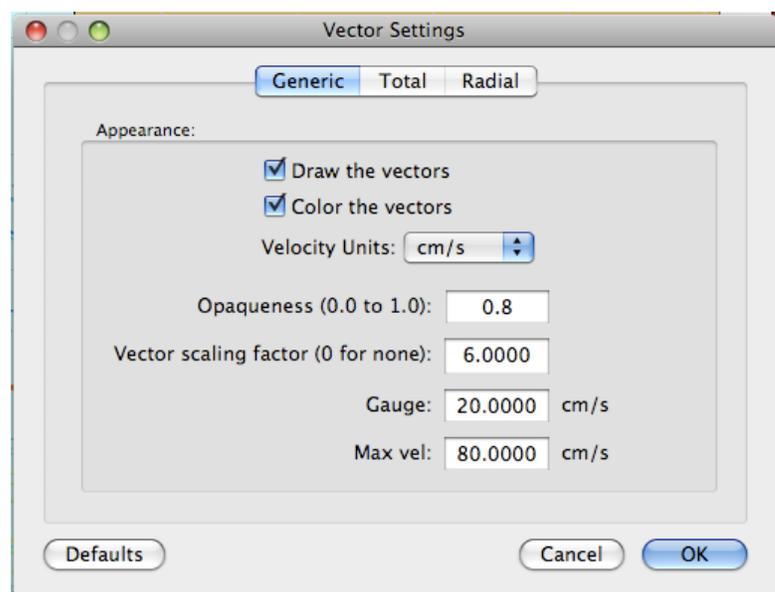
## Vector Settings - Generic

**Draw the vectors** controls whether vectors are drawn or not. (Same as menu Display -> Show Vectors)

**Color the vectors** if unchecked draw all vectors in black. If checked draws vectors in a color scale according to the vector's velocity. The max color is scaled to the Max vel setting.

**Velocity Units** select which units to display current velocity value with. Typically cm/s is used.

**Opacity** controls how vectors are shaded over the map. 0 will make the vector invisible while 1 will make the vector complete opaque(solid).



**Vector scaling factor** controls how large the current vectors are plotted depend on their velocity. A value of 0 or 1 will draw the vectors at their normal scale while a value of 2 will draw the vectors at twice normal.

**Gauge** sets the value to use on the velocity reference legend which shows an example vector at the entered velocity.

**Max vel** sets the maximum color reference velocity to scale colored vectors to.

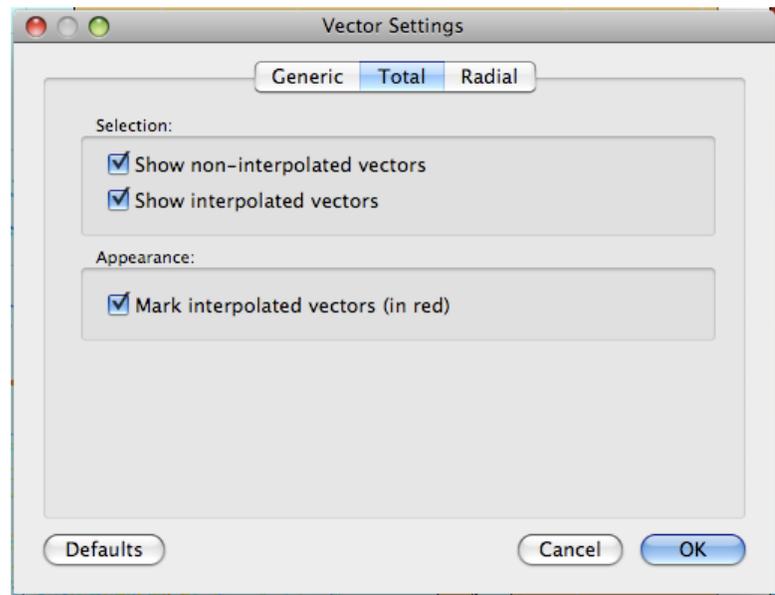
## Vector Settings - Total

**Show non-interpolated vectors** controls whether vectors that were not interpolated are shown.

**Show interpolated vectors** controls whether vectors that were interpolated are shown.

**Mark interpolated vectors** draws vectors that were interpolated in a dark red color regardless of whether color vectors is on or not.

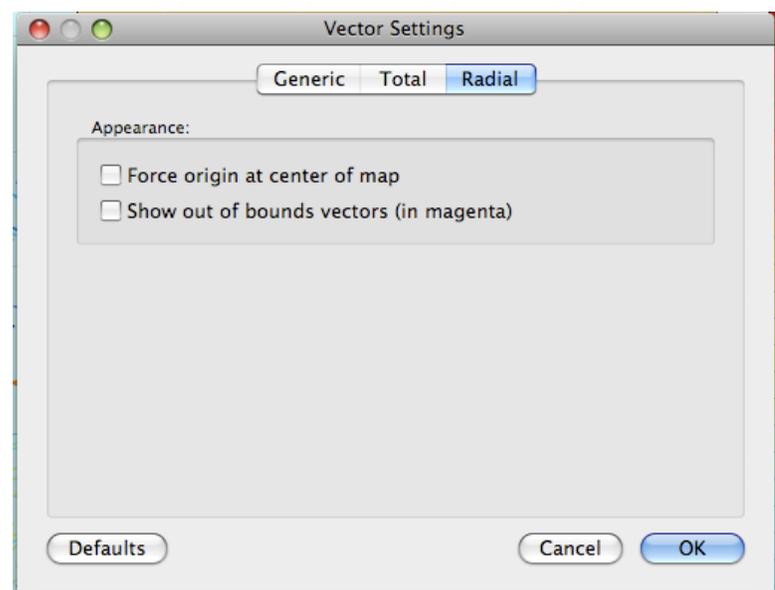
*(Typically only baseline vectors between radials sites are interpolated in total vector files.)*



## Vector Settings - Radial

**Force origin at center of map** forces the origin of the radials to be drawn from the center of the map. *This is only a trick to draw radials that you don't not have a site map for.*

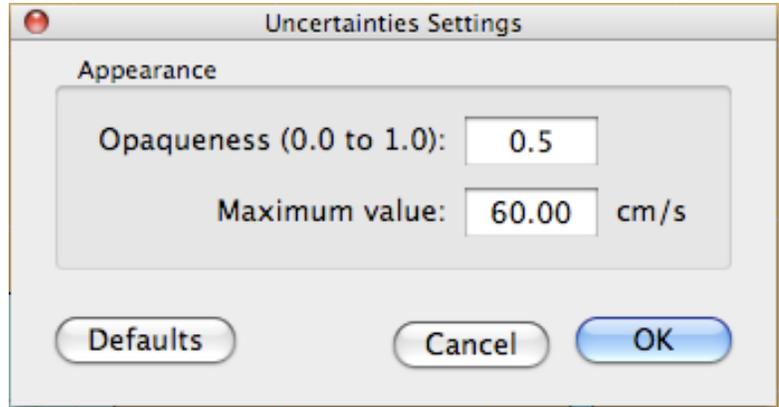
**Show out of bound vectors** shows vectors that were flagged out-of-bounds, which are not normally drawn, in magenta(purple)



## Uncertainties Settings

**Opacity** sets how the color uncertainty block is shaded over the map. 0 will make the block invisible while 1 will make the block complete opaque(solid). Some in between will allow the ocean and grid to show through.

**Maximum value** sets the maximum color scale for the uncertainty value.

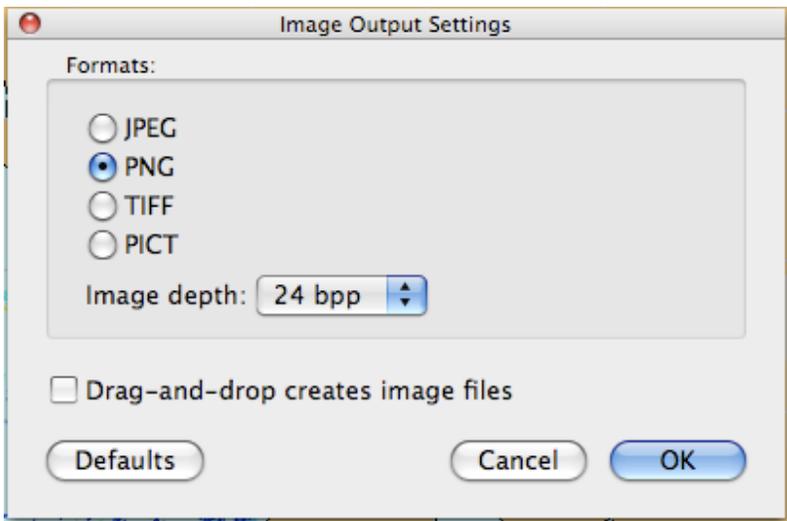


## Image Output Settings

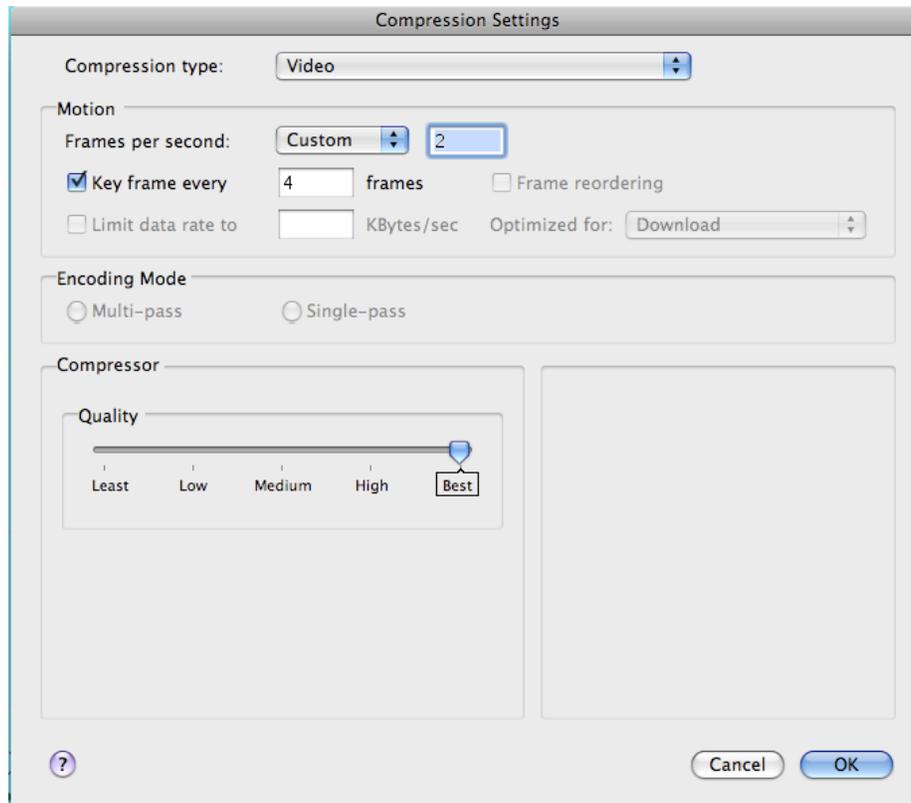
**JPEG PNG TIFF PICT** set which image file format to use. The default PNG is recommended for it's compact but lossless format.

**Image depth** sets the pixel color depth of the image. 8 bpp will result in a smaller file, but might not be able to represent all the colors in the plot.

**Drag-and-drop creates image files** if checked, causes each new opened vector file to automatically create an image file of the display to folder /Codar/SeaSonde/Data/Pictures/Totals/



## Movie Compression Settings



**Compression type** selects the type of compressor to use. The type selected depends on whether how small you want the movie verses quality and whether the compressor is available on other platforms like Windows. Compressors always seem to be changing. The common one stoday are H.264 and Video.

**Frames per seconds** sets how fast each frame of the movie is played back. The movie will contain one frame per vector file. Time gaps between vector files are ignored.

**Key frame every** sets how easily you can jump around the movie when heavily compressed. The larger the key frame values is the smaller the movie, but the more difficult it is to single step through the movie.

**Quality** sets the quality for the compressor. A lower quality results in a smaller movie but the quality may end up so poor that it is hard to see the detail.

*An alternate to try all the various settings here would be use the default settings, save the movie and then use QuickTime Player Pro to export the movie with alternate settings.*