

HumFinder - What it is used for?

HumFinder was originally developed for personal use to be used as a tool with Humminbird SI sonar. While viewing SI recordings and discovering an interesting object a question often was arised; is it in the SI recordings acquired earlier? Maybe from other angle, closer? Of course it is possible to go trough recordings or use some gpx track plotting programs but it can be very time consuming and frustrating. To tackle this problem HumFinder was developed – to find easily the same particular point of interest from the mass of SI recordings.

Other possible uses?

While not so interested in fishing, I can imagine HumFinder could be a tool for those interested too. For example my “homelake” has a lot of ciscos (or whitebaits?). It is interesting to compare different SI images taken at the same spot at different times of day, (spring, fall – not yet much acquired data). The depth, places and size of school of fish depend on time. This is of course information that every “real” fisherman knows by “deep knowledge” or instinct but it’s interesting to “nonfisherman” to learn while going through the SI recordings.

The main HumFinder features

- Find the same target spots from acquired SI recordings on user selected folder
- Display tracks and SI range settings of recordings on selected target area on local XY-graph
- Display the XY-graph information in Google Earth
- Track GE coordinates for new search
- Show information pertaining to particular target "hit" point

New in HumFinder 2.0

- Display user selectable SI images of target area
 - “Aspect” ratio correction is used (vertical dimensions correlates with horizontal ones)
 - Independently zoomable SI images
 - SI Images are pannable when zoomed
 - Image windows are resizeable
 - SI image color is user selectable
 - Measuring tool for measuring dimensions, object height estimation
 - Image copying, saving possibilities
- Search radius extended to 100 000 feet (30 000km). With 3000ft (1000m) and above only SI tracks are shown
- Abort button added to cancel search on time consuming operations
- Automatic comma separated position (Lat, Lon) tracking from clipboard. Can be used for example with HumViewer
- New position formats added
 - [+,-]ddd[°].dddddd[N,S,W,E]
 - [+,-]ddd[°] mm.mmmm['] [N,S,W,E]
 - [+,-]ddd mm['] ss.ssss["] [N,S,W,E]
- Search speed is optimized (1.5x - 10x as compared to HumFinder v. 1.0 depending on search)
- Real target “hit”point recording time is shown

Installation

LabView Runtime Engine

HumFinder is programmed with National Instruments LabView programming language which is used extensively in instrumentation and measurement areas. In order to run HumFinder one needs to install LabView Runtime Engine 2009. It can be downloaded from

<http://ftp.ni.com/support/labview/windows/runtime/9.0/>

Download and run installation program: LVRTE90min.exe

LabView runtime can also be downloaded from
<http://joule.ni.com/nidu/cds/view/p/lang/en/id/1406>

I recommend installing the LabView Runtime Engine before installing HumFinder. I also recommend using default folders with instalments. (I haven't tested instalment to other folders).

Note:

With Windows Vista one needs to give read and write permissions to the file C:\Program Files\HumFinder\HumFinder.ini for the current user. Without write permission an error message is given when exiting and user interface settings are not saved.

General Information

Default Humminbird Folder and file names must used for the records i.e.

\RECORD\R00xxx.DAT

\RECORD\R00xxx\B002.IDX

\RECORD\R00xxx\B002.SON

\RECORD\R00xxx\B003.IDX

\RECORD\R00xxx\B003.SON

...

In other case the HumFinder won't find those recordings.

Position format, longitude and latitude

The following formats can be used:

[+,-]ddd[°].dddddd[N,S]

Degrees

[+,-]ddd[°] mm.mmmm[°][N,S,W,E]

Degrees and Minutes

[+,-]ddd mm[°] ss.ssss[°][N,S,W,E]

Degrees, Minutes and Seconds

Notice correct decimal separator: dot (.) in United States, Canada, Australia etc. Comma(,) in Europe...

According to your PC settings.

There is no help file available at the moment, but short "Tip Script" is shown when user places cursor over a control.

Test environment

I have tested HumFinder in the following environment:

Windows XP Professional SP2, SP3

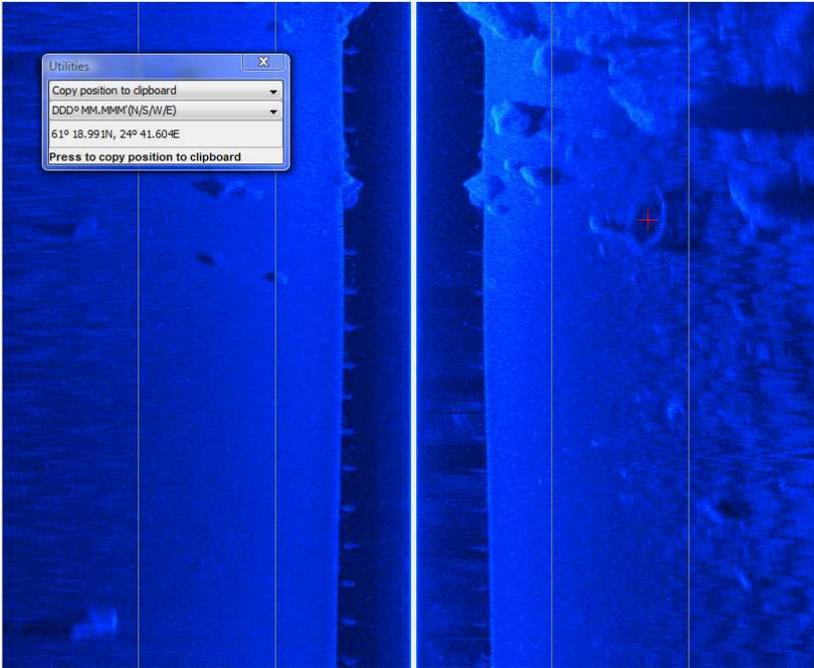
Windows Vista Business

Humminbird 798ci SI, firmware 4.510, 4.780

Google Earth v. 5.1.3533.1731

Basic operation walk-through

1. Scenario: An interesting object is found on recent search trip and it's time to put HumFinder to work.

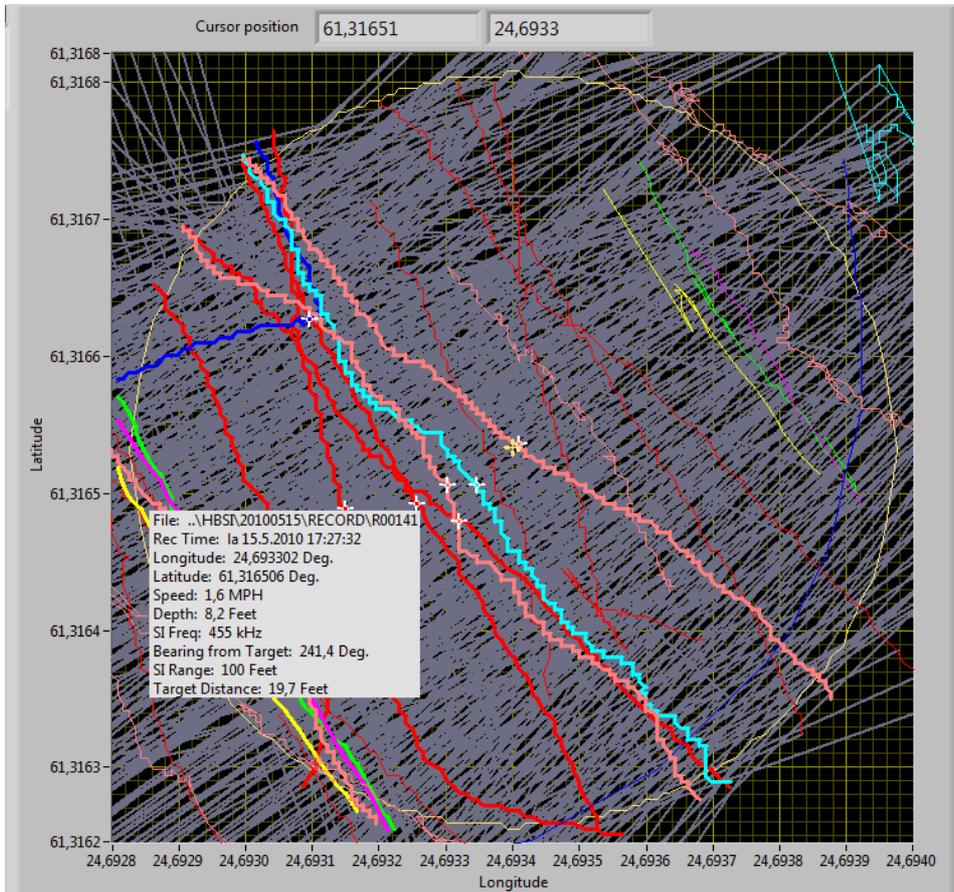


If HumViewer is used for viewing, position coordinates can be pasted automatically to HumFinder by using HumViewer's "Copy position to clipboard" function.

2. If this is the first time using HumFinder, or it is wanted to use different values, choose desired Search Folder, and Search Radius from HumFinder (for this kind of search 100ft or 300ft (30m or 100m) would be fine).
(The search folder and search radius information are saved when exiting HumFinder with "Exit" button. Next time HumFinder is launched those saved values will be used.)

3. Press HumFinder "Search SI Records" button to start the search.

The result in this case: There are several "hits" on acquired recordings.



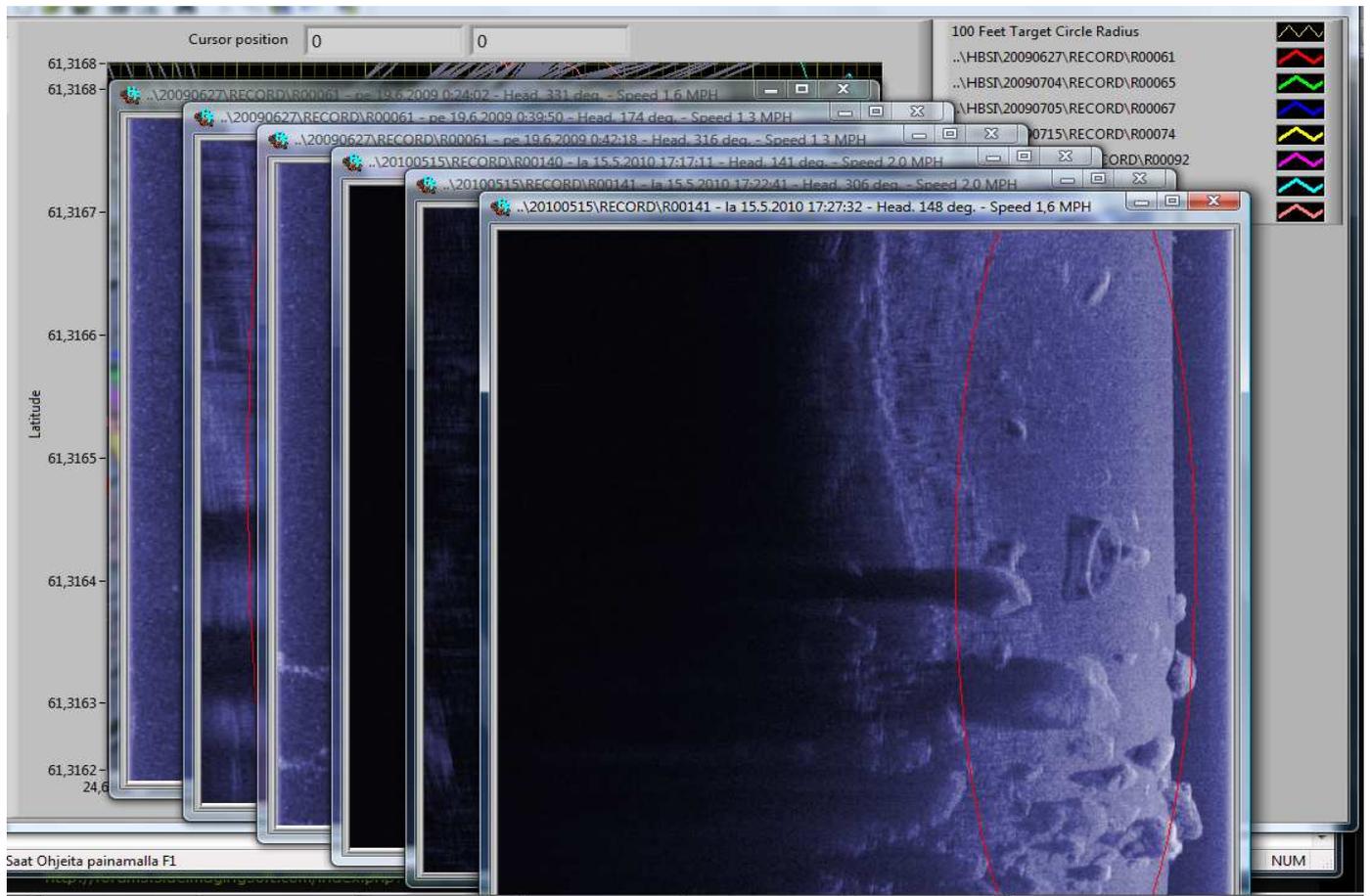
Pressing HumFinder "Show Target SI Images" button opens up a selection dialog. Dialog shows different information on recording spot to help selection. The user can select desired SI images to show using normal Windows "Shift"+ mouse left click or "Ctrl"+ mouse left click commands.

Select SI Images to Show Targets

SI Folder	Rec Time	Latitude	Longitude	Speed (MPH)	Freq kHz	Target Dist. (ft)	SI Bearing	Heading
..\HBSI\20090627\RECORD\R00061	pe 19.6.2009 0:39:50	24,69315	61,31649	1,3	455	46,8	250	174
..\HBSI\20090627\RECORD\R00061	pe 19.6.2009 0:42:18	24,69332	61,31648	1,3	455	23,6	217	316
..\HBSI\20090704\RECORD\R00065	su 28.6.2009 17:04:03	24,69301	61,31639	2,2	455	85,4	232	146
..\HBSI\20090705\RECORD\R00067	la 4.7.2009 15:13:17	24,69310	61,31663	0,7	455	63,8	303	68
..\HBSI\20090715\RECORD\R00074	ti 14.7.2009 23:48:32	24,69298	61,31639	2,9	455	89,5	236	324
..\HBSI\20090718_2\RECORD\R00092	la 18.7.2009 18:03:38	24,69303	61,31640	4,7	455	80,9	233	324
..\HBSI\20100515\RECORD\R00140	la 15.5.2010 17:17:11	24,69335	61,31651	2,0	455	13,4	225	141
..\HBSI\20100515\RECORD\R00141	la 15.5.2010 17:22:41	24,69341	61,31654	2,0	455	2,2	45	306
..\HBSI\20100515\RECORD\R00141	la 15.5.2010 17:27:32	24,69330	61,31651	1,6	455	19,7	241	148
..\HBSI\20100515\RECORD\R00141	la 15.5.2010 17:30:24	24,69304	61,31640	2,7	455	79,7	232	323

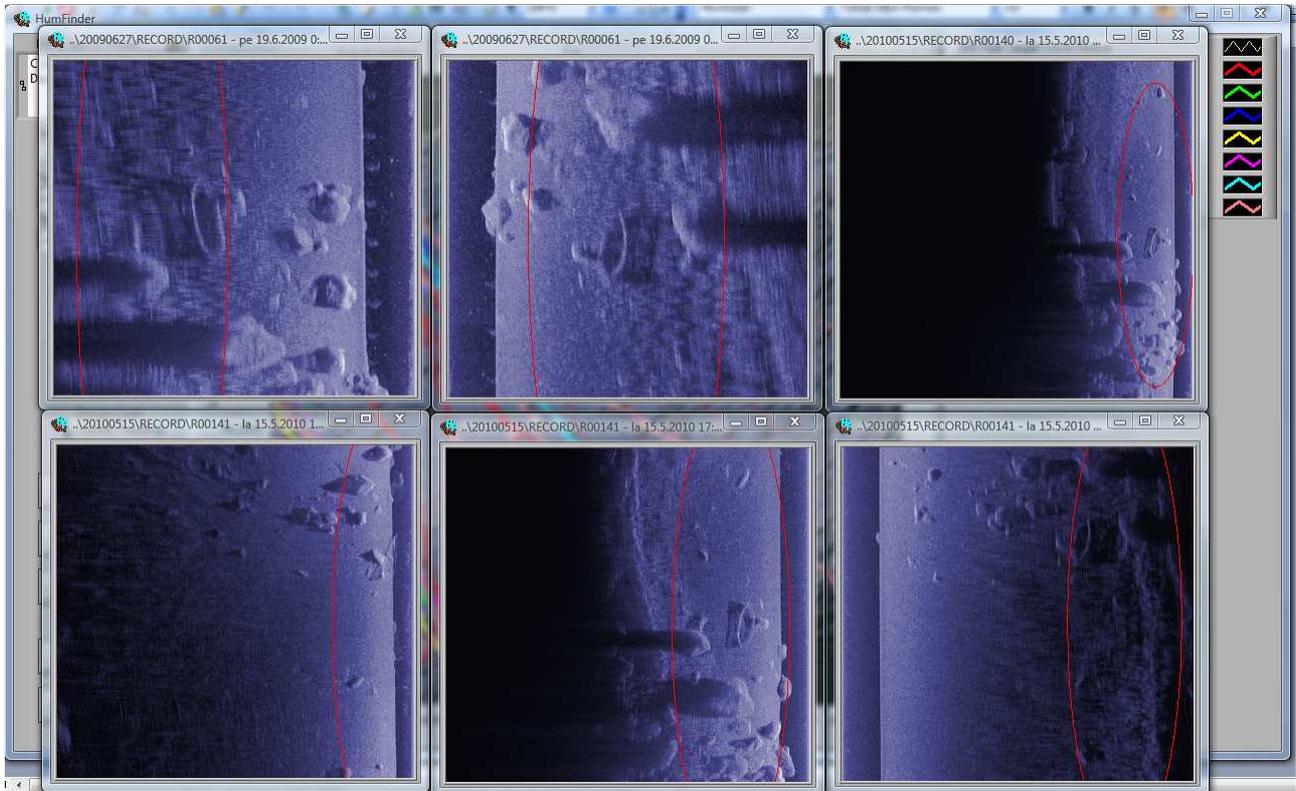
Show Selected SI Images

Opened selected SI images



The SI Image windows can be resized, moved, zoomed, minimized, maximised... independently for convenient inspection of target.

The red oval shows the expected target location. Oval disappears while zooming.



The SI images can be zoomed with mouse wheel or with “up” and “down” arrow keys.
SI Images can be “frozen” with spacebar (ON/OFF) to use measurement tool (or for other reason). The frozen SI image frame is red.



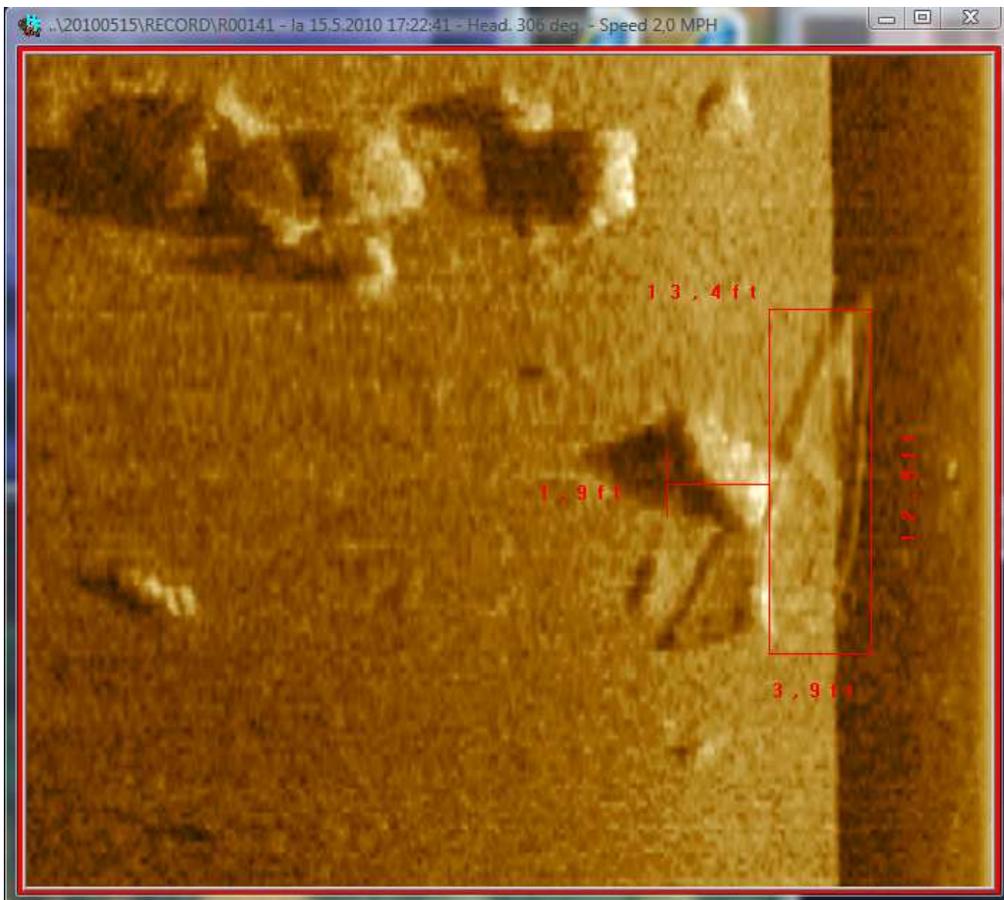
To use the dimension measurement tool, the SI image must be frozen. Press left mouse button to generate first corner and drag to desired point and release mouse button. Measurement tool resizing can be made by dragging from the corners to desired places.

Left upper corner number (13.4ft) is the diagonal dimension and the other ones (3.9ft and 12.9ft are horizontal and vertical dimensions respectively).

The object height estimation tool can be dragged from the center of left vertical side of the measurement tool and extended with left mouse pressed to the end of object shadow. Left vertical side of the measurement tool must be in this case at the point where object shadow starts.

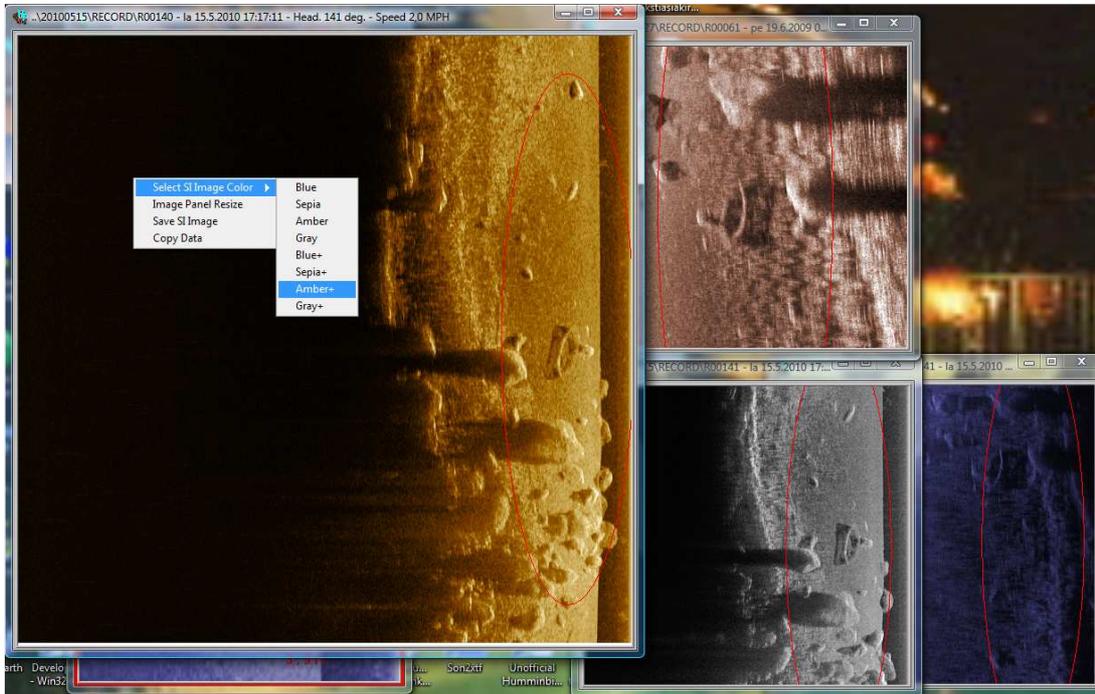
So in this case the sunken small boat has 13.4ft length and 1.9ft height. (Of course the figures are only approximate).

Aspect ratio correction is used (vertical dimensions correlates with horizontal ones). That means that SI images are dynamically stretched to achieve correct horizontal and vertical proportions. The result is that the speed of boat (even varying speed), varying sonar ping rate with different range settings should not affect the image proportions. Slant correction is not used though and furthermore varying depth can cause additional distortion as well as making curves while recording.



With right mouse click on SI image window, one can select SI image properties and functions:

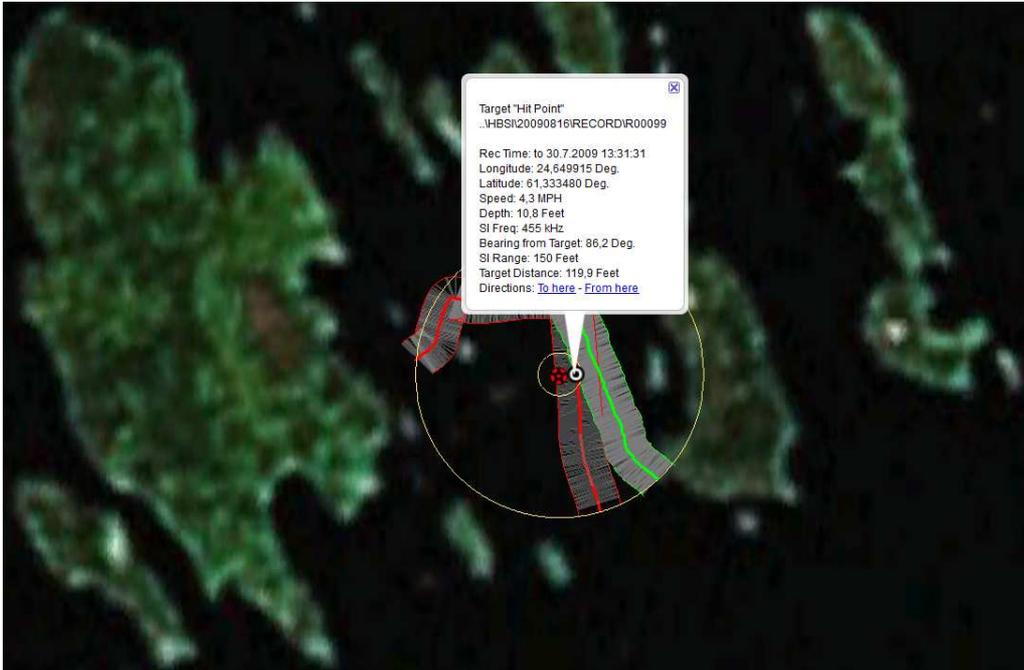
- Selecting SI image color. “+” does mild contrast enhancement and “TVG” action to bring out farther away objects.
- “Image Panel Resize” tunes window proportions after resizing window if needed
- Saving SI image as a .bmp file to desired folder
- Copying SI image data to clipboard



Showing SI tracks in Google Earth

The SI tracks, range and “hit”points with information can be shown in Google Earth by pressing button “Show in Google Earth”.

In some cases in order to Google Earth to open, I have been forced to press “cancel” to Google Earth’s installation messages.



If “Google Earth Coords Tracking” switch is set ON, it is possible to do new HumFinder search by double clicking chart position or panning chart to a new position. Found SI tracks are then automatically brought to Google Earth after search period.

(If HumFinder is maximized and is in maximized state since “Show in Google Earth” button is pressed, new search is not generated).

Max. search radius is 100 000ft (30km) and might be time consuming depending on size and quantity of recorded tracks on the area. With search radius 3000ft (1000m) and up, only SI tracks are shown.

Misc Tips

- Position can be automatically copied to HumFinder by copying single comma separated Lat, Lon information from any source to Windows clipboard
eg. 61° 19.570N, 24° 41.120E
- New search can be started by double clicking local XY-chart at preferred point
- Track names in Google Earth can be shown by clicking free track ends (without swath lines). Information of target “hit”points, target and target circles can be shown by clicking too.