OPL MRR Viewer Tutorial

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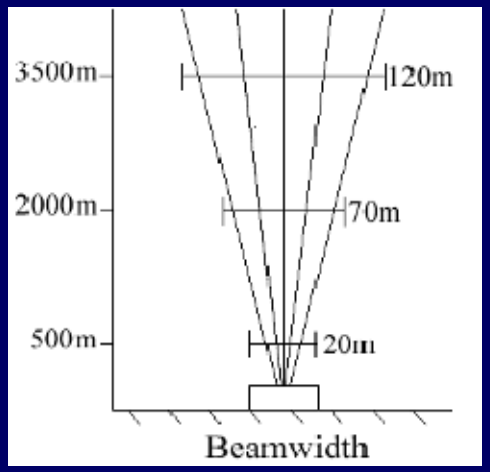
What is an MRR?



- A Micro-Rain-Radar is a vertically pointing Ku band radar (1.25 cm) that transmits at a frequency of 24 GHz. It can measure up to 30 gate heights with a 30-200 meter gate spacing.

Opening OPL MRR Viewer

LINUX

- Open a new terminal window.
- Change your directory to the location of the OPL MRR viewer.
- Once you are in this directory, type the following command:
  java –jar OPL_MRR.jar

WINDOWS

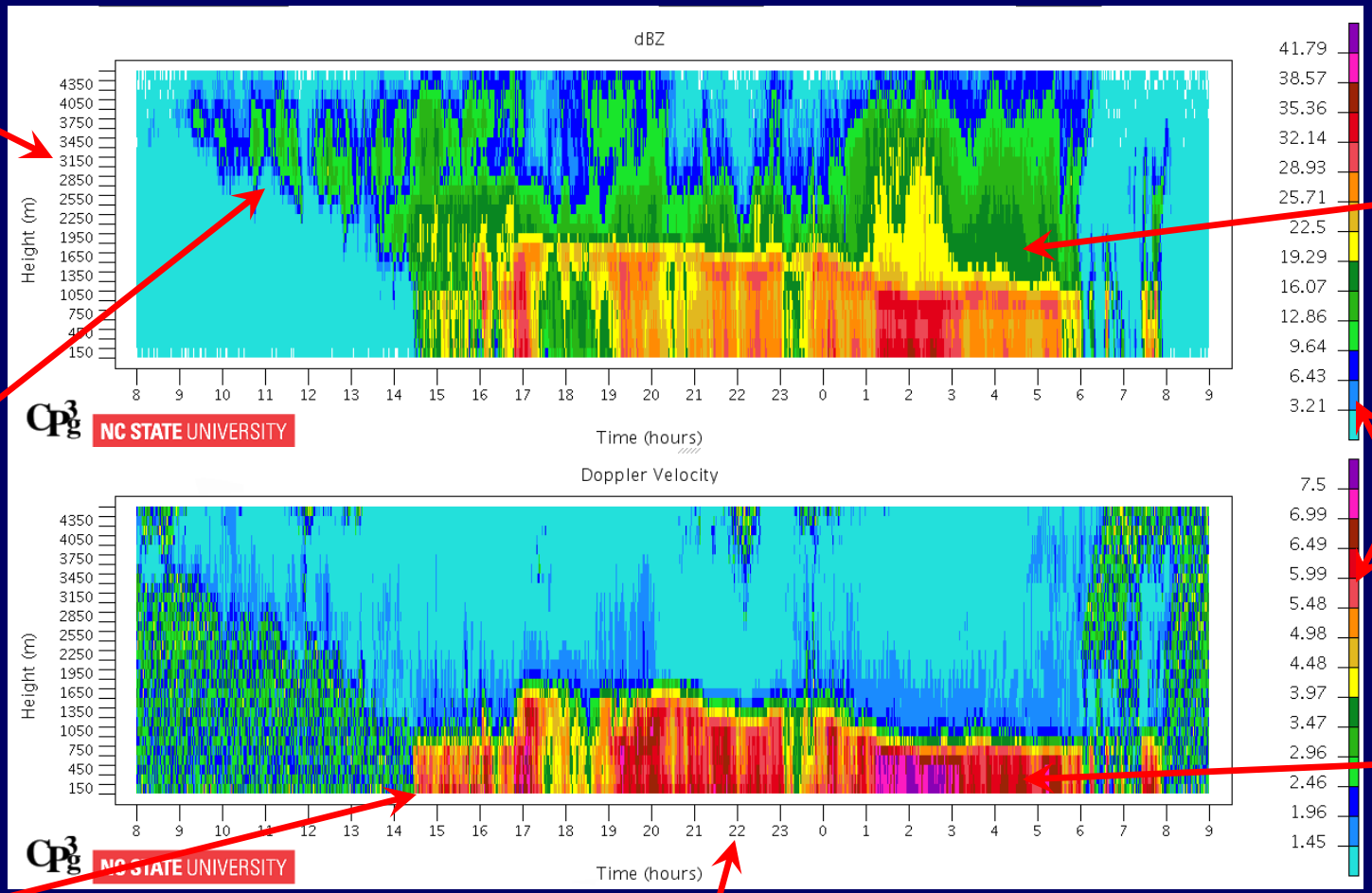
- Open windows explorer and find the OPL MRR directory on your hard drive.
- In this directory double-click on the OPL_MRR.exe file.
- Windows install will also install OPL MRR Viewer under Programs.

MRR Output

Height above sea-level (m)

Virga indicates precip not reaching the ground

Velocity returns (m/s)



dBZ returns

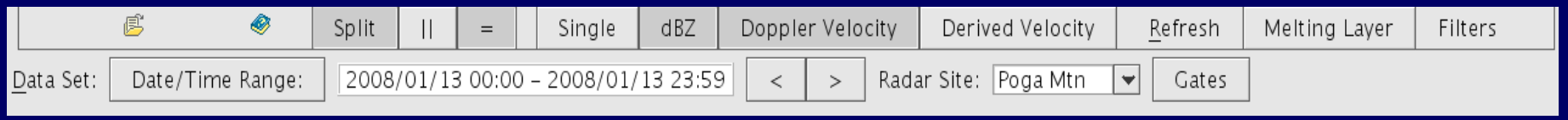
Color scales

Fall velocity gradient indicates melting layer

Time in time zone of recorded data

OPL Tool Bar (LINUX vs. Windows Version)

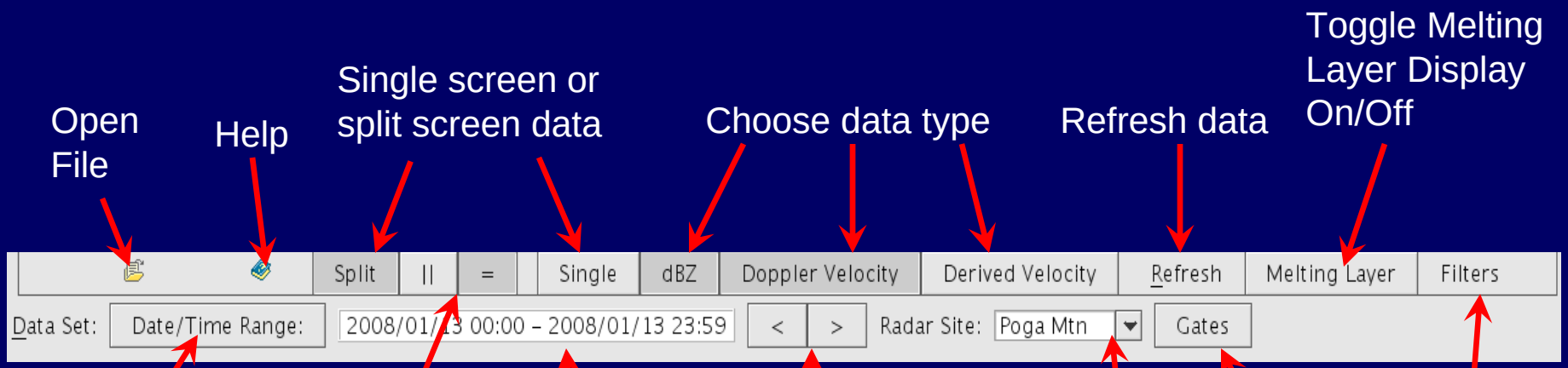
LINUX Tool Bar



Windows Tool Bar

- A description of each icon and button are on the next page using the LINUX tool bar.
- At the current time, the LINUX tool bar has a cosmetic bug. This will be fixed in updated versions.

OPL Tool Bar (Linux Version)



Open File

Help

Single screen or split screen data

Choose data type

Refresh data

Toggle Melting Layer Display On/Off

Sets Date and Time Range

Vertical or horizontal screen split

Current date/ time range being displayed

Decrements or increments date/time (default one day)

Select radar site

Gate Height Setting

Filter Settings

Adding Radar Sites

- Click file, then radar site settings.
- In radar site settings there are options to add, modify, and delete radar sites. You can also set a particular site as active, clear cache files of raw data, or validate radar site settings.

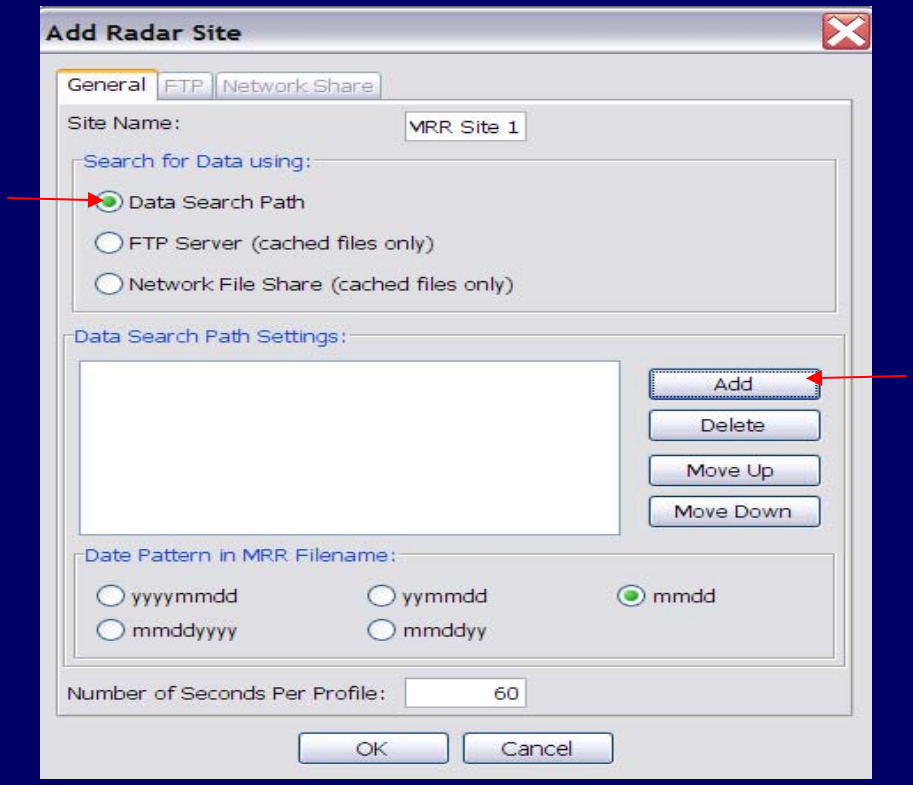
Adding Radar Sites

- To add a new radar site, click the add button in radar site settings. A new dialog box will appear allowing you to add a radar site name. You can also select where the viewer will look for data files.

- The three different data path options are shown in the next 6 pages.

Adding Radar Sites: Data Search Path

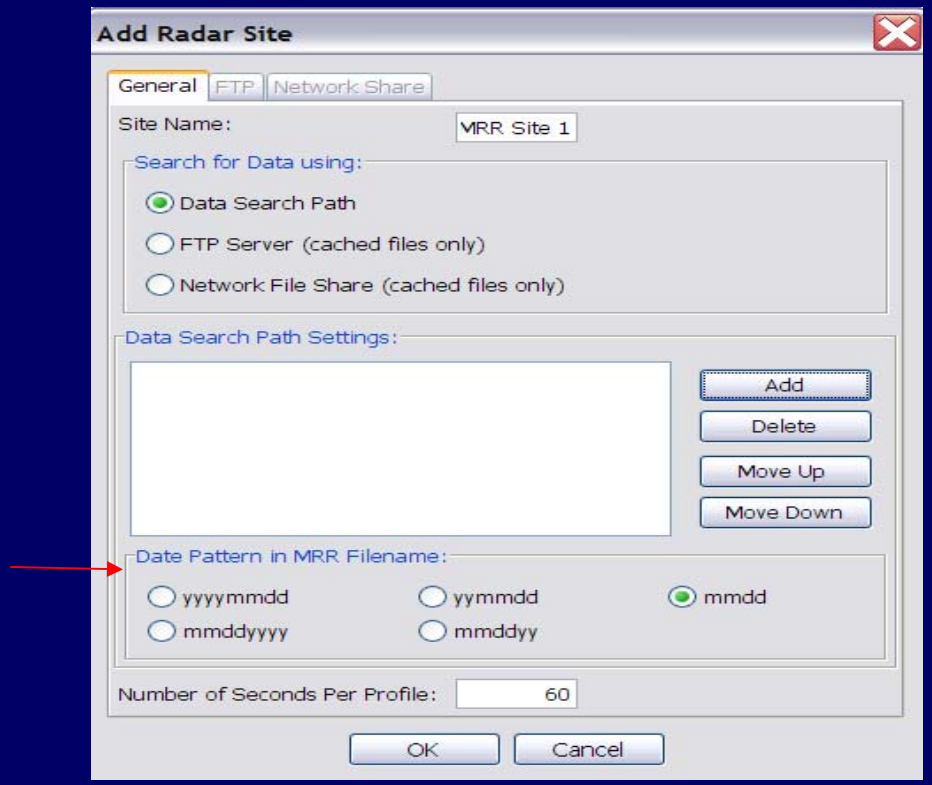
- If your data is stored on a local hard drive, use data search path.
- To add data for the new radar site, simply click the add button when data search path is selected. Here you can select where the data is stored on your local hard drive.



- You then have the option to delete a path, move a path up or down, and select the pattern of the date in the raw MRR data file (un-cached file).
- Note: The number of seconds per radar profile applies to all the data path options and is not specific to data search path.

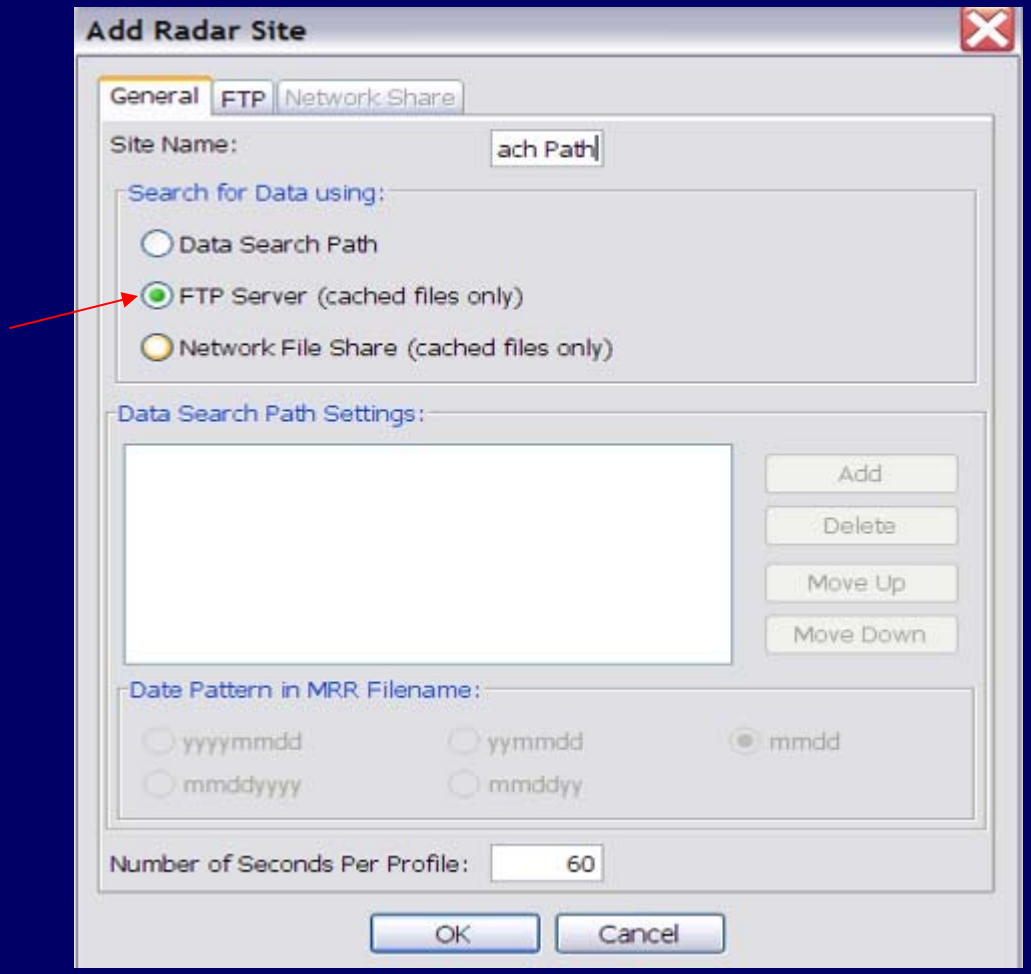
Adding Radar Sites: Data Search Path

- An un-cached raw MRR data file can have the date pattern yyyymmdd. The pattern begins with the year, the month, and then the day.
- You have the option to select other patterns such as the last two digits of the year, the month, and the day (yymmdd), or just the month and day (mmdd).
- Its also possible to select a pattern with the month, day, and full year (mmddyyyy), with the last two digits of the year (mmddyy).



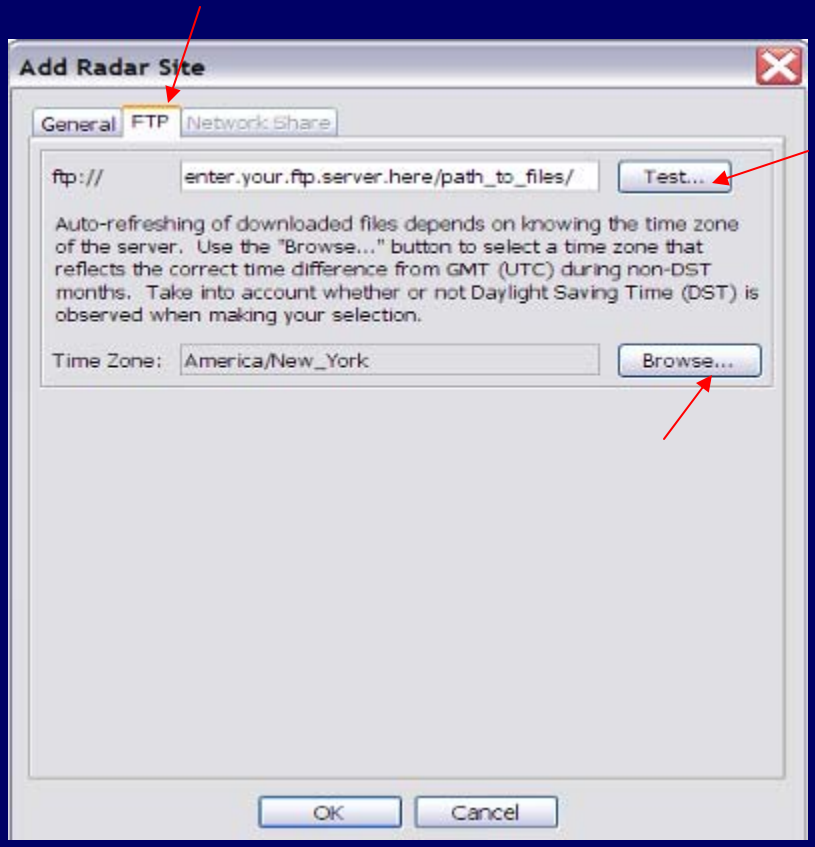
Adding Radar Sites: FTP Server

- If your data is located on an FTP server, use FTP server (cached files only).



Adding Radar Sites: FTP Server

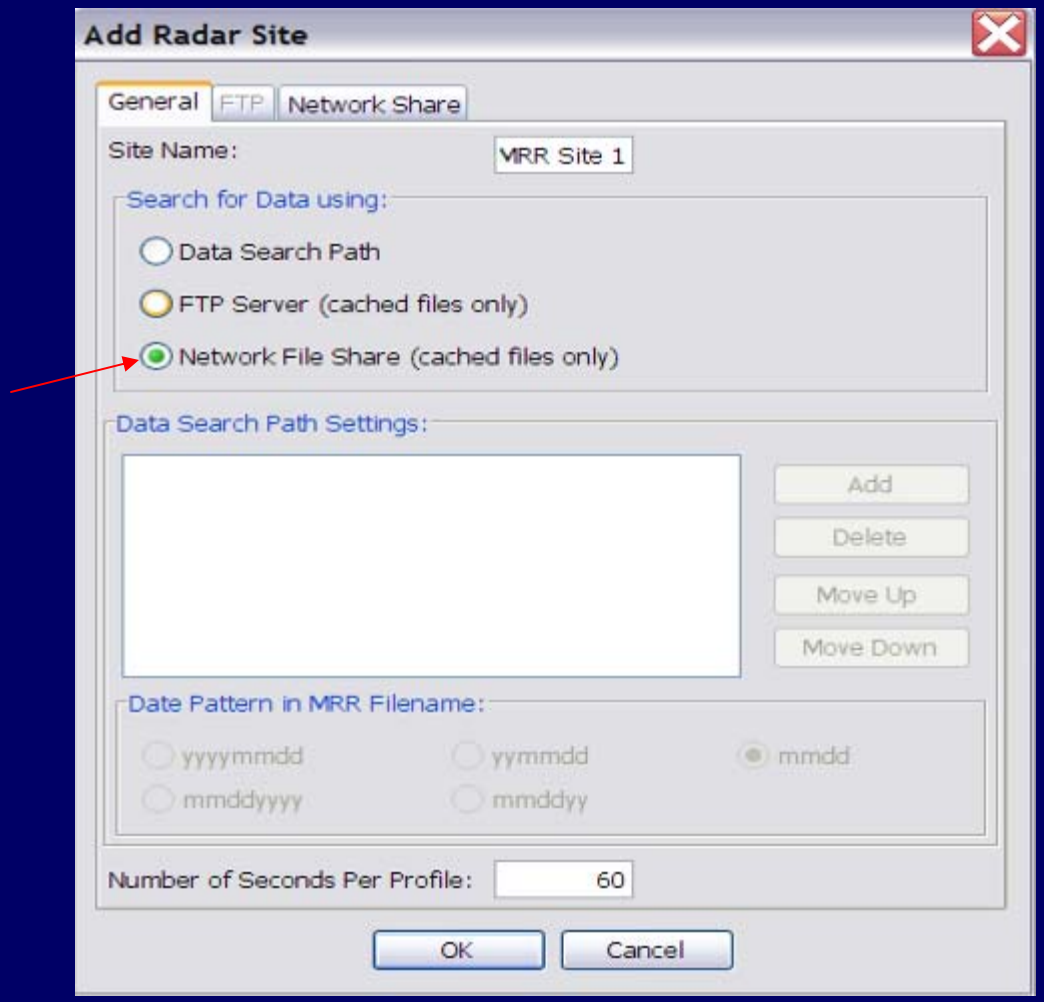
- Click the FTP tab at the top of the add radar site dialog box to set the path of the data



- Enter the ftp server path in the box next to ftp://. You will then need to select the time zone of the ftp server in order to auto-check the server for new data correctly when comparing time stamps.
- Once a path and time zone have been entered, press test to ensure the ftp server is found and the correct directory was chosen.

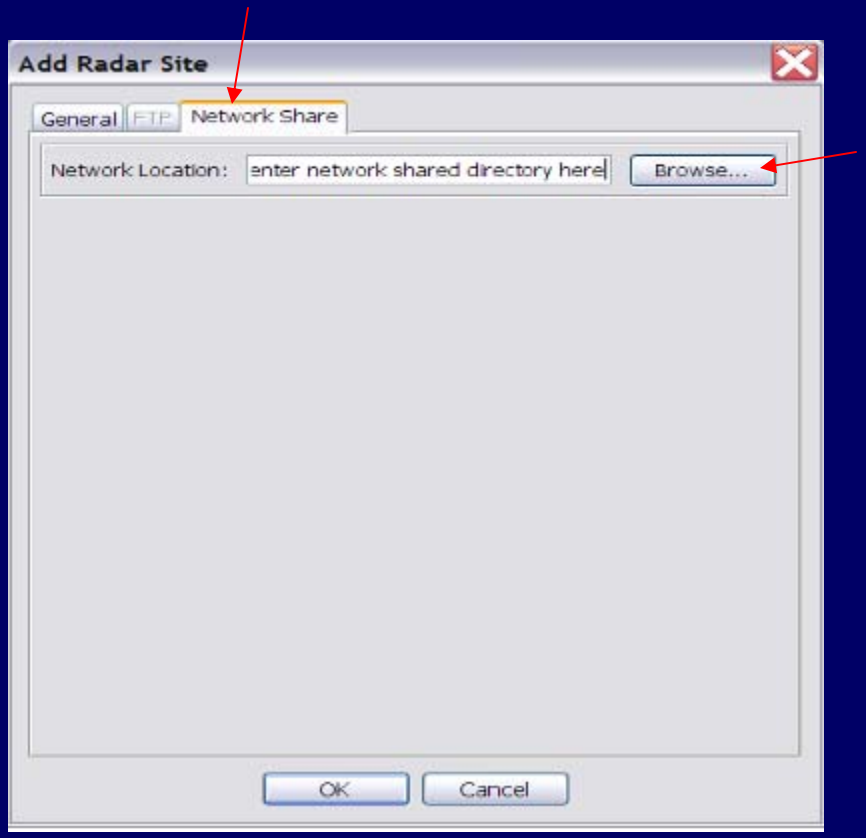
Adding Radar Sites: Network Share

- If your data is located on a network, use network share (cached files only).



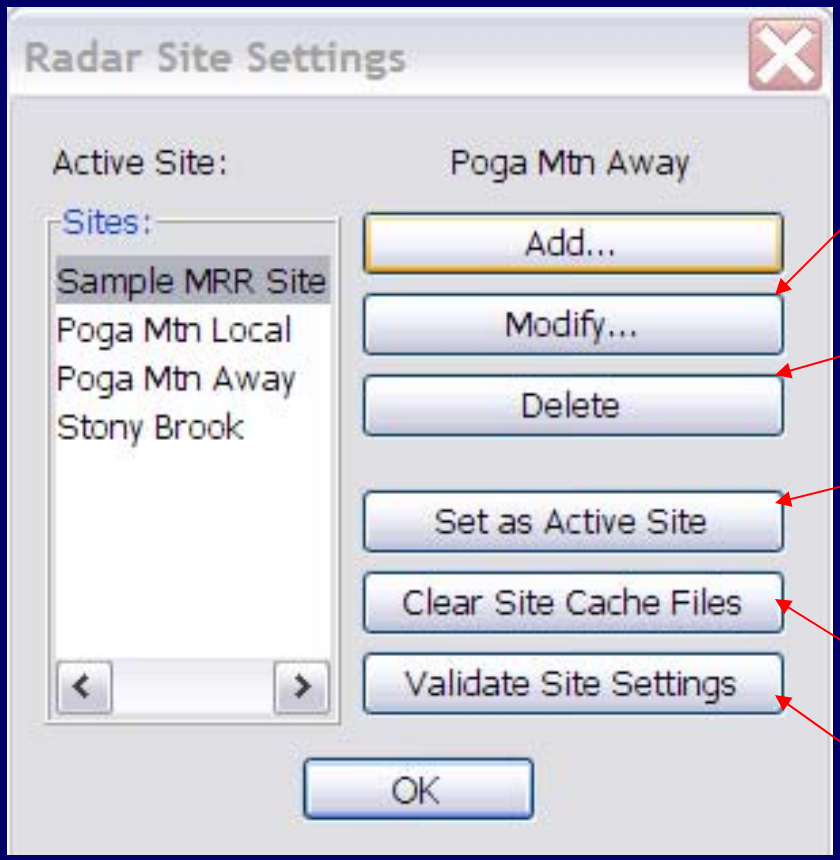
Adding Radar Sites: Network Share

- Click the network share tab at the top of the add radar site dialog box to add the network path for the data.



- Press the browse button to select the network share directory of cached files.

Other Radar Site Setting Options

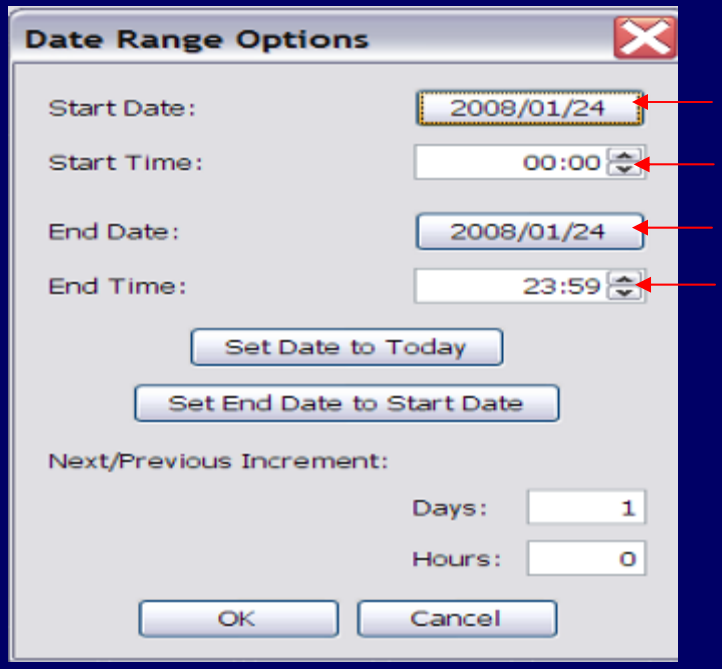


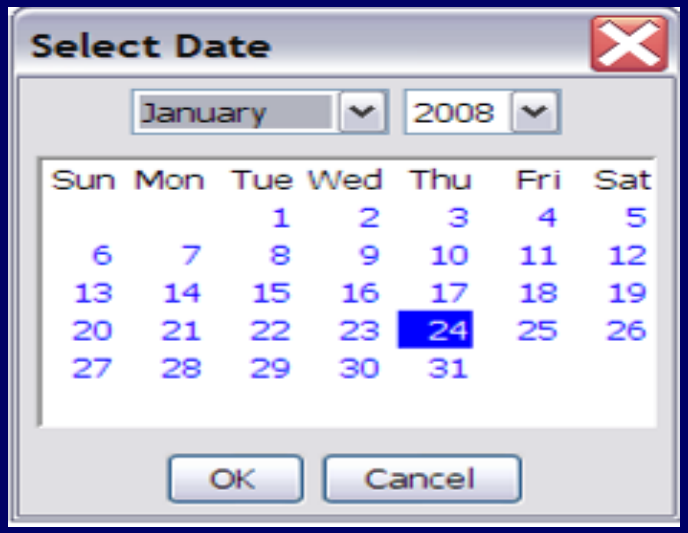
- To edit a radar site, click the radar site you want to edit from the site list and press modify.
- To delete a radar site, click the radar site you want to delete from the site list and press delete.
- To set a radar site as active, click the radar site you want to set as active and press set as active site.
- To clear a radar sites cache files, press clear site cache files.
- To validate a radar sites settings, press validate site settings.

- Note: It may be useful to clear a radar site's cache files if you were first using the data search path, but switched to a ftp server. Clearing cache files ensures that the next read of data comes from the newest version of the cache files. If you suspect there was a problem with the last download of files, then clearing cache files would be useful.

Set Date/Time Range

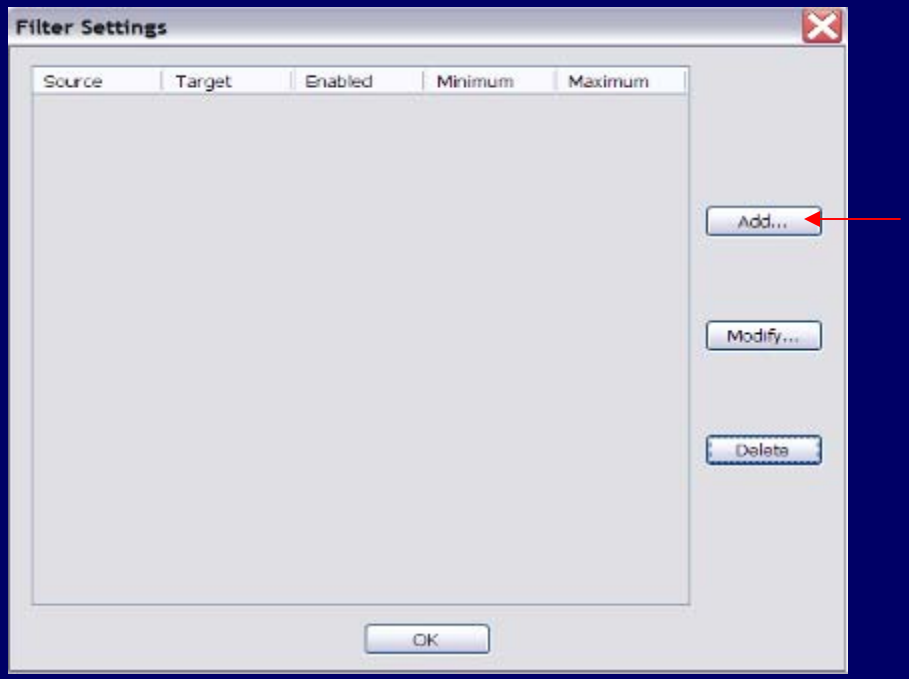
- To select a date and time range, press the date/time range button on the tool bar. A date range options dialog box will appear (top right)
- Next, select your start date and time and end date and time
- By pressing the start date or end date button, a calendar will pop up allowing you to select a date (bottom right).
- For start and end times, you can either manually type in the time or use the up and down arrows to select the times.
- There is also an option to set the date to the current date.
- You can also press set end date to start date to have the end date and time set to the end of the selected start date.
- Next/Previous Increment sets how many days and hours the change date buttons on the tool bar will move forward or back.



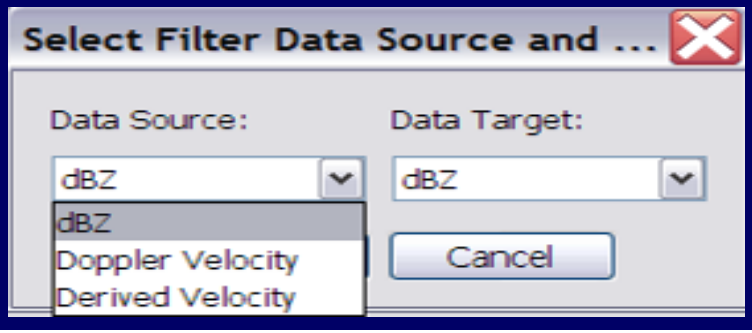


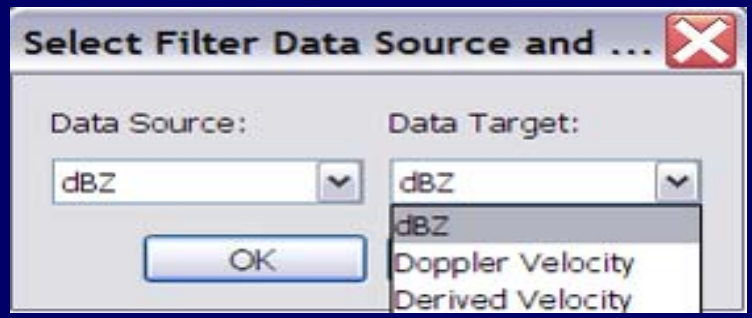
Setting Up Filters

- Click the filters button on the tool bar or click options and set filters. The dialog box below will appear.



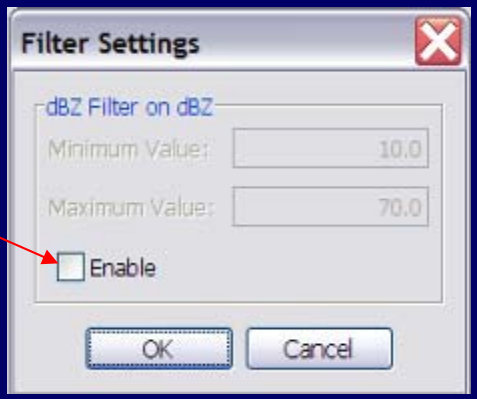
- Click add to select filter data source and target.
- For data source and data target, choose between dBZ, Doppler Velocity, or Derived Velocity in the combo boxes.

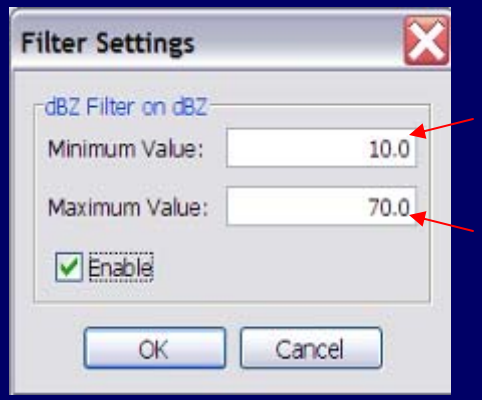




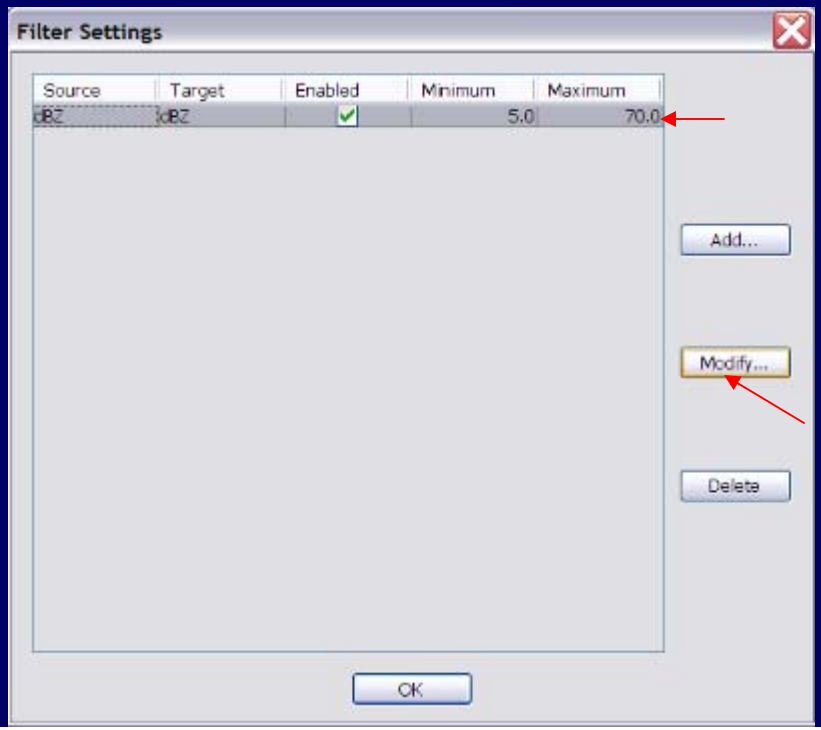
Setting Up Filters

- It is recommended to use dBZ as the data source for all filters.
- Once your data source and data target are set, the user must enable the filter to set the minimum and maximum value.



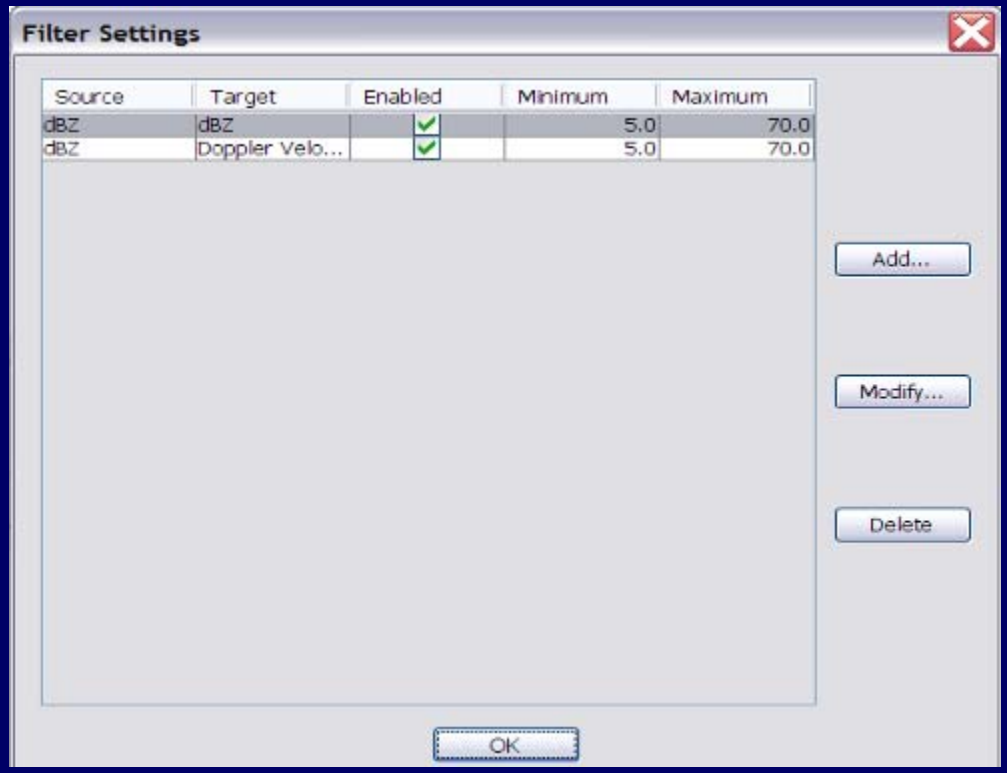


- To modify a filter setting, select the filter you want to modify and press the modify button on the main filter settings dialog box.



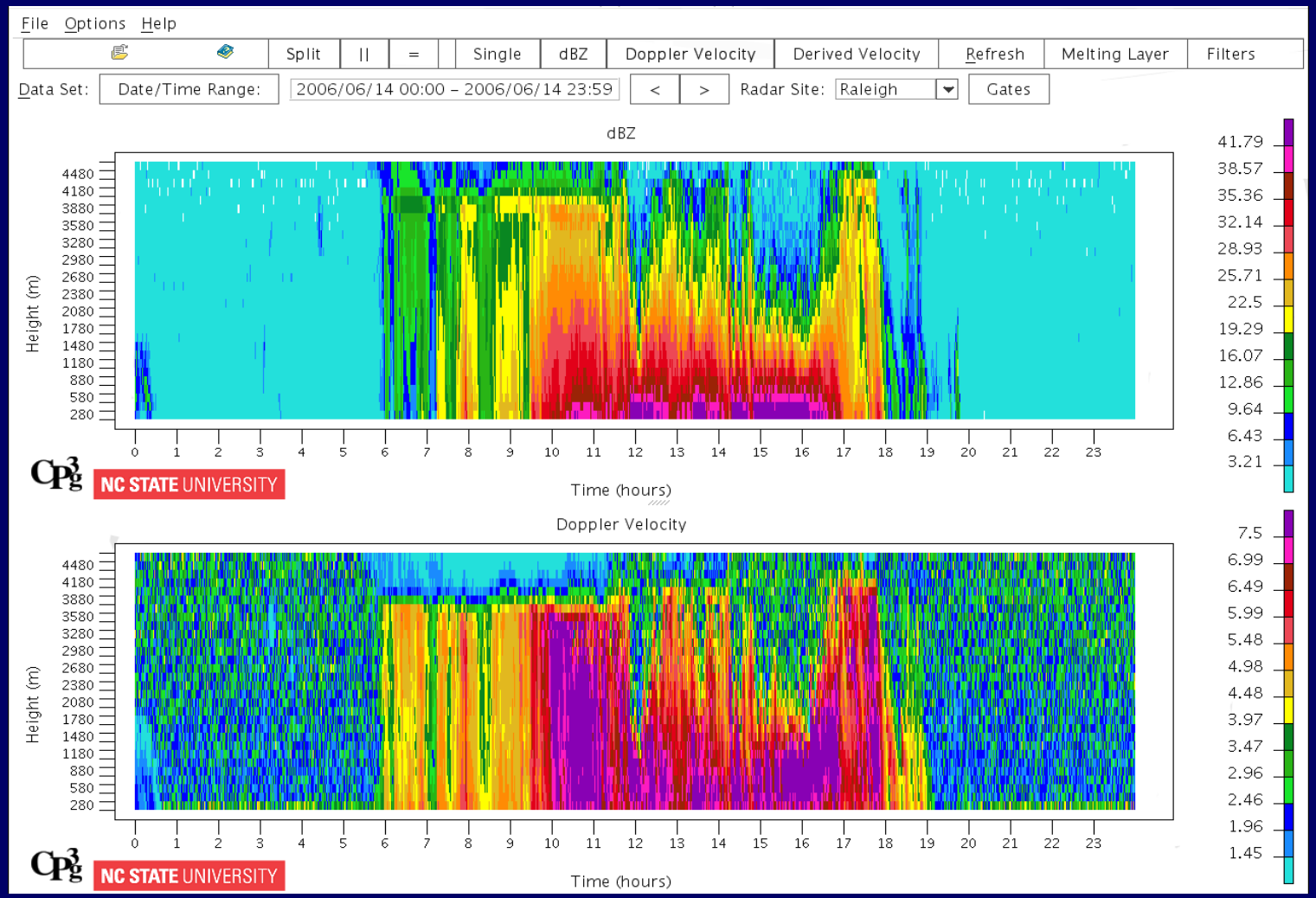
Setting Up Filters

- An example of the filter settings screen is shown below with filters for dBZ and Doppler Velocity.

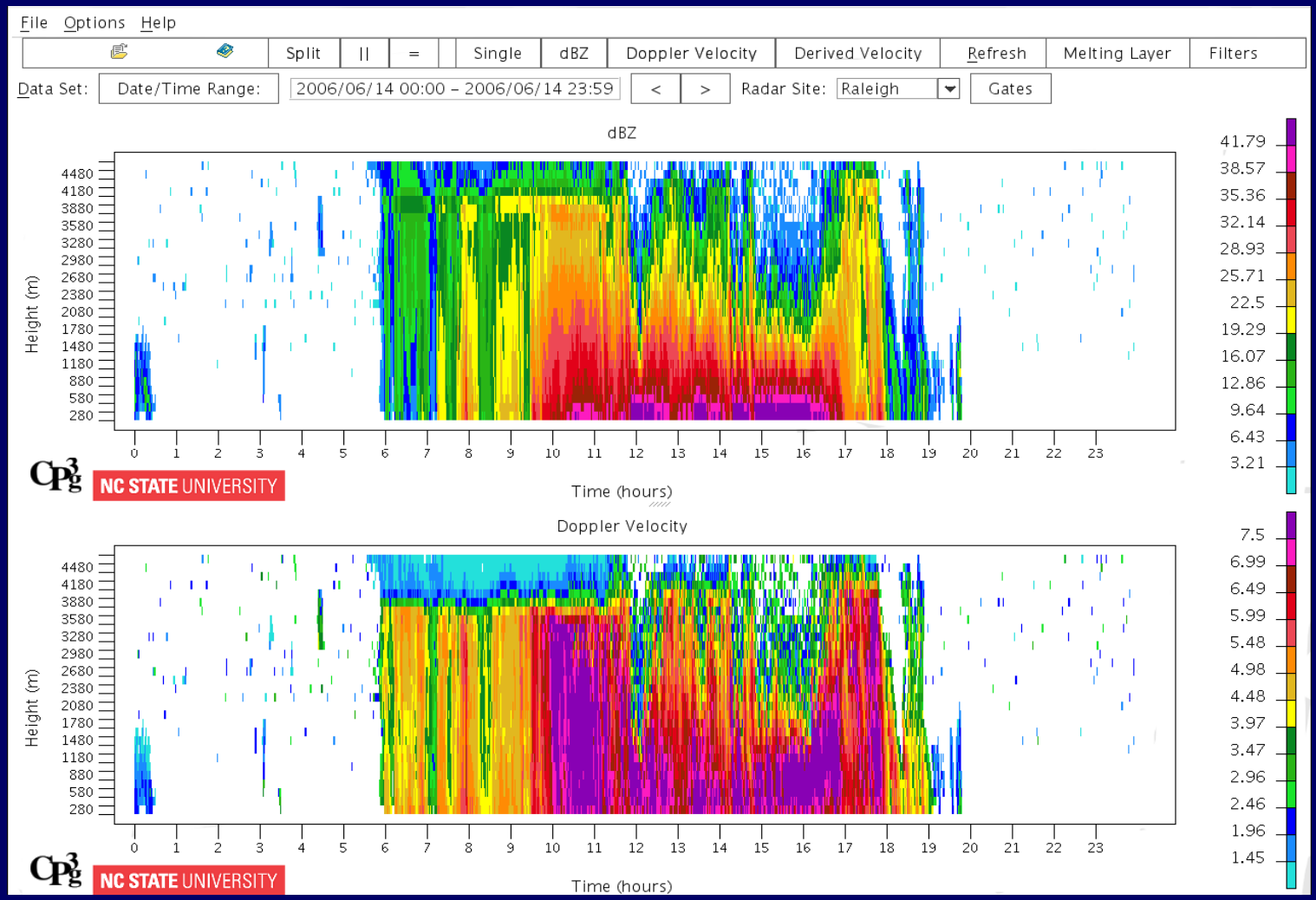


- To delete a filter, simply select the filter you want to delete and press the delete button on the main filter settings dialog box.

MRR Data With Filters Disabled



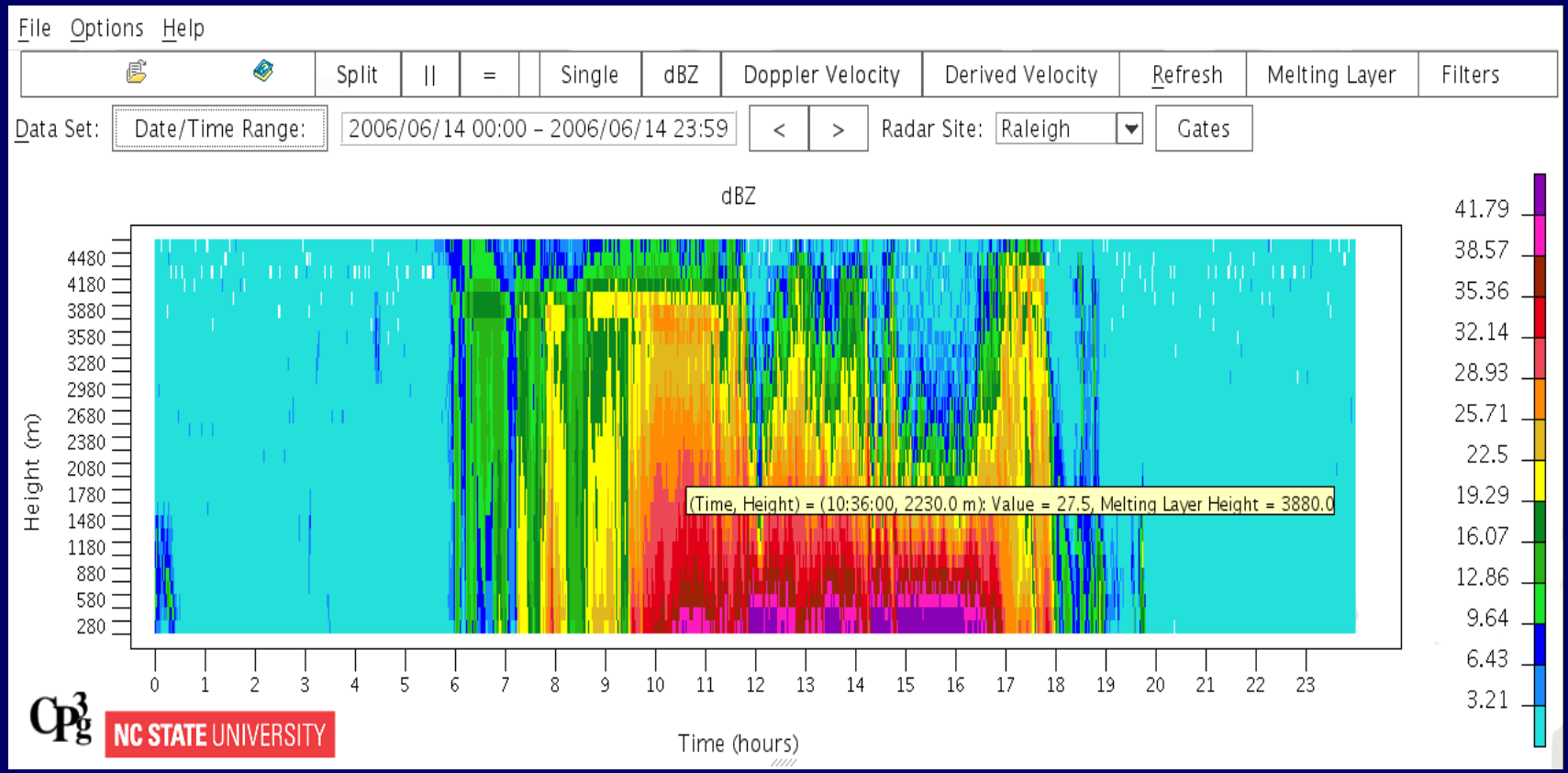
MRR Data With Filters Enabled



Reading Data Values From Viewer Output

- To read specific data values from the MRR plots, move your mouse cursor over the location you want to know what numerical values are being read.
- Once you are at that location, a box will appear on the screen with the data readout.
- You can get data values for dBZ, Doppler Velocity, and Derived Velocity data.
- For a dBZ reading, you will be given the time and height information, the reflectivity value, and the melting layer height for that specific time.
- For a velocity reading, you will be given the time and height information, the velocity value (in m/s), and the melting layer height for that specific time.
- An example of what the readout box looks like from dBZ data is given on the next page.

Reading Data Values From Viewer Output

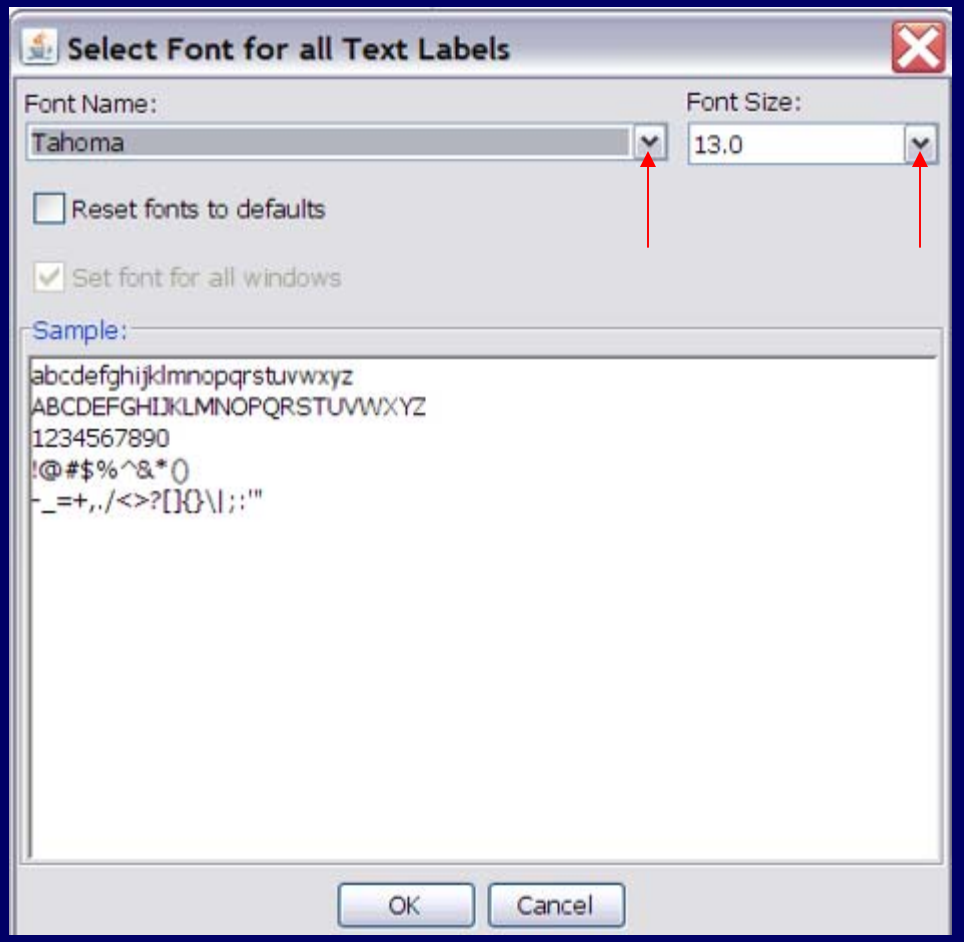


Setting Scales

- Under options click set scales.
- Here you can set scales for dBZ, Doppler Velocity, and Derived Velocity
- Each window allows you to select auto-scale which lets OPL Viewer automatically selects the minimum and maximum of the current data.
- An example dialog box for setting a dBZ scale is shown below.

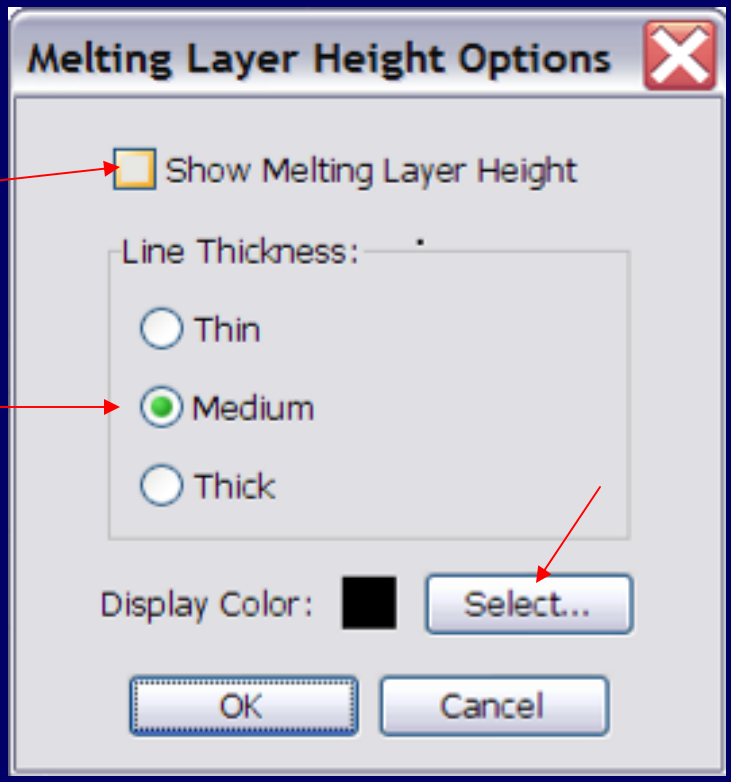
Selecting Fonts

- To select fonts, go to options then press select fonts. A select font for all text labels dialog box will appear.
- You can then select any font from a list of available fonts and choose your desired font size.
- Please note that changing the font and font size will effect all text that appears on the OPL Viewer screen.
- To change font back to default settings, click the reset fonts to defaults button.



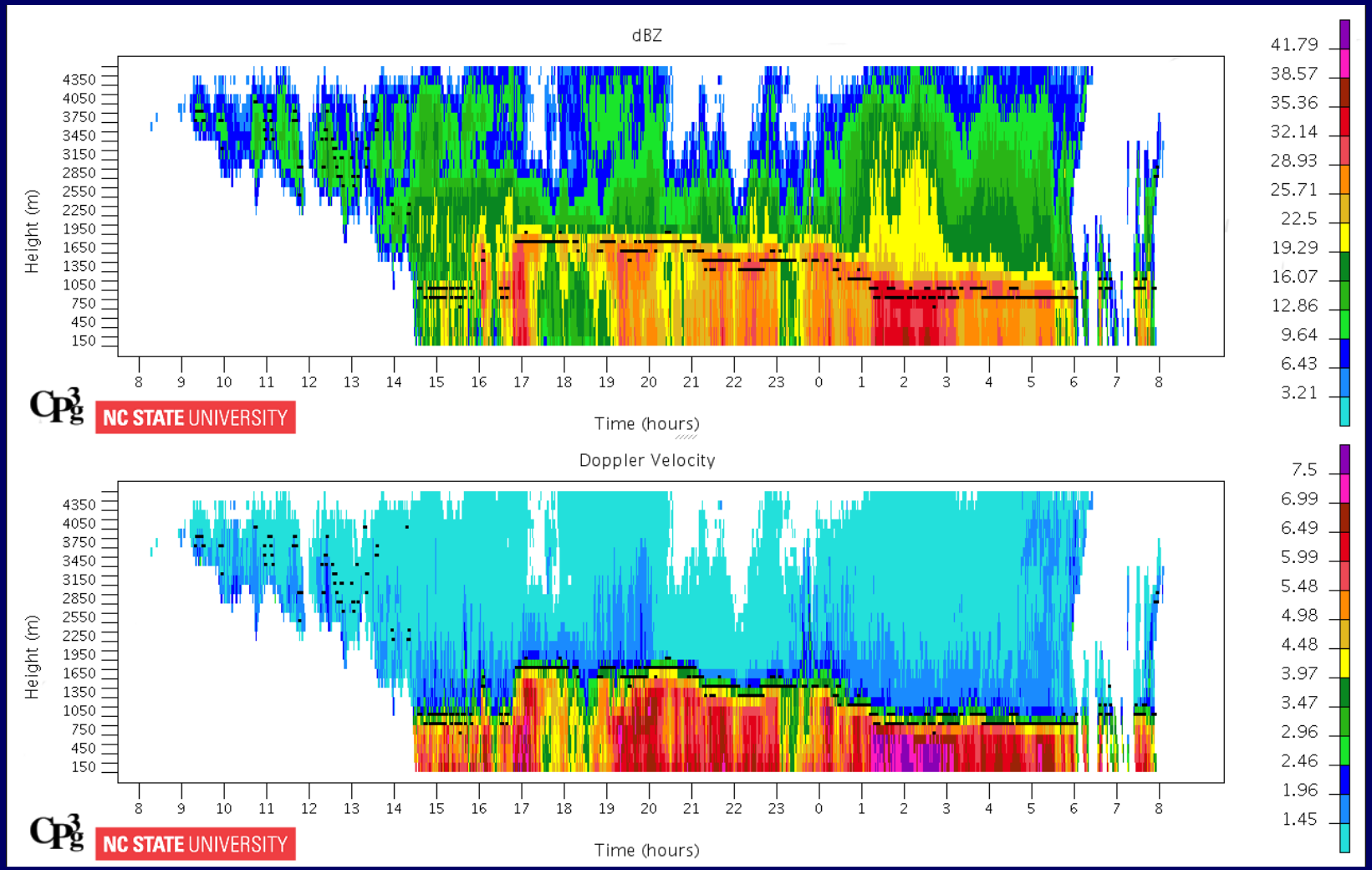
Melting Layer Height Options

- A good way to distinguish between rain and snow or ice is to use the melting layer function.
- Click options and then melting layer height. An options dialog box will appear.
- To show melting layer height on the radar data, click show melting layer height. You can also click the melting layer height button on the tool bar.
- You can set line thickness to thin, medium or thick.
- The melting layer display color can be selected by hitting select.
- See adding new colors: color table for color selection options.



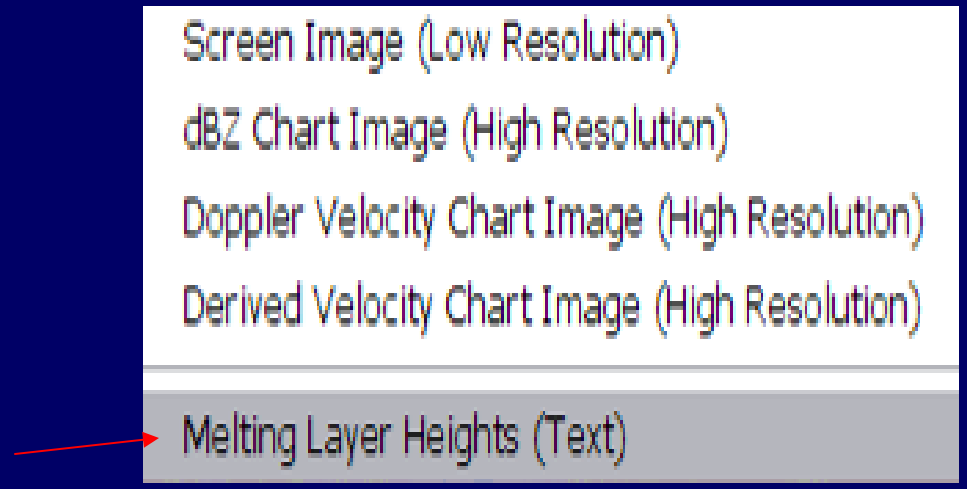
Melting Layer Heights on MRR Data

- An example of MRR data with melting layer heights in the viewer is shown below.
- Please note that refinements to this algorithm are in process.



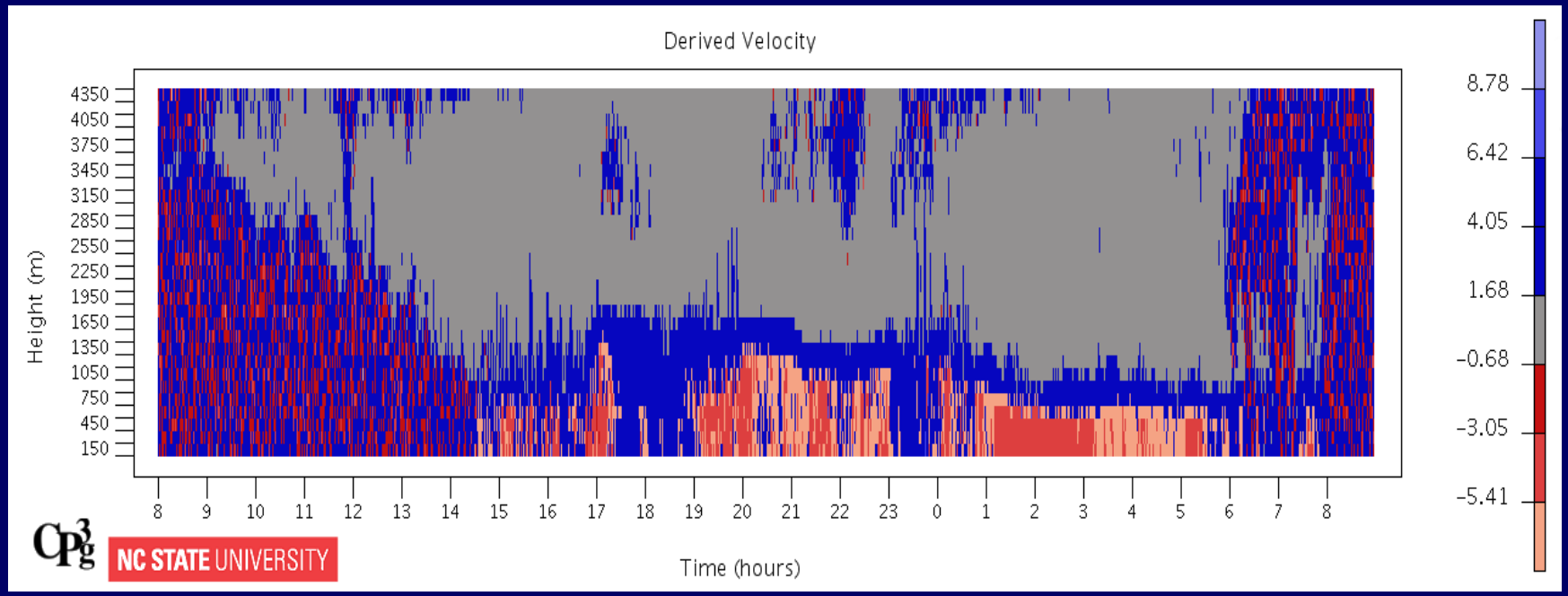
Saving Melting Layer Heights Text File

- Go to file, and click save as.
- Once the save options screen appears, click Melting Layer Height (Text).
- The OPL viewer will ask you where to save the text file.
- A text file will be saved to the chosen location with the melting layer heights for the data being viewed.



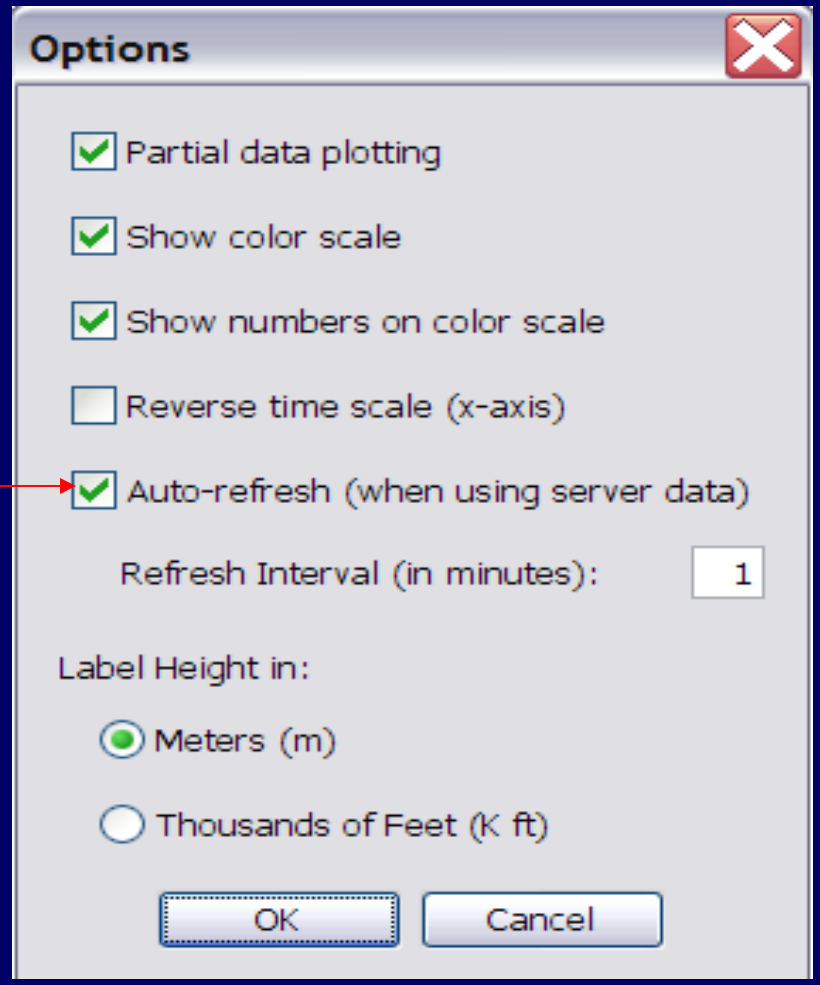
Derived Velocity

- In regions of ice or snow, Derived Velocity returns less than 2 m/s indicate upward motions.
- To view Derived Velocity data, press the Derived Velocity button on the tool bar.
- An example of Derived Velocity data is shown below.



More Options

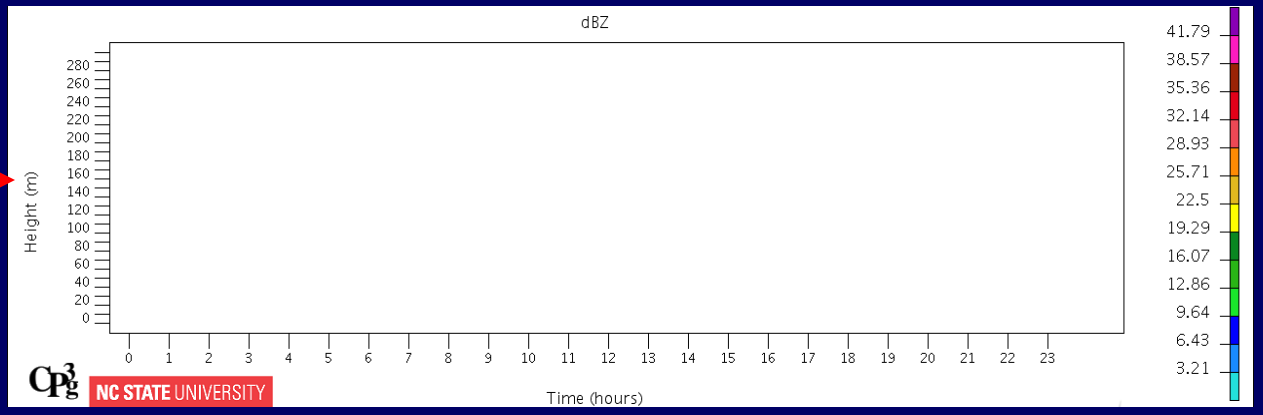
- Click options, then more options to bring up a dialog box with other available options.
- Options include partial data plotting, toggle color scale on or off, toggle numbers on color scale on or off, reversing time scale (x-axis), auto-refresh interval, and changing the height units.
- The more options dialog box is shown to the right.
- For more information regarding partial data plotting and auto-refresh, see the next page.



More Options: Partial Data Plotting

- Note: Partial data plotting is always turned on if you are using data from a server.
- If partial data plotting is enabled and there is no data file for the selected date/time range, then a white rectangle will appear in the data screen.
- If partial data plotting is disabled and there is no data file for the selected date/time range, then “*** No Data Available ***” will appear in the data screen.

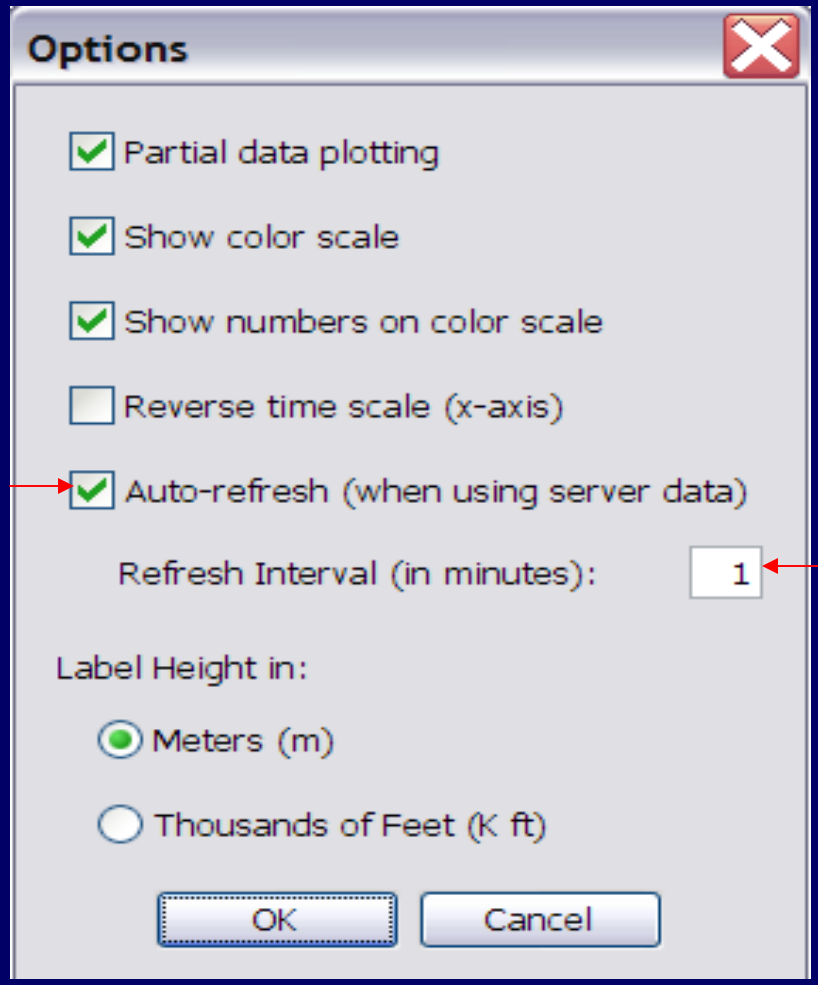
Enabled



Disabled

More Options: Auto-Refresh

- If you are using data from a server, then an auto-refresh interval can be set.
- The auto-refresh interval has to be in minutes.
- If enabled, then this can be helpful in the situation you want to automatically load the current days data as it updates from the server instead of having to keep hitting the refresh button on the tool bar.
- If disabled, then you will have to hit refresh on the tool bar if you want to get the latest data on your screen.
- Auto-refresh is not useful for looking at data before or after the current day.



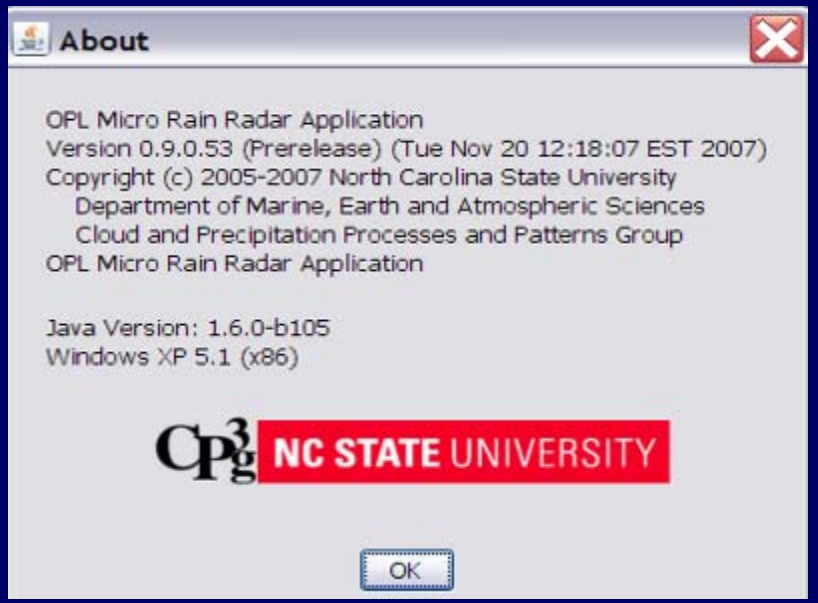
Open File & Help/About

Open File

- To open data files, go to file and press open. You can also hit the open file icon on the tool bar.
- You will then be asked to locate the files you want to open on your hard drive or from your local network. You can open cached data files, derived velocity files, raw, instantaneous, and averaged data files.

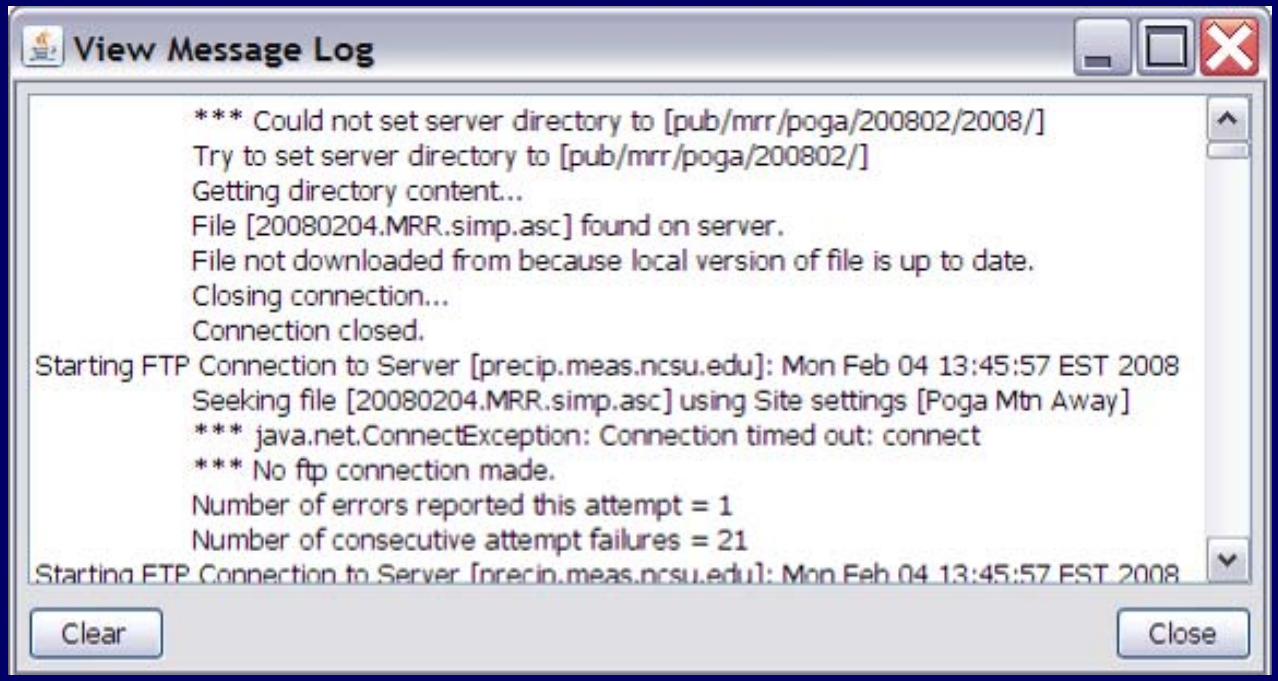
Help/About

- To view the help/about screen, go to help and press about or hit the help icon on the tool bar.
- The about screen will list the current OS version and current Java version being used.
- These versions should be noted with any questions or problems reported about the OPL MRR Viewer.



Viewing Message Log

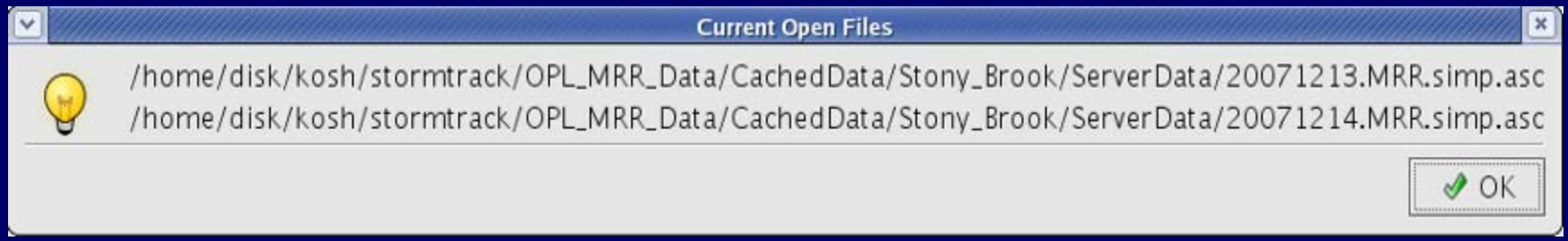
- To view a log of server connection messages, go to file and press view message log.
- You also have the option to clear the message log.
- An example server connection message log is shown below.



Viewing/Clearing Open Cache Files

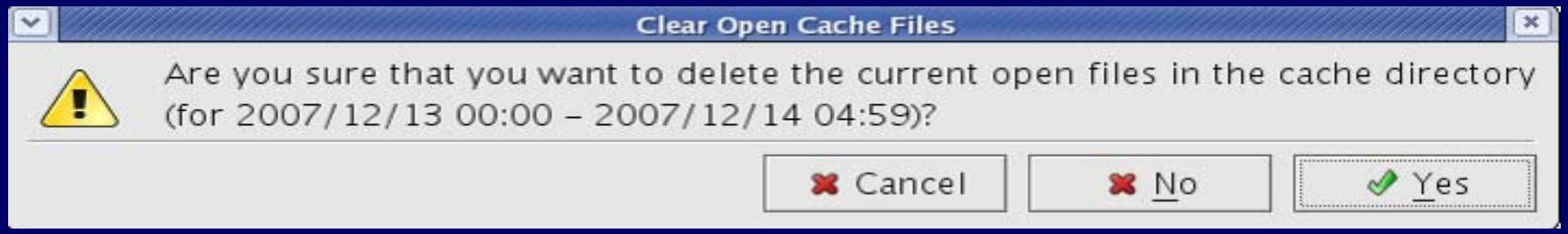
Viewing Open Cache Files

- Go to file, view open files. A dialog box will appear showing you the cache files OPL viewer is using to display the data.



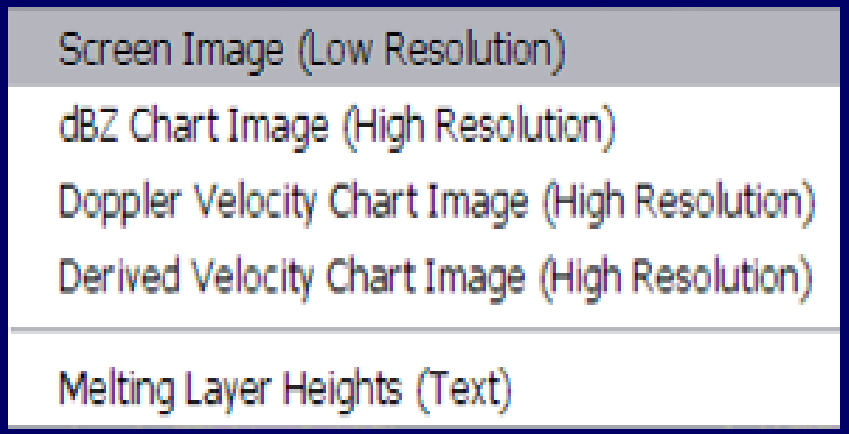
Clearing Open Cache Files

- It may be necessary to clear open files in the current cache directory.
- Go to file, clear open cache files. A dialog box will appear asking if you want to delete the current open files in the cache directory.



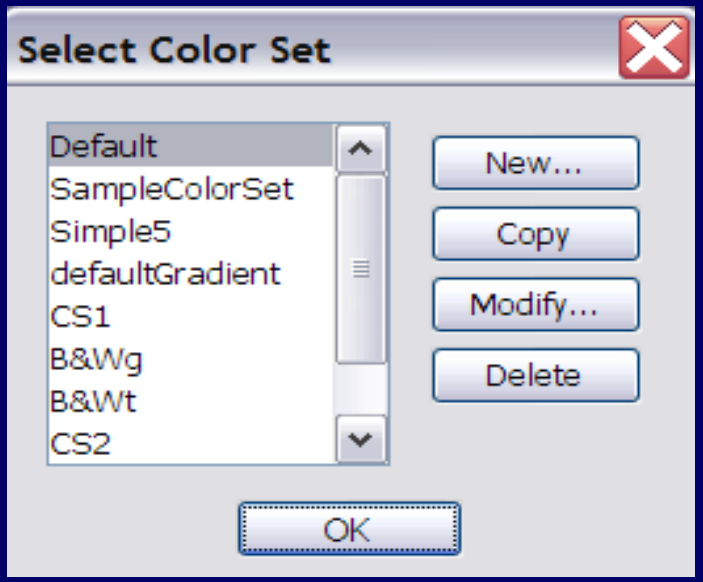
Saving OPL MRR Images

- There are two options when saving an image of radar data.
- The first option is you can go to file, and click save as.
- Here you have the option to save a screen image, dBZ chart image, Doppler Velocity Chart Image, Derived Velocity Chart Image, and melting layer heights text.
- Please note the dBZ chart image, Doppler Velocity, Derived Velocity are high resolution and the screen image is a low resolution image.
- The other option you have to save the radar image is to hit the Prnt Scrn button on your keyboard.



Selecting Color Set

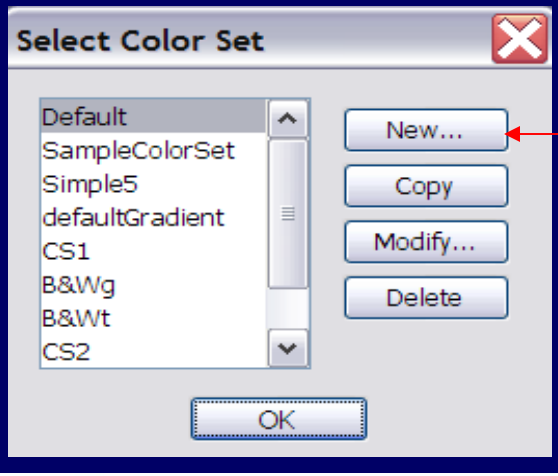
- Under options click select colors.
- A dialog box will appear (below) showing the available color tables and options to add a new color table, copy an existing color table to a new color table, modify an existing color table, and delete a color table.



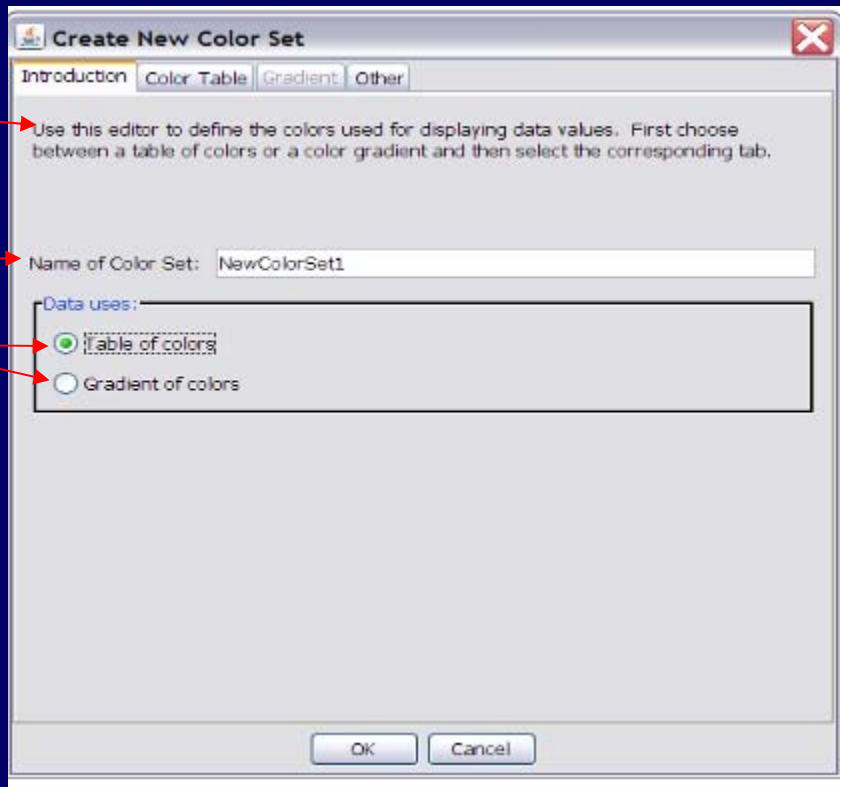
- Select the color table you wish to use and click OK.

Adding New Color Set

- In the select color set dialog box, click the new button.

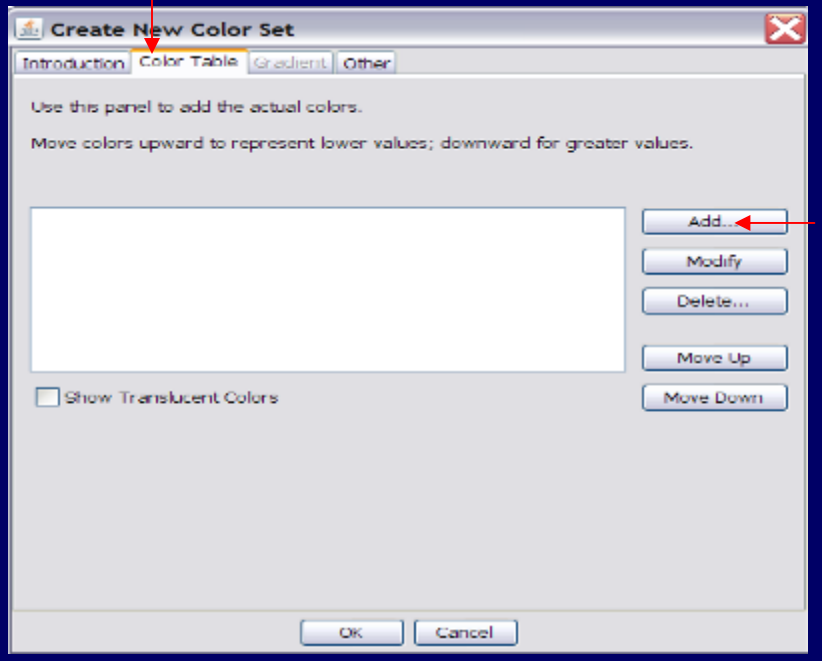


- In the create new color set dialog box, a quick introduction is given on the two types of selections to make for data uses.
- The user can also name the new color set
- The two choices for making a color table are a table of colors and a gradient of colors.

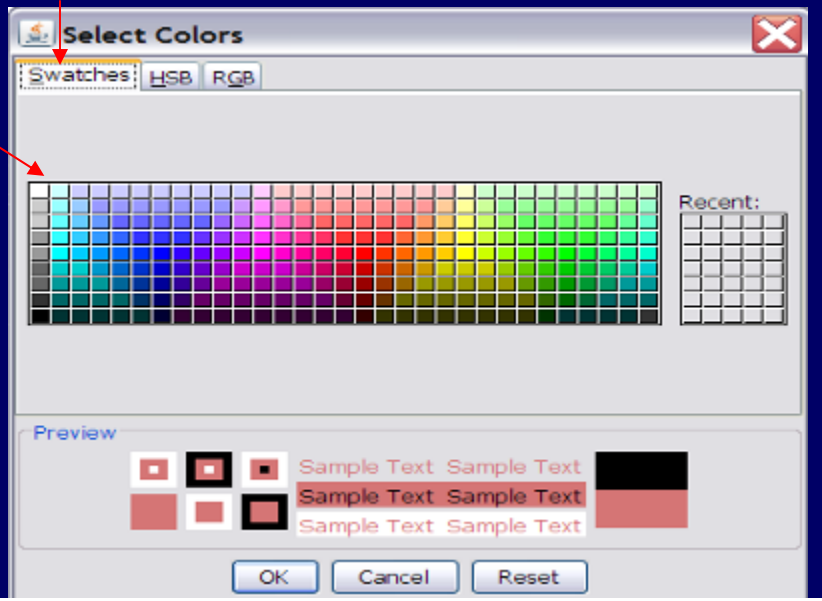


Adding New Color Set: Color Table

- In the color table tab, simply press add to begin adding colors.
- A dialog box with three different tabs will appear.
- You have the choice of using swatches, HSB (Hue, Saturation, Brightness), or RGB (Red, Green, Blue) to select your color schemes.

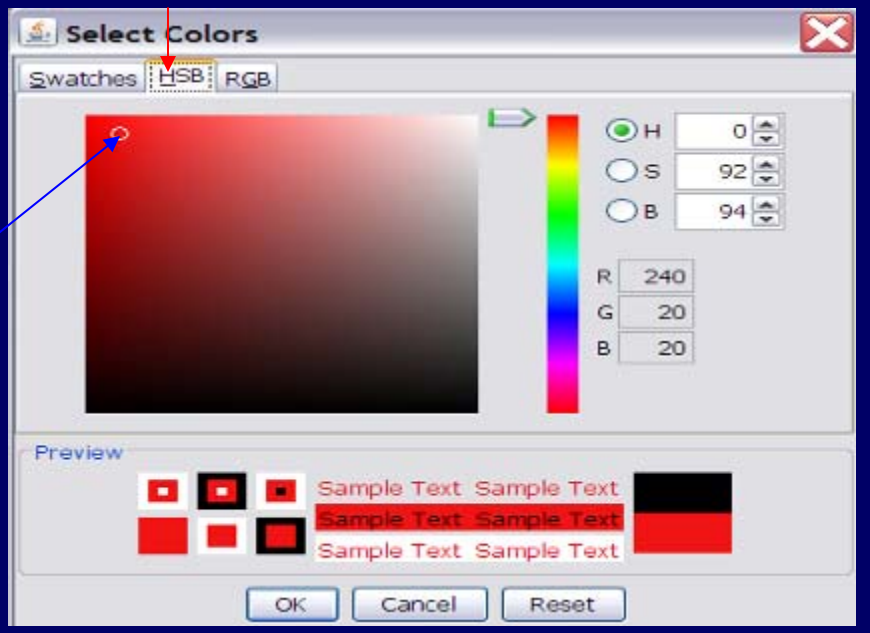


- Swatches allows you to select colors from preset boxes as shown to the right.
- Translucent colors can be used by selecting the show translucent colors button in the create new color set menu.

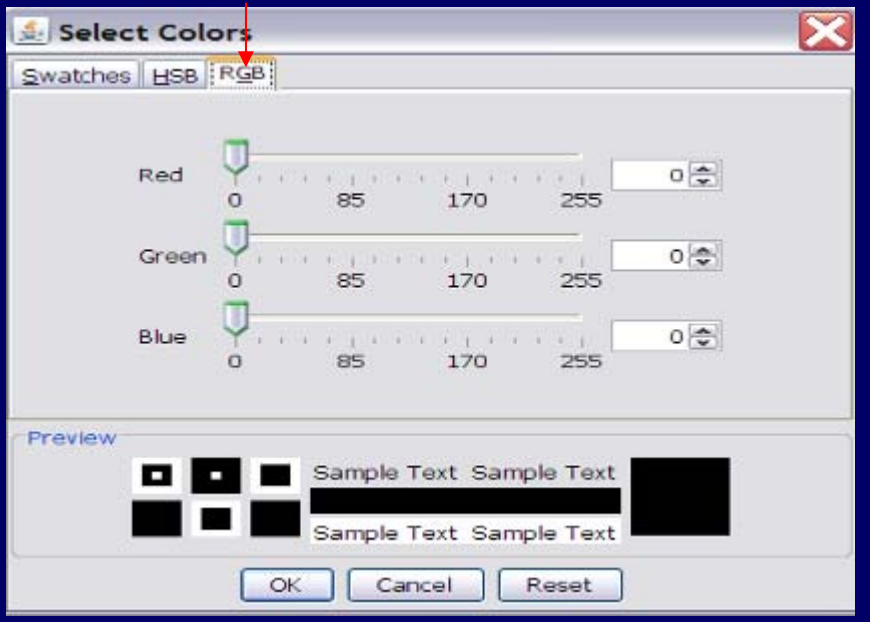


Adding New Color Set: Color Table

- Under the HSB tab, you can select a color with the slider and then select the brightness of that color.
- You can also set a hue, saturation, and brightness value and the cursor will move to that position in the color box.

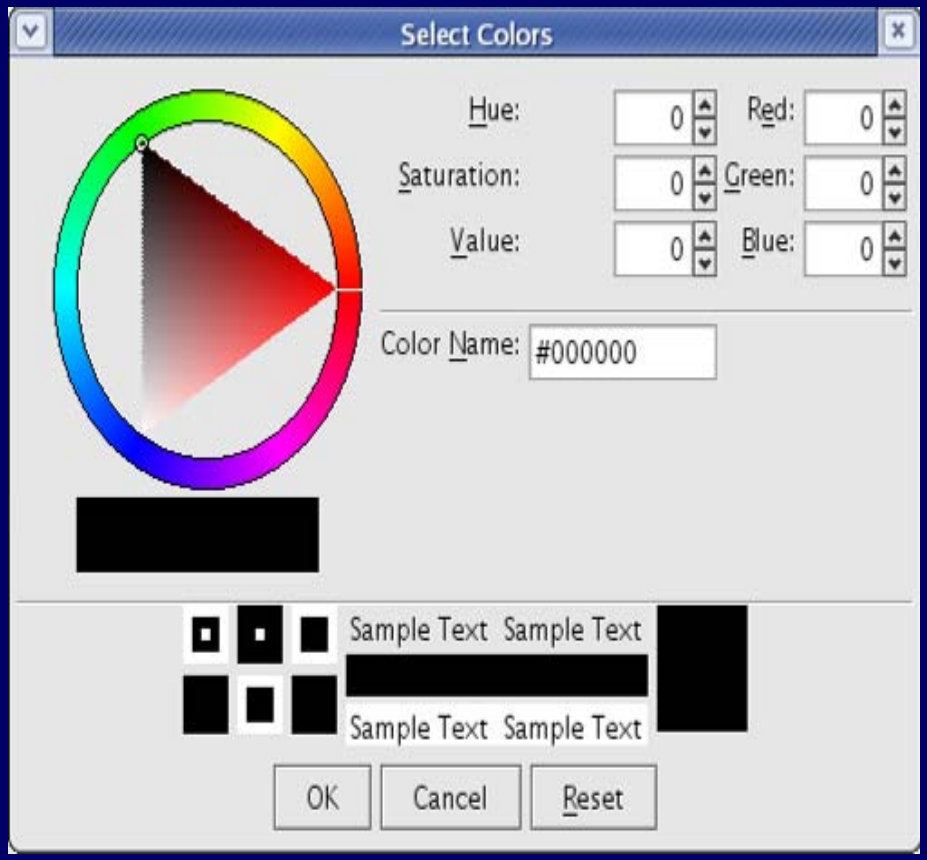


- Under the RGB tab, you can move the red, green, blue, color sliders to select a color.
- You can also use the number selection on the right of each color slider.



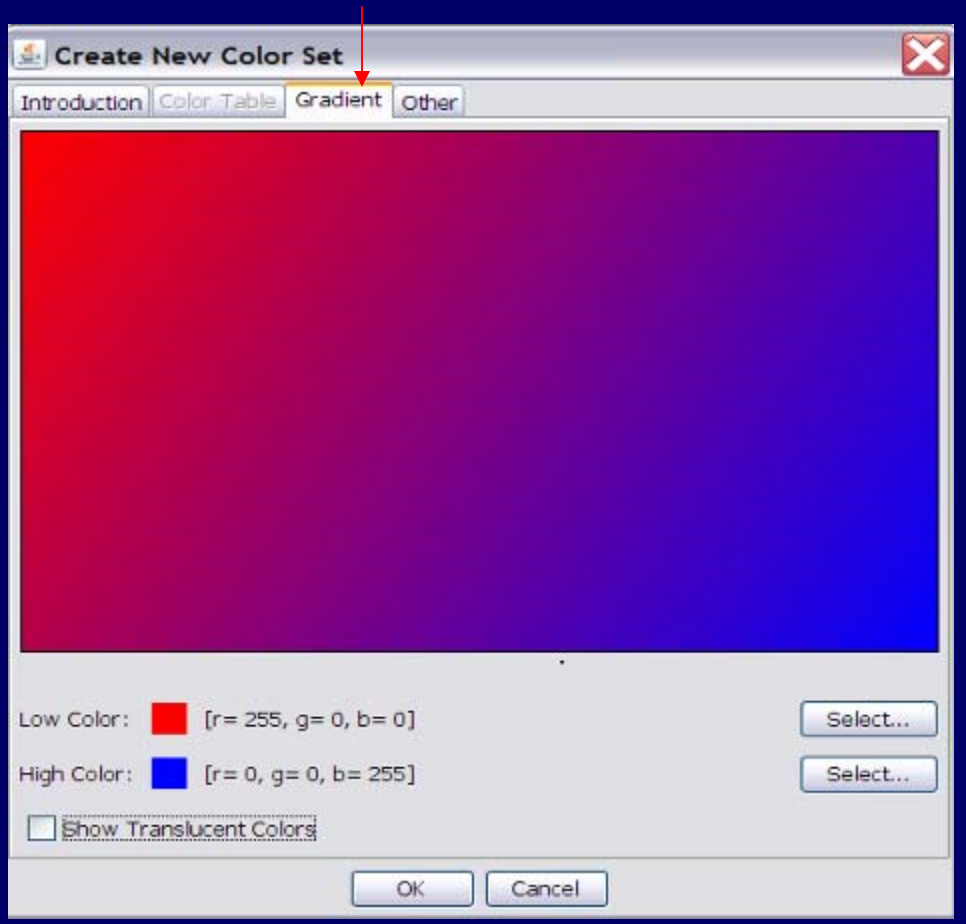
Adding New Color Set: Color Table (LINUX)

- The color table option in the LINUX version is different than the Windows version.
- After pressing the add button on the create new color set screen, a select colors dialog box will appear.
- You can select a color on the color wheel shown to the right.
- Choose a Hue, Saturation, Brightness value by clicking a region in the triangle. The Red, Green, and Blue values will also change.
- You can also change these values manually by using the up/down arrows.
- To reset the colors, simply press the reset button.



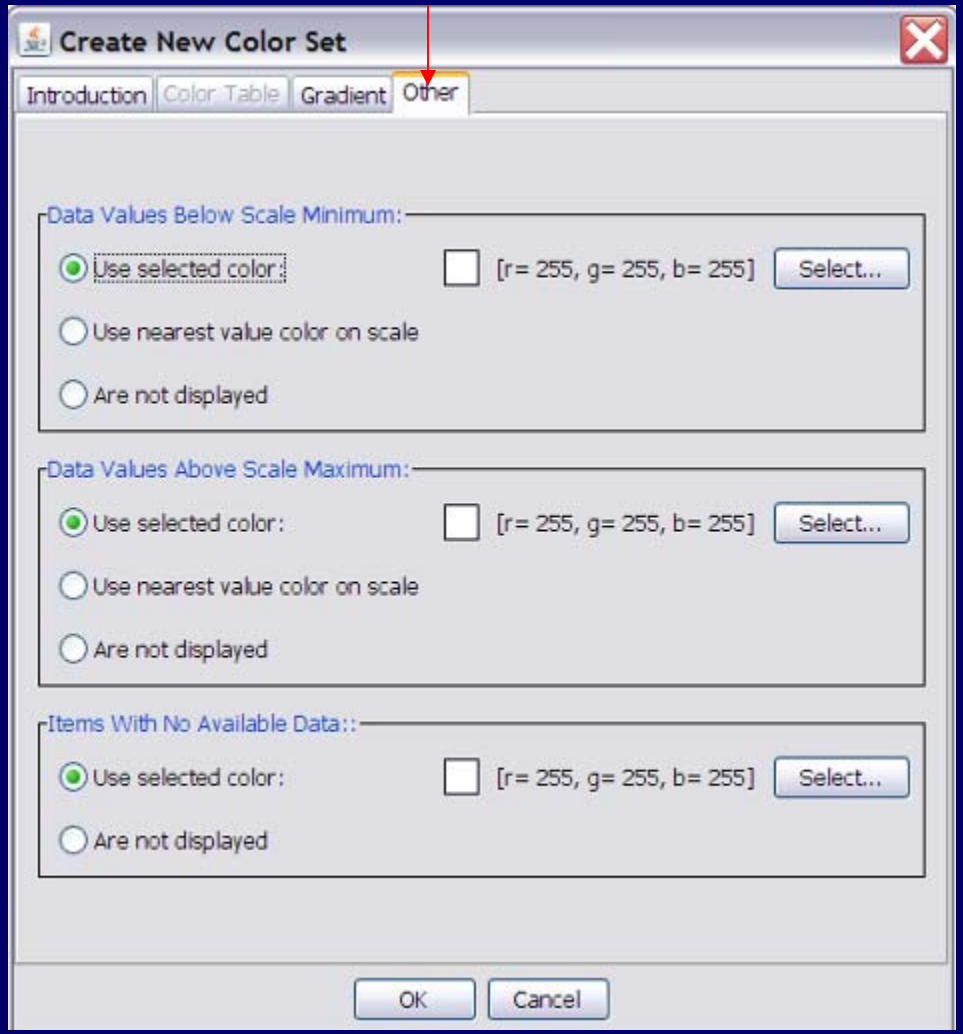
Adding New Color Set: Gradient

- Gradient of colors will allow you to select a low color and a high color. The viewer will create a gradient between these colors to use as your color table.
- To select the low and high color, press select.
- See adding new colors: color table for color selection options.
- Translucent colors can be used by selecting show translucent colors.
- The gradient option works the same in LINUX as it does in Windows.
- The select buttons in LINUX will take you to the options described in adding new colors: color table (LINUX).

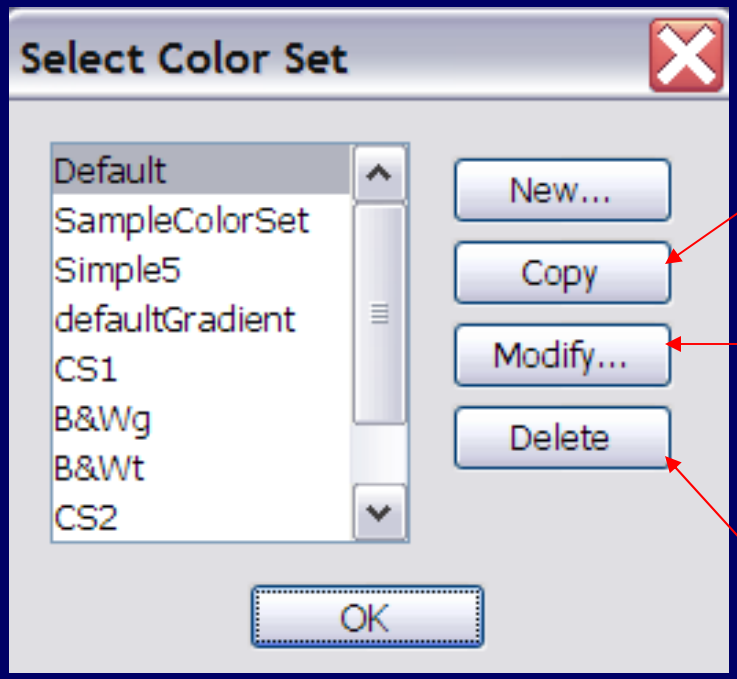


Adding New Color Set: Other

- The other tab sets colors for data values below scale minimum, above scale maximum, and items with no available data.
- Each option will need a color selection by pressing select.
- See adding new colors: color table for color selection options.
- You can use the selected color, nearest value color on scale, or not display a color for these options.
- For items with no available data, use selected color and not display a color are the only available options.
- The other color set settings work the same in LINUX as it does in Windows.
- The select buttons in LINUX will take you to the options described in adding new colors: color table (LINUX).



Copying, Editing, and Deleting Color Sets



- To copy a color set, click the color set you want to copy and hit the copy button. A new set with the same color options will be added to the color set list.
- To edit a color set, click the color set you want to edit and hit the modify button. An edit color set window will appear. See Adding a Color Set for options available when editing a color set.
- To delete a color set, click the color set you want to delete and hit the delete button.

Import Settings

- Go to options and press import settings. An import settings dialog box will appear as shown below.
- You have the option to use your own settings or import centralized settings.
- For more information, please read the instructions given in the import settings screen below.