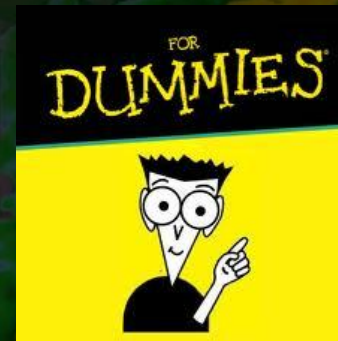


# Gibson Ridge Software for Dummies!!! (like me)

Version 1.3  
March 22, 2012



Made by Kevin Skow, NWS WFO Des Moines  
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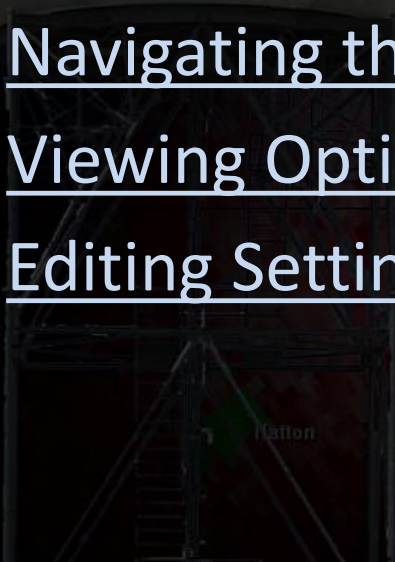
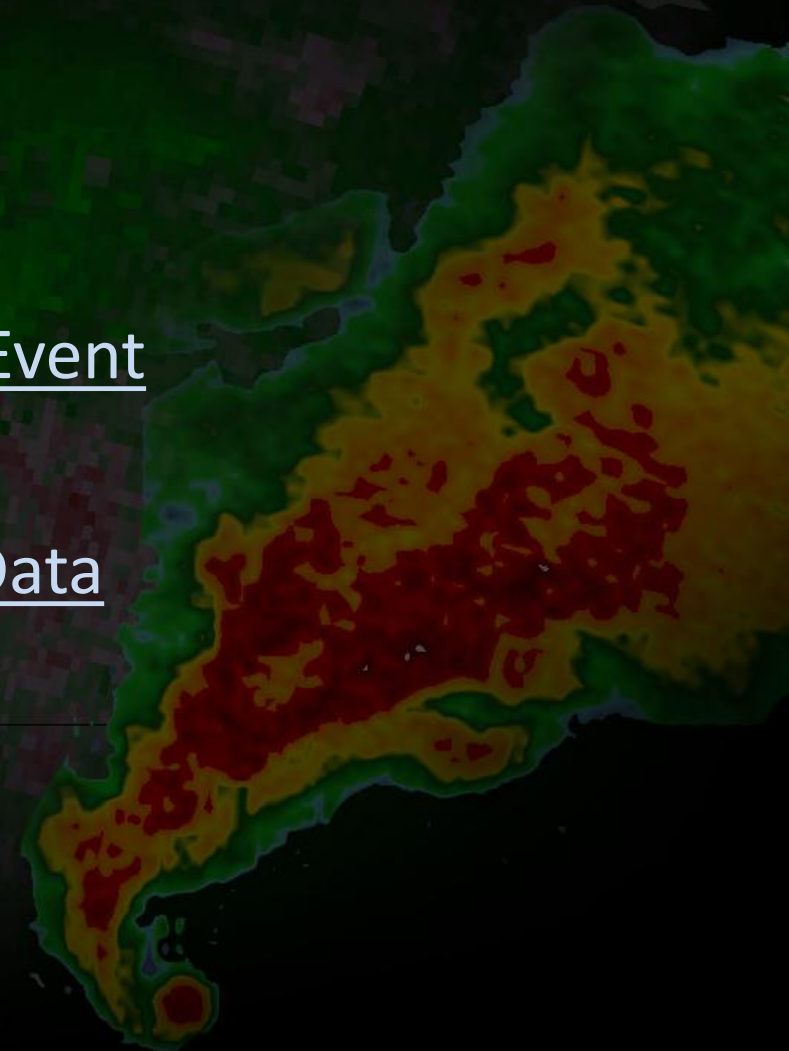
# Introduction

This is intended to be a refresher presentation to the GR program. It doesn't cover every single feature in the program, but hits on those that I have found the most useful. This manual was made for GR2 Analyst; GR2 works similarly, but is missing a few features and some settings are in different locations. GR3 operates quite differently and is not covered here.

Hopefully all of you can glean some new information and tricks on using the GR program from this presentation. With the right setup, GR can be a very powerful program.

# Table of Contents

- Layout of the Program
- Site Selection
- Loading Radar Imagery
- Saving Radar Imagery after an Event
- Loading Additional Overlays
- Navigating through the Radar Data
- Viewing Options
- Editing Settings



# Layout of the Program

## Overview

Menu Bar

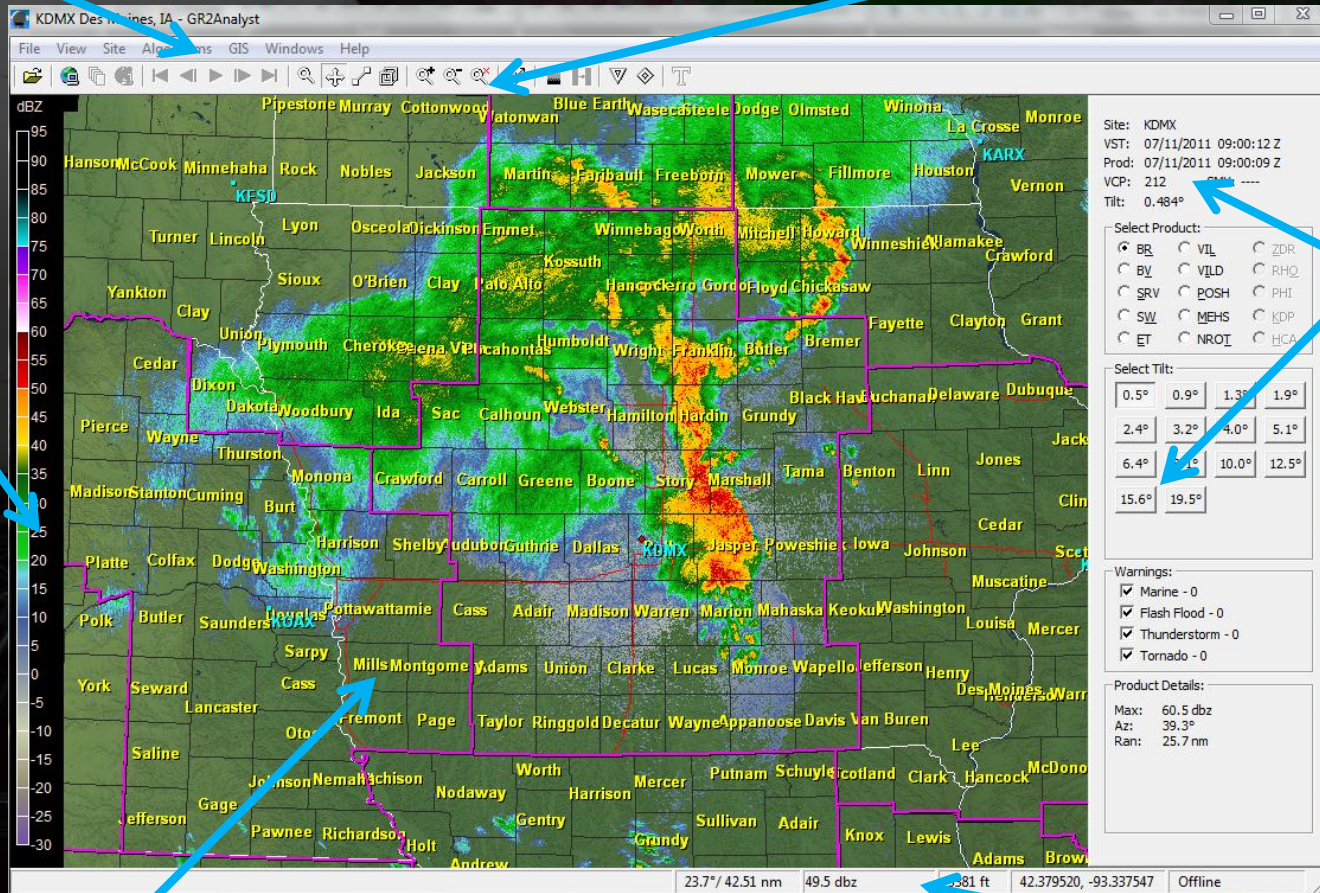
Toolbar

Color Table

Product Information

Radar Display Window

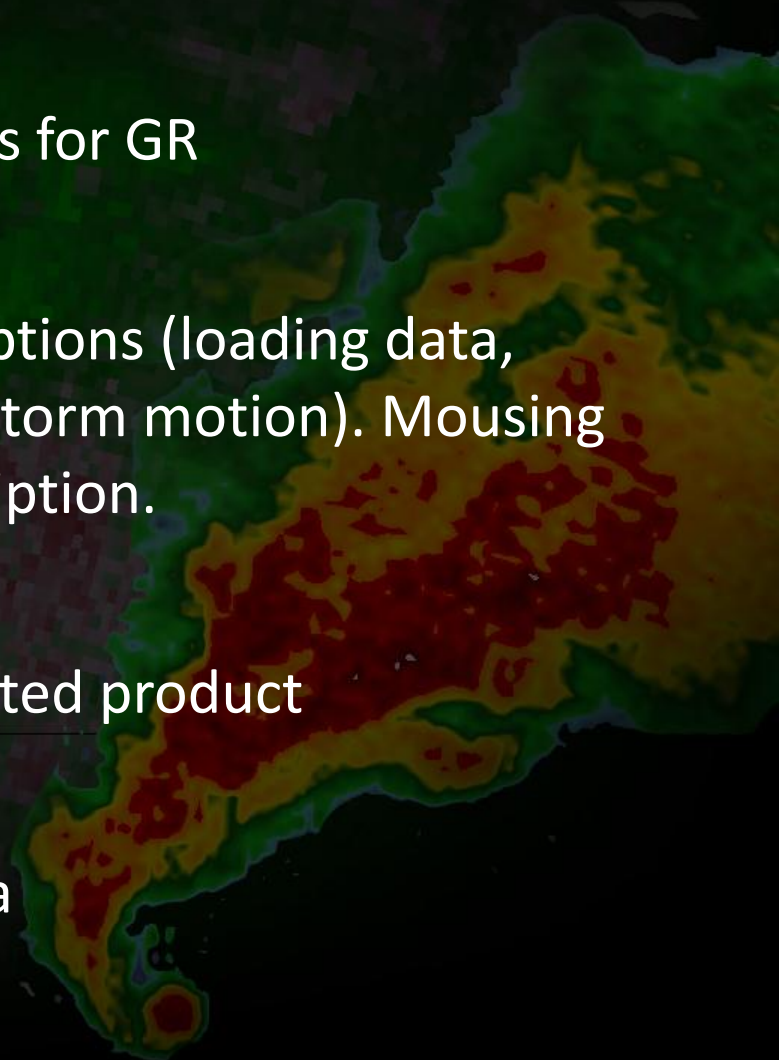
Status Bar



# Layout of the Program

## Component Descriptions

- Main Menu
  - Access to almost all of the settings for GR
- Toolbar
  - Shortcuts to the most common options (loading data, animation, viewing options, and storm motion). Mousing over each shortcut gives its description.
- Color Table
  - Color table for the currently selected product
- Radar Display Window
  - Displays the currently loaded data



# Layout of the Program

## Component Descriptions

### Product Information

Site: KDMX  
VST: 07/11/2011 09:00:12 Z  
Prod: 07/11/2011 09:00:09 Z  
VCP: 212 SMV: ----  
Tilt: 0.484°

Select Product:

<input checked="" type="radio"/> BR	<input type="radio"/> VIL	<input type="radio"/> ZDR
<input type="radio"/> BV	<input type="radio"/> VILD	<input type="radio"/> RHO
<input type="radio"/> SRV	<input type="radio"/> POSH	<input type="radio"/> PHF
<input type="radio"/> SW	<input type="radio"/> MEHS	<input type="radio"/> HCA
<input type="radio"/> ET	<input type="radio"/> NROI	

Select Tilt:

0.5°	0.9°	1.3°	1.9°
2.4°	3.2°	4.0°	5.1°
6.4°	8.1°	10.0°	12.5°
15.6°	19.5°		

Site ID, time of the volume scan and elevation sweep, VCP, and the user-set storm motion

Available products to choose from

Available tilts to choose from

### Status Bar

Shapefile Data at Cursor (ex. Road Name)

Cursor Azimuth and Range from Radar

Cursor Readout of Pixel Value

Height of Radar Beam at Cursor

Lat and Lon of Cursor

Live Data Polling Status

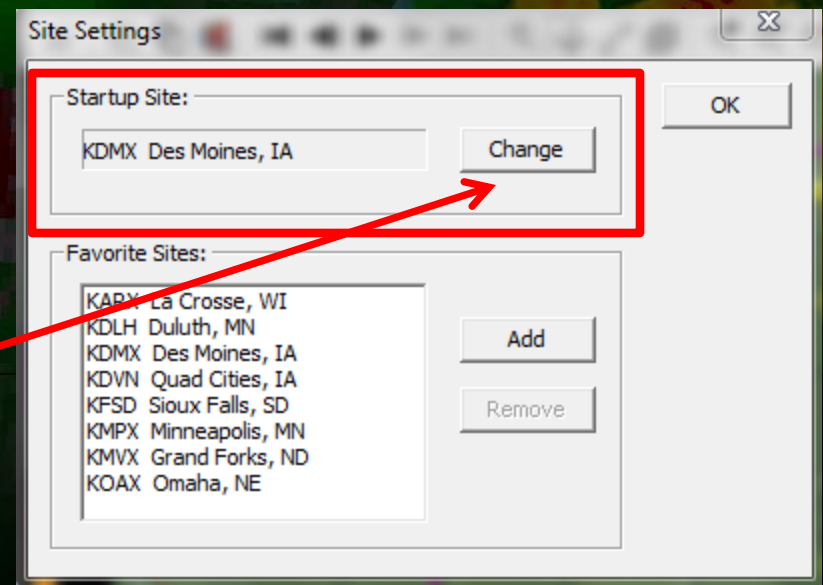
	23.7° / 42.51 nm	49.5 dbz	3381 ft	42.379520, -93.337547	Offline
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[Back to Table of Contents](#)

# Site Selection

## Changing Sites and Startup Site

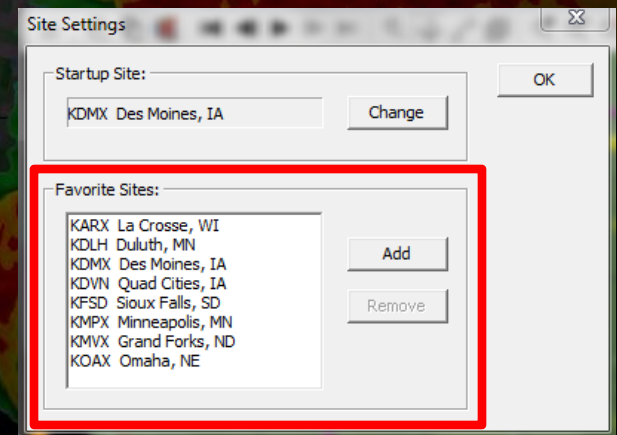
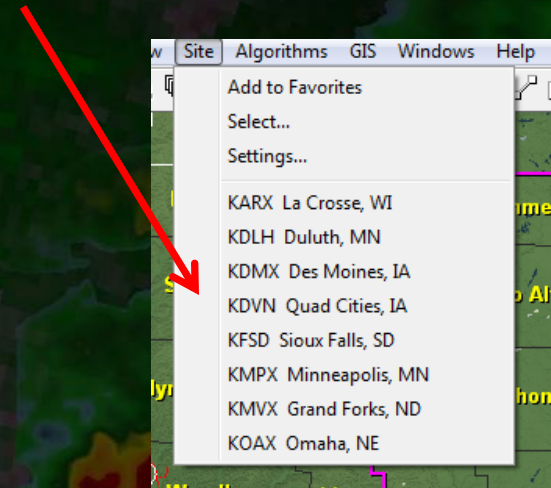
- In Menu Bar go to *Site -> Select...*
  - Choose your site from the list that opens
  - You can also change to a nearby site by clicking on the radar ID in the Radar Display Window
- To change the startup site
  - Go to *Site -> Settings...*
  - In the Startup Site box, click *Change* and select the site from the provided list
  - Click *OK* once done



# Site Selection

## Favorite Sites

- User-defined favorite radars will be displayed in the *Site* menu
  - **Note:** Sites will always be displayed in alphabetical order by site ID
- To configure Favorites:
  - Go to *Site -> Settings*
  - In the Favorite Sites box, click *Add*
  - Select the site from the list and click *OK*
    - You will have to do this for each site
  - To remove a site from your favorites, select the site from your list and click *Remove*
  - Click *OK* in the Site Settings box when done






# Loading Radar Imagery

## Loading Archived Data




- In Menu Bar go to *File -> Open*

**OR**

- Click the  icon on the Toolbar
  - Navigate to the folder containing the data, use the shift key to highlight the desired time range, then click open
- You can also drag and drop the radar files you wish to load directly from the Windows Explorer into GR.
- **Note:** If you are polling live data, you must turn off polling to load archived data.

# Loading Radar Imagery

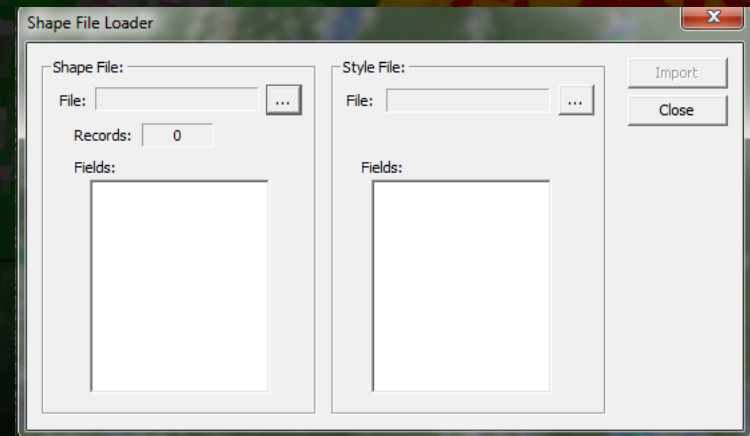
## Loading Live Data

- To start downloading live data
  - Go to *File -> Start Polling* (  on the Toolbar)
  - Note: A polling site must have been set up beforehand—this should be either the CRH site or the IEM feed
- To load previous volume scans
  - Go to *File -> Start Archiver* (  on the Toolbar)
  - To configure how many volume scans GR downloads and how often it polls for data, see the [Editing Settings](#) section
- To stop live polling without shutting GR down
  - Go to *File -> Stop Polling* (  on the Toolbar)

# Loading Additional Overlays

## Shapefiles


- Shapefiles are static GIS files that are meant to be additions to the overlays already provided in GR
  - Shapefiles require both a “shape file” and a “style file”
  - To load a shapefile, go to *GIS -> Load ShapeFile*
  - The Shape File Loader box will open



Continued on the Next Page

# Loading Additional Overlays


## Shapefiles

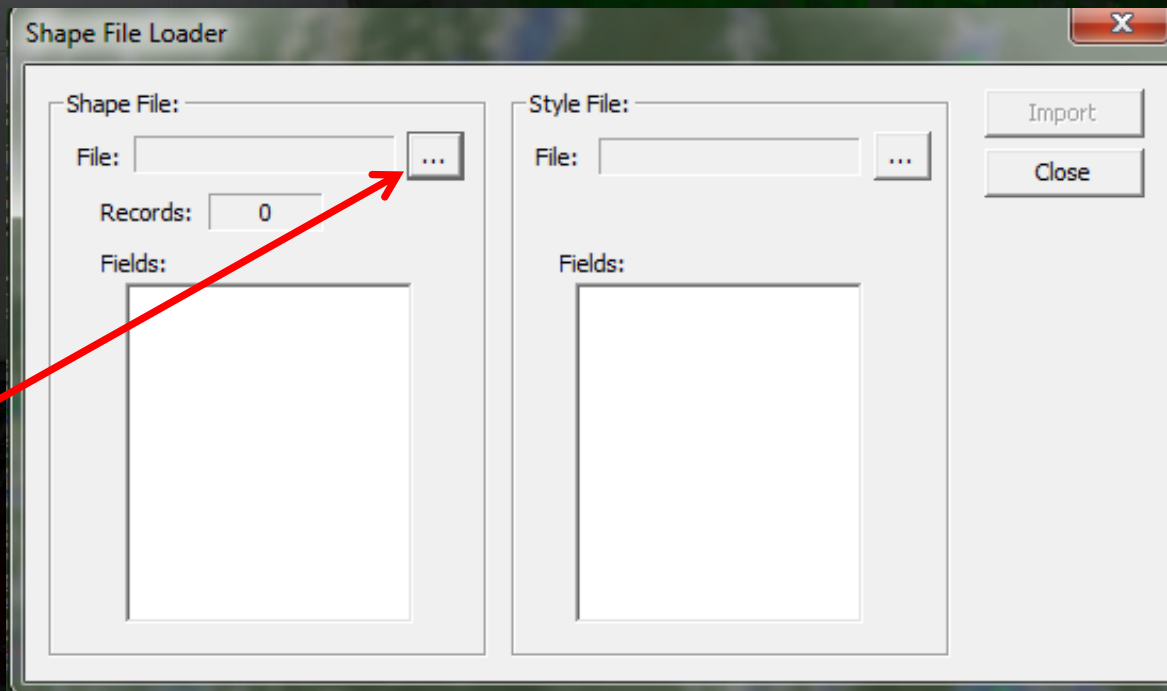
- In the left hand box, click the  button and navigate to the directory containing the shape file. Select the shape file and click *Open*
- Perform the same steps for the right hand box, but this time navigating to the location of the style file (many times they are in the same directory).
- Once both of these are loaded, click the *Import* button

*Example on the Next Page*

# Loading Additional Overlays

## Shapefiles Example: Loading CWA Roads

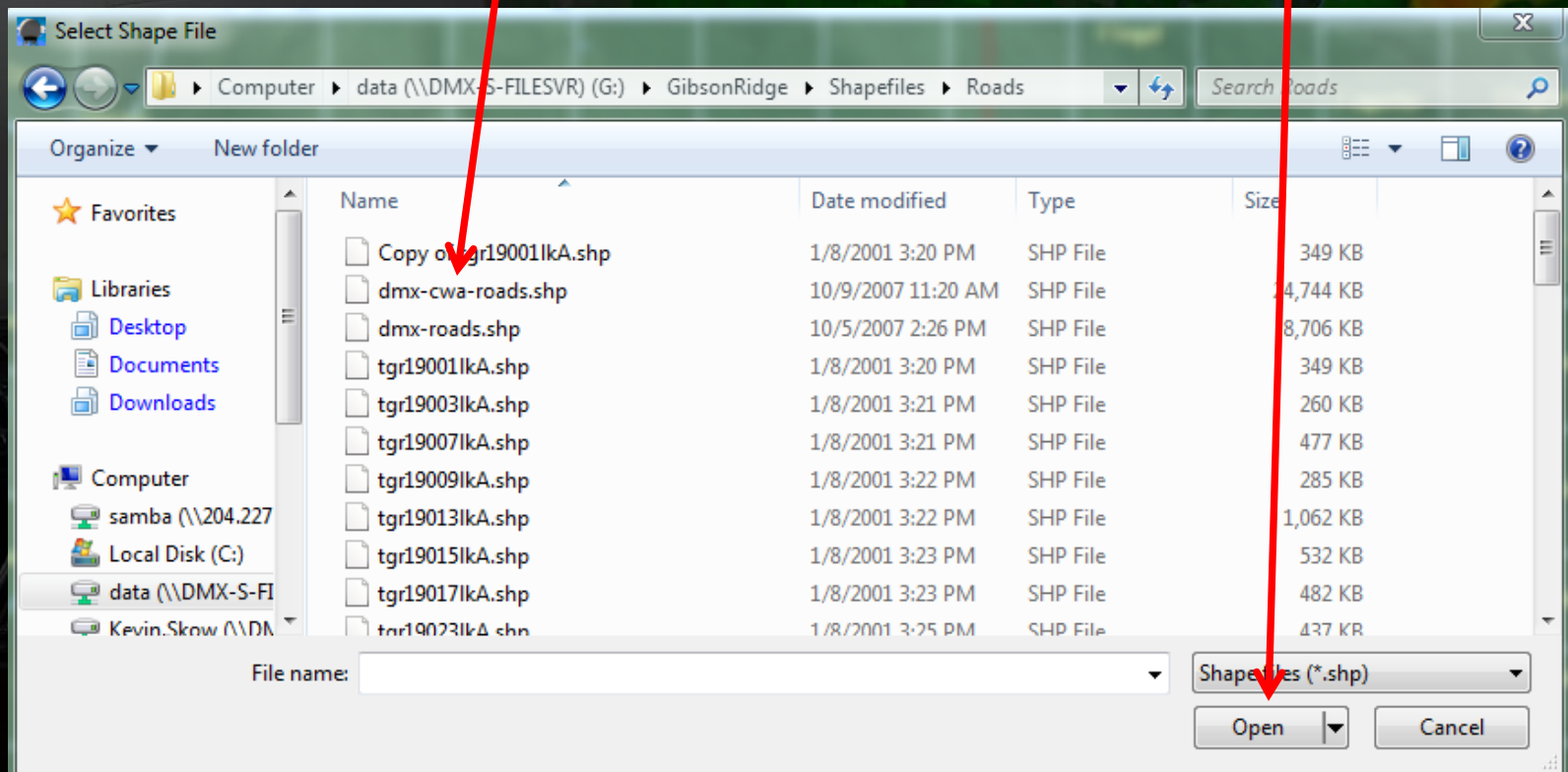
- From the Shape File Loader window, click the  button on the left side.



# Loading Additional Overlays


## Shapefiles Example: Loading CWA Roads

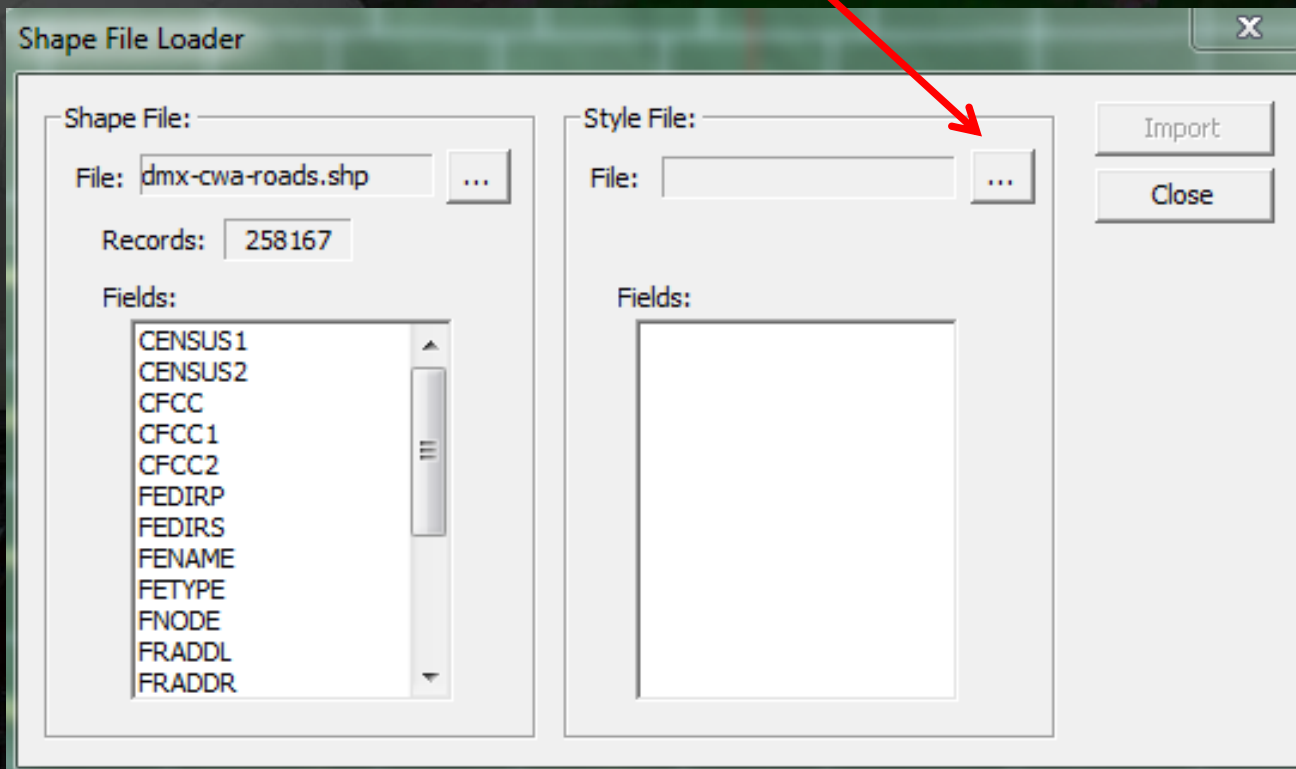
- Navigate to **G:\GibsonRidge\Shapefiles\Roads**
- Select the “dmx-cwa-roads.shp” file. Click *Open*



# Loading Additional Overlays

## Shapefiles Example: Loading CWA Roads

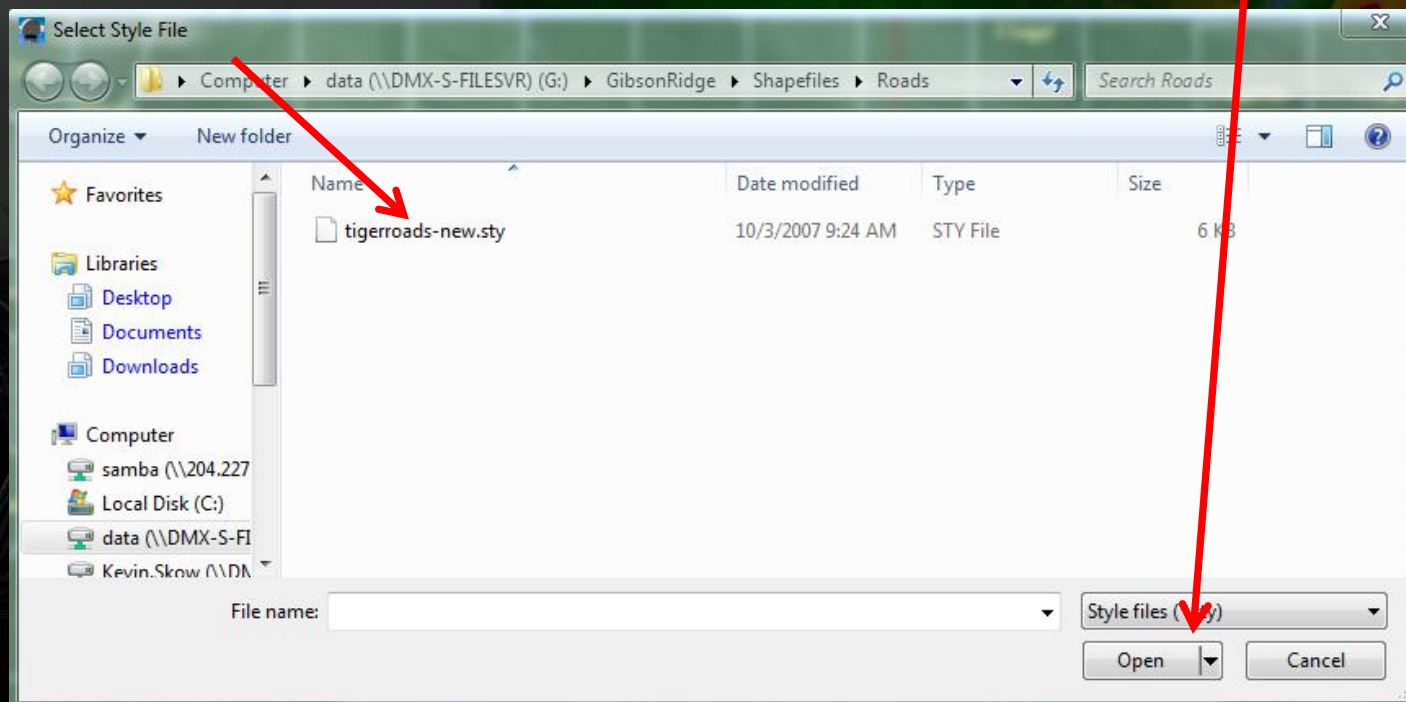
- Next, click the  button on the right side.



# Loading Additional Overlays

## Shapefiles Example: Loading CWA Roads

- GR will open the same directory that the shape file was in
- In this case, there is only one style file to choose from
- Select this file (“tigerroads-new.sty”) and click *Open*

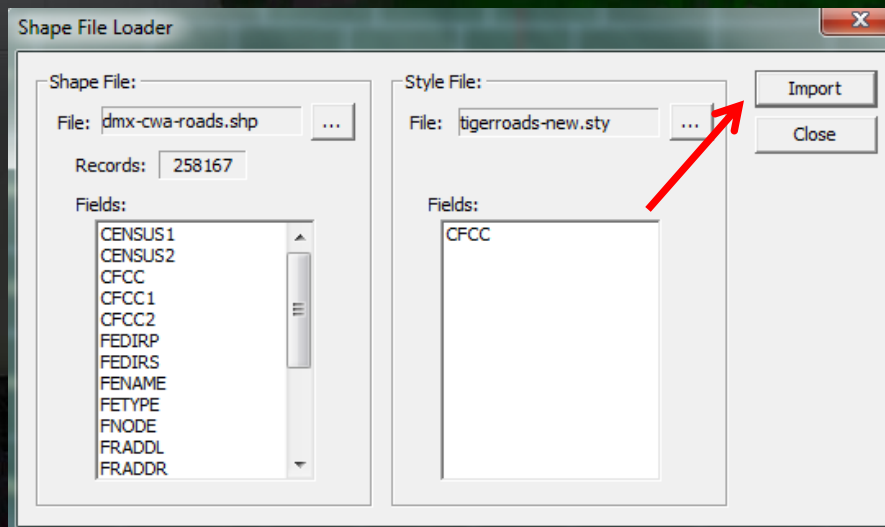




# Loading Additional Overlays

## Shapefiles Example: Loading CWA Roads

- Finally, click *Import*
- Once the shapefile has loaded in the Radar Display Window, click *Close*



- To avoid the “double highways”, click off *Show Base Roads* under the *GIS* menu. See the [GIS Menu](#) page for more information.

# Loading Additional Overlays


## Placefiles

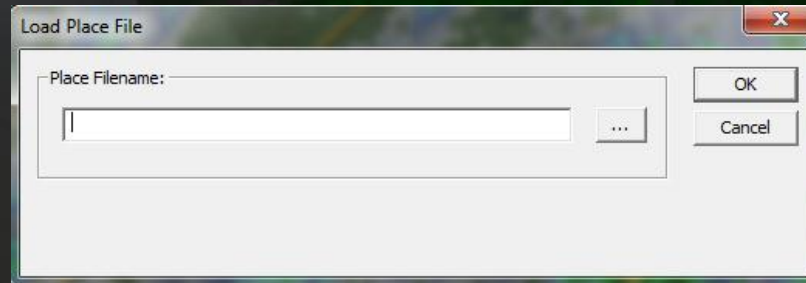
- Placefiles are custom text files that are specifically designed for GR
  - Can be either static files (spotter residences, law enforcement locations, etc.) or dynamically updated on a server (surface obs, SPC outlooks and watches, webcam images, etc.)
- To load either type of placefile, make sure the *Windows -> Show Placefile Manager* option is checked. When it is checked, a small window should open up on the screen.



Continued on Next Page

# Loading Additional Overlays

## Placefiles: Loading

- Click the  button on the Placefile Manager window
  - The following window will open






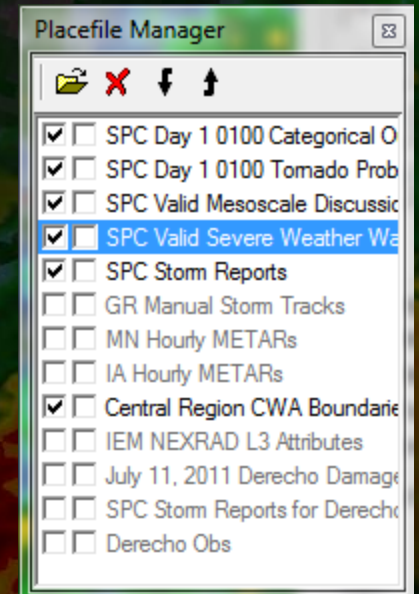
- To load a static (saved) placefile, click the  button and navigate to the file on the computer.
- To load a placefile located on the Internet, simply paste the address to the placefile in the text field (to the left of the  button)
- Click *OK* when done.

Repeat the process above for each placefile

# Loading Additional Overlays

## Placefiles: Managing

- Each placefile will be listed in the Placefile Manager window
  - To reorder the placefiles, click the placefile in the window and click either the  or  buttons
  - To remove a placefile, select the placefile and click the  button
  - The left checkbox next to each placefile toggles whether the placefile is visible on the map
  - The right checkbox toggles whether the placefile is visible above (unchecked) or below (checked) the radar image.



# Loading Additional Overlays

## Placefile Locations

- Online Placefiles

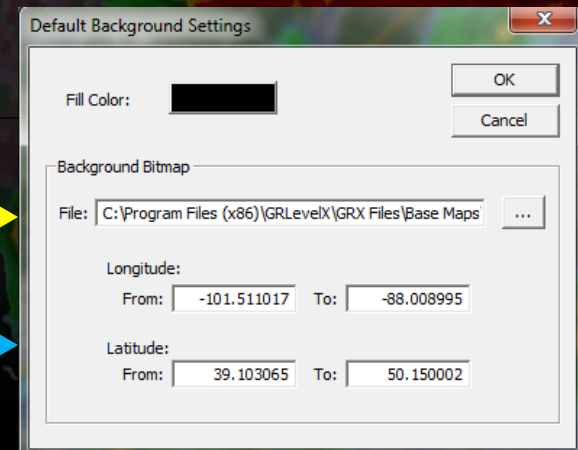
- [http://www.meteor.iastate.edu/~ckarsten/chase/GR\\_Placefiles.php](http://www.meteor.iastate.edu/~ckarsten/chase/GR_Placefiles.php)
  - ASOS/AWOS/RWIS/Meosnet Obs, SPC Outlooks and Watches, LSRs, Storm Report Generator (VERY COOL)
- <http://www.tornadocentral.com/grlevelx-placefiles.html>
  - SPC Outlooks/Mesoscale Discussions/Watches and Surface Observations
- <http://mesonet.agron.iastate.edu/request/grx/>
  - Iowa surface obs (all networks), webcam images, NEXRAD Level 3 attributes
- <http://www.spotternetwork.org/gr-feeds.php>
  - Spotter Network locations and reports

Caston

# Loading Additional Overlays

## Backgrounds

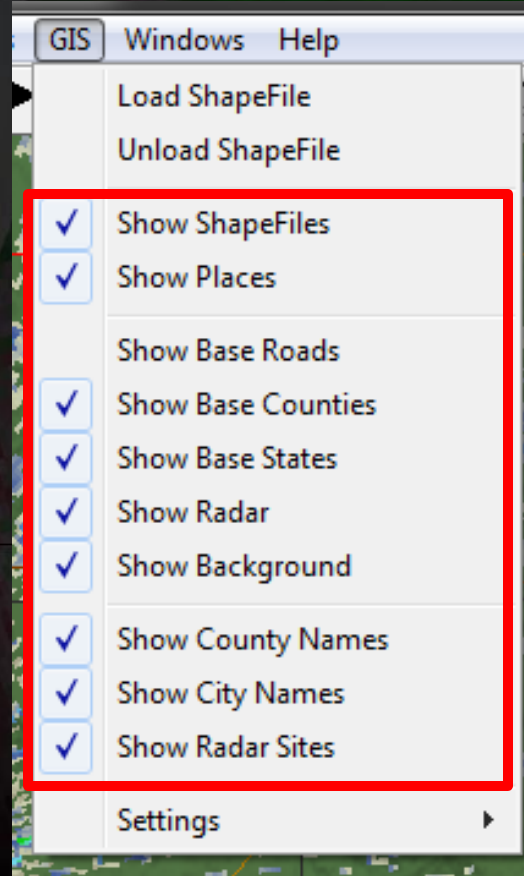
- Backgrounds consist of a bitmap image (.bmp) and a text file with latitude and longitude coordinates
  - The coordinates give the upper and lower bounds of the image (latitude) and the left and right bounds of the image (longitude)
- To load a background image:
  - Go to *GIS -> Settings -> Background...*
  - Navigate to the location of the image on the computer (yellow arrow)
  - Type/paste the bounds of the image into the boxes at the bottom of the window (blue arrow) from the text file



# Loading Additional Overlays

## GIS Data

- All of the overlays in GR can be turned on or off
  - Click any item in the *GIS* menu to turn it on or off



# Loading Additional Overlays

## Hail and MDA Icons

- GR uses its own algorithms to calculate expected hail size and any mesos/TVSs, which are plotted on the radar display.
- These can be turned on or off using the respective buttons on the toolbar (below) or the *View -> Show Hail Icons* and *View -> Show MDA Icons* menu options.

MDA Icons

Hail Icons

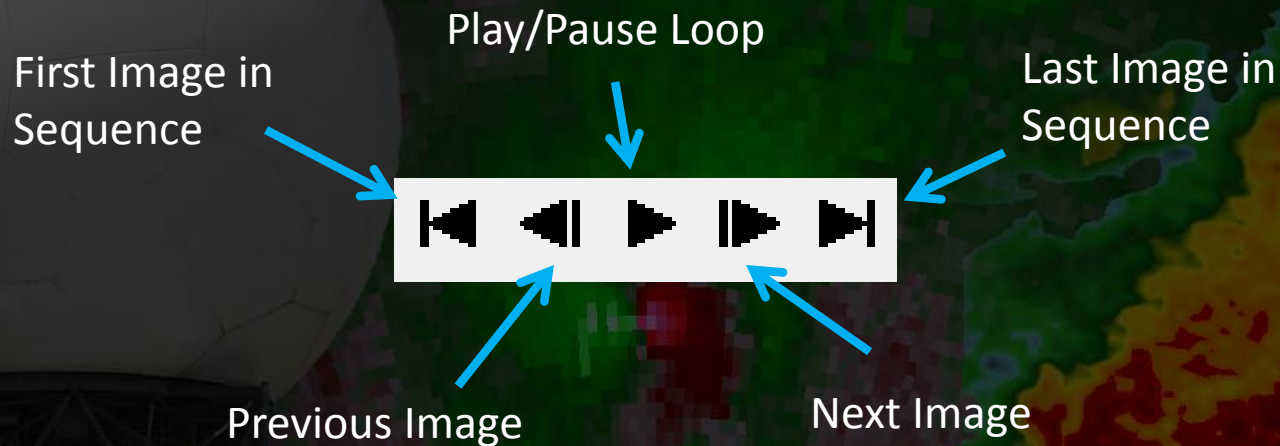




# Navigating through Radar Data

## Animating Images

- The Toolbar contains the animation controls for the looping the data

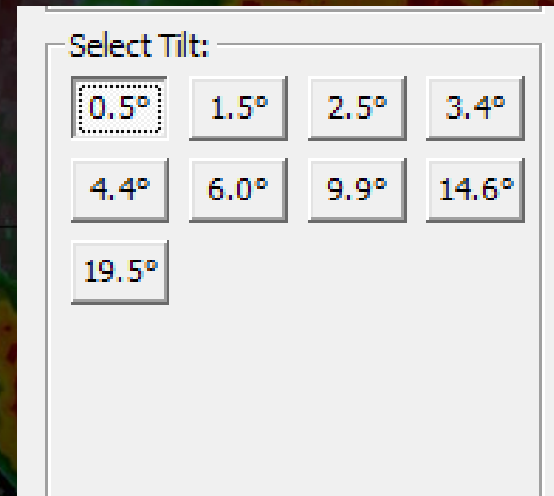


- To control looping speeds, see the [Editing Settings](#) section
- **Shortcut:** You can also step through the images by clicking the Radar Display Window and using the left and right arrows on the keyboard

# Navigating through Radar Data

## Different Elevation Angles

- There are two ways to change which elevation you are viewing:
  1. Simply click the desired tilt on the Product Information panel
  2. **Shortcut:** To scroll through the different tilts for a given product, click the current tilt with your mouse. There will now be a dotted box around the number (see image below). Now you can use your arrow keys to scroll through the tilts.
    - Down and Right: Move up in the volume scan
    - Up and Left: Move down in the volume scan



# Navigating through Radar Data

## Different Products

- There are three ways to go about changing products
  - Simply click the radio button next to the product on the Product Information panel
  - **Shortcut:** To quickly scroll through multiple products at a given elevation angle, click the currently displayed product in the Product Information panel—you'll note that there is now a dotted box around the initials for the product (see image below)
    - You can now use the arrow keys to quickly scroll through the products. The Right and Down arrows move down the list, while Left and Up keys move up the list
  - You can also use the keyboard shortcut keys for each product. The key that corresponds to each product is underlined in the list
    - Example: Reflectivity = R, Velocity = V  
Storm Relative Velocity = S

Select Product:

<input checked="" type="radio"/> <u>BR</u>	<input type="radio"/> <u>VIL</u>	<input type="radio"/> <u>ZDR</u>
<input type="radio"/> <u>BV</u>	<input type="radio"/> <u>VILD</u>	<input type="radio"/> <u>RHO</u>
<input type="radio"/> <u>SRV</u>	<input type="radio"/> <u>POSH</u>	<input type="radio"/> <u>PHI</u>
<input type="radio"/> <u>SW</u>	<input type="radio"/> <u>MEHS</u>	<input type="radio"/> <u>KDP</u>
<input type="radio"/> <u>ET</u>	<input type="radio"/> <u>NROI</u>	<input type="radio"/> <u>HCA</u>

# Navigating through Radar Data

## Notes on GR Products

- GR calculates a number of Level III products using Level II data

Level II Products Ingested by GR	Level III Products Produced by GR
<ul style="list-style-type: none"><li>• Base Reflectivity (BR)</li><li>• Base Velocity (BV)</li><li>• Spectrum Width (SW)</li><li>• Differential Reflectivity (ZDR)</li><li>• Correlation Coefficient (RHO)</li><li>• Phase Shift (PHI)</li></ul>	<ul style="list-style-type: none"><li>• Storm Relative Velocity (SRM)</li><li>• Differential Phase Shift (KDP)</li><li>• Echo Tops (ET)</li><li>• Vertically Integrated Liquid (VIL/DVIL)</li><li>• Probability of Severe Hail (POSH)</li><li>• Maximum Estimated Hail Size (MEHS)</li><li>• Normalized Rotation (NROT)</li><li>• Hydrometeor Classification Algorithm (HCA)</li></ul>


- **Dual Pol Notes**

- Correlation coefficient is called RHO in GR, not CC
- An extra dual-pol product is available in GR that is not viewable in AWIPS. This is phase shift, or PHI. This is the differential phase shift product before a distance derivative is applied to the data
- Hydrometeor Classification Algorithm is listed as a product in GR2A, but is currently not available. Maybe this will be calculated in the future??

# Viewing Radar Data

## Zooming and Panning

- To Zoom

- Click in the Radar Display Window and use the scroll wheel on the mouse to zoom to a particular point
- Click the  button on the Toolbar, then create a zoom rectangle on the Radar Display Window
- Use the zoom controls on the Toolbar


Zoom In

Zoom Completely Out



Zoom Out

- To Pan

- Click the  button on the Toolbar, then click and drag on the Radar Display Window to move the image around


# Viewing Radar Data

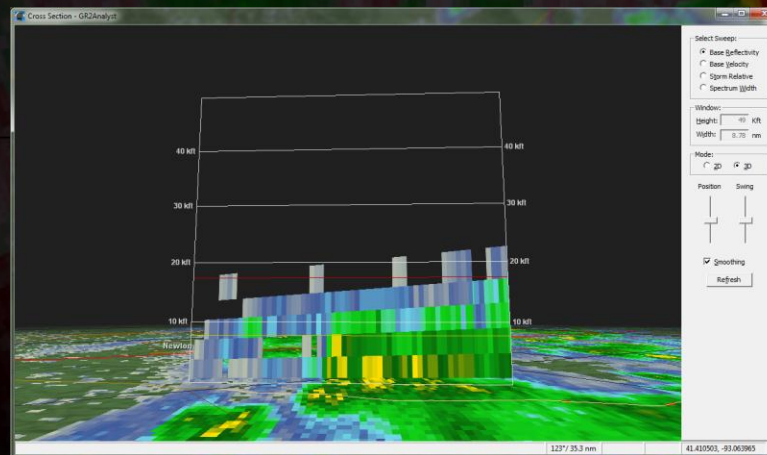
## Windows

- You can view radar data in one, two, or four separate panels in the Radar Display Window, much like the four panel display in AWIPS
  - *Windows -> One Panel* to view one window
  - *Windows -> Two Panels* to view two panels side by side
  - *Windows -> Four Panels* to view four panels in the window
- To add a product to each panel, click the panel (it becomes highlighted with a thin black box) and choose the desired product and elevation from the Product Information panel

# Viewing Radar Data

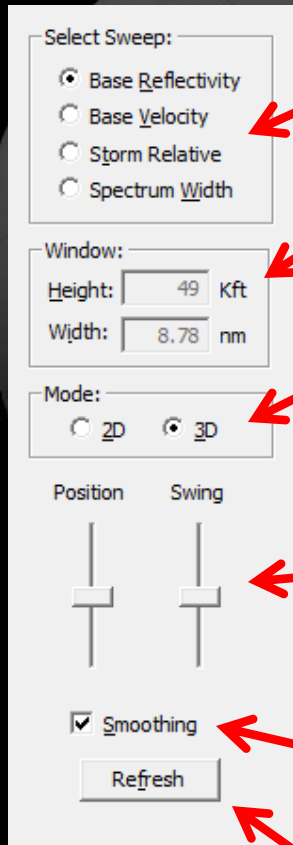
## Cross Sections (GR2A Only)

- Cross sections can currently be made of the BR, BV, SRM, and SW products.
- Click the  button on the Toolbar to activate the cross section tool.
- Click and drag your mouse across the area you wish to make a cross section of. Release the mouse button when finished.
- A separate cross-section window will open up.



# Viewing Radar Data

## Cross Section Window Panel



Select Sweep:

Base Reflectivity  
 Base Velocity  
 Storm Relative  
 Spectrum Width

Window:

Height:  Kft  
Width:  nm

Mode:

2D  3D

Position   
Swing

Smoothing

Product to load as a cross section

The cross section's width and height

**3D:** Cross section is displayed with the underlying base reflectivity image. Can be rotated freely with the mouse.

**2D:** Cross section only

**Position:** Moves the cross section back and forth in the horizontal. Is moved on a line tangential to its orientation.

**Swing:** Pivots the cross section on its left axis by about 30° in either direction

Turns smoothing on and off. Note: will only work if smoothing is activated on the main program window

Syncs the cross section with the currently displayed time in the main window




# Viewing Options

## Cross Section Window Notes

- If environmental data is available, GR will plot the 0°C and -20° levels on the cross section as yellow and red lines, respectively
- The status bar at the bottom of the cross section window is almost identical to the one in the main program
- Unfortunately, there is no easy way to capture screenshots of cross sections. The easiest ways are by using the Microsoft Snipping Tool or hitting the Print Screen key (and pasting the image into an image program).

# Viewing Options

## Volumetric Display (GR2A Only)

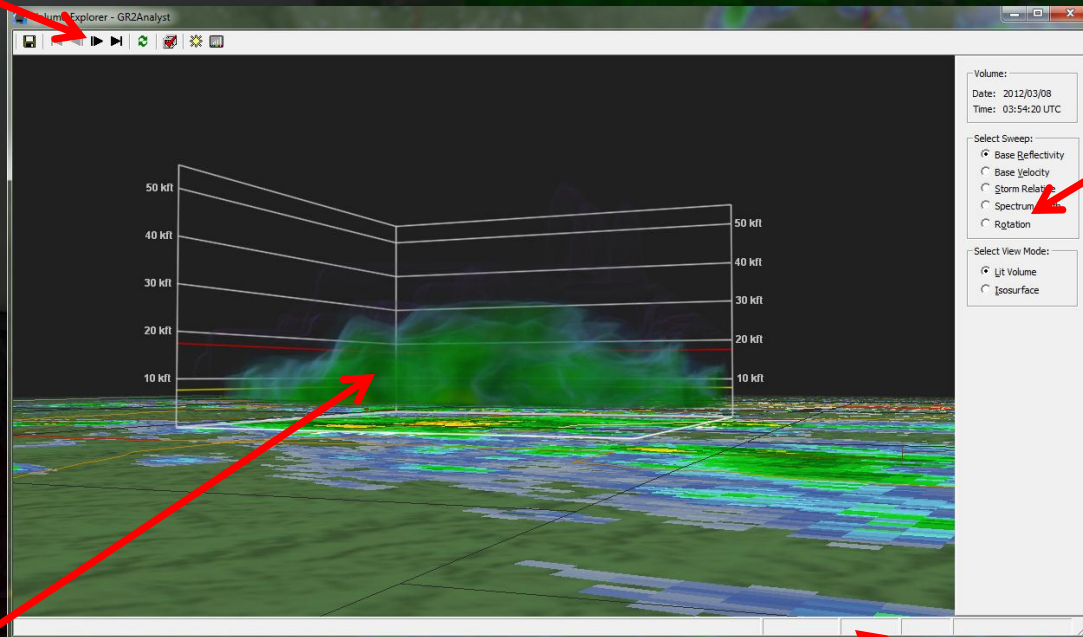
- Volumetric displays allow you to get a 3D look at a storm.
- Like cross sections, volumetric displays are only available for BR, BV, SRM, and SW.
- To create a volumetric display, click the  icon on the Toolbar.
- Move your mouse to where you want the center of the cross section to be, then click and drag outward. A box will grow outward with your cursor showing the area that will be analyzed.
- When you let go of your mouse button, the volumetric display will open in a new window.

# Viewing Options

## Volumetric Display (GR2A Only)

- The volumetric display window consists of four parts

Toolbar



Product  
Information  
Panel

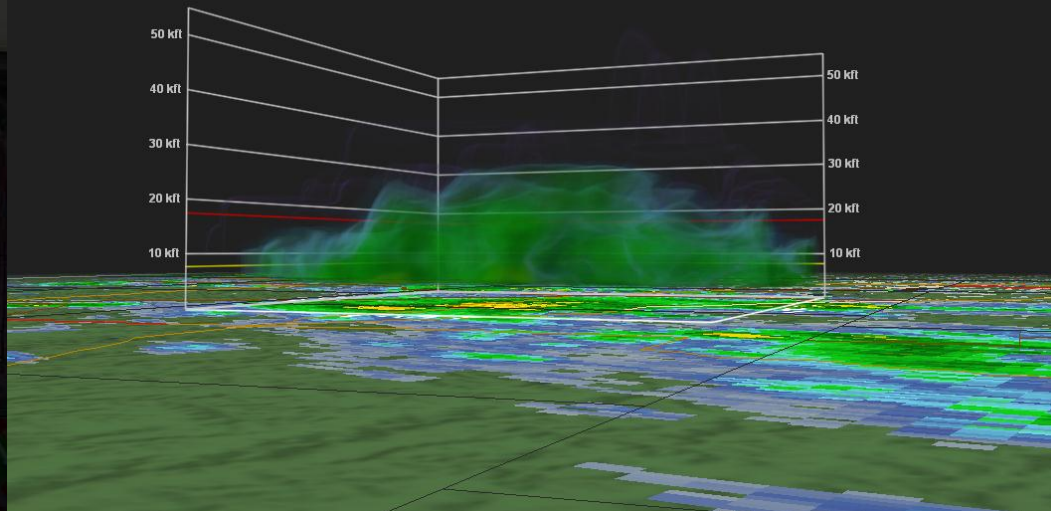
Radar Display

Status Bar

# Viewing Options

## Volumetric Display: Radar Display

- The Radar Display shows a smoothed three dimensional radar image on top of the 0.5° image of that product
- Click and drag your mouse on the display to rotate the image
- Like a cross section, the 0°C and -20°C lines are plotted if the data is available as yellow and red lines, respectively



# Viewing Options

## Volumetric Display: Product Information Panel and Status Bar

- Product Information Panel

Date and time of the volume scan start

Available products to select from

**Lit Volume:** View the storm using multiple transparent layers, which can be set by the user (see the [color table](#) section for more)

**Isosurface:** Only display data that is of a certain value (again, see the [color table](#) section for more)

Volume: \_\_\_\_\_  
Date: 2012/03/08  
Time: 03:54:20 UTC

Select Sweep: \_\_\_\_\_  
 Base Reflectivity  
 Base Velocity  
 Storm Relative  
 Spectrum Width  
 Rotation

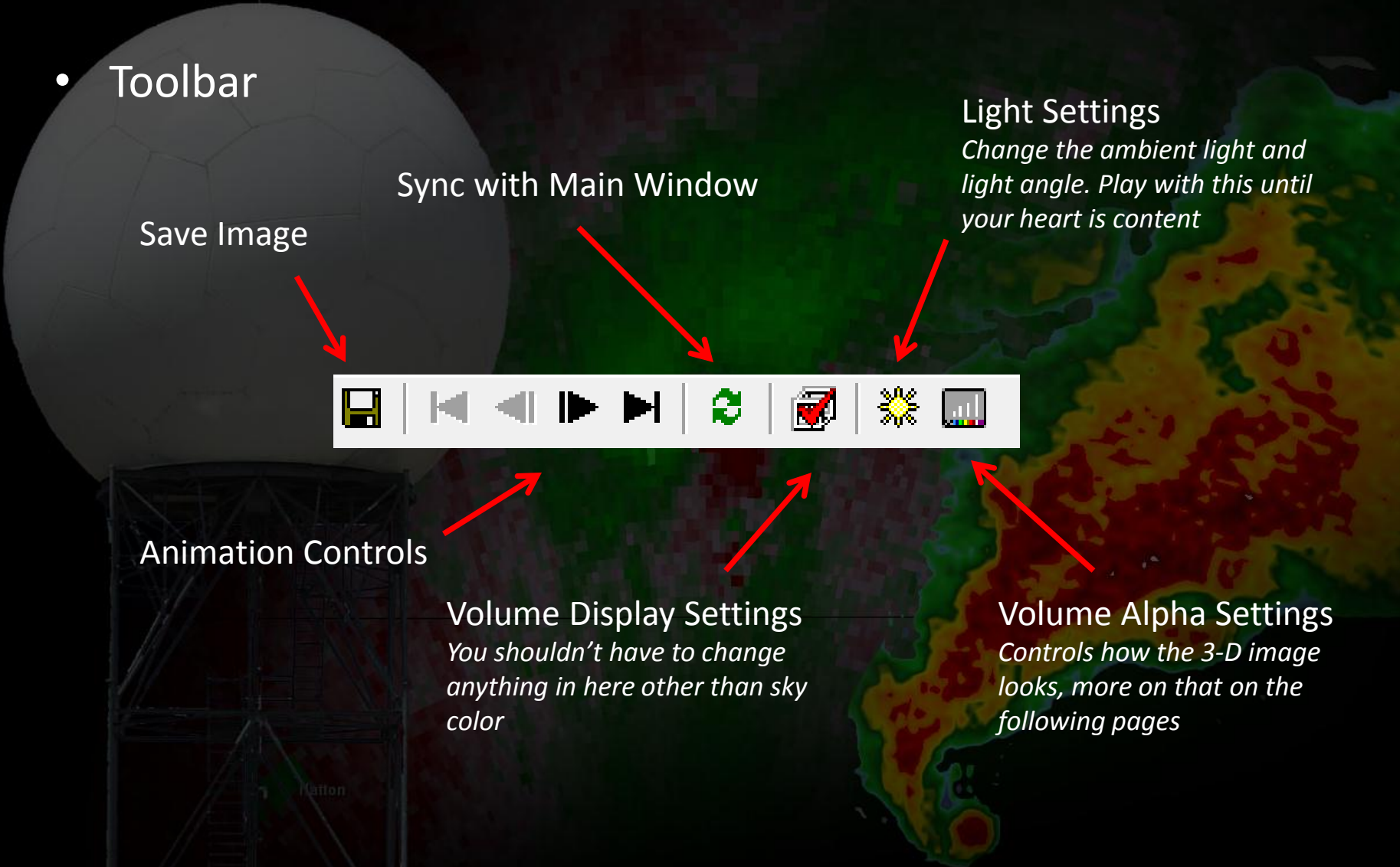
Select View Mode: \_\_\_\_\_  
 Lit Volume  
 Isosurface

- The Status Bar is located at the bottom of the window and displays you cursor's lat. and lon. and azimuth/range from radar

# Viewing Options

## Volumetric Display: Toolbar

- Toolbar



Save Image

Sync with Main Window

Light Settings

*Change the ambient light and light angle. Play with this until your heart is content*

Animation Controls

Volume Display Settings


*You shouldn't have to change anything in here other than sky color*

Volume Alpha Settings

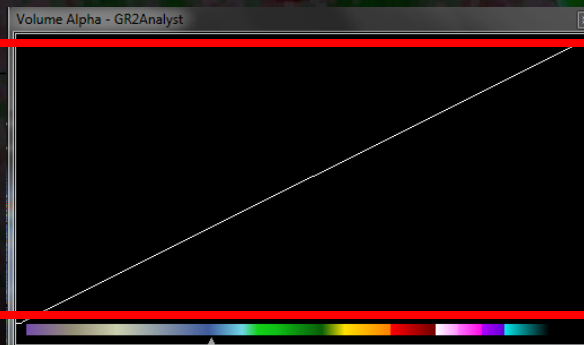
*Controls how the 3-D image looks, more on that on the following pages*

# Viewing Options

## Volumetric Display: Editing the Lit Volume Colors

- Click on the  icon on the Toolbar. The Volume Alpha window will open
- The color scale is oriented along the bottom of the window, with a line stretching from the left to right side of the window. This line controls the transparency of the colors
- The closer to the top of the window the line is, the more opaque the color directly under the line is; the closer the line is to the bottom of the window, the more transparent the color under it becomes.
- You use a series of click and drags with your mouse in the window to edit the transparency of colors

Completely Opaque



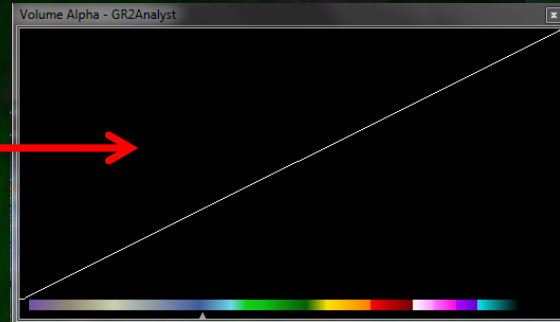
Completely Transparent

Examples on  
Next Pages

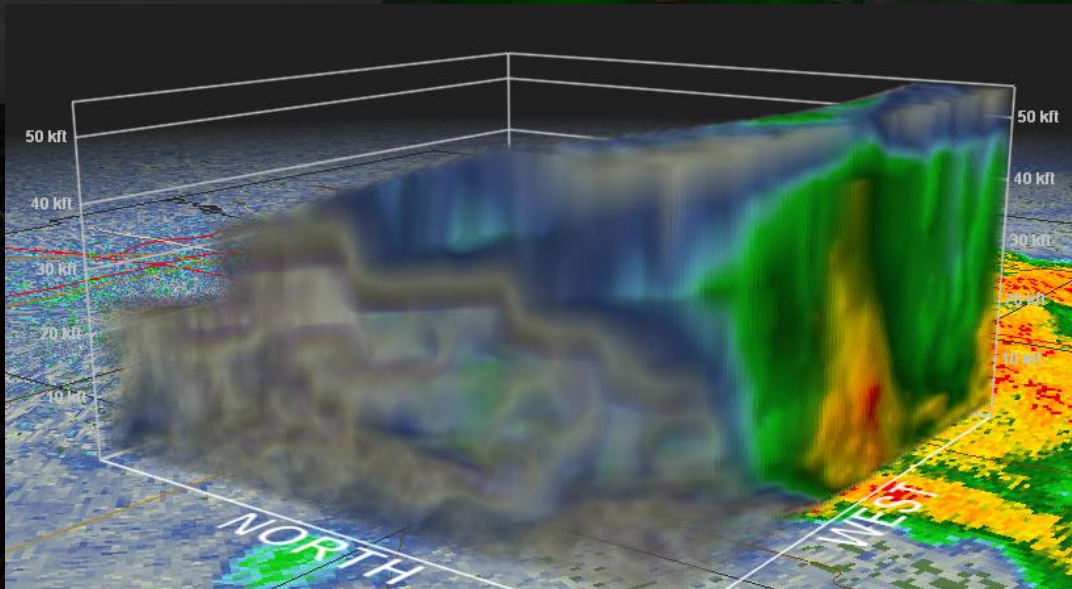
# Viewing Options

## Volumetric Display: Editing the Lit Volume Colors

- Let's look at a few examples and the resulting volume images
  - When you first open the Volume Alpha window, it will likely look something like this (unless you've already edited it):



And the volume image looks like this:



But we can make this so much better...

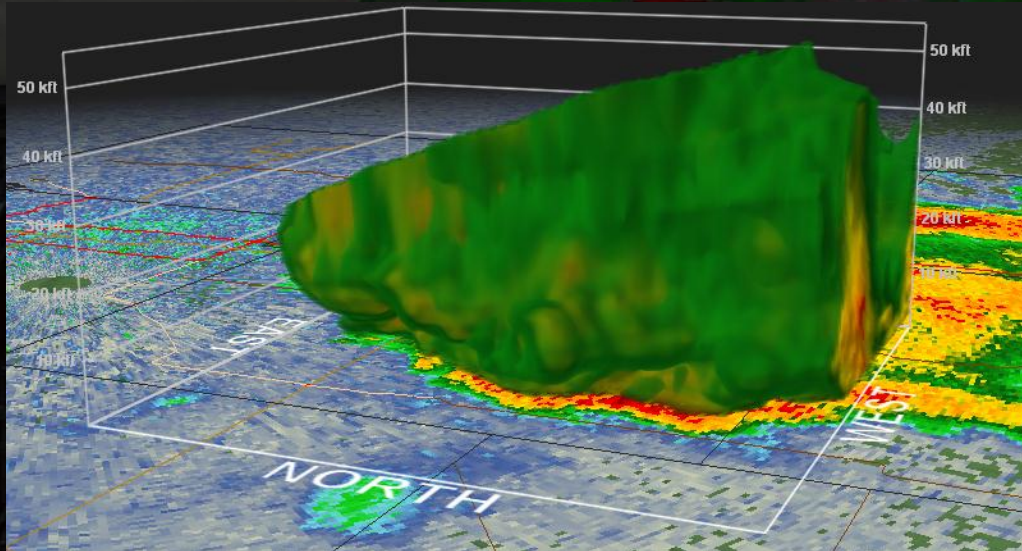
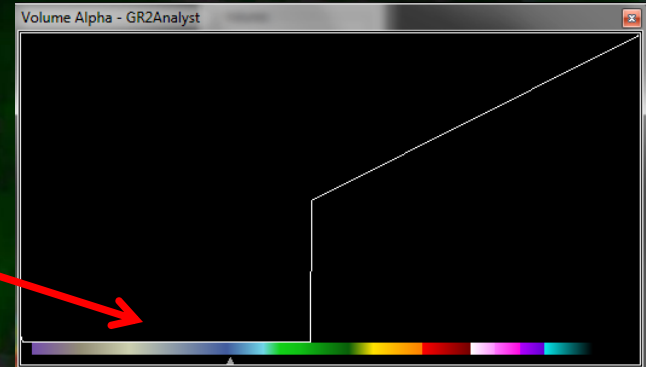


# Viewing Options

## Volumetric Display: Editing the Lit Volume Colors

- Let's get rid of the low reflectivity values
  - Click and drag the cursor along the bottom of the window over the lower end of the scale to make the low values transparent

And the volume image now looks like this:

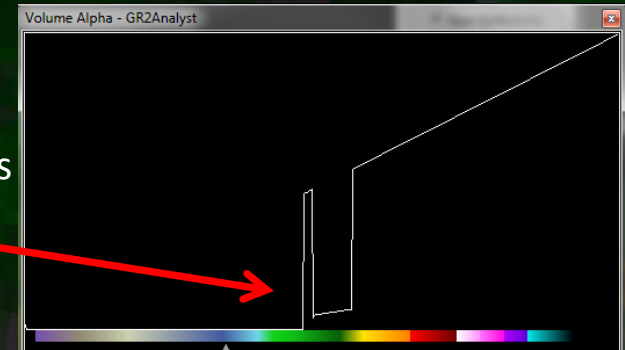


Somewhat better,  
but the green is still  
overpowering...

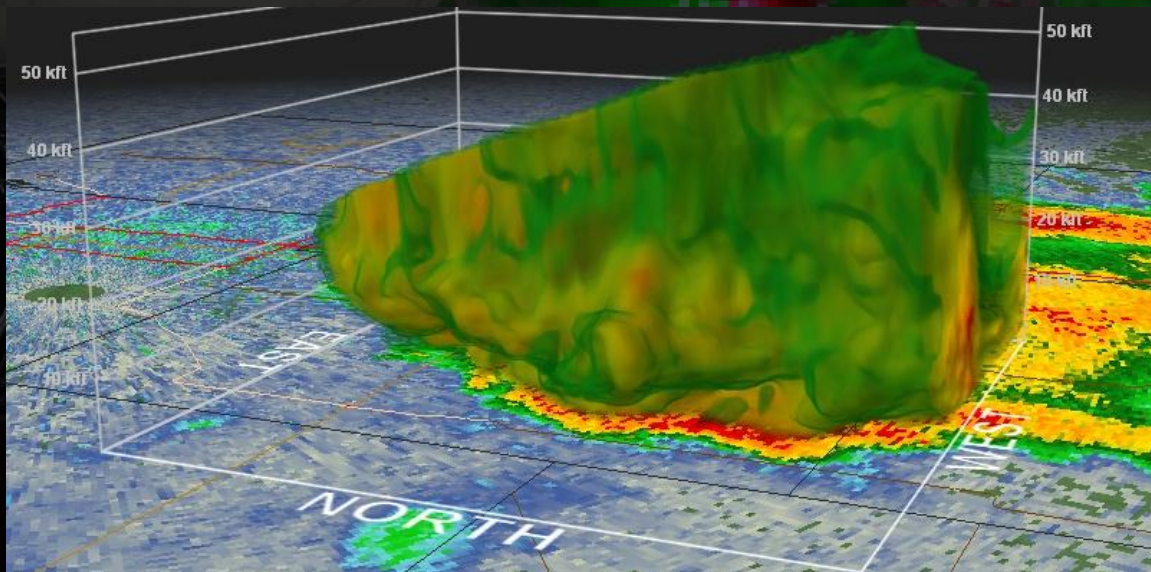
# Viewing Options

## Volumetric Display: Editing the Lit Volume Colors

- Let's lower the strength of the green and make it more transparent
  - Move the cursor a few shades of green up the scale, then drag a little ways off the bottom until you reach the yellows to make the rest of the greens transparent



And the volume image now looks like this:



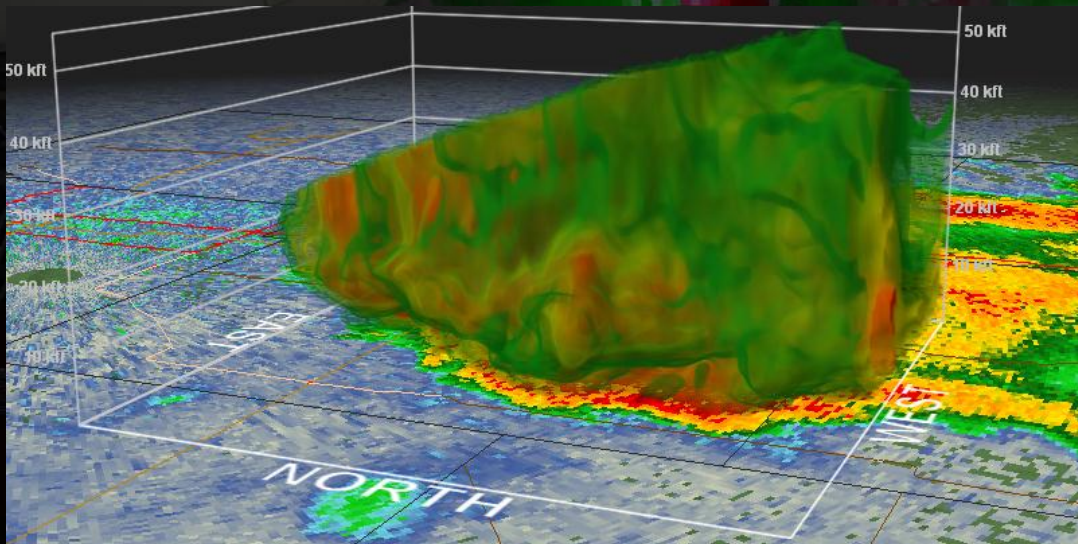
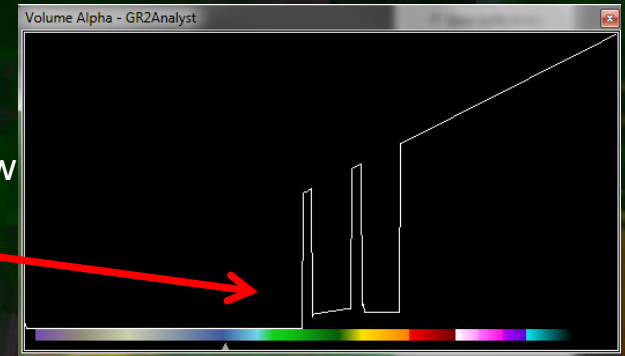
Getting there, let's do the same to the yellows...

# Viewing Options

## Volumetric Display: Editing the Lit Volume Colors

- Now let's make the yellows more transparent
  - Move the cursor a few shades of yellow up the scale, then drag a little ways off the bottom until you reach the oranges to make the rest of the yellow nearly transparent

And the volume image now looks like this:



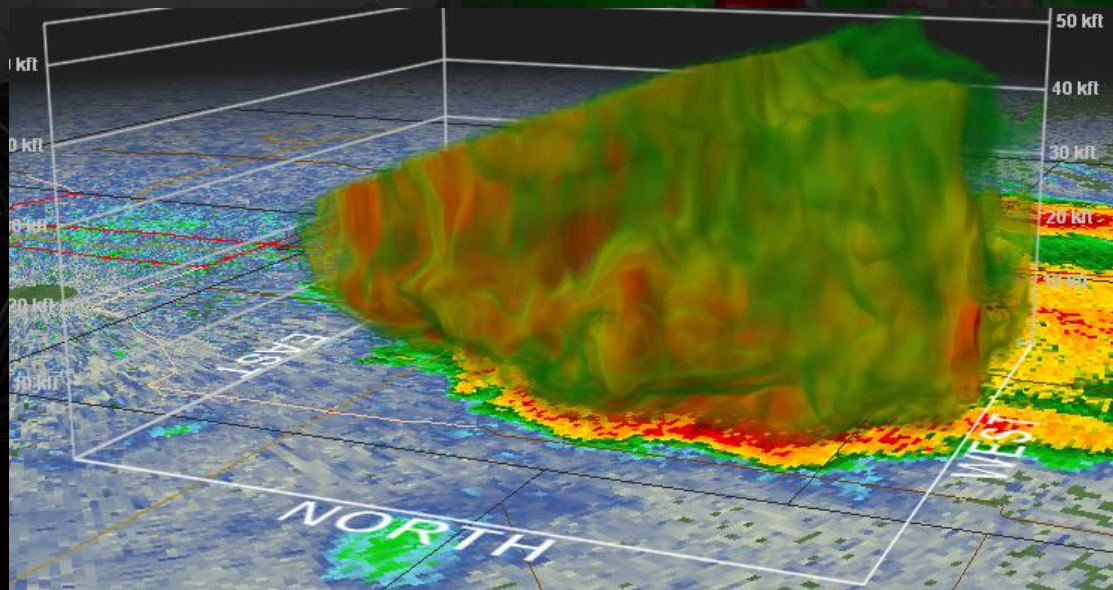
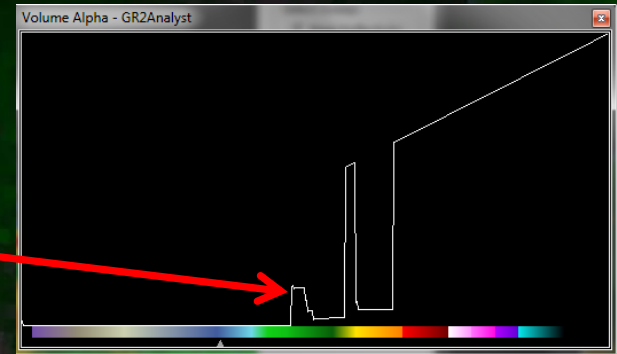
That green is still a bit much...

# Viewing Options

## Volumetric Display: Editing the Lit Volume Colors

- Now let's make the greens more transparent
  - Drag the cursor along the spike over the green to dampen it out a bit. Also drag the cursor over the rest of the greens to make them more transparent

And the volume image now looks like this:

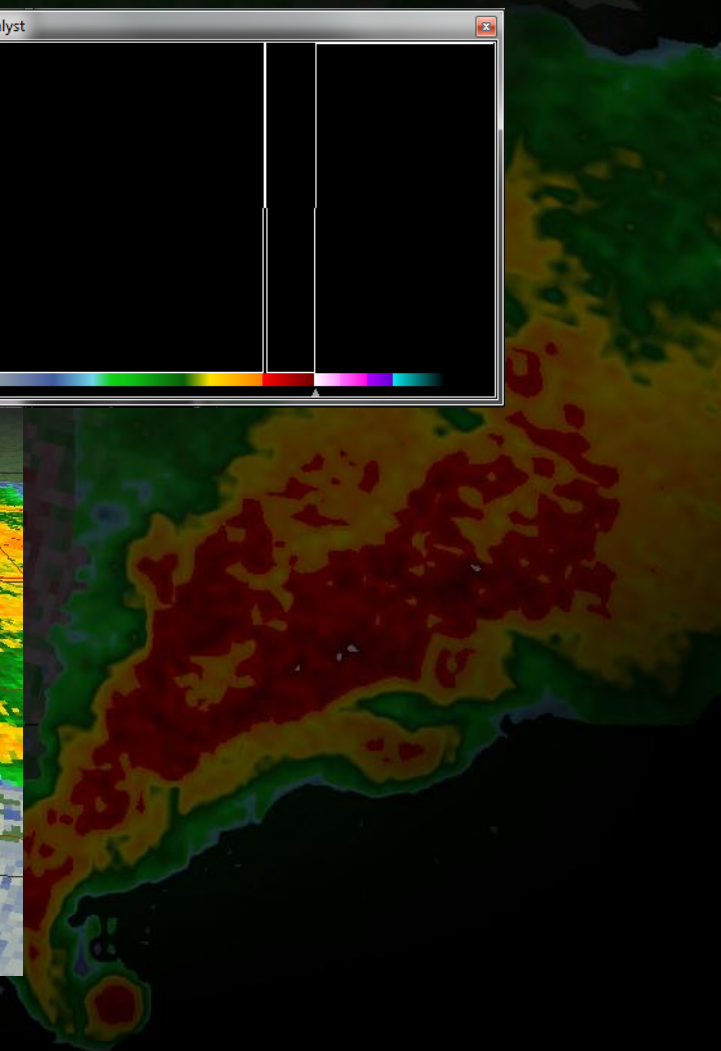
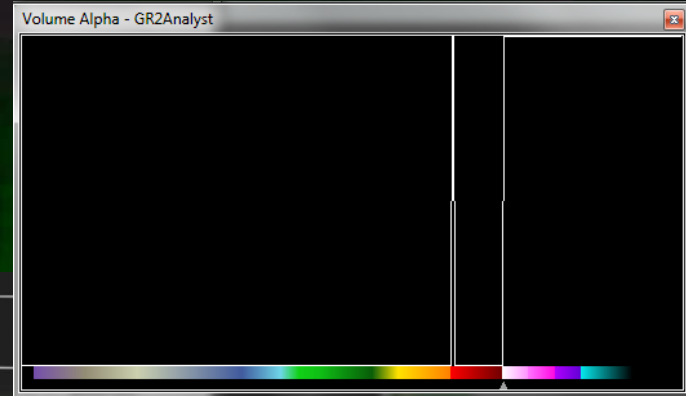
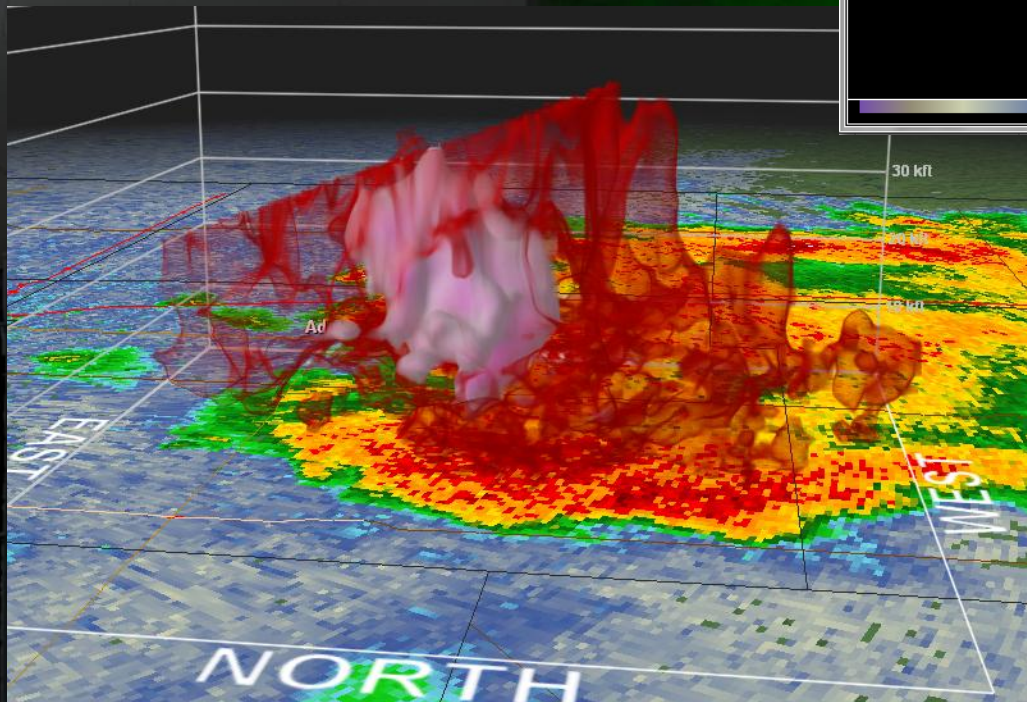
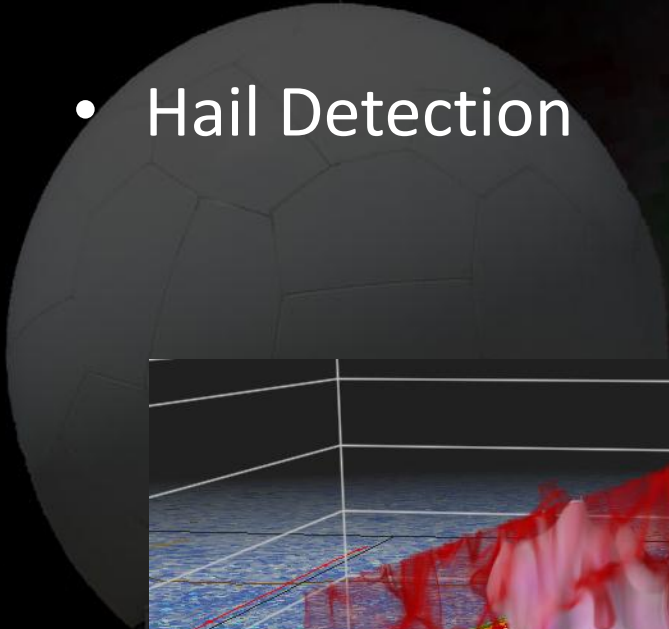


You're probably getting the drift of what we're doing. Let's look at some final products...

# Viewing Options

## Volumetric Display: Editing the Lit Volume Colors

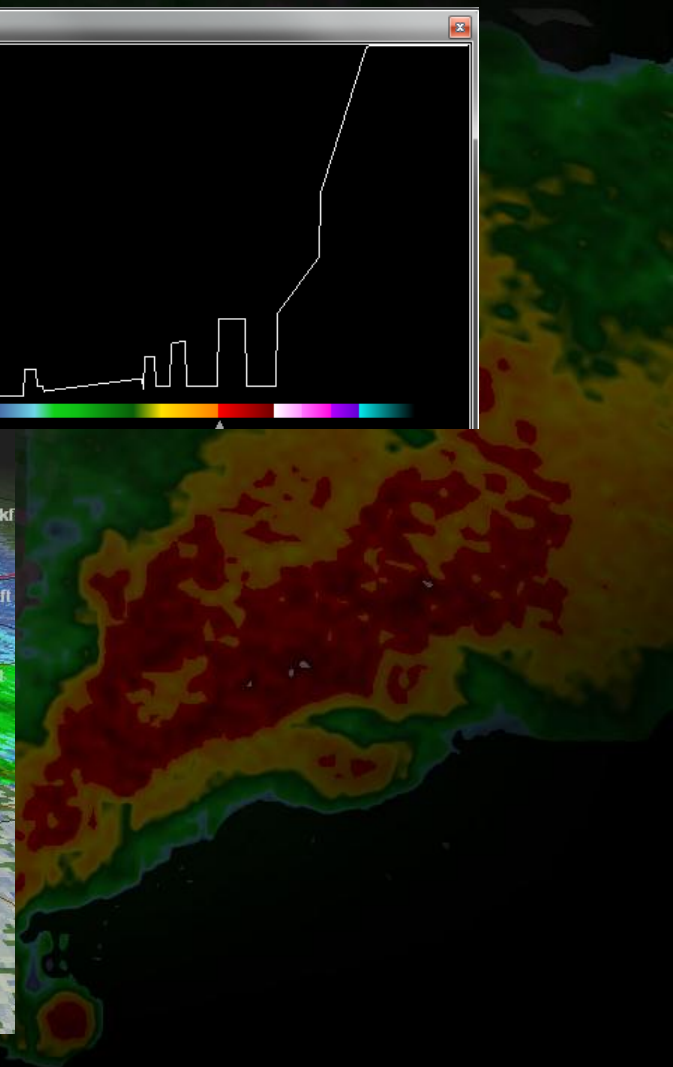
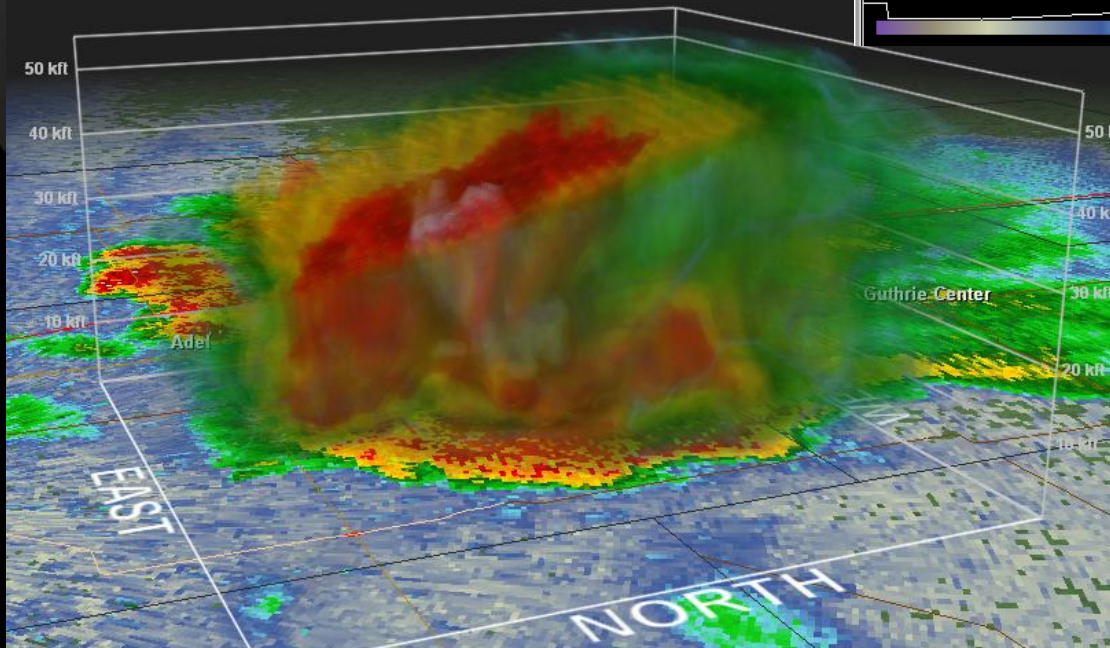
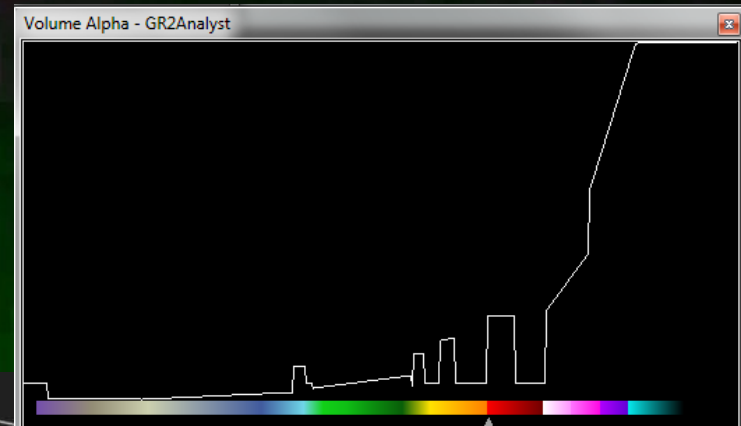
- Hail Detection



# Viewing Options

## Volumetric Display: Editing the Lit Volume Colors

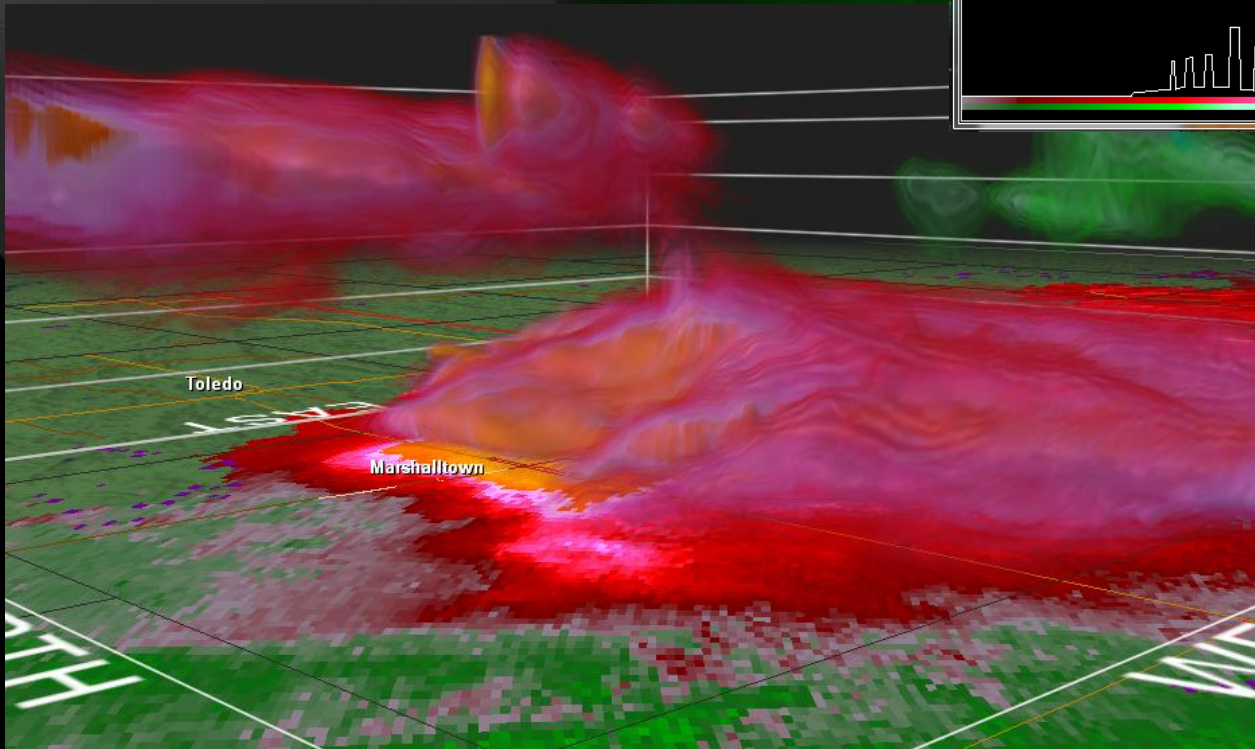
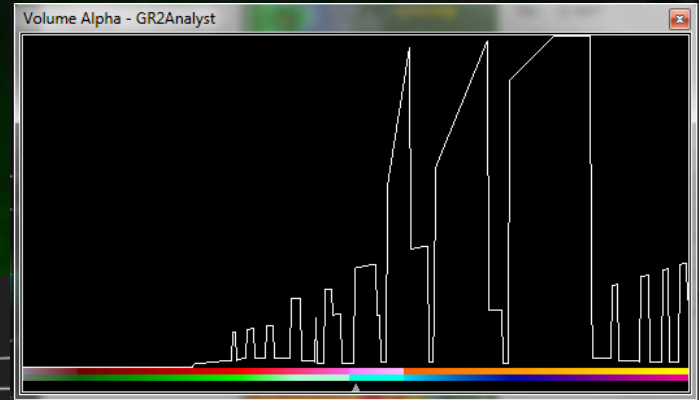
- See All Levels



# Viewing Options

## Volumetric Display: Editing the Lit Volume Colors

- Base Velocity
  - Note that the transparency effects are applied to both inbound and outbound values



From the July 11  
Derecho

# Viewing Options

## Volumetric Display: Editing the Lit Volume Colors

- Saving your Settings
  - Once you've edited the transparency to your liking, you can save your settings by right clicking the Volume Alpha window and clicking "Save Alpha Table..."
  - You can then load your saved settings by right clicking the table and selecting them from the list on the pop up menu
  - The settings only work for the product they were created for (i.e. You can't load the saved settings for a reflectivity product on a velocity image)

**Tip:** When editing the transparency curve on the Volume Alpha window, the exact value your cursor is at is displayed at the very top of the window



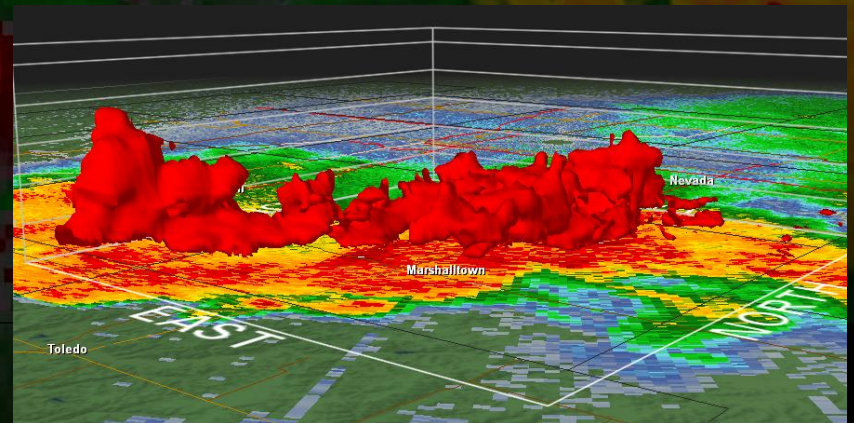
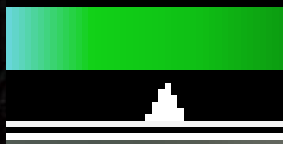
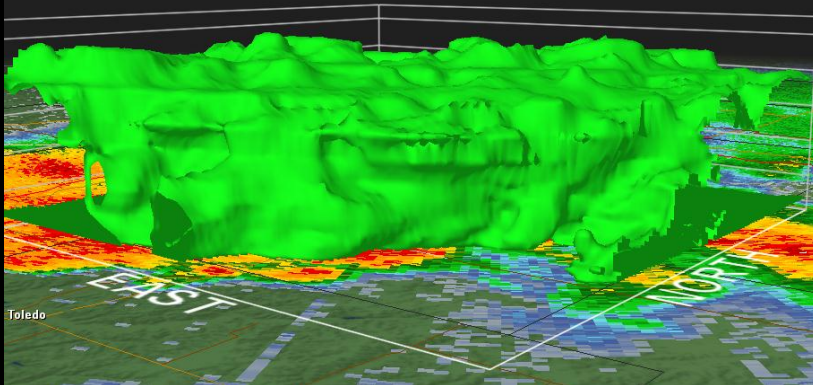
# Viewing Options

## Volumetric Display: Editing the Isosurface

- To change the isosurface values, simply click and drag the triangle located under the color table on the Volume Alpha window



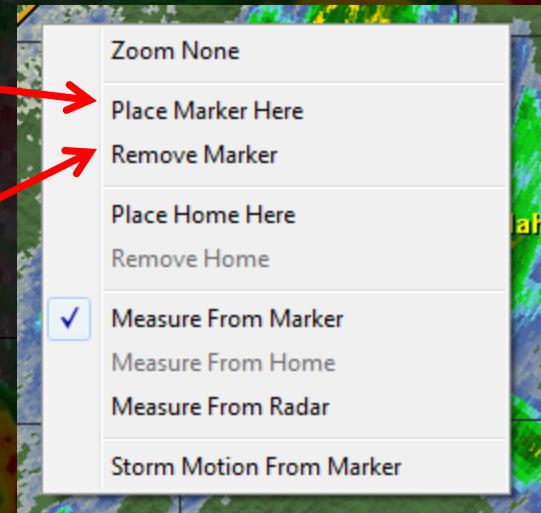
- Examples



# Viewing Options

## Markers

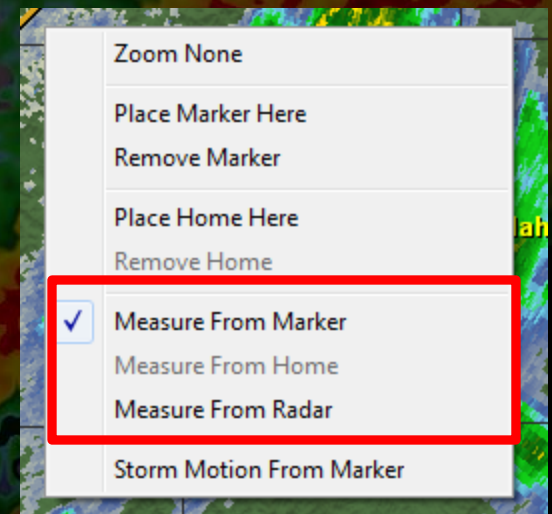
- Markers are useful for setting the SRM and measuring distances between points.
- To set a marker, right click on the Radar Display Window at the spot you want to place the marker. A menu will open up (see image below).
- Click “Place Marker Here”.
- To remove the marker, right click the marker and select “Remove Marker”



# Viewing Options


## Home Markers

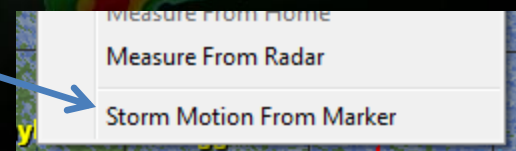
- GR will erase any marker you set after exiting the program
- To set a marker that GR will remember the next time you open the program:
  - Right click where you want to set the marker and click “Place Home Here”
  - To remove the Home marker, right click the marker and select “Remove Home”
- By default, GR measures distances in the Toolbar from the radar, but you can also have GR measure distances from the marker or home point.
  - Right click anywhere in the Radar Display Window and choose from one of the three options near the bottom (red box)



# Viewing Options



## Setting Storm Motion for SRM Velocity

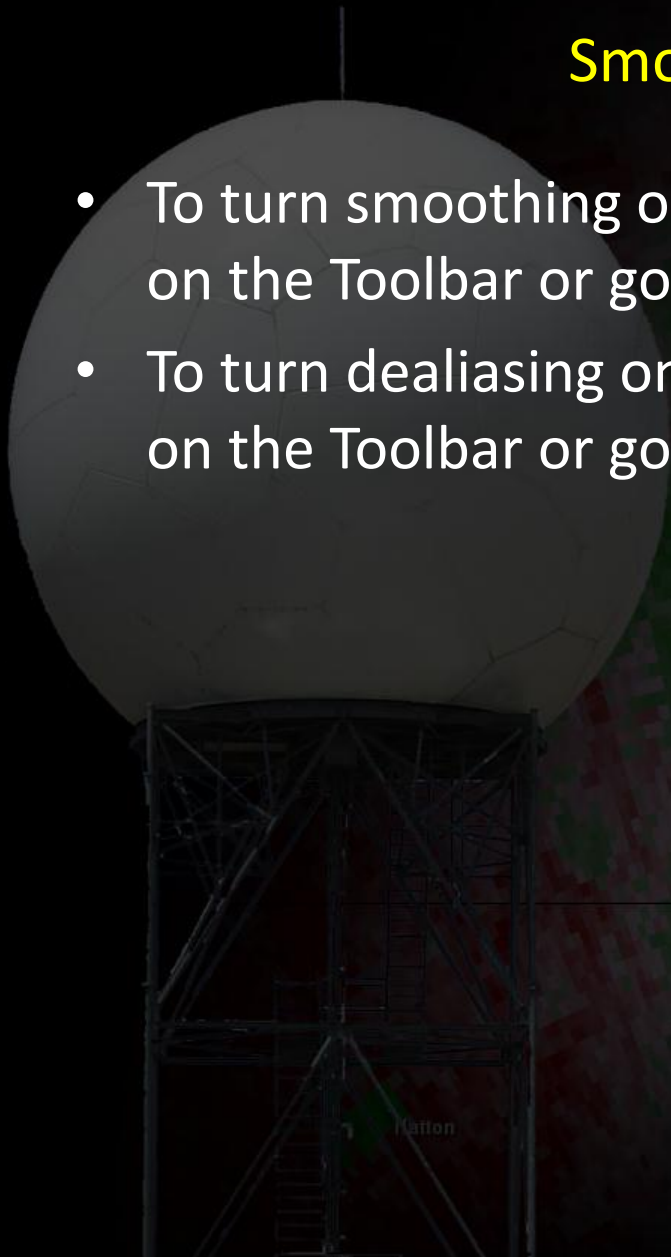
- To set the storm motion manually
  - Click the  icon in the Toolbar.
  - A window will pop up allowing you to enter the storm's motion and speed (**Note: Storm motion should be the direction the storm is COMING from**)
- To have GR calculate the storm motion
  - Right click in the middle of storm (or edge, as long as you are consistent in step 3) and set a marker there
  - Advance several frames forward and backward
  - Right click on that region of the storm again and in the menu that opens up, select “Storm Motion from Marker”



# Viewing Options

## Smoothing and Dealiasing

- To turn smoothing on and off for certain products, click the  on the Toolbar or go to *View -> Smoothing*
- To turn dealiasing on or off for velocity products, click the  on the Toolbar or go to *View -> Dealias Velocity*



# Viewing Options

## Saving Images

- Go to *File -> Save Image*—there will be four options
  - Entire Window: Captures the whole screen
  - Colors, Radar, Info: Captures the color table, radar display window, and product information panel
  - Colors and Radar: Captures the color table and radar display window
  - Radar Only: Captures the radar display window

# Editing Settings

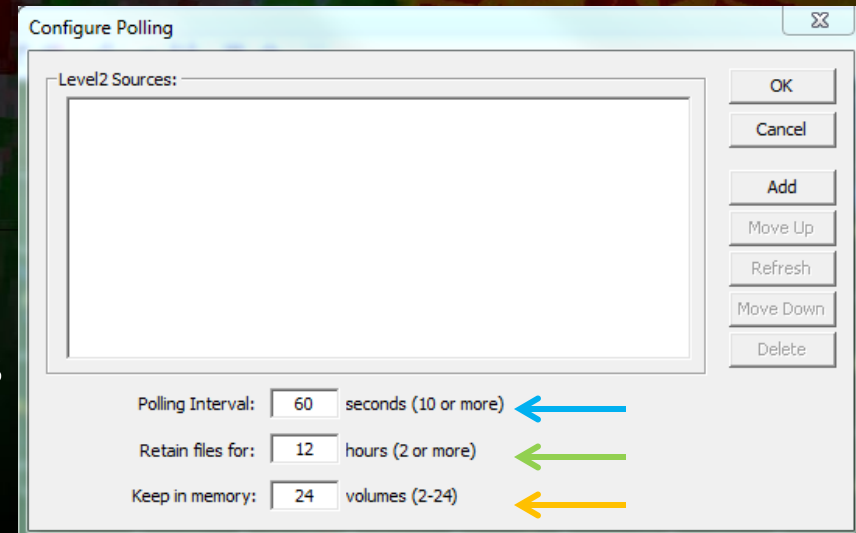
## Color Tables

- To change the color table of a particular product:
  - First, display the product you wish to change (Z, V, SRM, etc) on the Radar Display Window
  - Then navigate to *View -> Set Color Table...*
  - Navigate to the directory that contains the color table and select it
  - Repeat this process for each product
  - Many color tables are stored under the G:\GibsonRidge\Color Tables directory
  - Play around and try them out!

# Editing Settings

## Configure Polling

- Navigate to *File -> Configure Polling*
  - You cannot be downloading live data while changing these options
- The window that opens up will display the sources of Level II data. The buttons on the right allow you to add/remove new sources and change their priority (top source is used first)
- There are three configurable options on the bottom:
  - **Polling Interval:** How often GR checks for new radar data
  - **Retain Files for:** How long GR will keep the files it downloads before discarding them
  - **Keep in Memory:** How many scans GR will keep in memory that will be available for animating

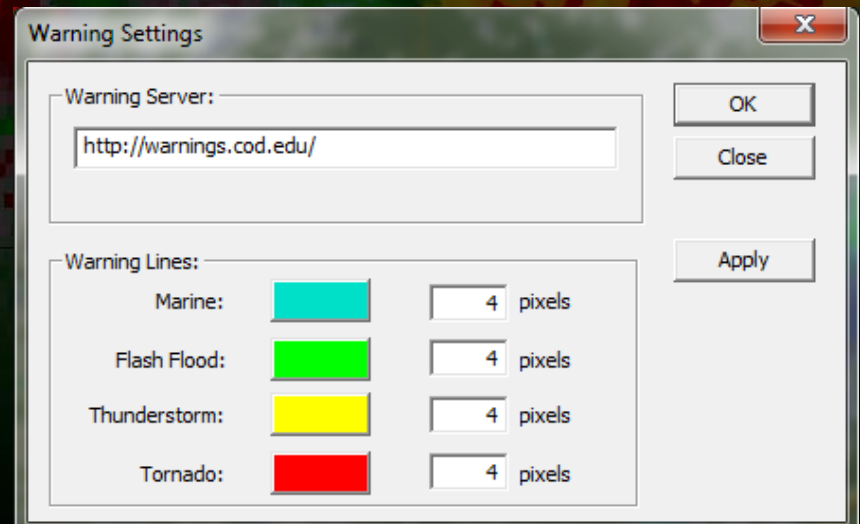




# Editing Settings

## Warning Colors

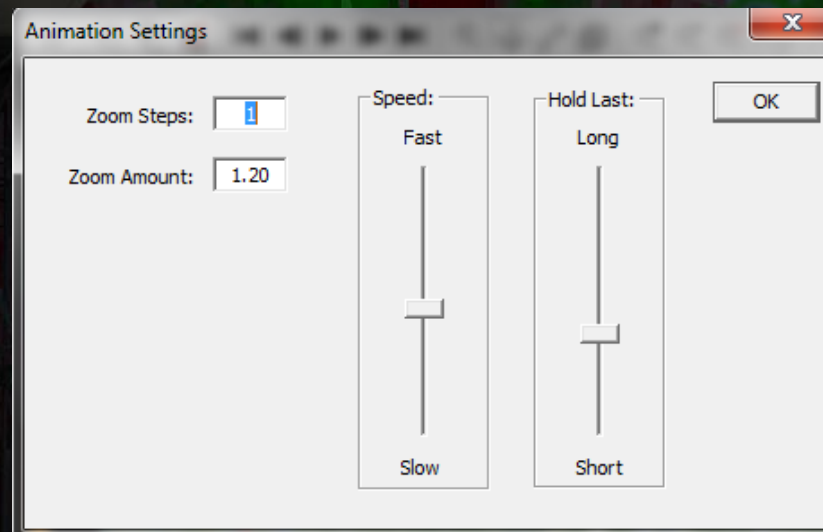
- To change how warnings look on the screen:
  - Go to *View -> Warning Settings...*
  - The window below will open
  - The warning server shouldn't need to be touched
  - To change the color of the warning, click the colored box next to the warning.
  - To change the width of the warning polygon, change the number in the pixels field
  - Click *Apply* to see the changes on the screen.



# Editing Settings

## Animation Settings

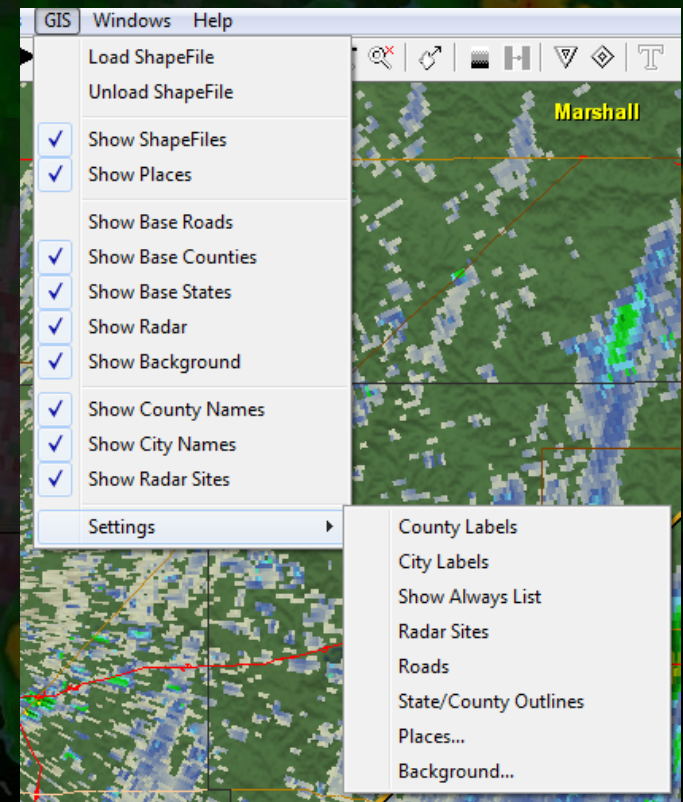
- **Very useful for controlling zoom settings and looping speeds**
- Go to *View -> Animation Settings...*
  - **Zoom Steps:** How smooth the zooming. Higher numbers = smoother
  - **Zoom Amount:** How much the program zooms in or out with each click/turn of the mouse wheel. I have found that a value of 1.20 is good to use.
  - **Speed:** How fast the images loop
  - **Hold Last:** How long GR holds the last image in a loop



# Editing Settings

## GIS Icons

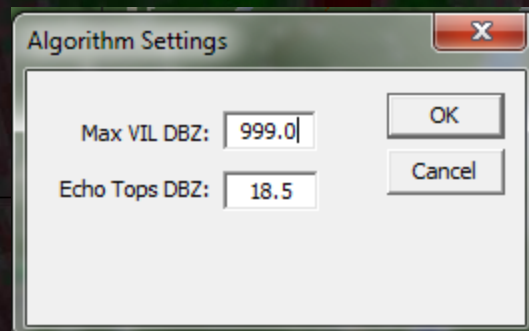
- All of the overlays in GR can be edited
  - The settings for each variable are under the *GIS -> Settings* menu
  - These settings include font color, font style, and line color.
  - *City Labels* defines the types of cities shown at a particular zoom level
  - *Always Show List* defines what cities are always shown regardless of the zoom level



# Editing Settings

## Algorithm Settings

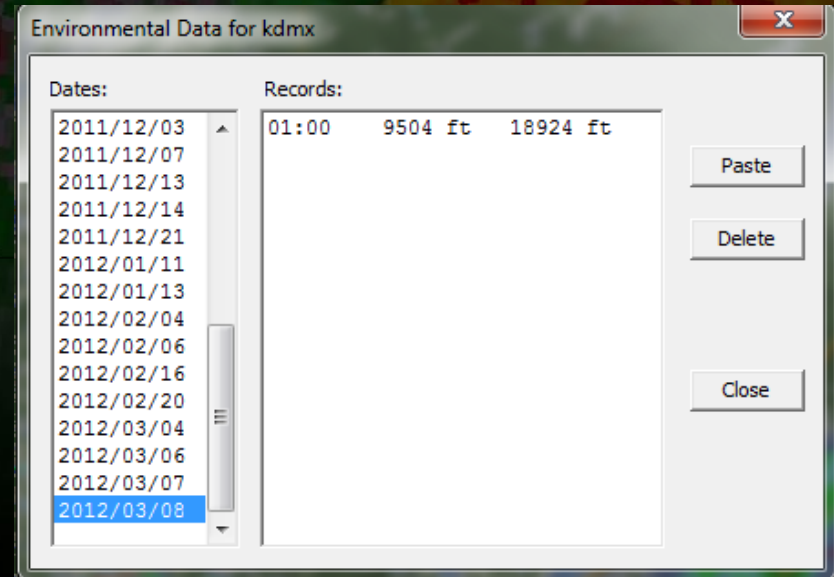
- The way in which GR calculates VIL and echo tops can be changed
  - *Algorithms -> Algorithm Settings...*
  - **Max VIL DBZ:** Maximum DBZ to be used in calculating VIL
  - **Echo Tops DBZ:** Lowest DBZ to be used in calculating echo tops



# Editing Settings

## Environmental Settings

- GR downloads 0° and -20° C heights from the RUC when polling radar data in order to calculate hail sizes
  - These heights can be found at *Algorithms -> Environment Settings...*
  - Dates that data were downloaded on in the past are viewable on the left column
  - Once the date is selected, the data for each hour is viewable on the right window





The End!!!