McIDAS-V Tutorial
Displaying Level II Radar Imagery
updated August 2009 (software version 1.0beta4)

McIDAS-V is a free, open source, visualization and data analysis software package that is the next generation in SSEC's 35-year history of sophisticated McIDAS software packages. McIDAS-V displays weather satellite (including hyperspectral) and other geophysical data in 2- and 3-dimensions. McIDAS-V can also analyze and manipulate the data with its powerful mathematical functions. McIDAS-V is built on SSEC's VisAD and Unidata's IDV libraries, and contains "Bridge" software that enables McIDAS-X users to run their commands and tasks in the McIDAS-V environment. The functionality of SSEC's HYDRA software package is also being integrated into McIDAS-V for viewing and analyzing hyperspectral satellite data.

McIDAS-V is currently a beta version of the software, which means that the software may contain bugs and not always work as expected. If you encounter any errors, please send them to the McIDAS Help Desk at mug@ssec.wisc.edu . You will be notified at the startup of McIDAS-V when new versions are available on the McIDAS-V webpage - **http://www.ssec.wisc.edu/mcidas/software/v/** .   More training materials are available on the McIDAS-V webpage and in the Getting Started chapter of the McIDAS-V User's Guide, which is available from the Help menu within McIDAS-V.

This tutorial assumes that you have McIDAS-V installed on your machine, and that you know how to start McIDAS-V. If you can not start McIDAS-V on your machine, you should follow the instructions in the document entitled *McIDAS-V Tutorial – Installation and Introduction*.
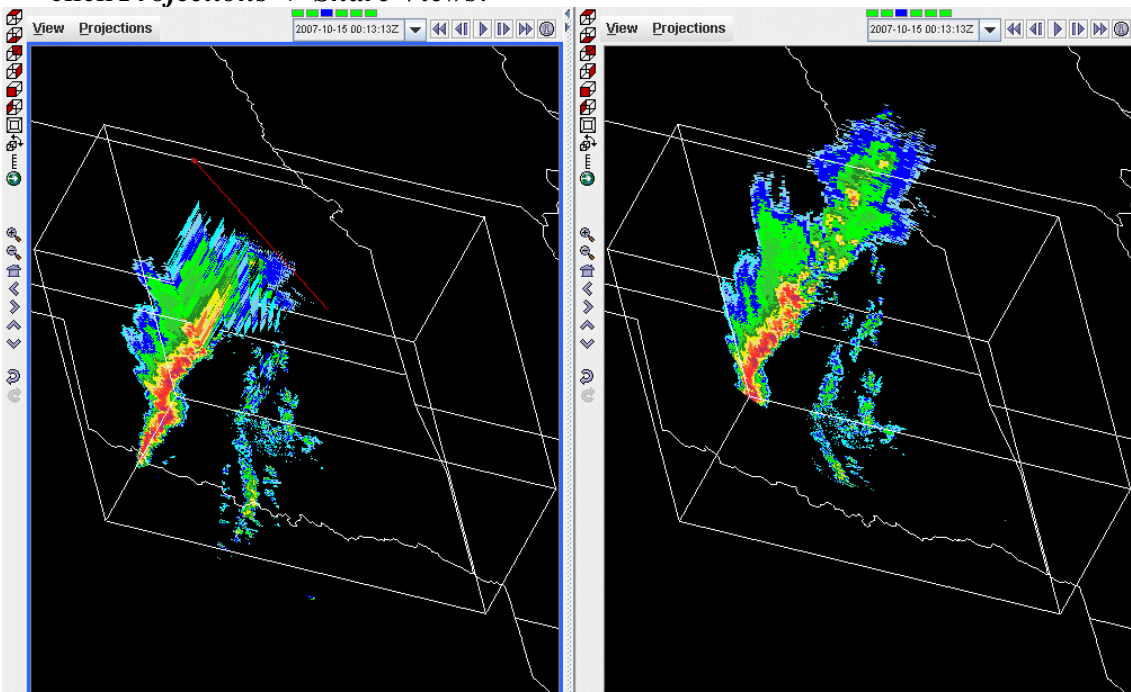
In this McIDAS-V Tutorial, each exercise will be explained using two different methods of data access: pre-loaded data bundles and real-time access to default remote servers. If you have access to your own real-time ADDE servers, you may also use those, but be aware that different server configurations may make the explanations in this document not quite applicable to all data that you may load.

Note: Users of data from the SSEC Data Center can use the "Import from URL" feature of the ADDE Server Manager and automatically include all of the SSEC Data Center servers in the McIDAS-V server lists. From the main menu, select *Edit -> Preferences -> ADDE Servers -> Import From URL* and enter the URL (http://www.ssec.wisc.edu/mcidas/software/v/addeservers.xml), your User ID, and Project #.

Displaying Level II radar images: 3D reflectivity swath, RHI and Volume Scan

1. Remove all data and layers from the previous display.

2. Open a two panel map display by selecting *File -> New Display Tab -> Map Display -> Two Panels*. By default, the right panel is highlighted, which is where the data will be displayed.

   a. Click the left panel, and you should see the blue box outline the panel display on the left, indicating it is selected.

   b. To change the outline color go to the preferences by selecting *Edit -> Preferences*. Under the **Display Window** tab there is a *Color Scheme* section on the right side. To the right of *Selected Panel*, click the blue box to bring up the color editor. Select a new color from the swatches and click **OK**. You may need to switch between tabs to refresh the box to your selected color.

3. Highlight the left panel in the **Map Display** window, and load the **Radar.mcvz** bundle. If you are using real-time data, skip to step 4.

   a. In the "Open Bundle" dialog box select the *Merge with active tab(s)* option and click **OK**

4. If you are loading real-time data, follow the steps below.

   a. Click on the [icon] button in the main toolbar to go to the *Data Explorer*.

   b. Select the *Radar -> Level II -> Remote* chooser from the *Data Sources* tab.

   c. Click **Connect** and select a station.

   d. Select the 5 most recent images and click **Add Source**.

5. In the **Fields** panel of the *Field Selector* tab select the *Reflectivity* entry.

   a. The available displays will show up in the **Displays** panel. Choose the *Radar Sweep View in 2D* and click **Create Display**.

6. Highlight the right panel, and return to the *Field Selector* tab in the *Data Explorer*.

7. Select the *Radar Sweep View in 3D* display and click **Create Display**.

8. You will notice no difference between the two layers until you rotate your view away from the top.

9. Turn looping on and off as you rotate the 3D reflectivity image.

10. Another default for a multi-panel display is shared views. As you rotate the display, you should notice that both panels move in sync as you zoom, rotate and pan. To turn this feature off, go to one of the panels and click *Projections -> Share Views*.

McIDAS-V Tutorial – Displaying Level II Radar Imagery   August 2009 – McIDAS-V version 1.0beta4

11. Turn the looping off and return to the *Field Selector*.

    a. Add an *RHI* layer to the left panel.

    b. Rotate to the *Top Viewpoint* by clicking on the ⬚ button on the left toolbar.

    c. Use the left-mouse button drag on the red square at the end of the line to change the position of the RHI line. The 2D display in the *Layer Controls* tab will automatically update as you move the RHI line.
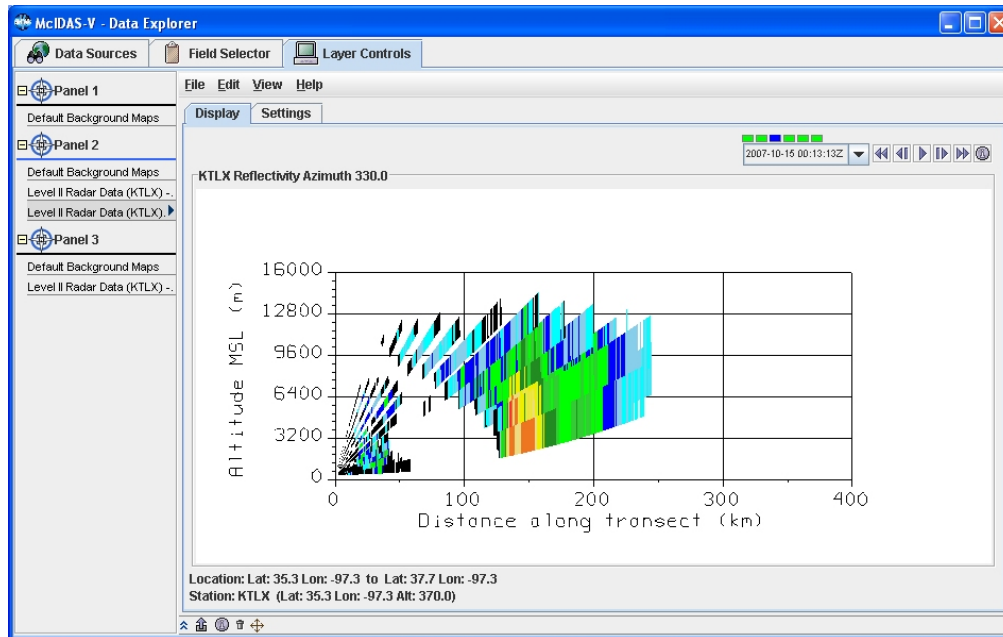
    i. The **Autorotate RHI** button in the **Settings** tab of the *Layer Controls* will loop the reflectivity azimuth in both the 2D and 3D displays.

    ii. When you are done, stop the **Autorotate**.

12. Open a new tab by clicking on the 🗔 button in the main toolbar.

    a. Select the *Volume Scan (all sweeps)* display.

    b. Select only one image time by turning off the **Use Default** checkbox in the **Times** tab of the *Field Selector* .

    c. Click **Create Display**.

13. Use the zooming and rotating controls to observe the 3D view of all radar sweeps.

14. Add range rings to the display by selecting *Display -> Add Range Rings*.

15. Capture the display as an image by selecting *View -> Capture -> Image...*

    a.   There is an option to save only the view, view and legend, or the full window. Select "View" to only capture the layers displayed in the current window.

16. Take time to load other radar fields and displays.

Zooming, Panning, and Rotating Controls

Zooming	Panning	Rotating
Mouse		
Shift-Left Drag: Select a region by pressing the *Shift* key and dragging the left mouse button. **Shift-Right Drag:** Hold *Shift* key and drag the right mouse button. Moving up zooms in, moving down zooms out.	**Control-Right Mouse Drag:** Hold *Control* key and drag right mouse to pan.	**Right Mouse Drag:** Drag right mouse to rotate.
Scroll Wheel		
Scroll Wheel-Up: Zoom Out. **Scroll Wheel-Down:** Zoom In.		**Control-Scroll Wheel-Up/Down:** Rotate clockwise/counter clockwise. **Shift-Scroll Wheel-Up/Down:** Rotate forward/backward clockwise.
Arrow Keys		
Shift-Up: Zoom In. **Shift-Down:** Zoom Out.	**Control-Up arrow:** Pan Down. **Control-Down arrow:** Pan Up. **Control-Right arrow:** Pan Left. **Control-Left arrow**: Pan Right.	**Left/Right arrow:** Rotate around vertical axis. **Up/Down arrow:** Rotate around horizontal axis. **Shift-Left/Right arrow:** Rotate Clockwise/Counterclockwise.