



## 5.15 Product Output Options Tool

There are several products for which users can specify additional output options. If one of these products is on the screen, then the Output Options tool icon is sensitized. The products are:

<i>VVP (Time-Height)</i>	<b>Section 5.15.1</b>
<i>VVP (Line Graphs)</i>	<b>Section 5.15.2</b>
<i>WIND and FCAST</i>	<b>Section 5.15.3</b>
<i>CAPPI (if multi-level)</i>	<b>Section 5.15.4</b>
<i>NDOP</i>	<b>Section 5.15.5</b>
<i>WARN</i>	<b>Section 5.15.6</b>

The Output Options tool will allow you to adjust the display of these products for your particular application. You can then do a **File**→**Save** for the VVP, WIND/FCAST and NDOP options so that the configuration for your particular window is saved (it will not effect other windows).



**Hint:** If you are using WIND, FCAST or NDOP products as overlays on other products, it is sometimes convenient to display (for example) the WIND, product and pop-up the options tool for WIND. Then leave the tool up so you can use it if needed when you look at WIND overlaid on another product.

### 5.15.1 VVP Output Options: Time-Height

The screenshot shows a dialog box titled "VVP Output Options: Time-Height". It has a menu bar with "File", "Display\_Style", and "Commands". The main area contains several settings:

- Color Background:** A dropdown menu set to "None".
- Overlay Plot:** A dropdown menu set to "Wind Barbs".
- Time Span min:** A numeric input field set to "60".
- Max Height km:** A numeric input field set to "10.0".
- Time Step min:** A numeric input field set to "1".
- Height Step km:** A numeric input field set to "0.1".
- Std Dev Thresh %:** A numeric input field set to "50".

At the bottom of the dialog are four buttons: "OK", "Apply", "Cancel", and "Defaults".

The VVP product shows vertical profiles of average Doppler wind properties over the radar such as wind speed, wind direction and divergence. The Output Options menu lets you choose to display wind data in one of the following ways:

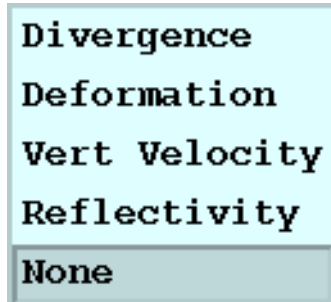
- Choose **Display\_Style→Graphs** to display a graph of VVP parameters vs. height at a single time; 1, 2 or 3 graphs can be selected. See Section 5.15.2 for information about the Graphs submenu.

The WIND product plots the horizontal wind speed and direction. For this product type, the Output Options menu lets you choose whether to display all wind measurements or only those winds that deviate from the mean. You can choose either wind barbs or wind strings to represent wind speed and direction, and you can specify a coverage threshold percentage. See Section 5.15.3 for information about the WIND Output Options menu.

When VVP is the current product type, you can click on the Options button to pop up the Time-Height Output Options submenu. With this menu, you can display a height vs. time cross-section of VVP parameters with the specified color background and overlay plot.

## Color Background

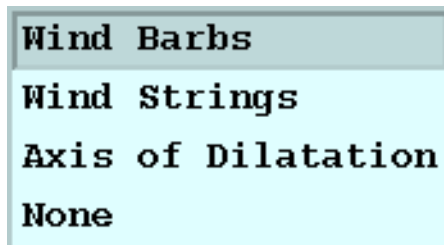
Choose the information that you want displayed in the background from the following menu:



See Section 5.7 for information on selecting the color scales for the background display.

## Overlay Plot

Choose the type of overlay plot from the following menu:



Wind barbs use the standard meteorological convention of 1/2 barb for 5 knots, 1 barb for 10 knots and triangles for 50 knots. Wind strings point away from the wind direction, with the length of the string indicating the relative wind speed. The maximum length of the wind strings can be set using the **Display Style**→**Graphs** Scale Limit for wind speed.

Axis of dilatation lines show the angle of “stretching”. Fronts tend to form parallel to this angle. The length is proportional to the deformation which indicates the strength of the stretching. The maximum length of the dilatation can be set using the **Display Style**→**Graphs** Scale Limit for deformation. Choose “None” if you do not want to display an overlay plot.

## Time Span min

This sets the duration of the time (horizontal) axis in minutes.

## Time Step min

This sets the minimum time step for plotting data. For example if there is a VVP profile every 5 minutes and this field is set to 10, then every other profile will be plotted. This is useful to avoid collisions of the wind barbs when the data are closely spaced. Type **0.0** to see all the data.

### **Max Height km9**

Type the maximum height (vertical scale) that you want to display. Note that the height of the VVP profile may be less than the height that you display in which case you will see blank background color.

### **Height Step km**

To avoid collision of the wind barbs in height, you may want to specify a minimum height step. Type **0.0** to see all the data.

### **Std Dev Thresh %**

In some cases, the wind estimates will be noisy because of weak signals or poor coverage. This field lets you threshold poor estimates so that they are not displayed. Specify a number between 0 (no thresholding) and 100 (everything thresholded away). Typically a value of 80 is used. Try the Apply button to test your setting.

## 5.15.2 VVP Output Options: Line Graphs

Enable Plot	Parameter	Scale Limits
<input checked="" type="checkbox"/>	Wind Speed	20.0 m/s
<input checked="" type="checkbox"/>	Wind Direction	0 - 360 degrees
<input type="checkbox"/>	Divergence	10.0 10 <sup>-4</sup> /s
<input type="checkbox"/>	Vertical Velocity	10.0 m/s
<input type="checkbox"/>	Deformation	10.0 10 <sup>-4</sup> /s
<input type="checkbox"/>	Axis of Dilation	0 - 360 degrees
<input type="checkbox"/>	Reflectivity	50.0 dB mm <sup>6</sup> /m <sup>3</sup>
	Max Height km	10.0
	Std Dev Thresh %	50

OK Apply Cancel Defaults

VVP products can also be displayed in graphical format of VVP wind profile parameters vs height. Either 1, 2 or 3 graphs may be plotted side-by-side.

You can produce a graph of VVP data as follows:

1. Use the **Product Selection** tool to select a VVP product to view.

2. Click on the Options icon to view the Display Options menu. The Product Type should be set to VVP. If not, select VVP.
3. Click on the Options button. This displays the VVP Output Options Menu. Either the Graphs or the Time Height submenu will be shown.
4. If Time-Height is shown, select **Display\_Style→Graphs** from the menu bar.
5. Make any changes as described below, then click on the Apply button to see your changes take effect on the current VVP display.
6. To save your changes, choose **File→Save** from the Display Options menu bar.

The fields in the menu are described below.

### **Default Button**

This provides a reasonable set of default values as a starting point.

### **Wind Speed**

Toggle this button in to chart the wind speed in the graph. Enter a value in the Scale Limits column to specify the maximum wind speed you want to plot.

### **Wind Direction**

Toggle this button in to chart the wind direction. You cannot edit the Scale Limits column for this field.

### **Divergence**

Toggle this button in to chart the wind divergence. Enter a value in the Scale Limits column to specify the maximum divergence you want to plot.

### **Vertical Velocity**

Toggle this button in to chart the vertical velocity. Enter a value in the Scale Limits column to specify the maximum vertical velocity you want to plot.

### **Deformation**

Toggle this button in to chart the horizontal deformation. Enter a value in the Scale Limits column to specify the maximum deformation you want to plot.

### **Axis of Dilation**

Toggle this button in to chart the axis of dilatation. You cannot edit the Scale Limits column for this field.

### **Reflectivity**

Toggle this button in if you want to chart the reflectivity. Enter a value in the Scale Limits column to specify the maximum reflectivity you want to chart.

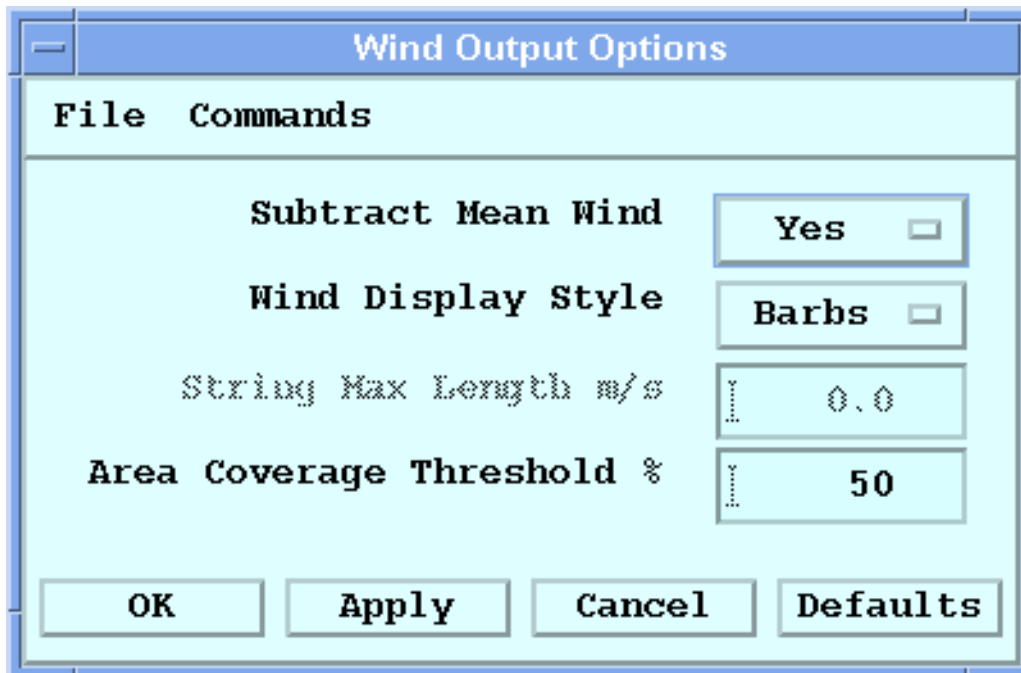
### Max Height in km

Enter the maximum height for the data to include in the plot.

### Std Dev Thresh %

Enter the standard deviation threshold percent for the data to include in the plot. This is used to threshold poor estimates. The scale goes from 0 (no thresholding) to 100 (total thresholding). 80 is a typical value.

## 5.15.3 WIND and FCAST Output Options



When either WIND or FCAST is the current product type, you can click on the Options button to pop up the Wind Output Options submenu. With this menu, you can choose display options for plotting the horizontal wind speed and direction. The WIND vectors are estimates of horizontal winds using a uniform wind algorithm in sectors around the radar.

### Subtract Mean Wind

When you choose "Yes," IRIS subtracts the mean wind vector from all wind vectors. As a result, it displays the perturbation wind vectors. When you choose "No," the full wind vector is displayed.

### Wind Display Style

You can choose to display the WIND product vectors as wind barbs or wind strings. Wind barbs point toward the wind direction, with hatch marks denoting the wind speed following the standard meteorological convention of 1/2 barb for 5 knots, full

barb for 10 knots and triangles for 50 knots. Wind strings point away from the wind direction, with the length of the string indicating the relative wind speed (the longer the string, the higher the speed).

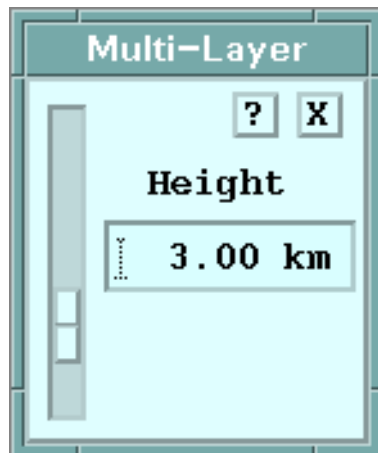
### String Max Length

When you choose “Strings” as the wind display style, you can enter the maximum string length in meters/second. Any data point that exceeds this length is displayed at the maximum length.

### Area Coverage Threshold %

This is used to threshold points for which the aerial coverage of radial velocity data is less than the selected value. A value of 50% would be typical.

## 5.15.4 CAPPI Height Selection Tool



For CAPPI's that have multiple levels (3D CAPPI's) this tool allows you to change heights. You can also use the UP/DOWN arrow keys (your cursor must be in the display portion of the window to use the arrow keys).



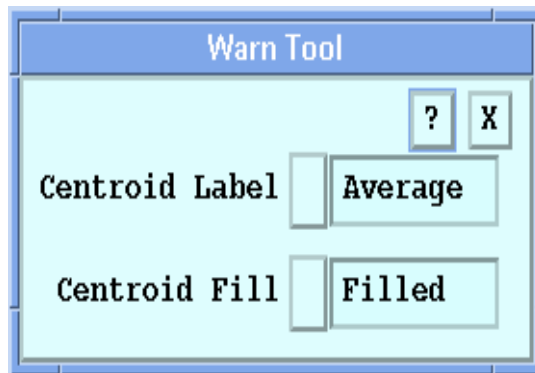
### 5.15.5 NDOP Output Options

The screenshot shows a dialog box titled "NDOP Output Options Tool". It has a menu bar with "File", "Commands", and "Help". The main area contains four settings: "Subtract Mean Wind" with a "No" button, "Wind Display Style" with a "Barbs" button, "String Max Length m/s" with a text box containing "10.0", and "Wind Quality Threshold %" with a text box containing "30". To the right of these settings is a vertical slider and a "Height" text box containing "3.00 km". At the bottom are four buttons: "OK", "Apply", "Cancel", and "Defaults".

Option	Value
Subtract Mean Wind	No
Wind Display Style	Barbs
String Max Length m/s	10.0
Wind Quality Threshold %	30
Height	3.00 km

The options for the NDOP product are a combination of the Wind Options (Section 5.15.3) and the CAPPI height selection (Section 5.15.4). This tool is very convenient to leave on the screen since it will function with WIND, FCAST, NDOP and CAPPI.

## 5.15.6 WARN Output Options



IRIS WARN centroids are either displayed as an ellipse with a name inside, or as a graphical icon rotated to the direction of motion of the centroid. The Centroid Label options are for a second label line on ellipses, or for a label to the right of the icon. The Centroid Fill options only apply to ellipse style displays, and only when the WARN product is overlaid on other products.

### Centroid Label

The WARN centroid has 4 label choices. The data displayed is from the first of the 3 possible inputs to the warning. The units are the same as used by our standard data display, except that wind shear is displayed as knots loss/gain, and height is displayed in kilofeet.

- None – no additional label.
- Maximum – the centroid will be labeled with the maximum value of the data throughout the centroid.
- Average – the centroid will be labeled with the average value of the data throughout the centroid.
- Speed – the centroid will be labeled with the speed of a target. This only applies to systems that have the DWELL product configured for target detection.

### Centroid Fill

You can choose the style for the fill effect of the centroid so that it can be clearly identified on your display. The options are described below:

- Open – the centroid area is not filled, but rather simply outlined.
- Hatched – the centroid area is filled with a slanted pattern of lines.
- Filled – the centroid area is filled a solid color.

### Operational Use

First configure your Warn Tool options, then choose the desired product to overlay in the Display Options menu. Using the File>Save option in this menu will also save the Warn Tool options.