

Directions for Applying the Wind Arrow Legend

Step 1: Join the Wind Speed and Wind Direction data

1. Open ArcGIS and load the wind direction and wind speed shapefiles into ArcGIS 9.x for the given forecast hour.
2. Join the shapefiles: As shown in Figure 1, first, right click on the wind speed shapefile name under “Layers”, select Joins and Relates, then select Join.

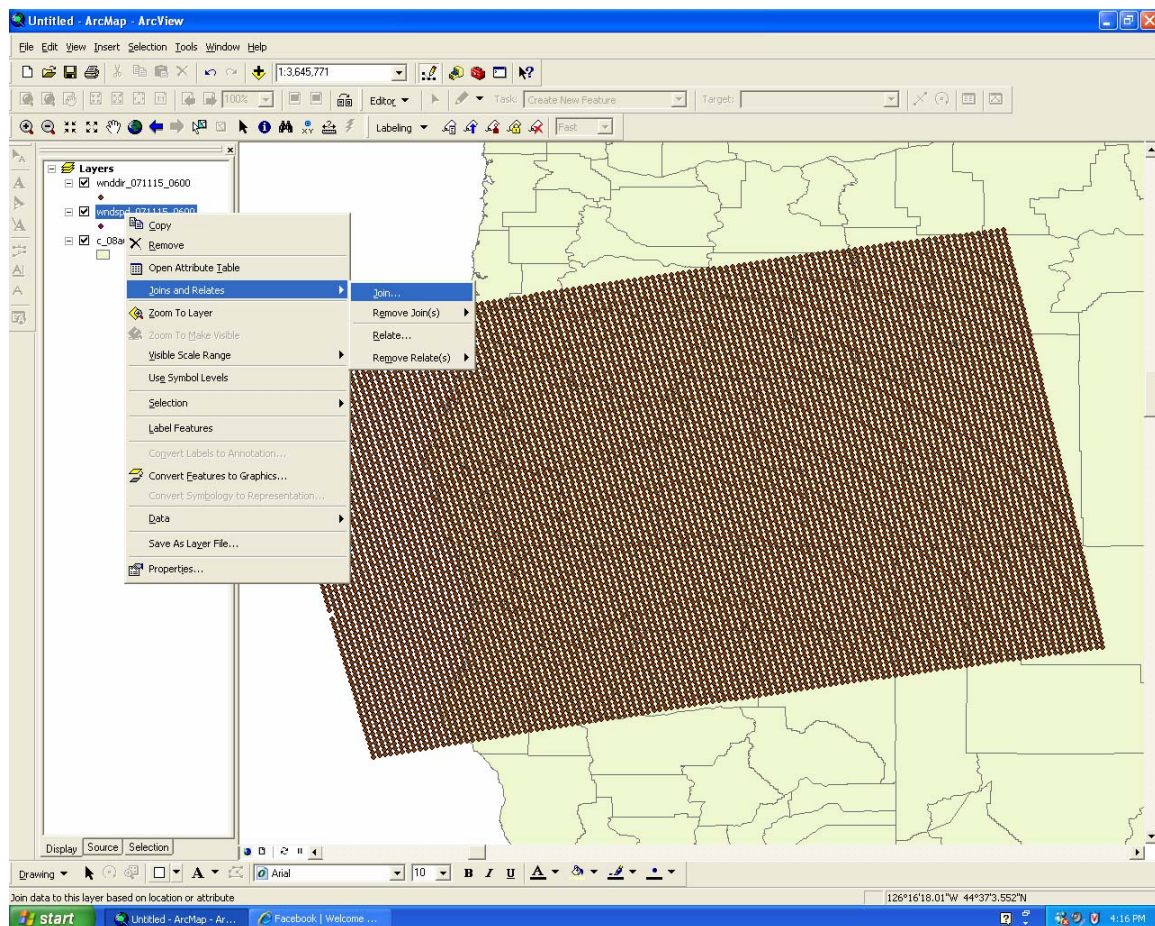


Figure 1: Joining Wind Direction to the Wind Speed layer.

3. The Join Data table will open (see Figure 2). Under the option, “what do you want to join to this layer?”, make sure the “Join attributes from a table” option is selected. Then in the first option, Choose “POINTID” as the field that the join will be based on. For option two, select the wind direction shapefile as the table to join to the layer. In the example given, the name of the wind direction layer is

wnddir_071115_0600. Lastly, for the third option, select “POINTID” as the field in the table to base the join on.

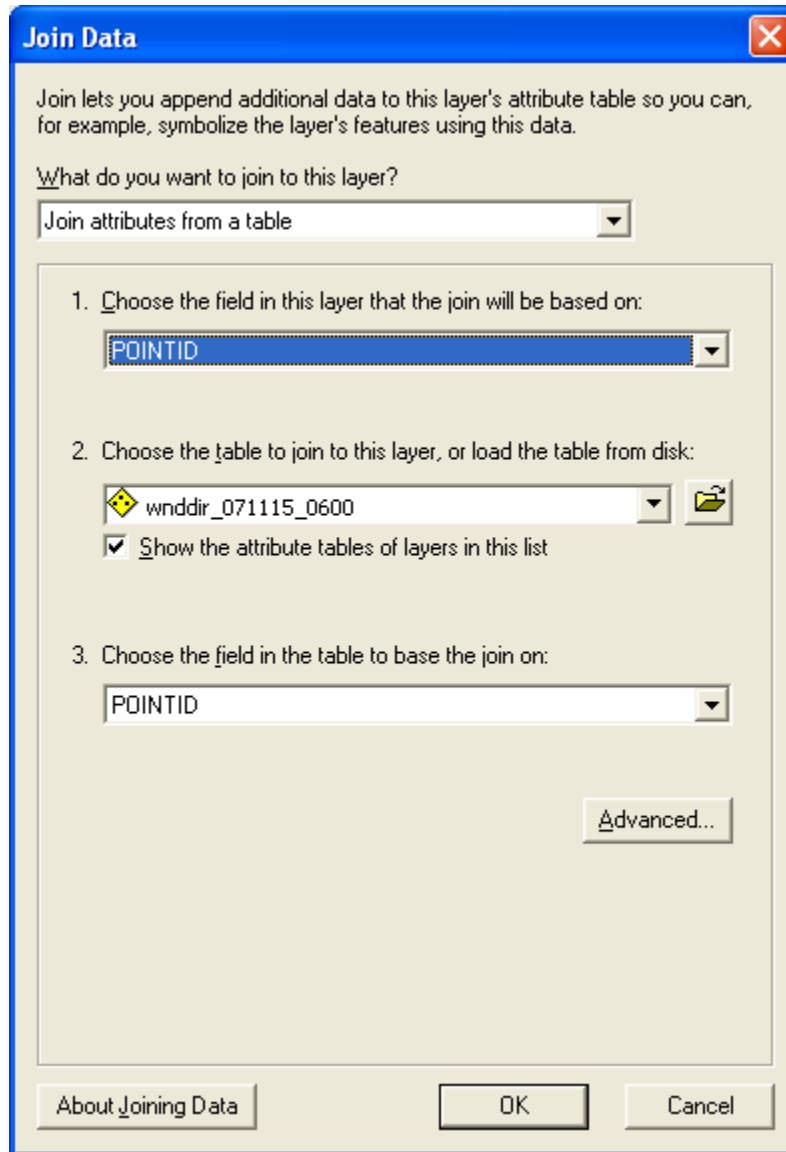


Figure 2: The Join Data window.

4. Now you can open the attributes table of the wind speed layer to verify that the wind direction table has been joined with it. Right click on the wind speed layer name and select Open Attributes table.

Step 2: Apply the wind arrow symbology

1. Open the wind speed layer properties: Right click on the layer name and select Properties. Select the Symbology tab. Then select the Categories, Unique Values menu on the left. Under the Value Field pull down menu,

select the wind speed attribute (Figure 3). In the example this is given as wndspd_071115_0600. WindSpd, where “WindSpd” represents the wind speed attribute.

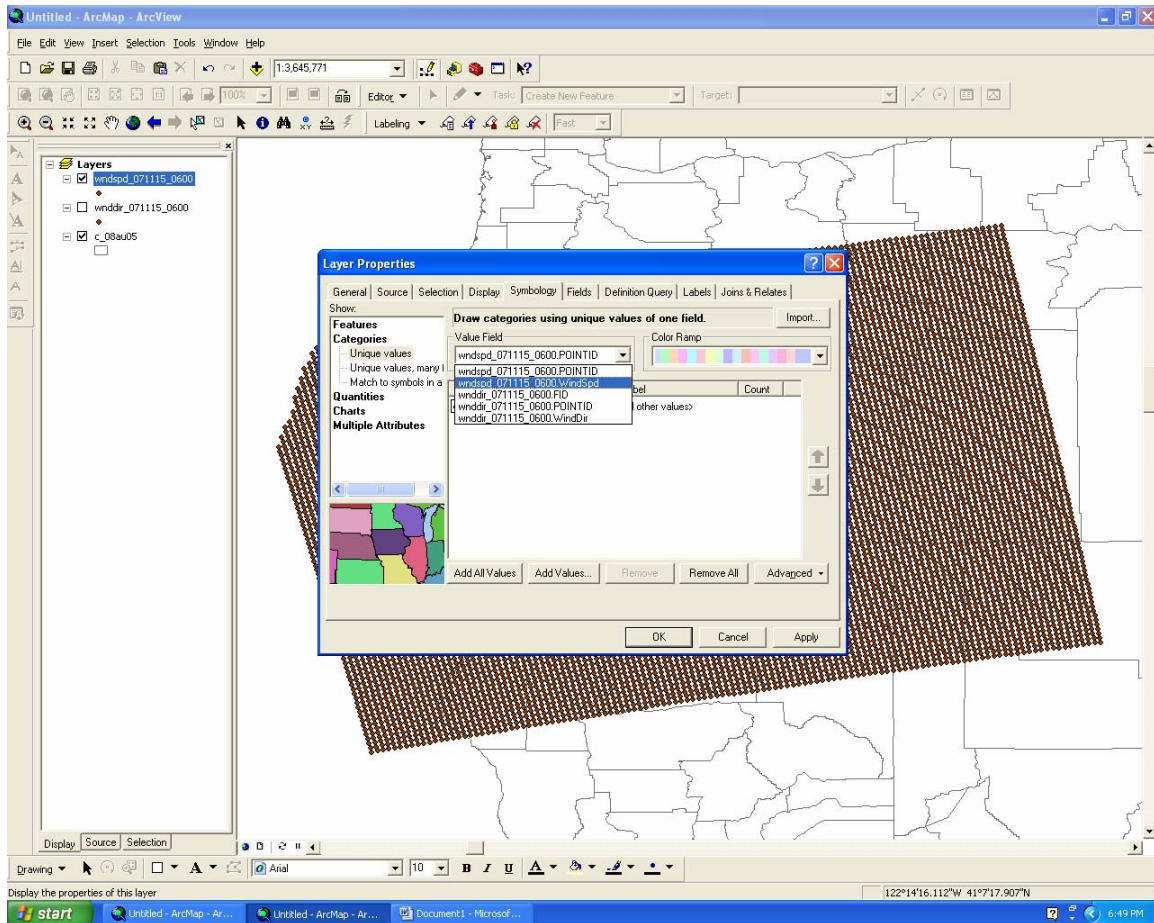


Figure 3: Layer properties menu – select wind speed attribute for the “Value Field” option.

2. Next click on the Advanced tab in the right corner and select Rotation (see Figure 4).

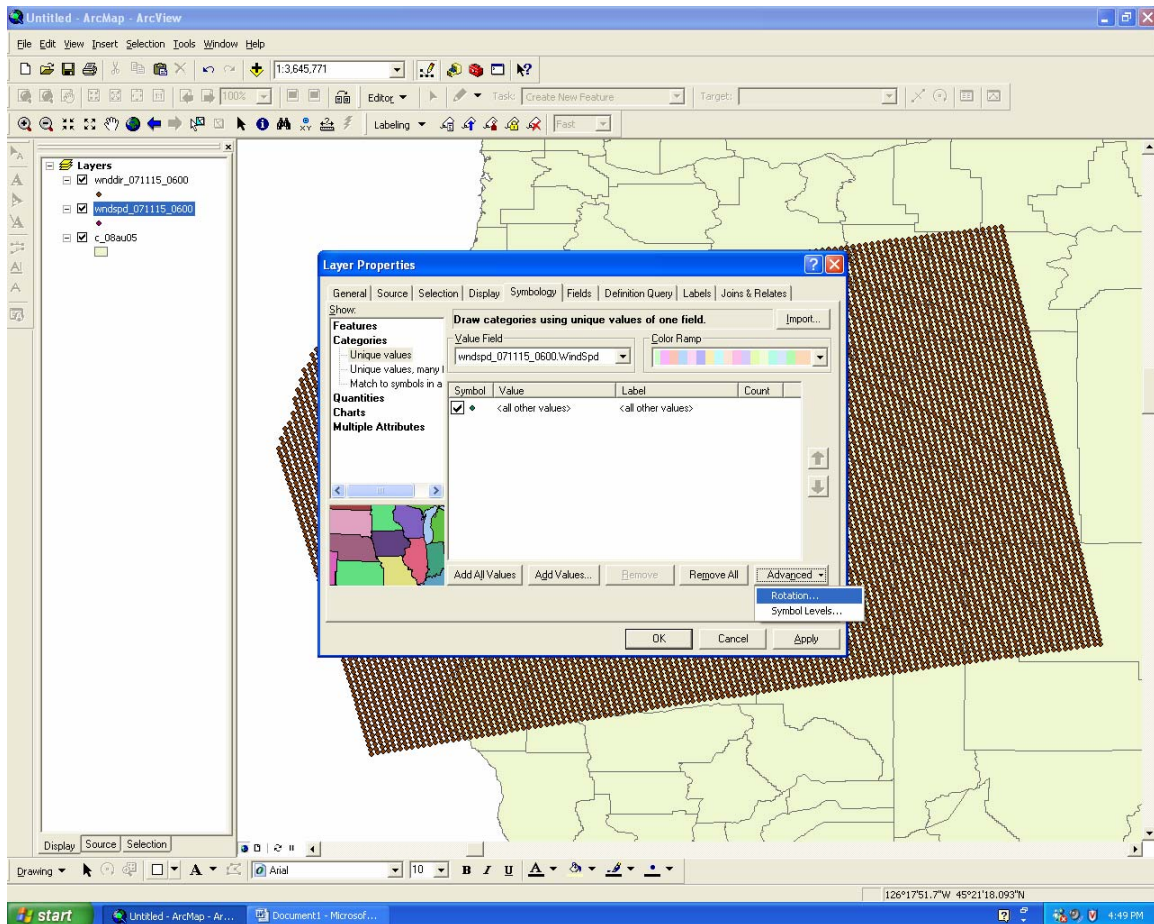


Figure 4: Select the Rotation option from the Advanced tab.

- Now, we need to apply the wind direction to the symbology so that the arrows, once applied, are rotated according to the wind direction. From the Rotation window, as shown in Figure 5, select the appropriate wind direction layer name from the pull down menu. In the example this is given as wnddir_071115_0600. WindDir, where “WindDir” represents the wind direction attribute. Also be sure that the “geographic” option is highlighted. Then, select OK. This will return you to the Layer Properties window.

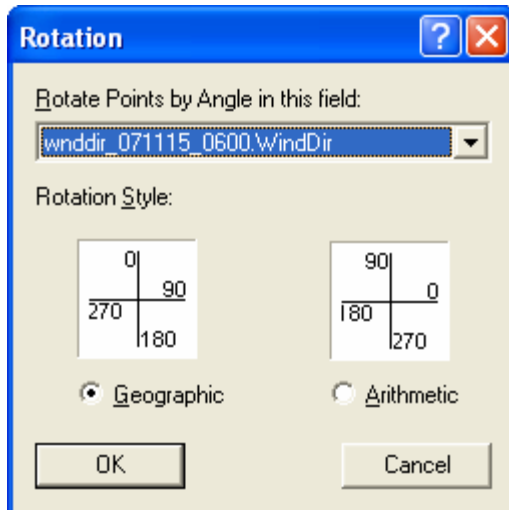


Figure 5: Rotation Window.

4. Now we can import the wind arrow legend. Click on the Import tab at the top of the Layer Properties window. An Import Symbology window will appear (Figure 6). Click on the folder button and navigate to the wind.lyr file and select it (Figure 7). Then hit Add.

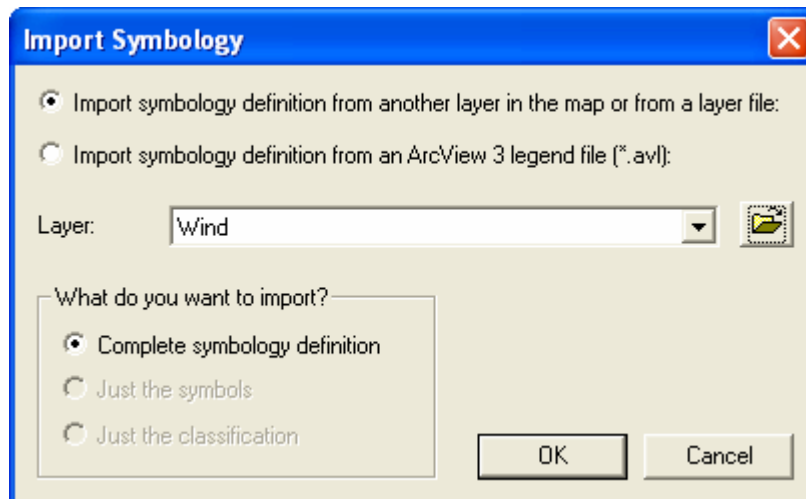


Figure 6: Import Sybology window.

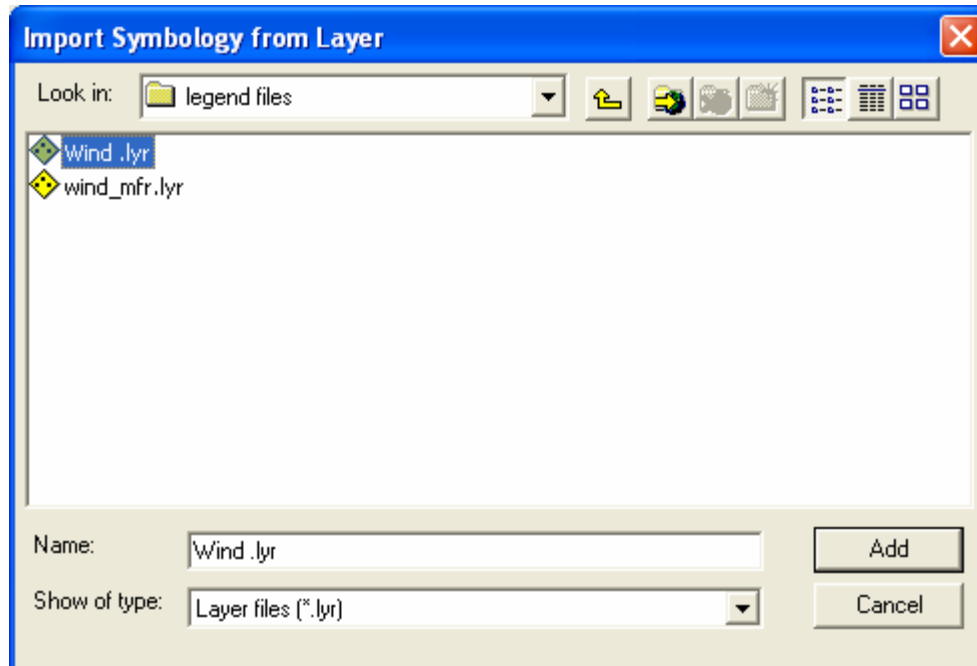


Figure 7: Select the appropriate wind arrow legend, wind.lyr in this example.

5. Then the Import Symbology Dialog window will open (Figure 8). Under the pull down menu for value field, select the wind speed attribute in the layer. In the example this is given as wndspd_071115_0600.WindSpd, where “WindSpd” represents the wind speed attribute. Then select, OK.

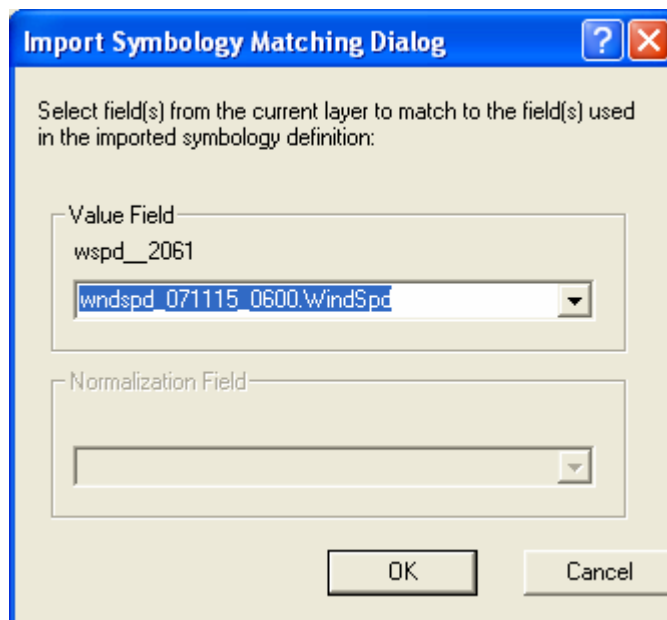


Figure 8: Import Symbology Matching Dialog window.

6. Lastly, back in the Layer Properties window, select Apply or OK (Figure 9).

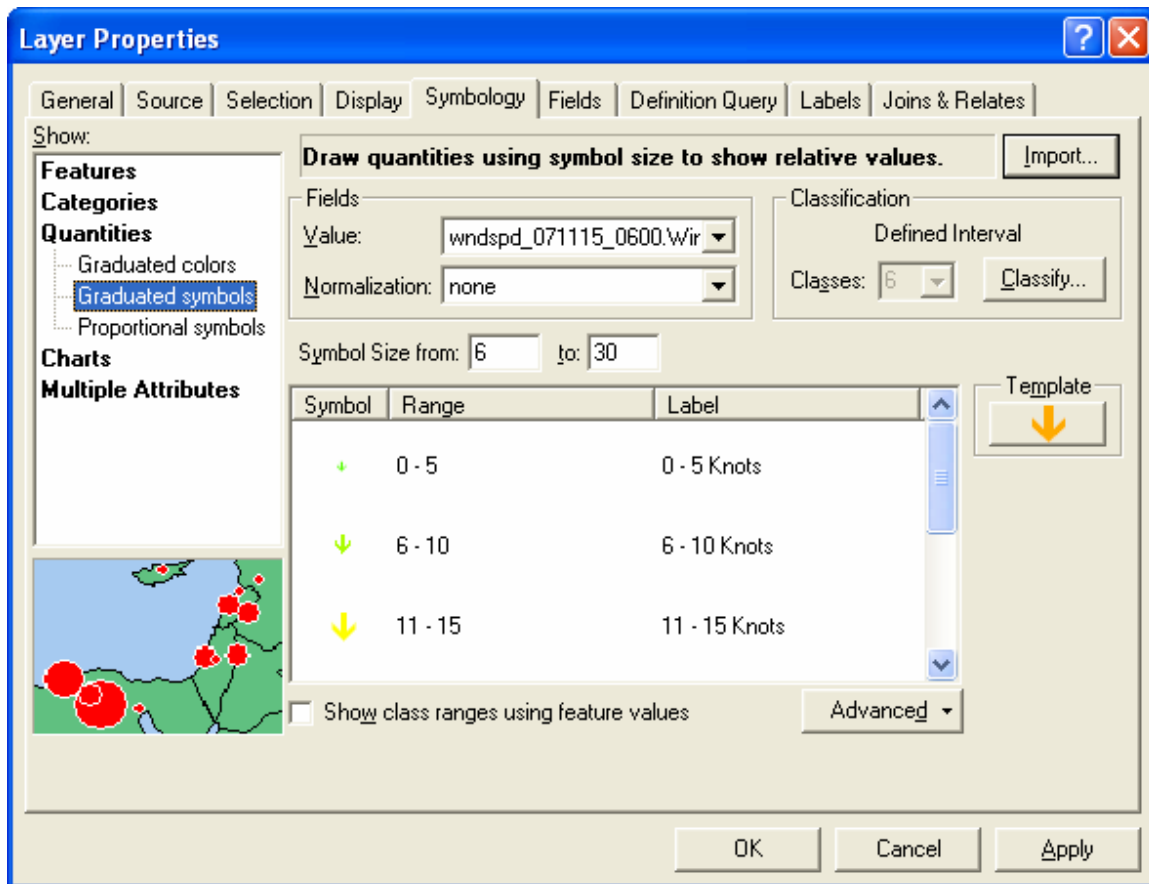


Figure 9: The wind arrow legend is shown in the Layer Properties window. Select OK or Apply to apply it to the data.

Now, wind arrows are visible in which the arrow points in the direction that the wind is blowing towards and the wind speed is represented by a set of color-coded and sized arrows, as shown in Figure 10, below.

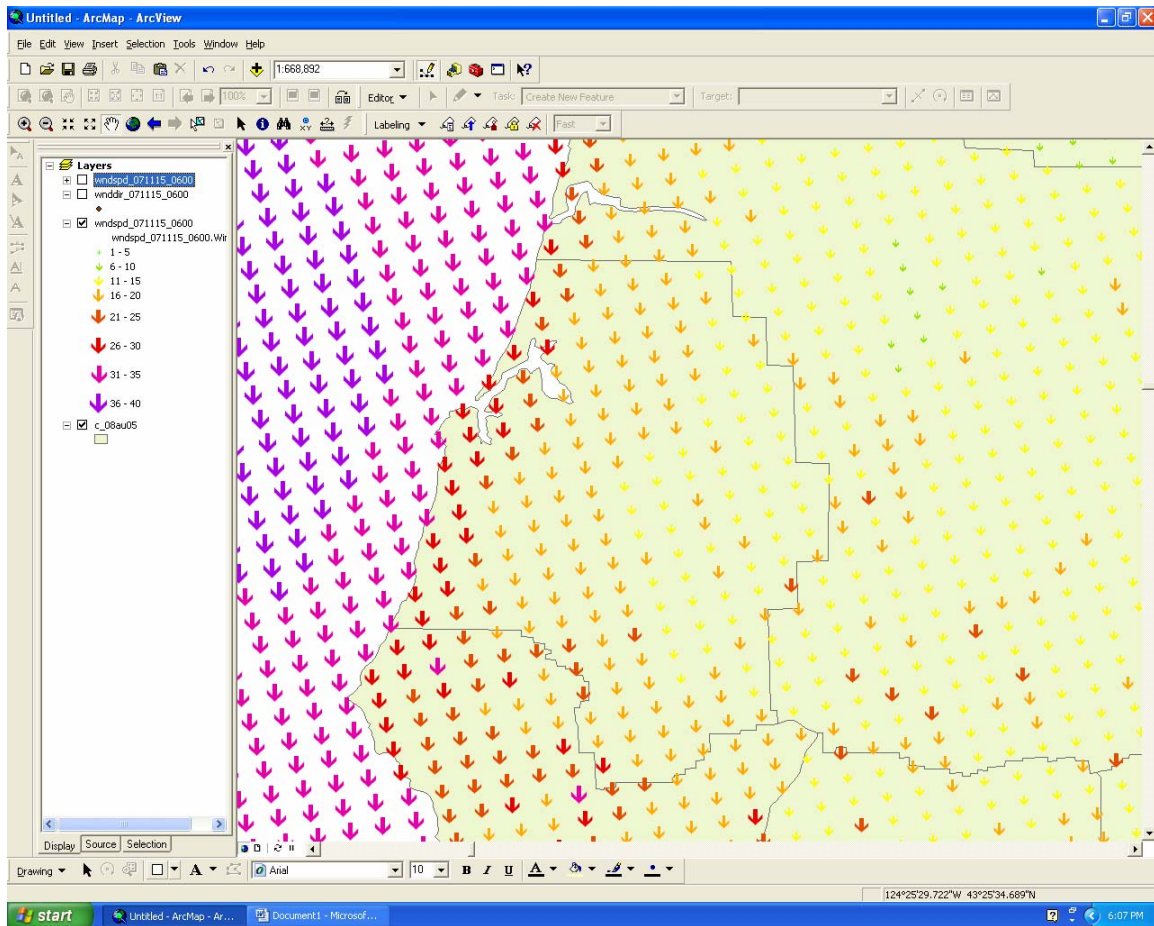


Figure 10: Wind data with the wind arrow legend applied to it.

Once the wind data is available in wind arrow form, useful overlays, such as topography, cities and other layers may be added for data analysis (Figure 11).

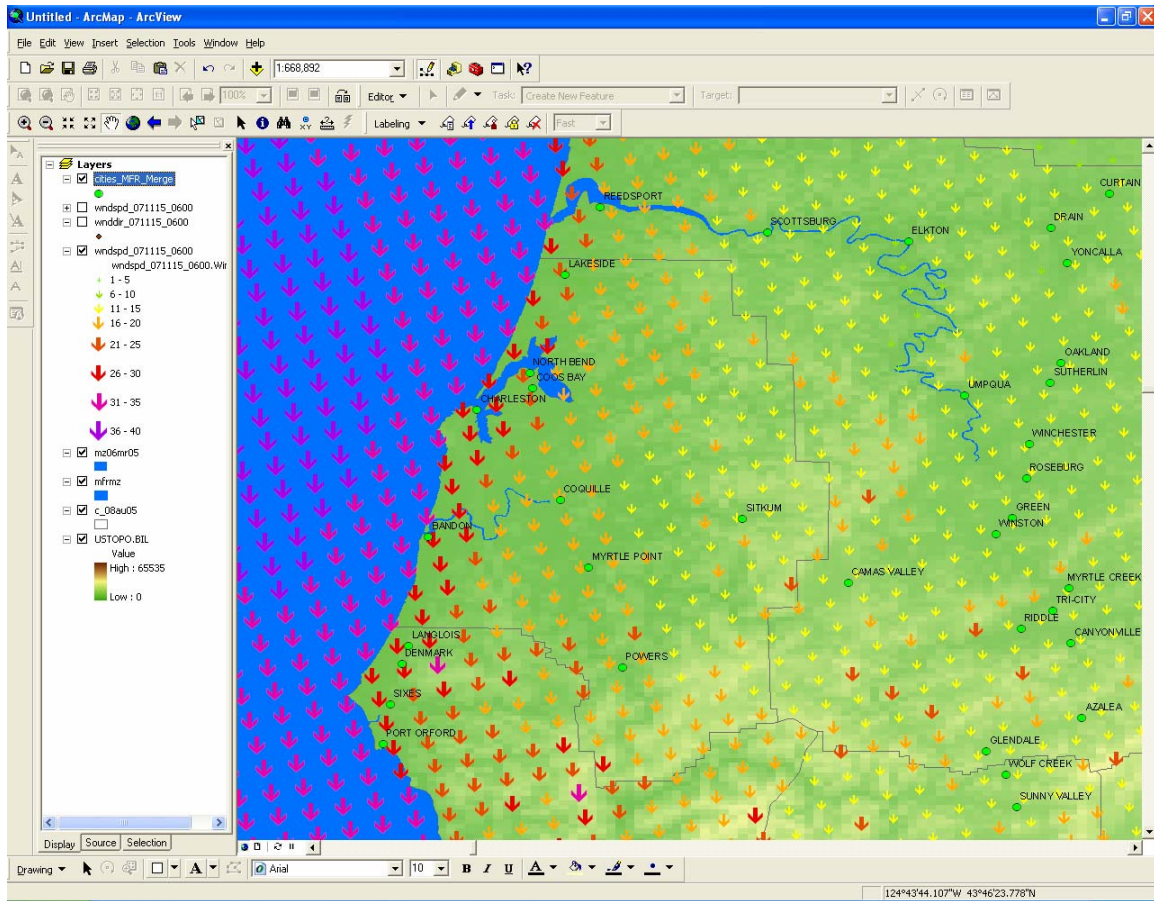


Figure 11: Add overlays such as topography, cities, or other layers to assist with analysis of the wind data.