Wind Rose from Met Data Exercise:

Using the text file UTE 1 WS&WD space del.txt, create a wind rose using the free software WRPlot. The WRPlot software can be downloaded from <u>http://www.lakes-environmental.com/lakewrpl.html</u>. This program can take excel files as input, so first the text file must be imported into excel. However, the input file must have the date in a specific and somewhat unusual format, with the day, month, and year each in their own column.

1. Import the text file into excel, using

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Find the text file location and import it into excel:

Select Data Sou	rce			<u>?</u> ×
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Click Open, and look carefully at the screen which gives you a preview of the file:

Text Import Wizard - Step 1 of 3	? ×
The Text Wizard has determined that your data is Fixed Width. If this is correct, choose Next, or choose the data type that best describes your data.	
Original data type	
Choose the file type that best describes your data:	
 Delimited - Characters such as commas or tabs separate each field. 	
 Fixed width - Fields are aligned in columns with spaces between each field. 	
Start import at <u>r</u> ow: 1 File <u>o</u> rigin: 437 : OEM United States	-
Preview of file C:\Documents and Settings\Administrator\UTE 1 WS&WD space del.txt.	
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You can see that there are error codes -999 (found around rows 620, on 1/26/07) which make it unfeasible to use the Fixed Width option. If that option is chosen, then the columns will break within values, as shown below:

Text Import Wizard - Step 2 of 3	?×
This screen lets you set field widths (column breaks).	
Lines with arrows signify a column break.	
To CREATE a break line, click at the desired position. To DELETE a break line, double click on the line.	
To MOVE a break line, click and drag it.	
Data preview	
10 20 30 40 50 60	
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Because of this, you should choose the Delimited option, and start the import at row 8:

Text Import Wizard - Step 1 of 3	? X
The Text Wizard has determined that your data is Fixed Width. If this is correct, choose Next, or choose the data type that best describes your data.	
Choose the file type that best describes your data:	
Delimited - Characters such as commas or tabs separate each field. Fixed width - Fields are aligned in columns with spaces between each field.	
Start import at row: 8 두 File origin: 437 : OEM United States	•
Preview of file C:\Documents and Settings\Administrator\UTE 1 WS&WD space del.txt.	
8 Date Hour WS WD	
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12 01/01/07 03 .5 321.1	
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Choose Space as the delimiter in the next screen:

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You can see that Excel suggest column breaks, based on the Delimiter you checked. Click Next, and now select the type of each column. Click on Date for the type of the first column, and check MDY for month-day-year format for the data in that column (although this is not always a foolproof way for getting excel to understand what format you want). Check General for the other columns.

Text Import W	izard	- Step) 3 of 3	? ×
This screen lets the Data Forma 'General' conv values to date	ach column and set Column data format O General values to numbers, date maining values to text.			
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Click Next and select the cell where the imported data should go:

Import Data	×
Where do you want to put the data?	ОК
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Now, ensure that Excel understands the date format of the first column by clicking on the column to select it, clicking on Format, Cells, Date, and select mm/dd/yy in the box:

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This changes the entire column's format to look like:

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Now check the imported data using Autofilter. Click on Data, Autofilter:

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Click on each header and scroll through the values to make sure that, for example, all the values in the date column are really dates:

In particular, verify that the wind speed is between 0-360 degrees, that the wind speeds are within a reasonable range, and all the hours are between 0 and 23. The WRPlot program will not accept those rows with the -999 error codes (or anything outside the acceptable range for that field, which is 00-23 or 01-24 for hour, 0-360 for wind direction, etc.) so these values should be deleted or replaced. WRPlot does not like blanks, either.

This can be done using Autofilter by finding those values in the drop-down box, or using Custom Autofilter to select those rows with values that you want to find:

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Then select and delete those ROWS (WRPlot does not like missing values).

When finished reviewing the data, turn off autofilter by unchecking Data, Filter, Autofilter.

At this point the date field must be parsed into separate columns for month, day and year, so that the WRPlot program can use the file. To do this, create 3 new fields with the formulas =month(a2), =date(a2), and =year(a2) where the date field is in cell a2, as follows:



Do this three times so the file now looks like:

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Select the three inserted columns and change their format back to General:

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This should result in a value in cell B2 that is 1 (for January), 1 in C2 for the first day of January, and 2007 in column D for year. (If you did not change their formats to General, the values shown in those cells might look different, but that should be a formatting issue.)

Copy this formula and formatting down the entire column by clicking on cell B2, then holding the cursor over the selected cell and in the lower right hand corner so that the cursor becomes a black cross:

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The WRPlot program requires the field of hours to be in the format 00, 01, 02, etc. Click on the hours column (click on the column label (E) to select the entire column) and go to Format, Cells, Special, and type in 00:

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Number Alignment Category: General General Image: Currency Accounting Date Time Percentage Fraction Scientific Text Special Custom V Delete Type the number format point.	Font Border Patterns Protection Sample Hour Type: 00
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Now the file is ready for importing into WRPlot, so open that program to see:

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Date Range January, 1 - December, 31	Year All Time Range Start Time: 00:00 End Time: 23:00	Data File Info Total No. of Hours: Average Wind Speed: Calm Hours: Calm Winds Frequency: Data Availability:	
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Click on Tools, Import from Excel:

Which opens up this screen:

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Click on the open folder icon to specify the excel file:

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6	39083	1	1	2007	4	0.3	14.7										
7	39083	1	1	2007	5	0.5	264										
8	39083	1	1	2007	6	0.5	341.9										
9	39083	1	1	2007	7	0.4	245.1										
10	39083	1	1	2007	8	0.4	61.6										
11	39083	1	1	2007	9	0.5	151.1										
12	39083	1	1	2007	10	0.9	193.5										
13	39083	1	1	2007	11	0.6	190.5										
14	39083	1	1	2007	12	0.4	331.1										
15	39083	1	1	2007	13	0.6	336.6										
16	39083	1	1	2007	14	0.6	19										
17	30083	1	4	2007	15	- 1	30.7									lin lin	
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💥 Impo	ort Surface Data from	n Excel													_	<u>al ×</u>
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<u>D</u> ata Fie	elds															
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#	:	Data F	ield Name					Exce	el Column Name	Missing I Exc	ndicator in el File		Ur Exc	iit in el File		Þ
1	Year											Not Appl	icable			-
2	? Month											Not Appl	icable			
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1.5	IWind Direction											Identees				
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Excel Fi	le <u>S</u> AMSON File						*									
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1	Date Month	Year	Hour	WS	WD											
2	39083 1	Dav	0	0.9	26.5											
3	39083 1	Hour	1	0.6	15.9											
4	39083 1	Wind Direction	2	0.7	21.3											
6	39083 1	Wind Speed	3	0.5	14.7									_		
7	39083 1	Hourly Precipitation	5	0.5	264											
8	39083 1	1 2007	6	0.5	341.9											
9	39083 1	1 2007	7	0.4	245.1											
10	39083 1	1 2007	8	0.4	61.6											
11	39083 1	1 2007	9	0.5	151.1											
12	39083 1	1 2007	10	0.9	193.5											
13	39083 1	1 2007	11	0.6	190.5											
14	39083 1	1 2007	12	0.4	331.1											
10	39063 1	1 2007	13	0.0	330.0									-		
.17	30083 1	1 2007	15	1	30.7											
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樻 Star	t 📝 💽 🗷 🕅	(*) 😒 🧾 🏉 🖿	Wind	Rose f	rom Met	. 💽 Calen	dar - Microsof	ft	🗀 Analysis an	d Interpr	🖂 (No S	ubject)		to 😼 🗞	4:37	PM
	🗀 👩 🚱 🦿		Micro	soft Ex	cel - Boo	· 😽 WRP	LOT View		Discover - 0	Contact	Re: R	E:		800	Tuesd	lay
			ACA 👔	Captur	e Pro Onl.	. 🛐 Inbox	- Outlook Exp	pr	ACA Captu	re Pro				الله	06/12/2	2007

Right click on the Month header to see a drop-down list of field names:

And select Month. Select field names for date, year, hour, wind speed, and wind direction by right-clicking on each header in the same way. The file should now look something like:

💥 Impo	ort Surface Da	ata from Exc	el													<u>_ 8 ×</u>
Import S	urface Data Fro	om (Excel File)							Save Surf	face File As (SAMSON F	ormat):				
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1	Year									D			Not A	pplicable		
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3	Day									С			Not A	pplicable		
4	Hour									E			01 to	24		
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1	Date	Month	Date	Year	Hour	WS	WD									
2	39083	1	1	2007	0	0.9	26.5									
3	39083	1	1	2007	1	0.6	15.9									
4	39083	1	1	2007	2	0.7	21.3									
5	39083	1	1	2007	3	0.5	321.1									
6	39083	1	1	2007	4	0.3	14.7									
7	39083	1	1	2007	5	0.5	264									
8	39083	1	1	2007	6	0.5	341.9									
9	39083	1	1	2007	7	0.4	245.1									
10	39083	1	1	2007	8	0.4	61.6									
11	39083	1	1	2007	9	0.5	151.1									
12	39083	1	1	2007	10	0.9	193.5									
13	39083	1	1	2007	11	0.6	190.5									
14	39083	1	1	2007	12	0.4	331.1									
15	39083	1	1	2007	13	0.6	336.6									
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17	20083	1	4	2007	15	- 1	30.7								1	_
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<u>H</u> el	p															<u>C</u> lose

In the top panel, go thru the fields and make sure the units are set correctly. For example, in this file the hours are from 00 to 23 and wind speed is mph:

mont C	port Surface Data From (Excel File): Save Surface File As (SAMSON Format):																									
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-	4 Hour									E			00 to	23												
	5 Wind Direc	tion								G			degre	es		\sum										
	5 Wind Spee	d								F			mph													
1 7	7 Hourly Pred	initation											hund	lredths of inch	ies /											
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9	39083	1	1	-	Save as type		AMSON Form	at Files (* cam)	-	Cancel			
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Click in the upper right hand corner on the blue disk icon to save the file, naming it:

Now click on the Station Identification tab and enter information about the location. You must enter a lat and long.

<u>CLICK ON IMPORT FROM ROW 2</u> so that the program does not try to import the header row.

If you get error messages, make sure you set the import to include only rows with valid data, with the wind direction as INTEGERS and no missing values.

If successful, the program will ask if you want to view the created file, which will look like:

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~YR	MO	DA	HR	I		3	6	7	8	9	10	11	12	13	14	15	16	21	
07	1	1	1	0	9999	20	99	99	9999.	9999.	999	9999	16	0.3	99999.	999999	9999999999		
07	1	1	2	0	9999	20	99	99	9999.	9999.	999	9999	21	0.3	99999.	999999	9999999999		
07	1	1	3	0	9999	20	99	99	9999.	9999.	999	9999	321	0.2	99999.	999999	9999999999		
07	1	1		0	9999	20	99	99	9999.	9999.	999	9999	15	0.1	999999.	9999999	999999999		
	-	1	2	0	3333	20	99	99	9999.	99999.	999	9999	201	0.2	999999.	333333	9999999999		
		1	2	0	3333	20	99	99	9999.	99999.	999	9999	245	0.2	999999.	333333	9999999999		
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07	1	1	11	0	9999	20	99	99	9999	9999	999	9999	191	0.3	99999	9999999	9999999999		
07	1	1	12	ō	9999	20	99	99	9999.	9999.	999	9999	331	0.2	99999.	999999	9999999999		
07	1	1	13	0	9999	20	99	99	9999.	9999.	999	9999	337	0.3	99999.	999999	9999999999		
07	1	1	14	0	9999	20	99	99	9999.	9999.	999	9999	19	0.3	99999.	999999	999999999		
07	1	1	15	0	9999	20	99	99	9999.	9999.	999	9999	31	0.4	99999.	999999	999999999		
07	1	1	16	0	9999	20	99	99	9999.	9999.	999	9999	30	0.3	99999.	999999	9999999999		
07	1	1	17	0	9999	20	99	99	9999.	9999.	999	9999	26	0.2	99999.	999999	999999999		
07	1	1	18	0	9999	20	99	99	9999.	9999.	999	9999	29	0.3	99999.	999999	999999999		
07	1	1	19	0	9999	20	99	99	9999.	9999.	999	9999	26	0.3	99999.	999999	999999999		
07	1	1	20	0	9999	20	99	99	9999.	9999.	999	9999	5	0.3	99999.	999999	9999999999		
07	1	1	21	0	9999	20	99	99	9999.	9999.	999	9999	17	0.3	99999.	999999	9999999999		
07	1	1	22	0	9999	20	99	99	9999.	9999.	999	9999	41	0.4	99999.	999999	9999999999		
07	1	1	23	0	9999	20	99	99	9999.	9999.	999	9999	346	0.2	99999.	999999	9999999999		
07	1	1	24	0	9999	20	99	99	9999.	9999.	999	9999	44	0.5	99999.	9999999	9999999999		
07	1	2	1	0	9999	20	99	99	9999.	9999.	999	9999	47	0.7	99999.	999999	9999999999		
07	1	2	2	0	9999	20	99	99	9999.	9999.	999	9999	16	0.3	99999.	999999	9999999999		
07	1	2	3	0	9999	20	99	99	9999.	9999.	999	9999	21	0.3	99999.	999999	9999999999		
07	1	2	4	0	9999	20	99	99	9999.	9999.	999	9999	37	0.4	99999.	999999	9999999999		
07	1	2	5	0	9999	20	99	99	9999.	9999.	999	9999	55	0.4	99999.	999999	9999999999		
07	1	2	6	0	9999	20	99	99	9999.	9999.	999	9999	41	0.4	99999.	999999	9999999999		
07	1	2	7	0	9999	20	99	99	9999.	9999.	999	9999	25	0.4	99999.	999999	333333333		
07	1	2	8	0	3333	20	99	99	3333.	3333.	999	3333	38	0.2	39999.	333333	3333333333		
	1	2	10	0	3333	20	99	33	3333.	3333.	333	3333	206	0.2	22222.	222222	2222222222		
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For Help	, pres	s F1																	

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Now save the file that was created in a folder where you will remember it, with the extension .sam

In	WRPlot,	click	on Add	File:
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🔆 WRPLOT View		
<u>File E</u> dit <u>T</u> ools <u>H</u> elp		
Vind Speed Stability Class	Wind Directions: 16 Vind Classes [6]	Units Orientation Knots Direction (blowing from) This Flow Vector (blowing to)
Met Data Information Freq	uency <u>C</u> ount Frequency <u>D</u> istribution	Wind Rose Graph
Year Station	Met Data File	Incomplete/ Missing Hours
Date Range January, 1 - December, 3 Specify Days Surface Station (Optional) Name:	Year All Time Range Start Time: 00:00 End Time: 23:00 Image: Specify Time	Clear All Clear All WebMET Data File Info Total No. of Hours: Average Wind Speed: Calm Hours: Calm Winds Frequency: Data Availability: Incomplete/Missing Hours: Total Hours Used: State: Station ID:

Tell the program to open the .sam file you just created, making sure you specify this file type in the drop-down list:



Now click on the Wind Rose tab to see the gorgeous thing:



Note that you can change the setting from "Blowing To" to "Blowing From."

You can print the image using the MS document image writer and save it as a file that you can insert into a MS word document. From within Word, select Insert, Picture, From File.

