

57:020 FLUIDS 2010 FALL EFD LAB3

E-PIV/FLOWCOACH DATA POST-PROCESSING INSTRUCTIONS

TABLE OF CONTENTS

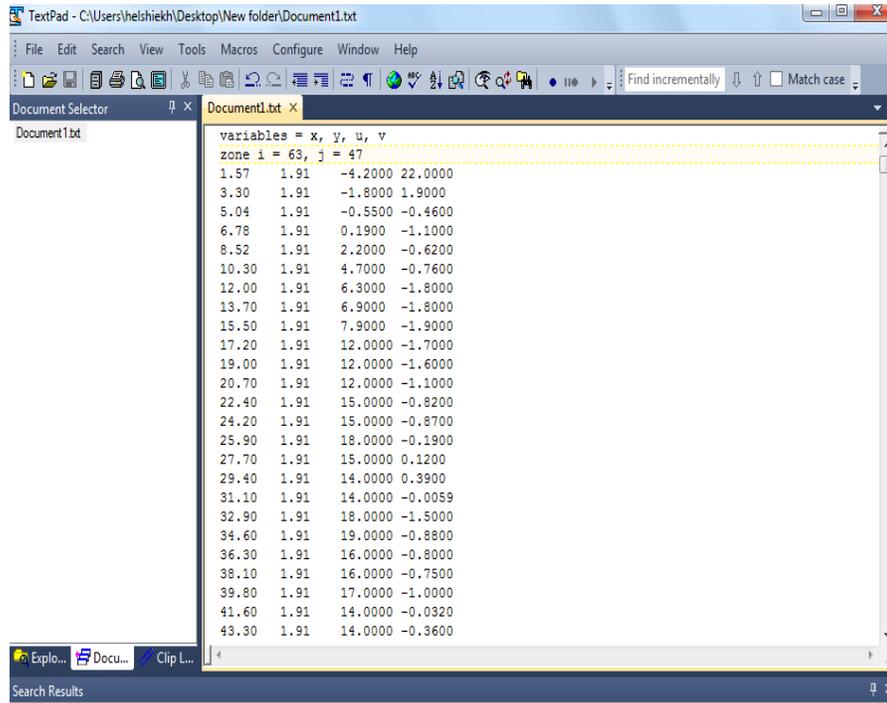
1. Converting Data File to Tecplot Input File.....	3
2. Data Postprocessing by Using Tecplot Macro Files	5
2.1 Velocity vector plot	5
2.2 Streamline plot	7
2.3 Velocity magnitude contour plot	8
3. Exporting Figure Files	9
4. Saving Tecplot Layout Files	9

1. Converting Data File to Tecplot Input File

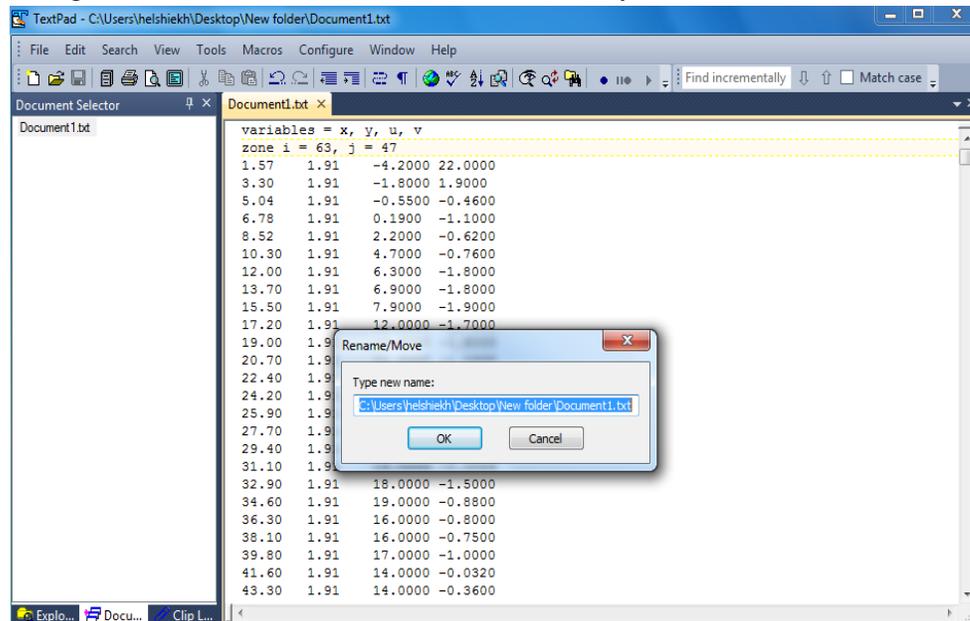
1.1 Create a new folder.

1.2 Open a text pad file and copy the velocity vector data you downloaded for the class website into the text file, then add the header:

```
variables = x, y, u, v  
zone i = 63, j = 47
```



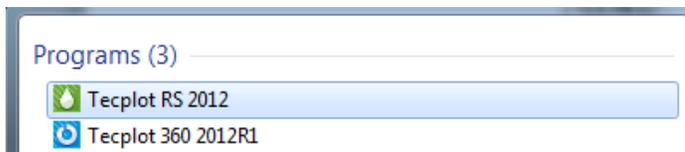
Save the text pad file to the new folder you created. Then click on file-rename and change the name from Document1.txt to velocity_vec.dat as shown below.



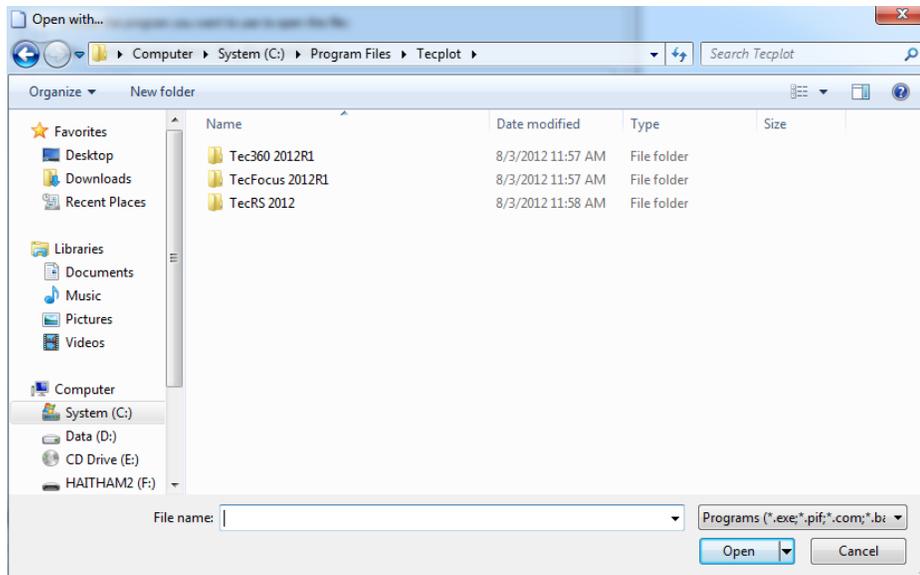
1.3 Right click on the flow coach Tecplot macro file and save link as to save the file to the created folder.



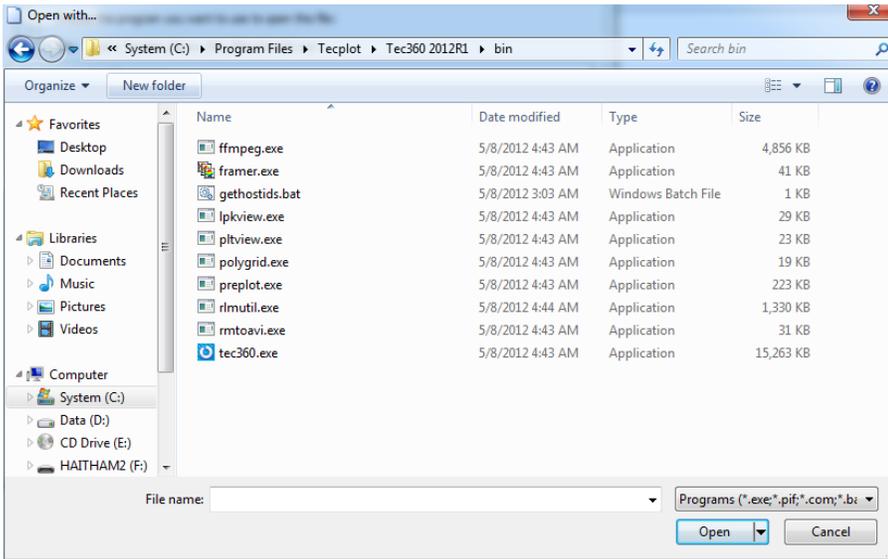
Note: There are two type of tecplot software in the computers in the engineering building labs.



Make sure that the macro file will open with Tecplot 360 2012R1. If the Tecplot RS2012 is the default opening program then change it to Tecplot 360 2012R1 by right click on the macro file then open with and browse and scroll down to click on tecplot



Then, open Tec360 2012R1 and click on bin and click on tec360.exe to choose tecplot360 2012R1

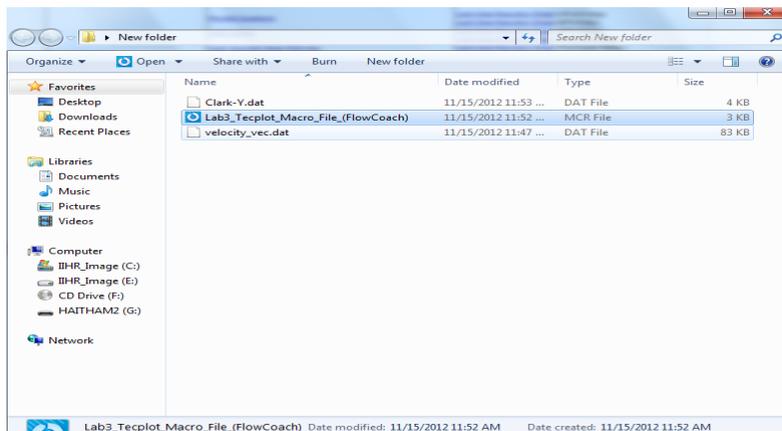


1.4 Right click on the Clark-y geometry lab3 Tecplot data file and save link as to save the file to the created folder.

EFD Report Instructions (PDF , DOC); CFD Report Instructions (PDF , DOC)		
EFD Lecture: EFD and UA		
EFD Lab1	EFD Lab2	EFD Lab3
Pre lab1 Questions Lab1 Lecture Lab1 Exercise Notes (DOC file) Lab1 Data Reduction Sheet EFDlab1-Template.doc Lab1 Concepts Lab1 PIV data	Pre lab2 Questions Lab2 Lecture Lab2 Exercise Notes (DOC file) Lab 2 Data Reduction Sheet (smooth) Lab 2 Data Reduction Sheet (rough) Lab 2 Data Reduction Sheet (ePIV) Lab 2 Data Reduction Sheet (FlowCoach) EFDlab2-Template.doc Lab2 Concepts Lab2 data week 1 Lab2 PIV data week 1 Lab2 data week 2 Lab2 PIV data week 2	Pre lab3 Questions Lab3 Lecture Lab3 Exercise Notes Lab3 Data Reduction Sheet (Lift and drag) Lab3 Data Reduction Sheet (ePIV-0deg.) Lab3 Data Reduction Sheet (ePIV-10deg.) Lab3 Data Reduction Sheet (FlowCoach-0deg.) Lab3 Data Reduction Sheet (FlowCoach-16deg.) Lab3 Tecplot Macro File (ePIV) Lab3 Tecplot Macro File (FlowCoach) Lab3 Tecplot Data File (ePIV/FlowCoach/Clark-Y_geometry) EFDlab3-Temp Lab3 Concepts Lab3 result for Lab3 result for Lab3 result for Lab3 PIV c Lab3 PIV data week 2 Supplementary documents 1) Clark-Y ePIV/FlowCoach data postprocess instructions 2) Reference speed for Re 3) Lab3 Exercise Notes, Appendix C

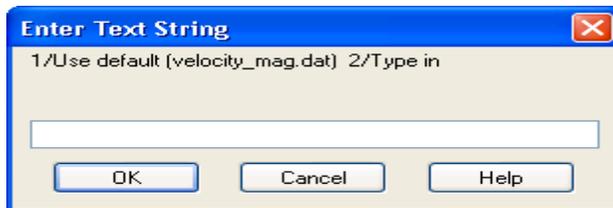
2.1 DATA POSTPROCESSING BY USING TECPLOT MACRO FILES

Open the created folder and double click on the macro file



Answer to following three prompts:

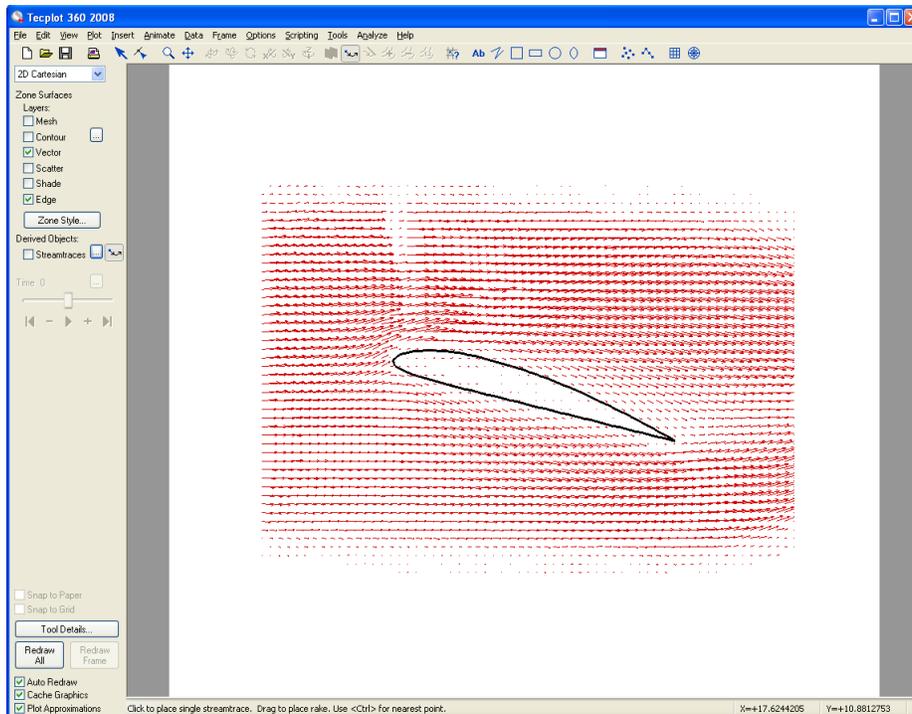
- a) Type in '1' if your data file name is 'velocity_vec.dat' or type in '2' for different file names.



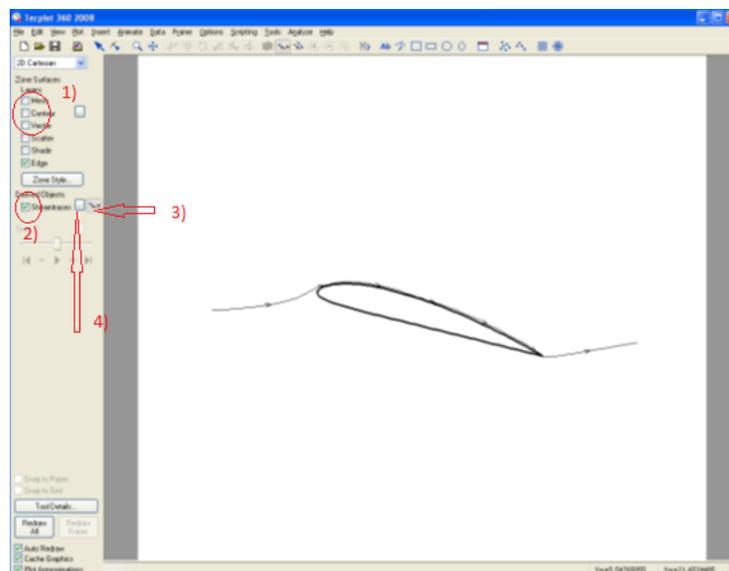
- b) Select angle of attack: type in '1' for 0° and '2' for 16°



Note that the default file name in the process b) is 'velocity_vec.dat' in this case.
Typical example of output



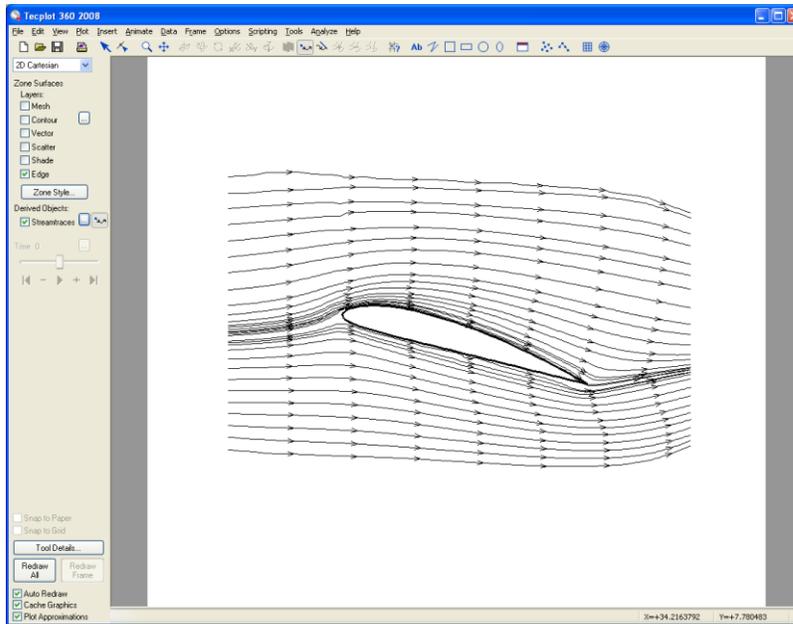
Export the figure file and save the layout file. See sections 4 and 5, respectively.
 Do not close the Tecplot window and continue to next section for streamlines plot
2.2 STREAMLINE PLOT



- 1) Turn off the 'Vector' check box
- 2) Turn on the 'Streamtraces' check box
- 3) Click the button to add a single or rake of streamlines
- 4) Click the button to edit streamlines if necessary

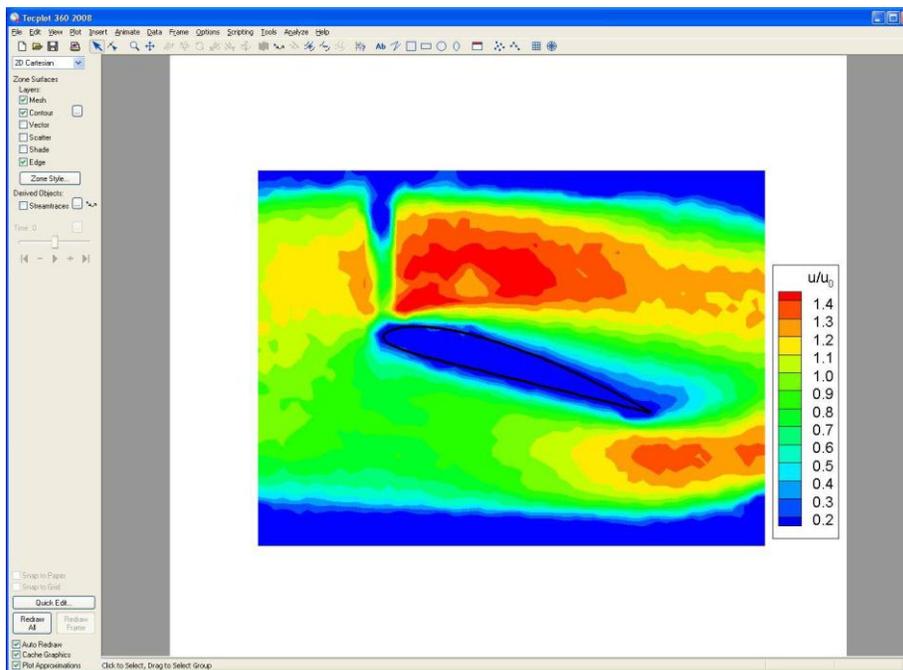
Export the figure file and save the layout file. See sections 4 and 5, respectively.

Typical example of streamline figure



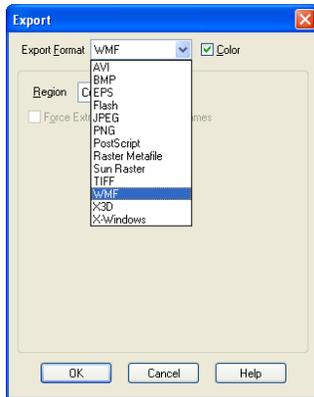
2.3 VELOCITY MAGNITUDE CONTOUR PLOT

- 1) Turn off the 'Vector' and/or 'Streamtraces' check boxes
- 2) Turn on the 'Contour' check box

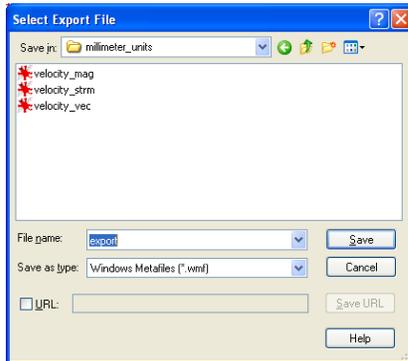


3. EXPORTING FIGURE FILES

Open image export window from the top menu, File\Export\



Choose image file type and type in figure file name (ex: 'streamline_16deg.wmf')



4. SAVING TECPLOT LAYOUT FILES

Open Tecplot layout file save window from the top menu under 'File\Save Layout\' or 'File\Save Layout as...' and type in layout file name (ex: 'streamline_16deg.lay')

