



# TEC PLOT FOCUS 2006

## Advanced Engineering Plotting

Tecplot Focus gets you answers faster. It enables you to quickly plot all your engineering and test data exactly the way you want. Analyze and explore complex datasets, arrange multiple XY, 2- and 3-D plots, and then communicate your results to colleagues and management with brilliant, high-quality output. Save even more time and effort by automating routine data analyses and plotting tasks. Available on Windows, Linux and Mac, Tecplot Focus meets the needs of your multi-platform engineering group.

### With Tecplot Focus you can:

#### Easily Understand Complex Engineering Systems

Gain full understanding with multi-dimensional parametric plots

- XY, Polar, 2D and 3D plotting in one unified environment
- Control over 2,500 attributes of your plot
- Unique multi-frame workspace allowing up to 128 drawing windows
- Assign arbitrary independent axes for specialty plots
- Apply multiple constraints to define and create performance envelopes
- Create complex performance plots
- Plot irregularly spaced data

#### Communicate Clearly and Effectively

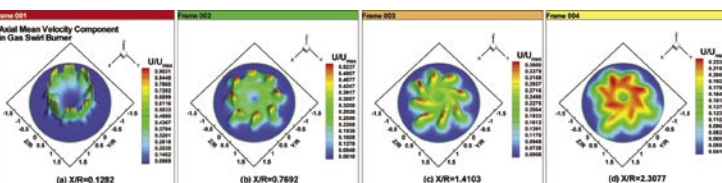
Convey information exactly the way you want

- Copy and paste directly into PowerPoint, Word and other Microsoft Office applications
- Publish and share results directly to the web
- Export presentation-quality vector and raster formats (JPEG, PNG, TIFF, BMP, WMF, PostScript, EPS)

#### Automate Plot Generation

Save time and effort by automating routine analyses and plotting

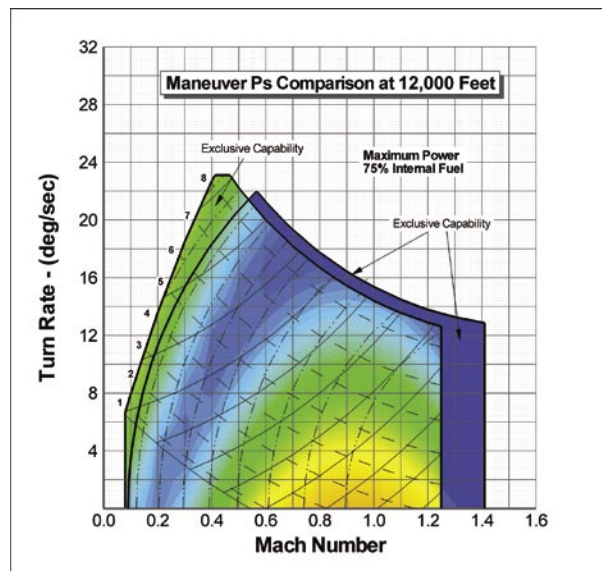
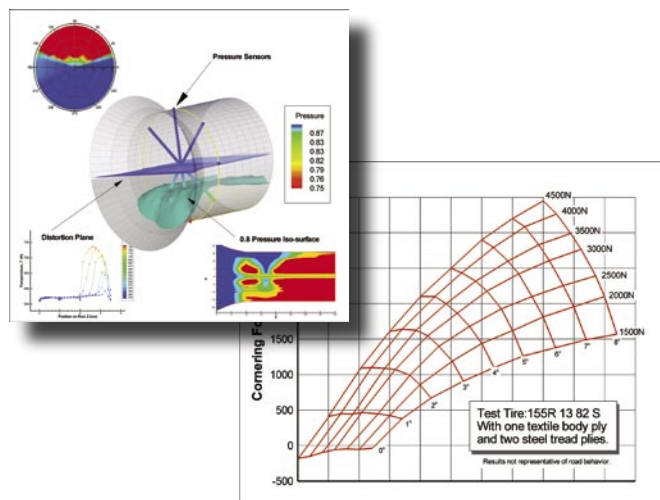
- Create macros by recording or writing scripts
- Use the Quick Macro Panel to access macros easily
- Batch process plotting and printing
- Extend Tecplot functionality with the Add-on Developer's Kit



"With early screening using Tecplot, we can then reduce the number of things we need to test in the wind tunnel, so we can cut down on the cost and time involved."  
- Craig Hunter, SOLUS

"Tecplot software has provided an incredible boost to our productivity in terms of our research output and the insights we are able to obtain."  
- Rajat Mittal, George Washington University

"Tecplot's software ease-of-use is exceptional...It's a breeze to import and export files, plot data in a multitude of ways, create custom-configurations, and make videos and animations in the file format of my choice."  
- Mehul P. Patel, Orbital Research Inc.



# Tecplot Focus 2006 Feature Set

## Line Plotting

**XY Features:** Scatter plots, line plots, bar charts, semi-log plots, log-log plots, error bar plots, splines, curve-fits, and more. Configure tick marks, symbols, legends and more. Multiple horizontal and vertical axes.

## Polar Plotting

**Polar Plot Features:** Create polar line plots (r,  $\theta$ ). Configure angle in radians, degrees or arbitrary units. Select between linear or logarithmic radius.

## 2-D and 3-D Plotting

**Mesh Plots:** Display 1-, 2-, and 3-D grids connecting data points. Color mesh lines by variable, and remove hidden lines.

**Contour Plots:** On 2- and 3-D surfaces, display contour lines, color flood between contour levels, and color fill cells (or elements). Use multiple contour variables to view and analyze interrelationships among several variables simultaneously.

**Vector Plots:** Display 2- and 3-D vectors on planes, 3-D surfaces, and in volumes. Display 3-D vector components tangent to 3-D surface. Specify length, color, line type, and head style. Color by variable.

**Scatter Plots:** Display 2- and 3-D symbols at data points. Color and size symbols by variables. Display a subset. Configure color, size, fill type, and symbol shape.

**Shade Plots:** Set color of surface.

**Boundary Plots:** Display the edges of data segments on 2- and 3-D surfaces and volumes. Configure color and line type.

**Sketch Plots:** Create drawings, word charts, and sketches without data or axes.

**Lighting Effects:** Set level of translucency and specular highlighting on 3-D surfaces and choose lighting model as uniform, paneled, or Gouraud.

**Volume Attributes:** Set display of boundary surfaces, internal grid surfaces, and volume rendering options.

**Combine Plot Types:** Assign combinations of mesh, contours, vectors, scatter, boundary, shade, lighting effects, and volume attributes to various segments of data.

## Animations and Movies

**Animation Tools:** Use built-in functions to automatically create movies of contour levels, slices, zones, streamtraces and more.

**Macros:** Use a macro to perform multiple, repetitive changes, and write each image to a movie file.

**Output:** Export AVIs which play in most movie viewers. Export Raster Metafiles (RMs) viewed with Tecplot's Framer movie player.

## Data Input

**Data Formats:** HDF, Excel (Windows only), DXF, DEM, comma- or space-delimited ASCII, native Tecplot ASCII, and Tecplot binary files.

**General Text Loader:** Scan ASCII data files for titles, variables and data, set filters, and preview processed data.

**Subset Data on Input:** Read subset of variables, data blocks, and data points to accelerate plotting.

**Interactive Data Input:** Enter XY plot data directly as two-column list of numbers.

**Custom Data Reader:** Use the Tecplot Add-on Developer's Kit to create data readers for proprietary file formats.

**Auxiliary Data:** Attach supplementary information (name/value pairs) to data sets, frames, or zones. Auxiliary data can be read from your data file or set by a macro or add-on.

**Image Import:** Insert logos and images and incorporate them into your plots.

## Automation

**Tecplot ADK:** Add your own specialized functions, analyses, and data input/output to Tecplot using the included the Add-on Developer's Kit (ADK). Use C, C++, and FORTRAN.

**Configuration File and Start-Up Macro:** Set new defaults and perform initialization with configuration files and start-up macros.

## Saving/Restoring Plots

**Layout Files:** Return to plots exactly as you created them by saving a layout file with all the frames, plotting attributes, and optionally the data. Apply layouts to same or different data sets.

**Stylesheets:** Save the style of a plot frame in a stylesheet, which includes all aspects and appearances of the plot frame, but not the data. Restore a stylesheet to recreate an old plot, or to create the same style of plot using a different set of data.

## Exploration and Analysis

**Slicing Tool:** Interactively slice 3-D data displaying mesh, contours, and vectors on the slice plane. Display multiple slices.

**Iso-surface Tool:** Interactively change iso-surface values. Display as paneled or Gouraud surfaces with translucency.

**Probing Tool:** Interactively click on surface and display interpolated variable values and cell indices. Snap selection to nearest grid point.

**Streamtrace Tool:** Interactively insert streamlines, streamrods, and streamribbons in 2- and 3-D. Specify lines to terminate streamlines. Display markers along streamlines spaced by vector magnitude. Place streamline rakes.

**Data Labeling Tool:** Display the values of a field variable or node indices at data points.

**3-D Viewing Tools:** Rotate, translate, and zoom into plot. Orthographic and perspective projections. Fly through data.

**Contour Tool:** Interactively click on surface to add and delete contour lines or levels.

**Extraction Tools:** Interactively define sets of points or polylines to which 2- and 3-D surface data is interpolated and extracted for display as a separate plot.

**Curve Fits:** Least squares linear, polynomial, power, and exponential curve-fits. Least squares curve-fit of linear combination of user-specified functions.

**Data Blanking:** Set multiple constraints (or masks) to clip the display of data based on local field variables, functions of variables, grid indices, or depth from viewing position. Cut-away blocks of 3-D volume to reveal internal variations.

**Plot Approximation Mode:** Reduce the number of grid points used to render an image, while retaining its style. Control the threshold for activation, and the percentage of the grid points to use.

**Data Extraction:** Extract iso-surfaces, slices, subsets, streamtraces, polylines, and point sets from 3-D data to new data segments (zones) for further plot customization.

**Outer-Surface Extraction:** Extract the surface of 3-D volume finite-element data.

## Interface

**Point and Click GUI:** Use an intuitive graphical user interface to create and arrange plots. No command line entry or programming required.

**Page Layout Paradigm:** Create up to 128 plots on a single page. Set frame attributes like background color, border, and header. Snap frames and plot objects to grid defined on page. Use page rulers for positioning.

**Overlying Frames:** Stack frames on top of frames. Set frame background to transparent to superimpose multiple plots.

**Frame Linking:** Link specific style attributes between and within frames. Link slices, iso-surfaces and other attributes between frames. Link axis styles, grid line styles and Zone/Map attributes within frames.

**Plot Layer Buttons:** With a click of the mouse, display mesh, contour, vector, scatter, shade, and boundary plot attributes individually or together in any combination.

**Plot Type Selection:** Quickly change between XY, 2-D, 3-D and Polar plot types.

**Interactive Viewing:** Zoom, translate, and rotate views using your mouse. See fully rendered plot during 3-D view changes.

## Color Mapping

**True Color Rendering:** Image is fully rendered in true color.

**64 Custom Color Dialog:** Customizable RGB color palette.

**Continuous Color Flooding:** Fill between contour lines with a smooth, continuous variation of color in 2- and 3-D.

**RGB Color Flooding:** Assign up to three variables to the red, green, and blue channels. Use RGB color flooding with multi-phase and multi-component flows to view concentrated and diluted regions.

## Annotating Plots

**Text:** Place text interactively on plot. Set text color, angle, size, font, background box, and justification. Greek letters, mathematical symbols, superscripts, and subscripts.

**European Characters:** Create annotation in European language characters with the extended ISO-Latin1 character set.

**Geometries:** Interactively create polylines, rectangular boxes, circles, and ellipses. Duplicate, reposition, and resize interactively. Create and modify (point-by-point) interactively and read from a file.

**Active Text and Geometries:** Associate a macro function with text or geometries.

## Data Manipulation

**Create, Alter and Transform Data:** Alter your data or create new data using mathematical expressions. Store expressions for reuse.

**Interpolate:** Interpolate data from one set to another. Choose from linear, inverse-distance, and kriging.

**Triangulate:** Create set of triangles from data points defined in 2-D plane.

**Convert Cell-Centered Data:** Interpolate cell-centered data to cell-corner (nodal) points.

**Mirror and Subset:** Create mirror images of existing data. Create new data as a subset of existing data.

## Data Structures

**Gridded Data:** Data points arranged spatially as 1-, 2-, and 3-D rectangular and curvilinear arrays; 2-D unstructured finite-element grids of triangles and quadrilaterals; and 3-D unstructured finite-element meshes of tetrahedral and 8-node bricks.

**Gridless Data:** Create triangular mesh from gridless data. Interpolate data into gridded data. Triangulate polylines in 2- and 3-D.

**Cell-centered Data:** Point objects such as vectors and scatter symbols can be plotted at the cell center, face center or node locations.

**Multiple Data Sets:** Create and display plots from up to 128 different sets of data simultaneously.

**Multiple Zones:** Each set of data can have over 32,000 segments (or zones).

**Multiple Variables:** Specify up to 32,000 variables (X, Y, Z, U, V, and so forth) per data point.

## Data Management

**Spreadsheet View:** Display and edit data displayed in scrollable rows and columns.

**Data Journaling:** Save layouts with a list of macro commands attached to a data set, or save a new data set. View and modify data journaling commands in any text editor. Data journal alterations are applied when the file is opened.

**Variable and Node Map Sharing:** Improve performance by sharing variables and node maps between zones. Define one grid definition for time-dependent and iterative solutions.

## Collaboration and Working in Groups

**Cross-Platform Capability:** Run Tecplot on PCs running Windows 2000/XP, Mac OS X, and Linux. Interchange Tecplot macro files, layout files, stylesheets, color map files, and data files between all platform types.

## Outputting Plots and Data

**Printing:** Print a plot directly to a printer, route to a file, or route to a print spooler. Copy and paste to Microsoft Office.

**Export Vector-based Plot Files:** Encapsulated PostScript (EPS), PostScript, and Windows Metafile Format.

**Export Raster Plot Files:** BMP, PNG, TIFF, PostScript bitmap, and X-Window bitmap. Image resolution is configurable and independent of screen resolution.

**Export Movies:** Export to Flash, AVI and Raster Metafiles.

## Customizing and Extending Tecplot

**Macros:** Create macros either by recording an interactive session or with a text editor. Use embedded interactive debugger to test macros.

**Quick Macro Panel:** Launch macros by mouse clicking Tecplot's interactive, customizable, multi-page Quick Macro Panel.

**Batch Processing:** Run Tecplot in batch mode to automatically process data and create plots without displaying any graphics on the screen.

**Animation:** Create complex animations using macro language.

Free, No-Hassle Trial Copies of  
Tecplot Focus are available at:

[www.tecplot.com/trial](http://www.tecplot.com/trial)

