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HyperWorks

HyperGraph 3D 2019 Tutorials

HG3D-1020: Data Querying

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HG3D-1020: Data Querying

In this tutorial, you will learn how to

- Use the ***Data Query*** panel for Waterfall plots
- Plot the orders in the HyperGraph window

Tools

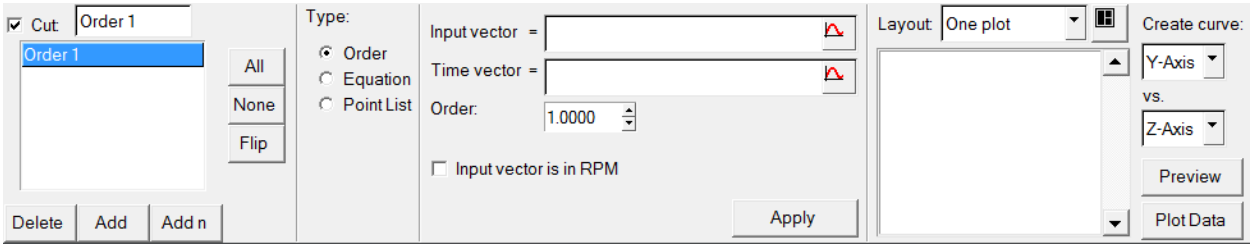
The ***Data Query*** panel can be accessed in one of the following ways:

- Click on ***Data Query*** panel icon,

Or

- Select ***Data Query*** from the **Curves** menu

The **Data Query** panel uses vertical cutting surfaces for viewing and plotting non-planer cross sections. Surfaces can be defined by math expressions, specifying orders, and selecting points on the waterfall plot or 3-D surface plot.



Exercise: Querying Waterfall Plots

Step 1: Open Session File `trimmer.mvw` and create HyperGraph 3D window

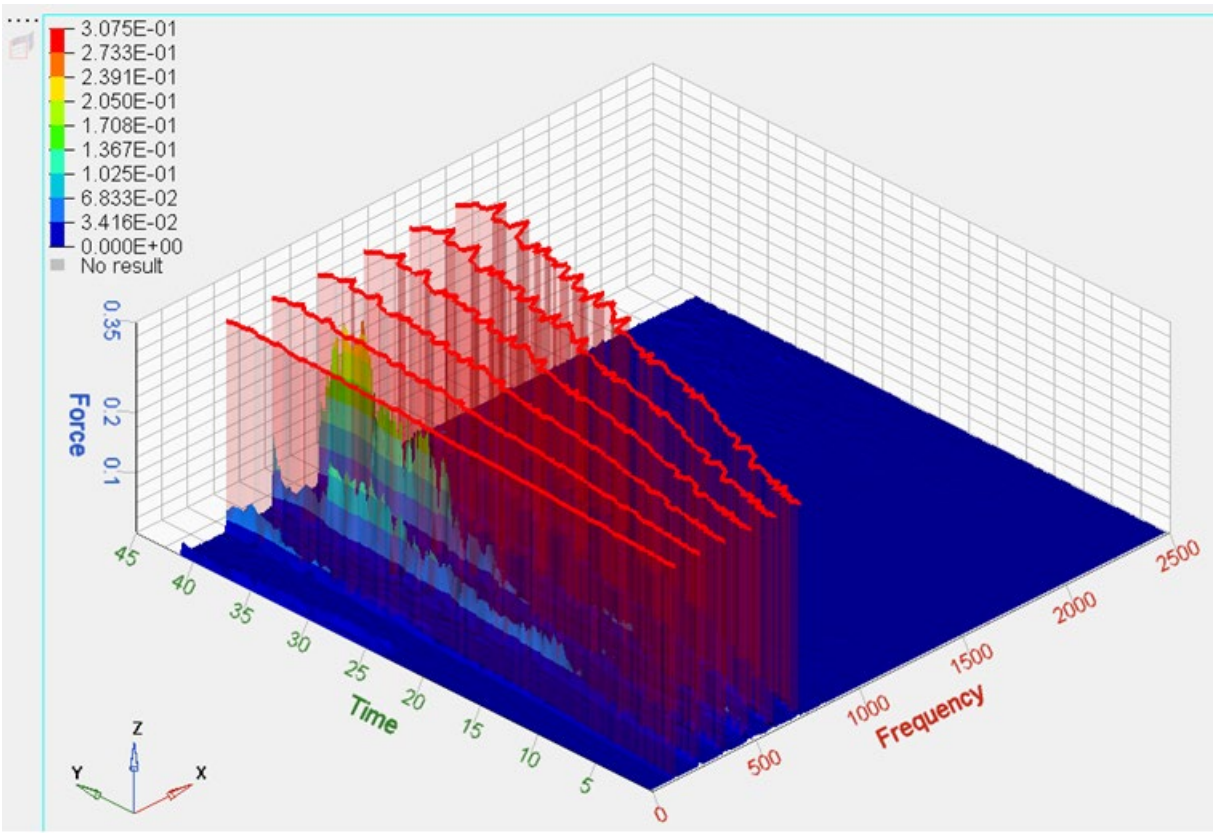
1. From the **File** menu, click ***Open***.
2. Select the file `trimmer.mvw`, located in the `3dplotting` folder, and click ***Open***.
3. Click ***Close*** on the message log that appears.
4. Click on the ***Add Page***, , button to add a page.
5. From the **Select Application** menu, select ***HyperGraph 3D***.

Step 2: Create a Frequency versus Time waterfall plot

1. Click on the ***Waterfall*** icon,  , on the toolbar to enter the panel.
2. Verify that ***Frequency*** and ***Time*** are the options set under **Plot Type:**.
3. Click the curve selection icon,  , in the ***Response Field*** for **Data Curves:**.
4. Choose the ***Force vs Time – Raw*** curve.
5. Click ***Select***.
6. Verify that the curve referenced under **Response** is ***p1w2c1***.
7. Enter `100` for ***Number*** under **Waterfall Slices**.
8. Check the ***Contour waterfall*** option.
9. Click ***Apply***.

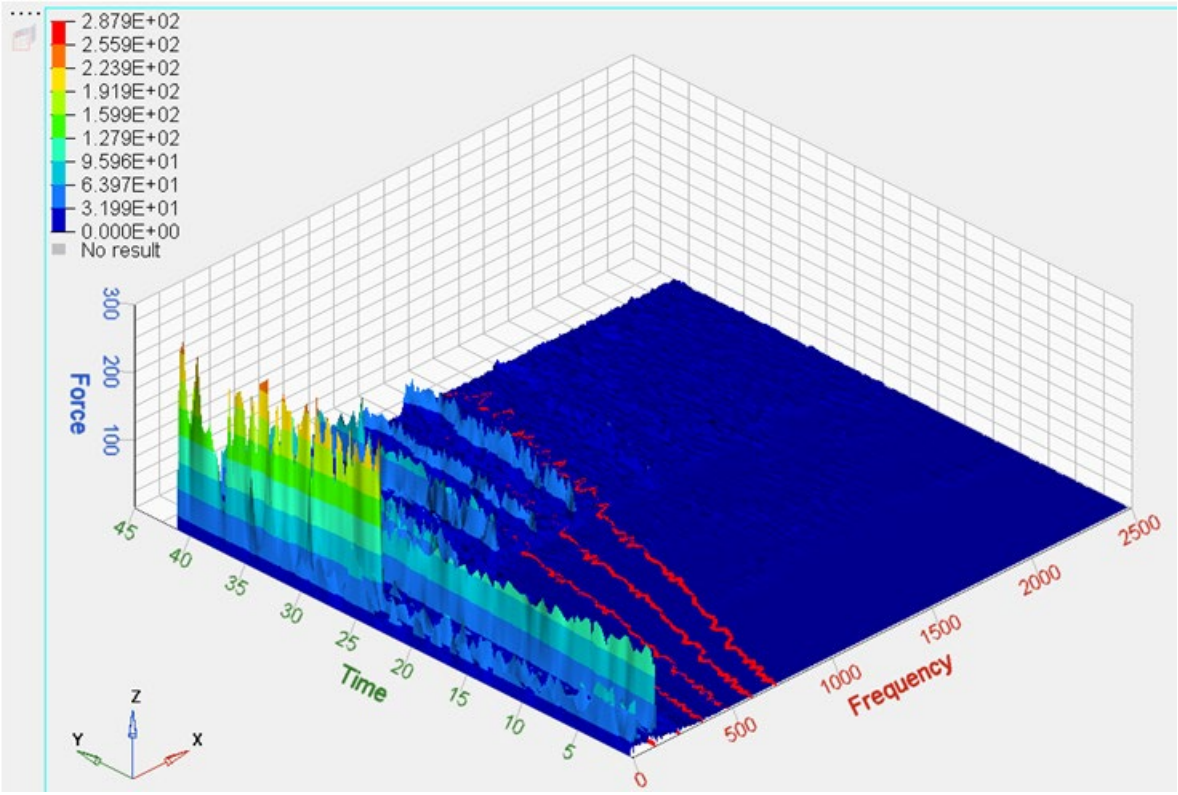
Step 3: Creating Cut Lines Using the Data Query Panel.

1. Click the ***Data Query*** icon, .
2. Click ***Add n*** from the panel area.
3. Select the ***RPM vs Time – Raw*** for **Input** and **Time Vector**.
4. Enter `1 - 6`, for the **Order List**.
5. Check the ***Input vector is in RPM*** checkbox.
6. Click ***OK***.



Step 4: Plotting the orders in HyperGraph Windows.

1. From the **Data Query** panel, click ***All*** next to the order list.
2. Change **Layout:** to ***One plot per cut***.
3. Select the ***Two-Window Layout***, , from the layout options in the **Data Query** panel.
4. Set the **Create curve:** options to ***Y-Axis Vs Z-Axis***.
5. Click ***Preview*** to preview the curves in a pop-up window.
6. Click ***Plot Data*** to create the curves.
7. Go to the **Waterfall** panel.
8. Select ***RPM vs time*** for the **Response** field.
9. Click ***Apply***.

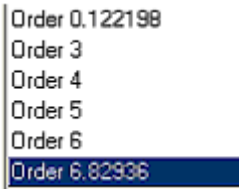


Note that the plots in HyperGraph windows have been updated.

Step 5: Creating a new order and positioning them

1. Return to **Data Query** panel.
2. Click ***Add*** under **Order List**.
3. Left-click on an order in the **Waterfall Plot** to set its location.

   Note that the location of the new order is shown in the **Order** list in the panel.



4. Select ***Order 1*** from the **Order** list and repeat the previous step.