



Altair

HyperWorks

Altair HyperGraph 3D 2019 Tutorials

HG3D-1000: Defining Waterfall Plots


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HG3D-1000: Defining Waterfall Plots



In this tutorial, you will learn how to create waterfall plots.

Tools

The **Waterfall** panel can be accessed one of the following ways:


- From the toolbar, click the **Waterfall** panel icon, 
- Or
- From the menu bar, select **Curves > Waterfall**

The **Waterfall** panel allows you to create waterfall plots from XY force response data and input pulses. If a waterfall plot exists in the current window, HyperGraph 3D automatically fills in the default values.



Plot type: Frequency Time Data curves: Response =  Input = 	Waterfall slices: <input checked="" type="radio"/> Number: 100 <input type="radio"/> Step size: 0.01 <input checked="" type="checkbox"/> Contour waterfall	Parameters: Sample size: 1024 Window function: Hanning Amplitude type: FFT Amplitude scale: None	Apply Undo
<input checked="" type="checkbox"/> Input vector is in RPM	<input type="checkbox"/> Show all options		

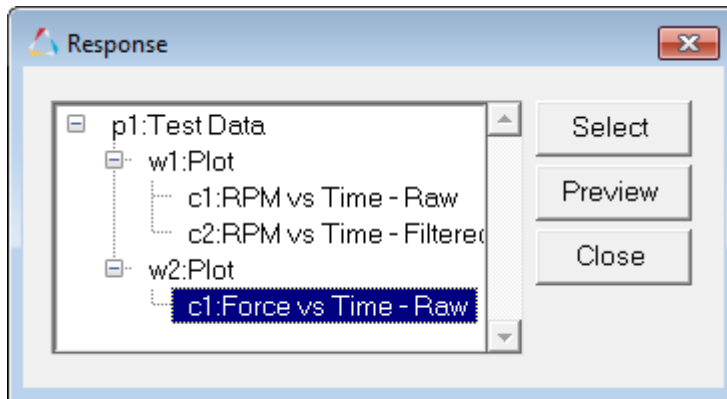
Exercise: Creating Waterfall Plots

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

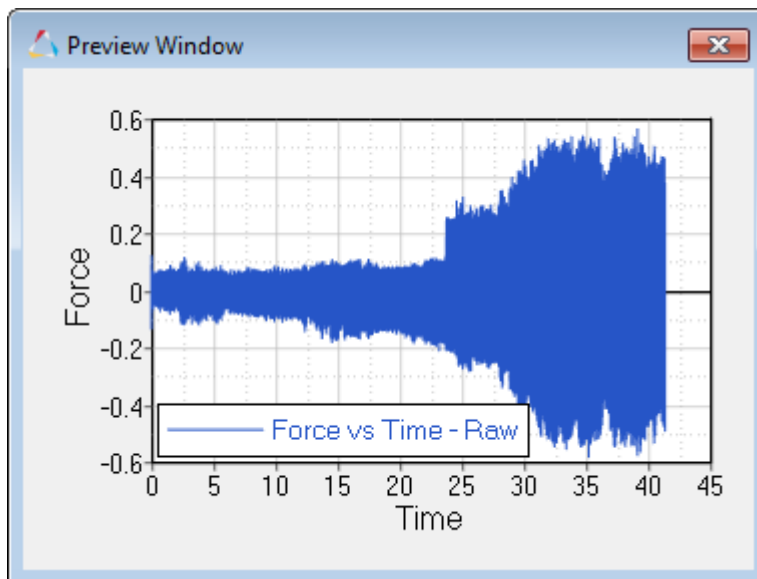
1. From the menu bar, select **File > Open > Session**.
2. From the `3dplotting` folder, select the file `trimmer.mvw` and click **Open**.
3. Click **Close** on the message log that appears.
4. Click on the **Add Page**, , button to add a page.
5. Select **HyperGraph 3D** from the **Select Application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

Step 2: Create a Frequency versus Time waterfall plot

1. Click 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.

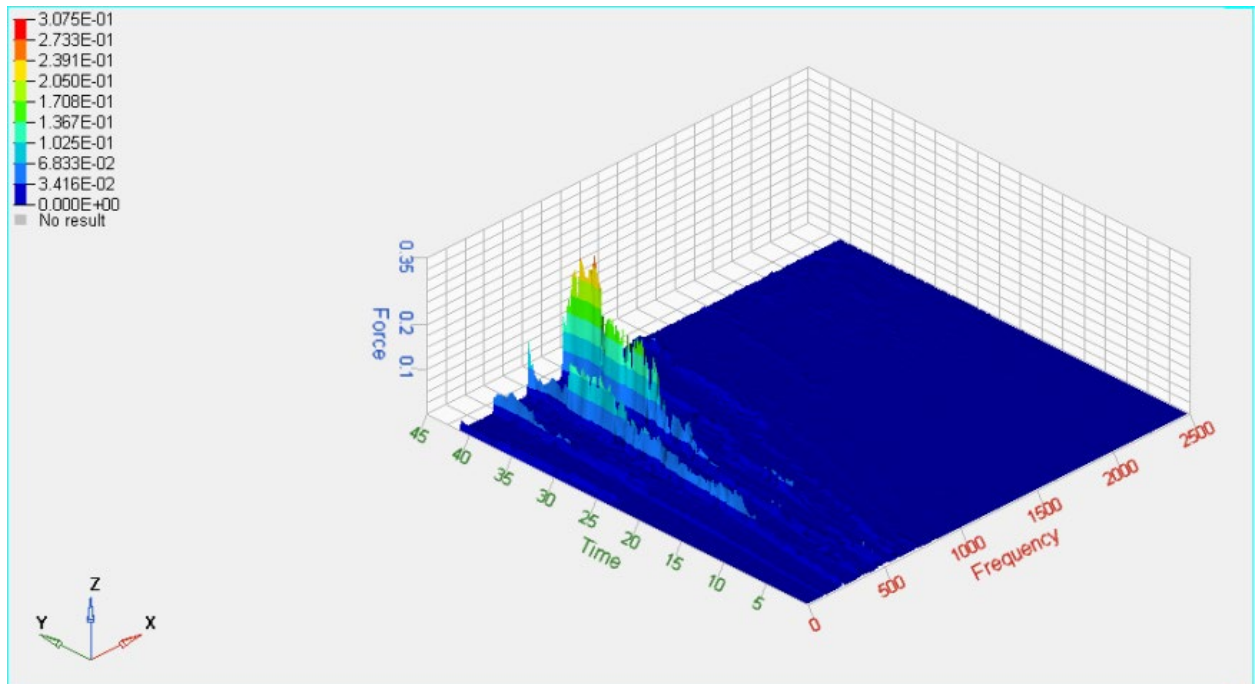


5. Click **Preview** to view the curve.



6. Click **Select**.
7. Verify that the curve referenced under **Response** is **p1w2c1**.
8. Enter 100 for **Number** under **Waterfall slices**.
9. Check the **Contour waterfall** option.

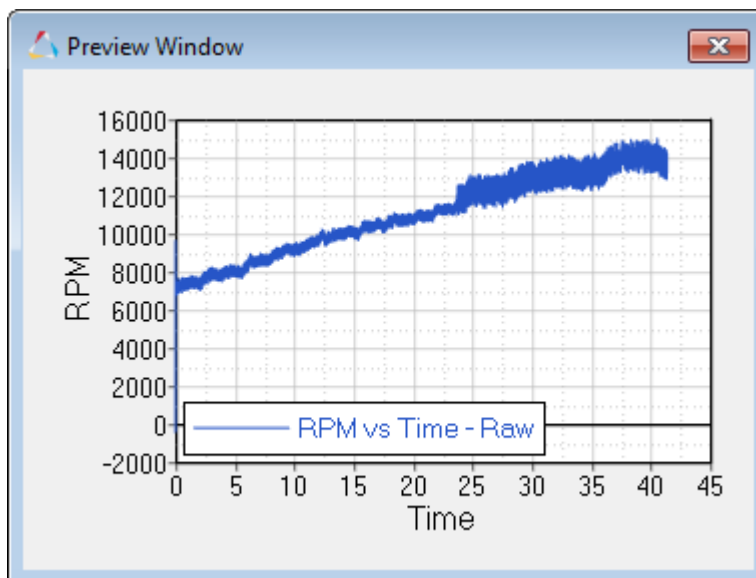
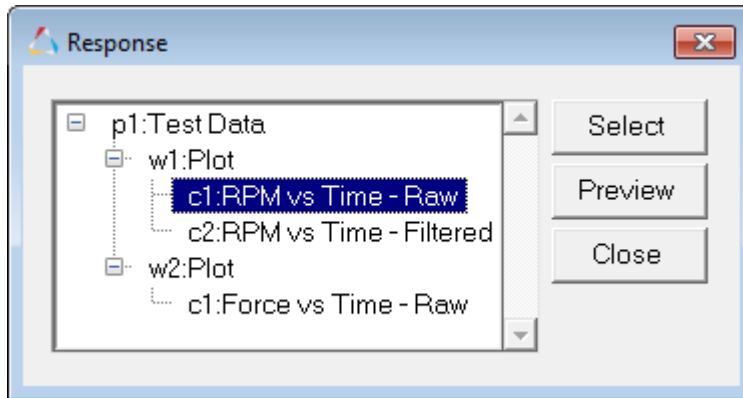
10. Click **Apply**.



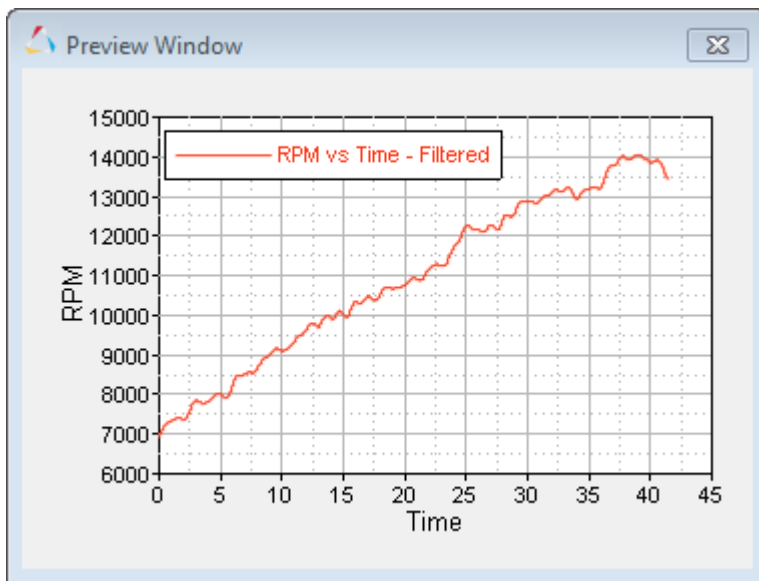
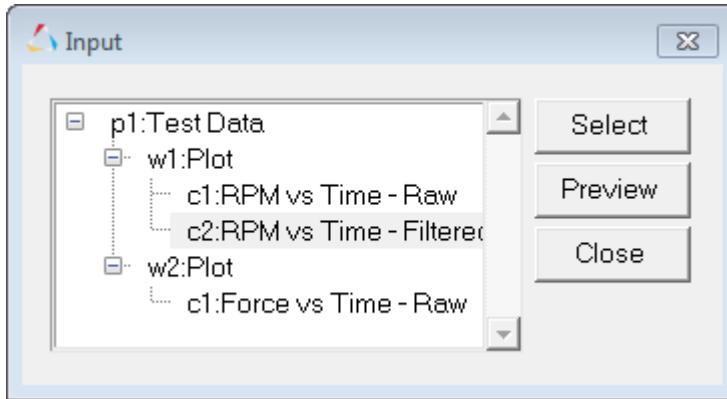
Step 3: Create a Frequency versus RPM waterfall plot

While in the **Waterfall** panel, do the following:

1. For **Plot Type**: select **Input Magnitude** instead of **Time** from the pull-down menu.
2. Under **Data Curves**, select **RPM vs Time – Raw** for **Response**

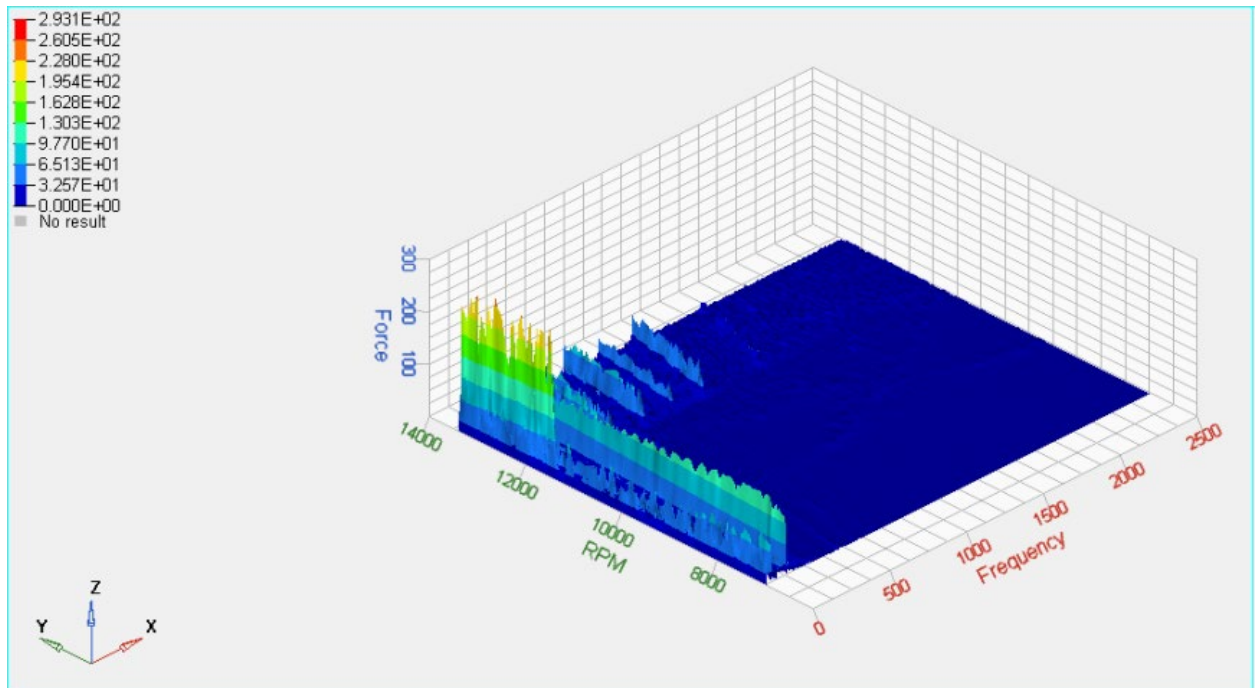


3. Select **RPM vs Time - Filtered** for **Input** under **Data Curves**.



4. Check the box for **Input vector is in RPM** to scale the RPM to RPS.

5. Click **Apply**.

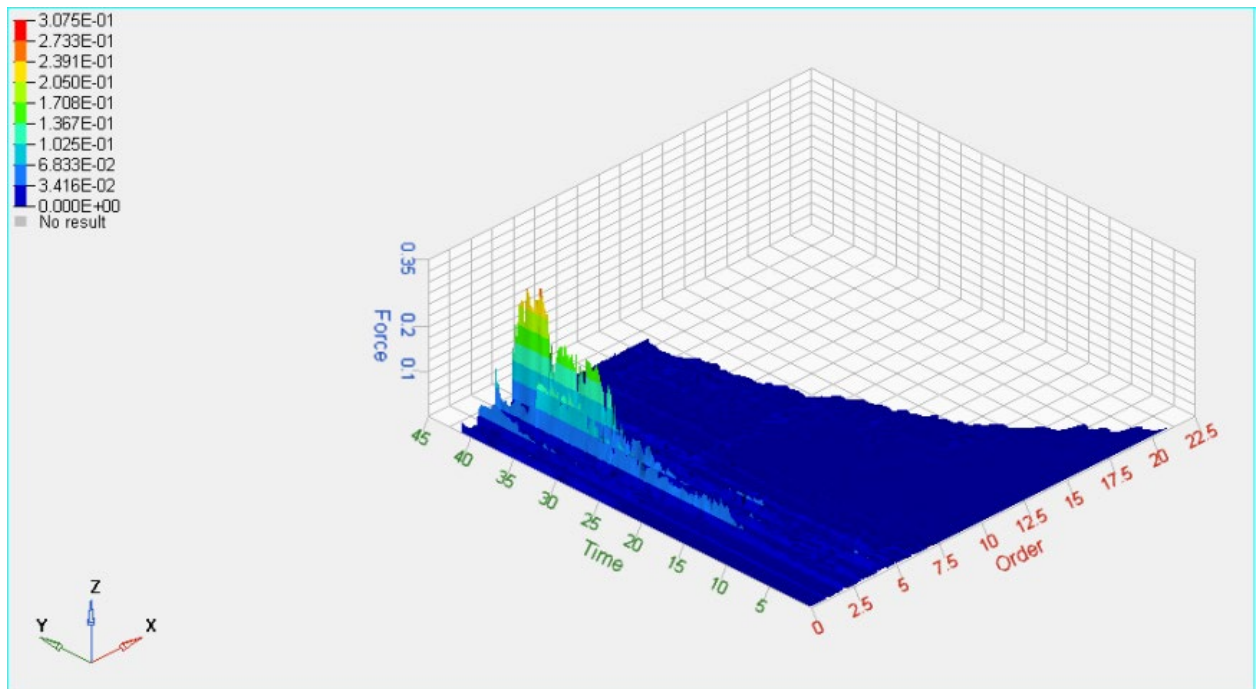


6. Click **Undo** to return to the **Frequency vs Time** plot.

Step 4: Create an Order waterfall plot

While in the **Waterfall** panel, do the following:

1. For **Plot Type**: select **Order(scaled)** instead of **Frequency** from the pull-down menu.
2. Select **RPM vs Time – Filtered** for **Input** under **Data Curves**.
3. Click **Apply** to create the plot.



4. Click **Undo** to return to the **Frequency vs Time** plot.