




Slide 1 - Slide 1

- Start HyperView 
- Stress Contours 
- Deflected Shapes 

Altair India

Continue →

KFourMetrics

Slide 2 - Slide 2

One way to start HyperView is from your Windows Start Menu - in this case you must locate and retrieve the results of the analysis after HyperView opens.

An alternate option is to start HyperView from within your HyperMesh session. This way, the results files are automatically loaded into HyperView. It's this second method that's outlined in this exercise.

You can also use HyperMesh itself to post-process results - look up [OptiStruct - Topology Optimization - Getting Started](#) for an example of how to do that.

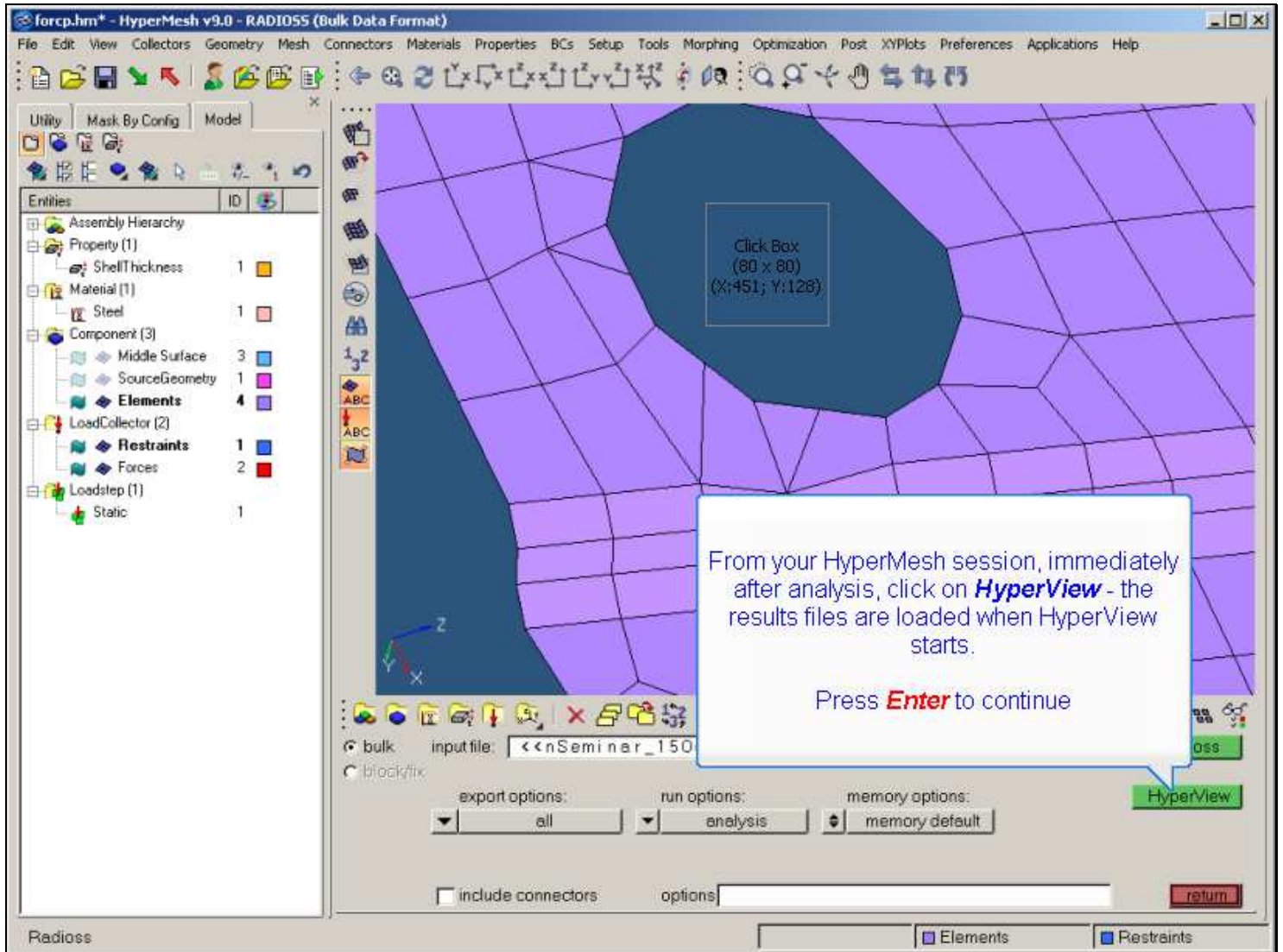
Click on the **continue** button at the bottom of the screen to proceed.



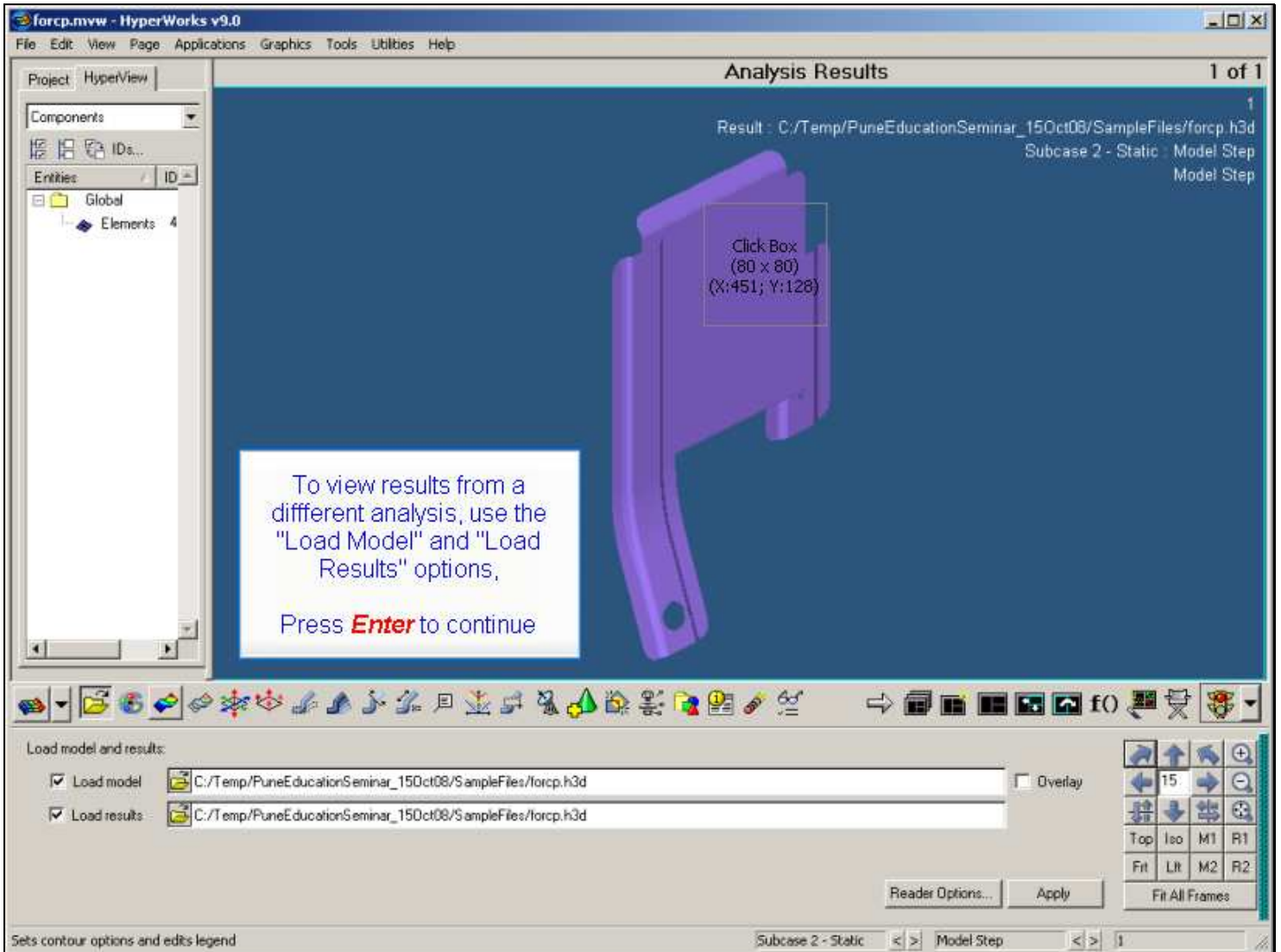
Continue →

KFourMetrics

Slide 3 - Slide 3

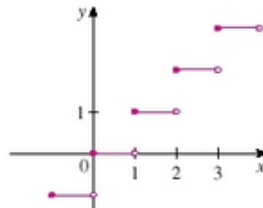


Slide 4 - Slide 4



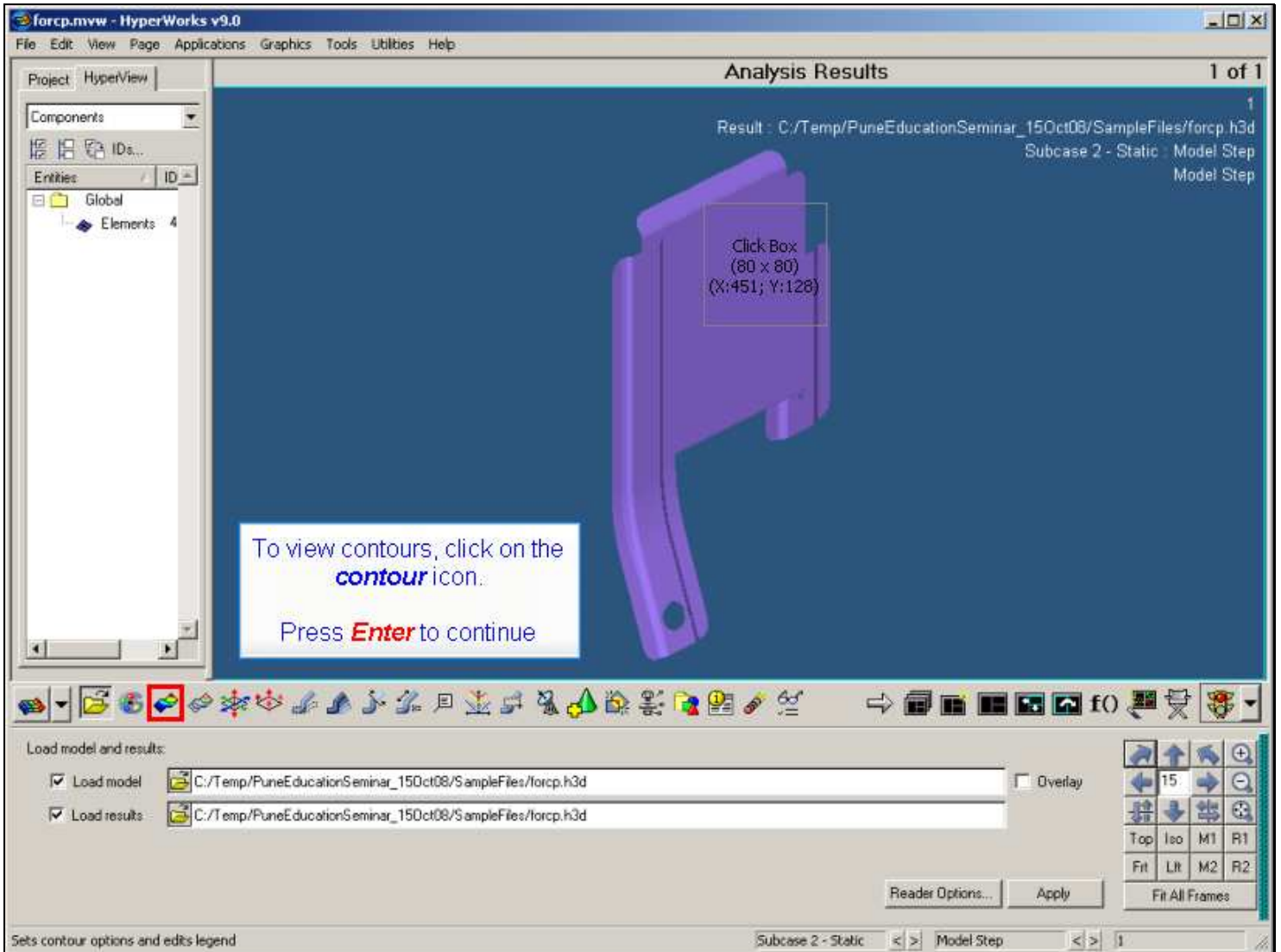
Stress is most often viewed as a contour - this makes it easy to identify areas of high stress. Other results can also be contoured, of course.

Stress contours are often used to assess the accuracy of the FE solution. In stress analysis, the FE method results in stresses that are "jump" discontinuous across element boundaries. In most cases, using a finer mesh (i.e. smaller elements) results in decreased "jumps" in the stress.

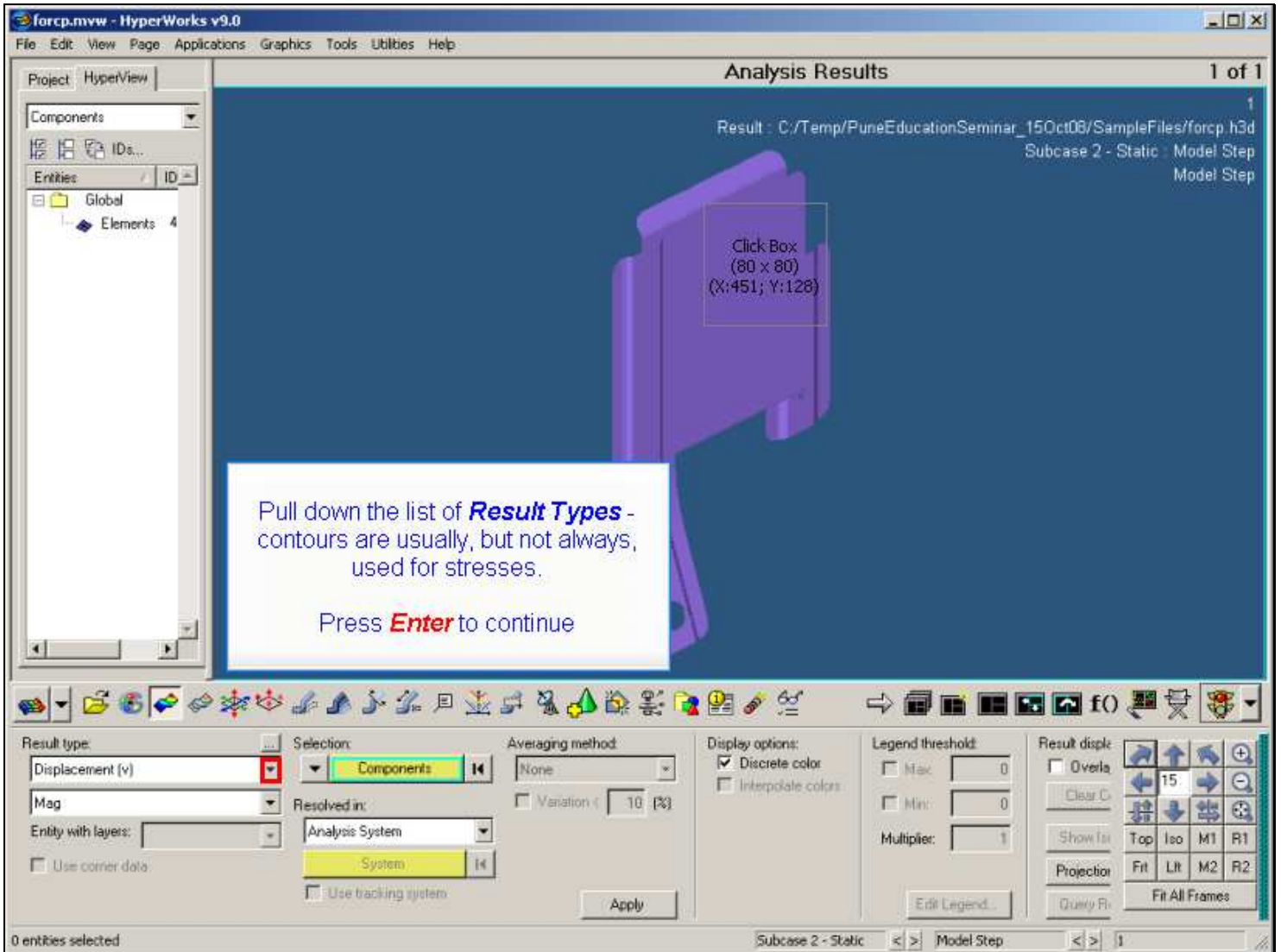


Continue →

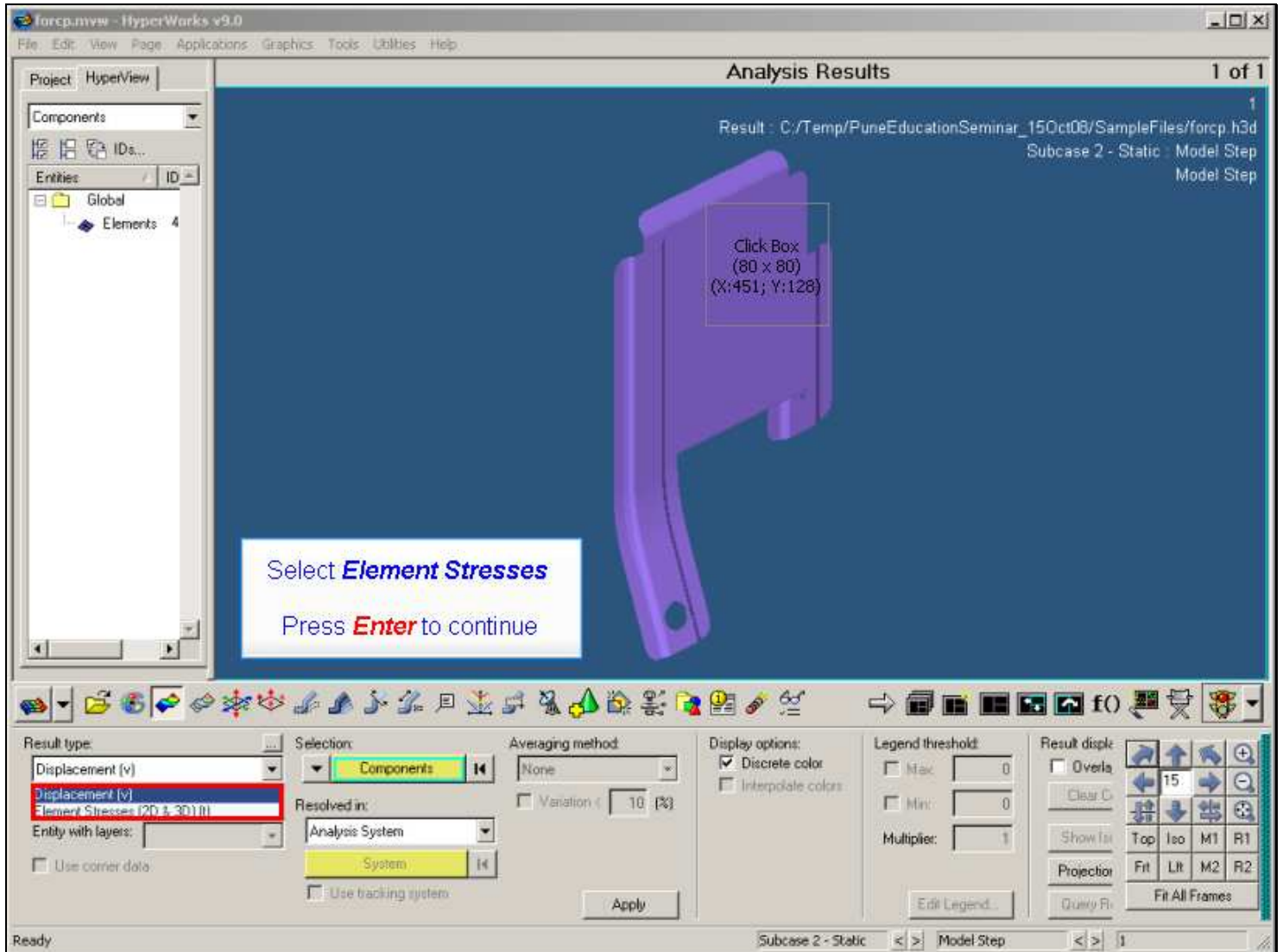
Slide 6 - Slide 6



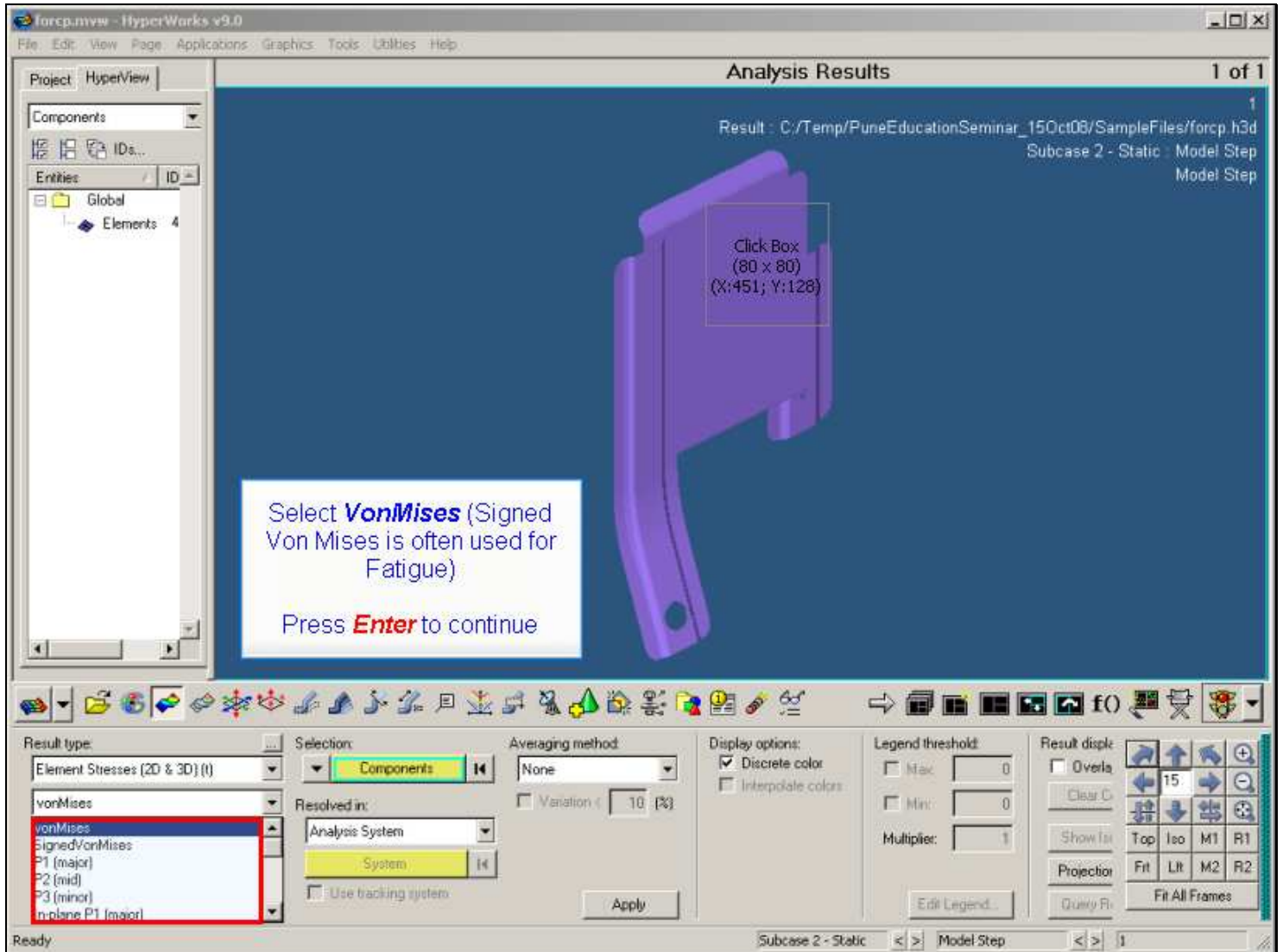
Slide 7 - Slide 7



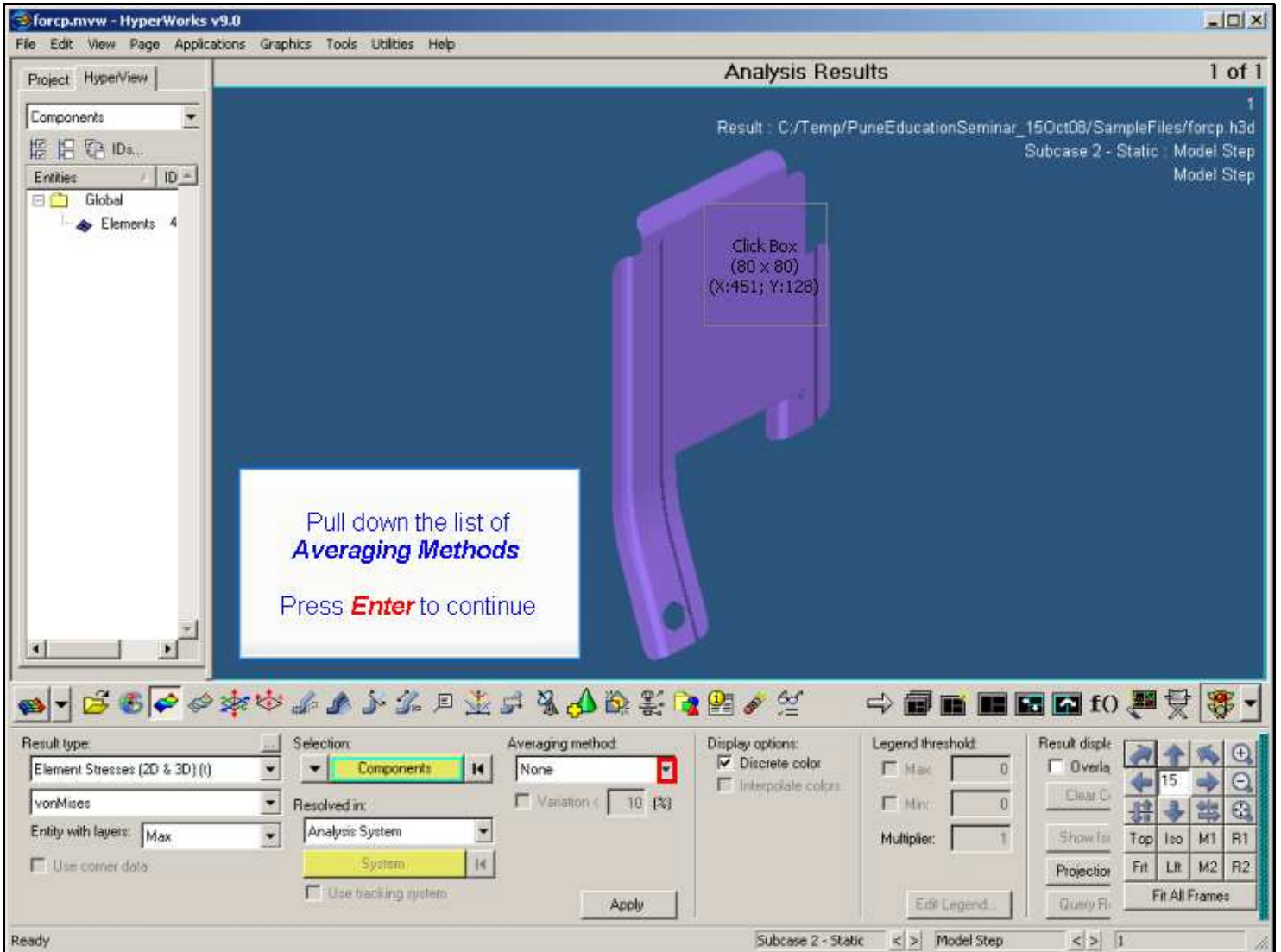
Slide 8 - Slide 8



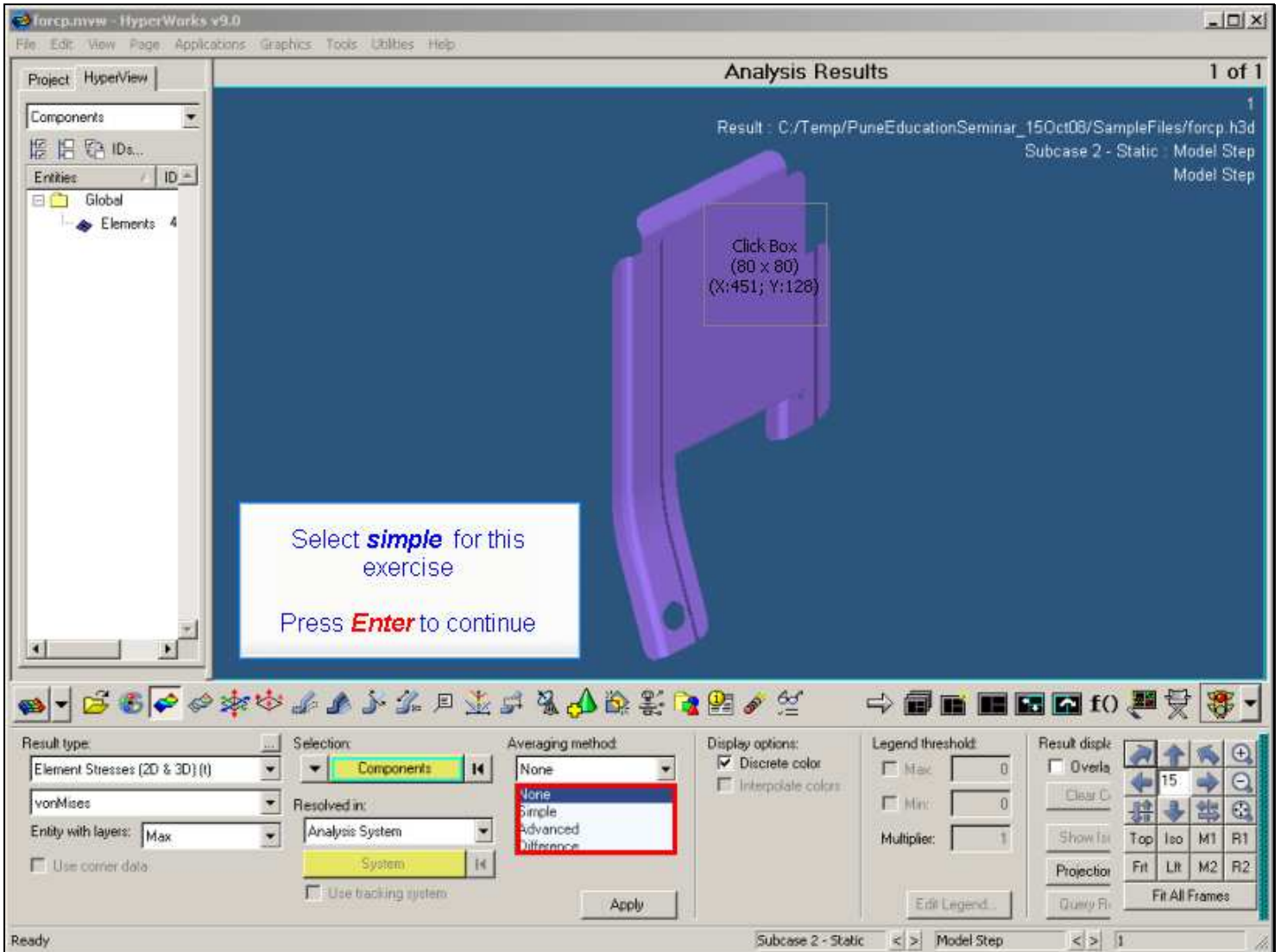
Slide 9 - Slide 9



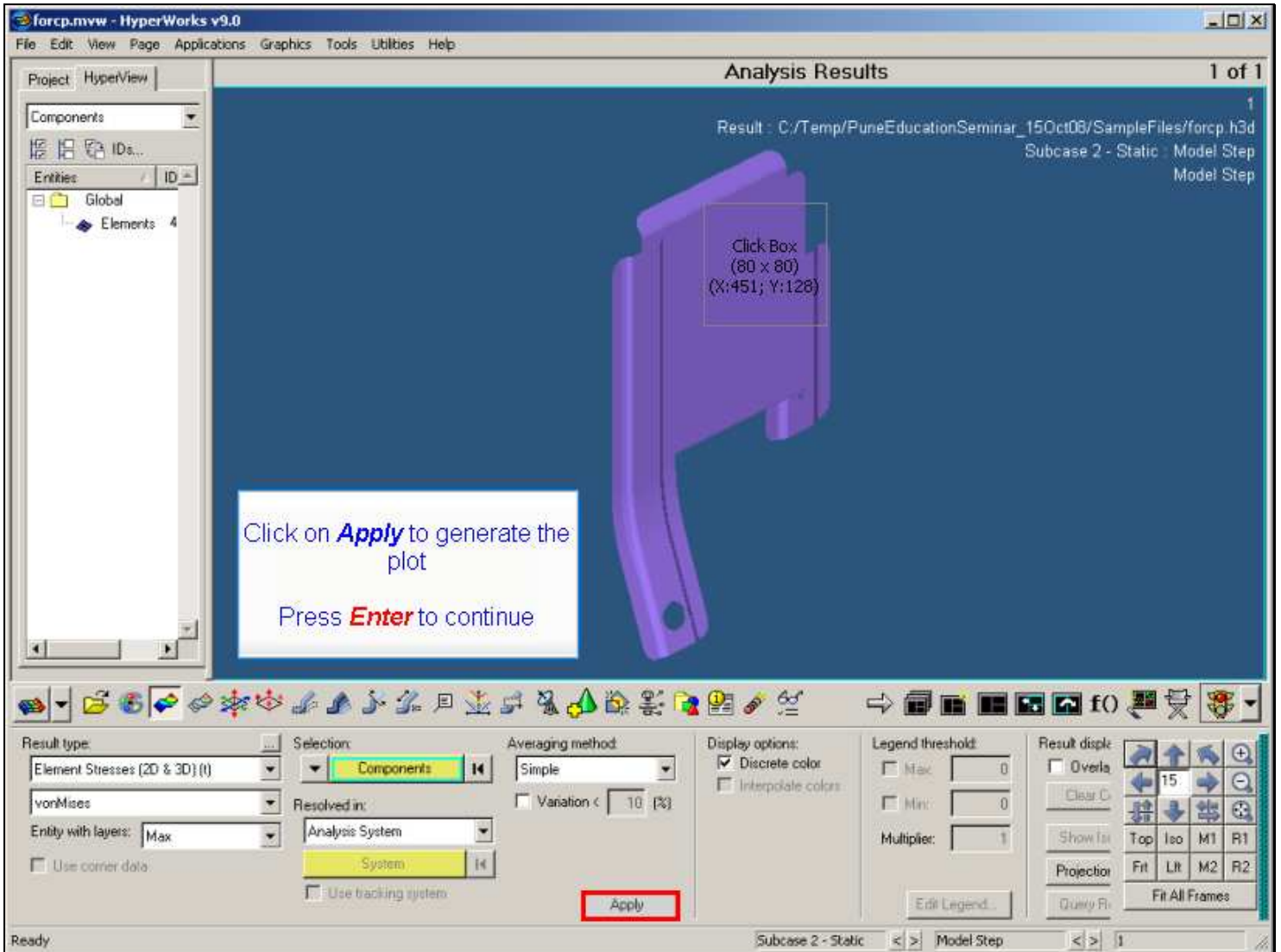
Slide 10 - Slide 10



Slide 11 - Slide 11



Slide 12 - Slide 12



Slide 13 - Slide 13

forcp.mvw - HyperWorks v9.0

File Edit View Page Applications Graphics Tools Utilities Help

Project: HyperView

Components

Entities: ID

Global

Elements: 4

Contour Plot

Element Stresses (2D & 3D)(vonMises, Max)

Analysis system

Simple Average

7.520E+03

6.685E+03

5.860E+03

5.015E+03

4.181E+03

3.346E+03

2.511E+03

1.676E+03

8.418E+02

7.034E+00

No result

Max = 7.520E+03 (Global 499)

Min = 7.034E+00 (Global 2010)

Result: C:/Temp/PuneEducationSeminar_15Oct08/SampleFiles/forcp.h3d

Subcase 2 - Static: Static Analysis

Frame 1

Click Box (80 x 80) (X:451; Y:128)

The view-control panel is at the bottom, right - click on **Left**

Press **Enter** to continue

Result type: Element Stresses (2D & 3D) (t)

vonMises

Entity with layers: Max

Use corner data

Selection: Components

Resolved in: Analysis System

System

Use backing system

Averaging method: Simple

Variation c: 10 (%)

Apply

Display options: Discrete color, Interpolate colors

Legend threshold: Max: 0, Min: 0, Multiplier: 1

Edit Legend...

Result display: Overla, Clear C, Show Is: Top, Iso, M1, R1, Projector: Fit, Lit, M2, R2, Query R, Fit All Frames

Ready

Subcase 2 - Static Model Step

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forcp.mvw - HyperWorks v9.0

File Edit View Page Applications Graphics Tools Utilities Help

Project: HyperView

Components

Entities: Global, Elements: 4

Analysis Results 1 of 1

Contour Plot
Element Stresses (2D & 3D)(vonMises, Max)
Analysis system
Simple Average
7.520E+03
6.685E+03
5.850E+03
5.015E+03
4.181E+03
3.345E+03
2.511E+03
1.676E+03
8.418E+02
7.034E+00
No result
Max = 7.520E+03 (Global 499)
Min = 7.034E+00 (Global 2010)

Result: C:/Temp/PuneEducationSeminar_15Oct08/SampleFiles/forcp.h3d
Subcase 2 - Static: Static Analysis
Frame 1

Click Here (80 x 80) (X:451; Y:120)

Click on **iso** for an isometric view
Press **Enter** to continue

Ready Subcase 2 - Static Model Step 1

Slide 15 - Slide 15

forcp.mvw - HyperWorks v9.0

File Edit View Page Applications Graphics Tools Utilities Help

Project: HyperView

Components

Entities: Global, Elements: 4

Analysis Results 1 of 1

Contour Plot

Element Stresses (2D & 3D)(vonMises, Max)

Analysis system

Simple Average

7.520E+03

6.685E+03

5.860E+03

5.015E+03

4.181E+03

3.346E+03

2.511E+03

1.676E+03

8.418E+02

7.034E+00

No result

Max = 7.520E+03 (Global 499)

Min = 7.034E+00 (Global 2010)

Result: C:/Temp/PuneEducationSeminar_15Oct08/SampleFiles/forcp.h3d

Subcase 2 - Static: Static Analysis

Frame 1

And **top** for the top view

Press **Enter** to continue

Result type: Element Stresses (2D & 3D) (t)

vonMises

Entity with layers: Max

Selection: Components

Resolved in: Analysis System

Averaging method: Simple

Variation c: 10 (%)

Display options: Discrete color, Interpolate colors

Legend threshold: Max: 0, Min: 0

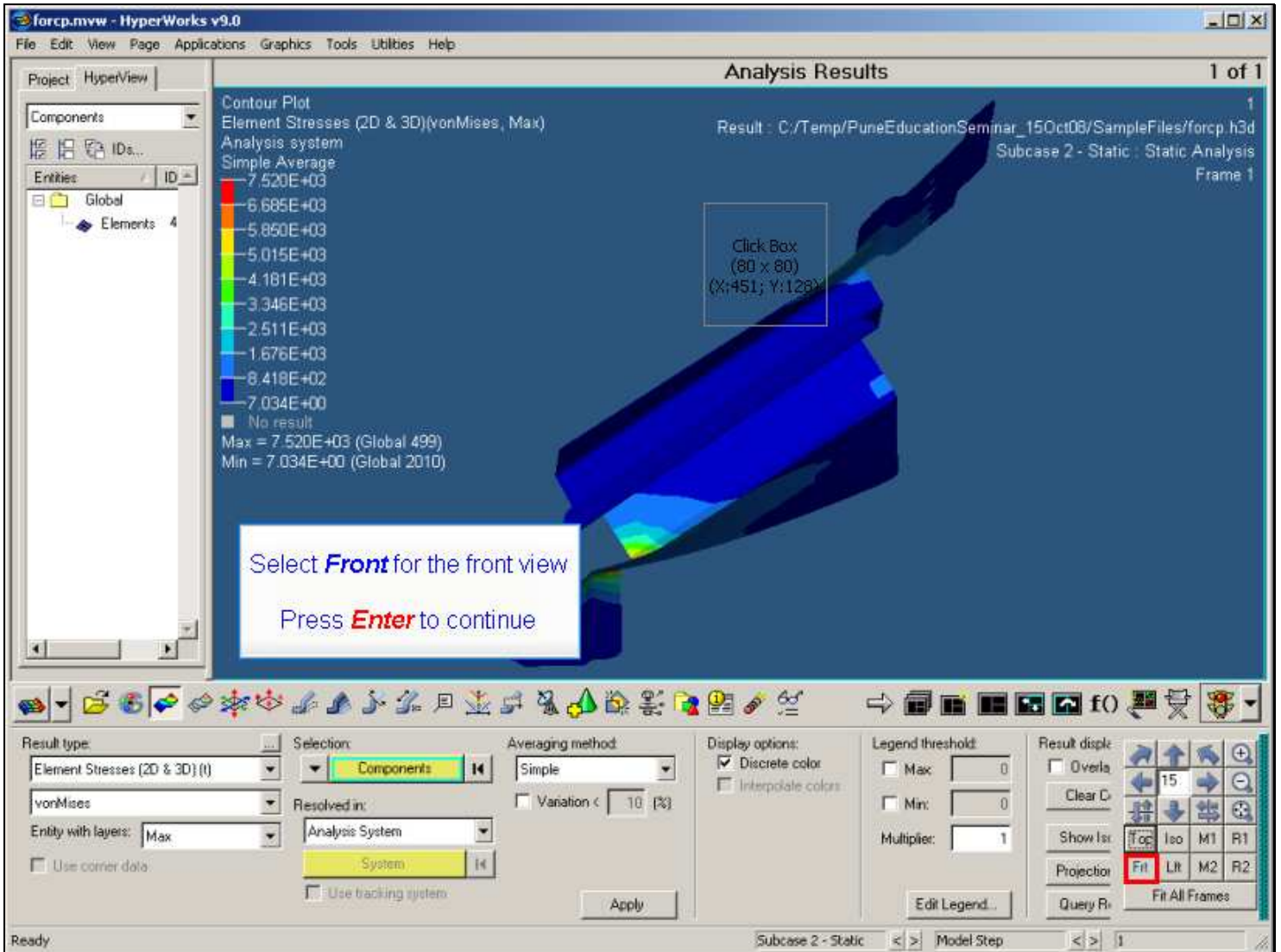
Multiplier: 1

Result disp: Overl, Clear C, Show Isr, Top, Iso, M1, R1, Projector, Fit, Lt, M2, R2, Query R, Fit All Frames

Ready

Subcase 2 - Static Model Step 1

Slide 16 - Slide 16



Slide 17 - Slide 17

The screenshot shows the HyperWorks v9.0 interface. The main window displays a 3D model of a mechanical part with a stress analysis plot. The plot is titled "Analysis Results" and shows a color-coded stress distribution. A text box overlay in the center of the plot reads: "Turn off *discrete color* for a more 'pleasing' plot. Press **Enter** to continue".

The interface includes a menu bar (File, Edit, View, Page, Applications, Graphics, Tools, Utilities, Help), a Project panel (HyperView), a Components panel, and a Results panel. The Results panel shows the following settings:

- Result type: Element Stresses (2D & 3D) (t)
- vonMises
- Entity with layers: Max
- Selection: Components
- Averaging method: Simple
- Display options: Discrete color, Interpolate colors
- Legend threshold: Max: 0, Min: 0
- Result display: Overlaid, Clear C, Show Isr, Projector, Query R

The status bar at the bottom indicates "Ready" and "Subcase 2 - Static".

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forcp.mvw - HyperWorks v9.0

File Edit View Page Applications Graphics Tools Utilities Help

Project: HyperView

Components

Entities: Global, Elements: 4

Analysis Results 1 of 1

Contour Plot

Element Stresses (2D & 3D)(vonMises, Max)

Analysis system

Simple Average

7.520E+03

6.685E+03

5.860E+03

5.015E+03

4.181E+03

3.345E+03

2.511E+03

1.676E+03

8.418E+02

7.034E+00

No result

Max = 7.520E+03 (Global 499)

Min = 7.034E+00 (Global 2010)

Result: C:/Temp/PuneEducationSeminar_15Oct08/SampleFiles/forcp.h3d

Subcase 2 - Static: Static Analysis

Frame 1

Click Box
Min = 200
Max = 10000

Pull down the list of **Averaging Methods**
Press **Enter** to continue

Result type: Element Stresses (2D & 3D) (t)

vonMises

Entity with layers: Max

Use corner data

Selection: Components

Resolved in: Analysis System

System

Use backing system

Averaging method: Simple

Variation c: 10 (%)

Apply

Display options: Discrete color, Interpolate colors

Legend threshold: Max: 0, Min: 0

Multiplier: 1

Edit Legend...

Result displ: Overla, Clear C, Show list, Projector, Query R, Fit All Frames

Ready

Subcase 2 - Static Model Step

Slide 19 - Slide 19

forcp.mvw - HyperWorks v9.0

File Edit View Page Applications Graphics Tools Utilities Help

Project: HyperView

Components

Entities ID

Global

Elements 4

Analysis Results 1 of 1

Contour Plot

Element Stresses (2D & 3D)(vonMises, Max)

Analysis system

Simple Average

7.520E+03

6.685E+03

5.860E+03

5.015E+03

4.181E+03

3.346E+03

2.511E+03

1.676E+03

8.418E+02

7.034E+00

No result

Max = 7.520E+03 (Global 499)

Min = 7.034E+00 (Global 2010)

Result: C:/Temp/PuneEducationSeminar_15Oct08/SampleFiles/forcp.h3d

Subcase 2 - Static: Static Analysis

Frame 1

Select None

Press Enter to continue

Result type: Element Stresses (2D & 3D) (t)

vonMises

Entity with layers: Max

Use corner data

Selection: Components

Resolved in: Analysis System

System

Use backing system

Averaging method: Simple

None

Simple

Advanced

Difference

Apply

Display options: Discrete color Interpolate colors

Legend threshold: Max: 0 Min: 0

Multiplier: 1

Edit Legend...

Result display: Overlap Clear C Show List: Top Iso M1 R1 Projector: Fit Lt M2 R2 Query R Fit All Frames

Ready

Subcase 2 - Static Model Step 1

Slide 20 - Slide 20

forcp.mvw - HyperWorks v9.0

File Edit View Page Applications Graphics Tools Utilities Help

Project: HyperView

Components

Entities

Global

Elements: 4

Analysis Results 1 of 1

Contour Plot

Element Stresses (2D & 3D)(vonMises, Max)

Analysis system

Simple Average

7.520E+03

6.685E+03

5.860E+03

5.015E+03

4.181E+03

3.346E+03

2.511E+03

1.676E+03

8.418E+02

7.034E+00

No result

Max = 7.520E+03 (Global 499)

Min = 7.034E+00 (Global 2010)

Result: C:/Temp/PuneEducationSeminar_15Oct08/SampleFiles/forcp.h3d

Subcase 2 - Static: Static Analysis

Frame 1

Click Here (2D & 3D) (v=499, v=120)

And **Apply** the setting

Press **Enter** to continue

Result type: Element Stresses (2D & 3D) (t)

vonMises

Entity with layers: Max

Use corner data

Selection: Components

Resolved in: Analysis System

System

Use backing system

Averaging method: None

Variation: 10 (%)

Display options: Discrete color, Interpolate colors

Legend threshold: Max: 0, Min: 0

Multiplier: 1

Edit Legend...

Result display: Overlaid, Clear C, Show list, Projector, Query R, Fit All Frames

Ready

Subcase 2 - Static Model Step 1

Slide 21 - Slide 21

forcp.mvw - HyperWorks v9.0

File Edit View Page Applications Graphics Tools Utilities Help

Project: HyperView

Components

Entities: Global, Elements: 4

Analysis Results 1 of 1

Contour Plot
Element Stresses (2D & 3D)(vonMises, Max)
Analysis system
Result: C:/Temp/PuneEducationSeminar_15Oct08/SampleFiles/forcp.h3d
Subcase 2 - Static: Static Analysis
Frame 1

9.173E+03
8.154E+03
7.136E+03
6.117E+03
5.099E+03
4.080E+03
3.062E+03
2.043E+03
1.025E+03
6.391E+00
No result
Max = 9.173E+03 (2D 505)
Min = 6.391E+00 (2D 1735)

Note the "jumps" in stresses across element boundaries.
The view-control panel can be hidden - click on the green bar.
Press **Enter** to continue

Ready Subcase 2 - Static Model Step 1

The deflected (or "deformed") shape of the component is often overlaid over the undeformed shape. Since deflections are usually small (this is a necessary condition for linear analysis) the deflection is scaled up to generate a meaningful image.

Remember that deflection is a vector - you can view either its components or the magnitude. Deflection can also be contoured - for complicated geometries, this can help identify areas with larger deflections.

Even for static analysis, an animation of the deflection can help understand how the component behaves.

Click on the **continue** button at the bottom of the screen to proceed.

Continue →

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forcp.mvw - HyperWorks v9.0

File Edit View Page Applications Graphics Tools Utilities Help

Project: HyperView

Components

Entities: Global, Elements: 4

Analysis Results 1 of 1

Result: C:/Temp/PuneEducationSeminar_15Oct08/SampleFiles/forcp.h3d
Subcase 2 - Static: Static Analysis
Frame 1

Contour Plot
Element Stresses (2D & 3D)(vonMises, Max)
Analysis system

9.173E+03
8.154E+03
7.136E+03
6.117E+03
5.099E+03
4.080E+03
3.062E+03
2.043E+03
1.025E+03
6.391E+00
No result

Max = 9.173E+03 (2D 505)
Min = 6.391E+00 (2D 1735)

Use the **deformed shape** icon for deformed-plot options
Press **Enter** to continue

Result type: Element Stresses (2D & 3D) (t)
vonMises
Entity with layers: Max
Use corner data

Deformed
Components
Resolved in: Analysis System
System
Use backing system

Averaging method: None
Variation: 10 (%)

Display options:
Discrete color
Interpolate colors

Legend threshold:
Max: 0
Min: 0
Multiplier: 1

Result display control:
Overlay result display
Clear Contour
Show Iso Value
Projection Rule...
Query Results...

Apply

Sets deformed and undeformed shape options

Subcase 2 - Static Model Step 1

Slide 24 - Slide 24

forcp.mvw - HyperWorks v9.0

File Edit View Page Applications Graphics Tools Utilities Help

Project: HyperView

Components

Entities: ID

Global

Elements: 4

Analysis Results 1 of 1

Contour Plot

Element Stresses (2D & 3D)(vonMises, Max)

Analysis system

Result: C:/Temp/PuneEducationSeminar_15Oct08/SampleFiles/forcp.h3d

Subcase 2 - Static: Static Analysis

Frame 1

9.173E+03

8.154E+03

7.136E+03

6.117E+03

5.099E+03

4.080E+03

3.062E+03

2.043E+03

1.025E+03

6.391E+00

No result

Max = 9.173E+03 (2D 505)

Min = 6.391E+00 (2D 1735)

Click Box
2D 505
(9.173E+03)

Pull down the **undeformed shape** options - this lets you turn it on or off. Note that you can also choose your scale in this menu.

Press **Enter** to continue

Deformed shape:

Result type: Displacement (v)

Scale: Scale factor

Type: Uniform

Value: 1.000000

Resolved in: Global System (proj: none)

System

Undeformed shape:

Show: None

Color: Component

Move with tracking system:

Apply

Ready

Subcase 2 - Static

Model Step

Slide 25 - Slide 25

forcp.mvw - HyperWorks v9.0

File Edit View Page Applications Graphics Tools Utilities Help

Project: HyperView

Components

Entities

Global

Elements: 4

Analysis Results 1 of 1

Contour Plot

Element Stresses (2D & 3D)(vonMises, Max)

Analysis system

Result: C:/Temp/PuneEducationSeminar_15Oct08/SampleFiles/forcp.h3d

Subcase 2 - Static: Static Analysis

Frame 1

9.173E+03

8.154E+03

7.136E+03

6.117E+03

5.099E+03

4.080E+03

3.062E+03

2.043E+03

1.025E+03

6.391E+00

No result

Max = 9.173E+03 (2D 505)

Min = 6.391E+00 (2D 1735)

Click Box

Animation is often used for static analysis too - the deflection is gradually increased from the initial to the final state

Pull down the list of *animation types*

Press **Enter** to continue

Deformed shape

Result type: Displacement (v)

Scale: Scale factor

Type: Uniform

Value: 1.000000

Resolved in: Global System (proj: none)

System

Undeformed shape

Show: None

Color: None

Wireframe

Edges

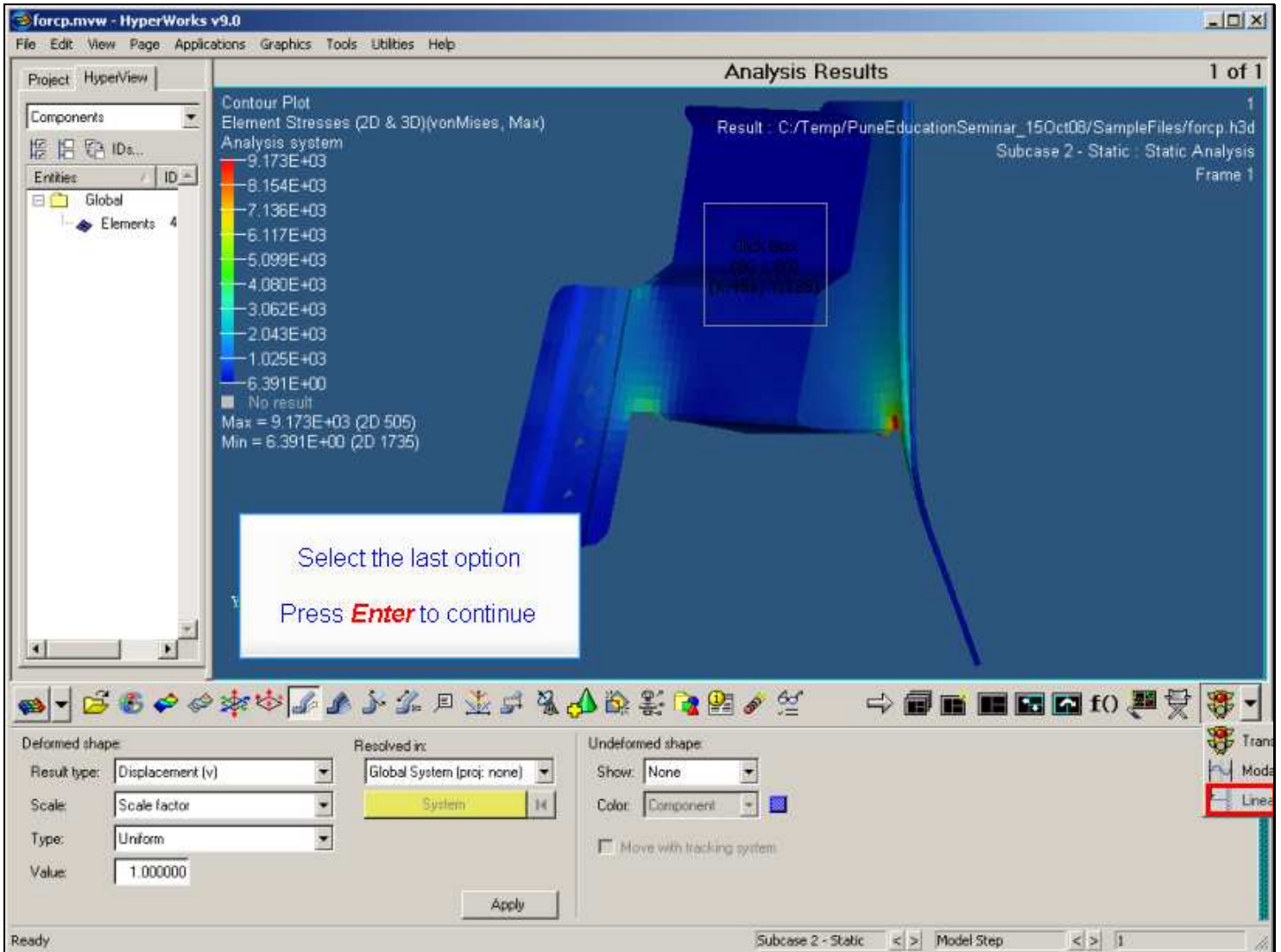
Features

Apply

Ready

Subcase 2 - Static <> Model Step <> 1

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Slide 27 - Slide 27

The screenshot displays the HyperWorks v9.0 interface. The main window shows the 'Analysis Results' for 'Element Stresses (2D & 3D)(vonMises, Max)'. A 3D model of a mechanical part is shown with a color-coded stress distribution. A 'Click Box (80 x 80) (X:451; Y:451)' is overlaid on the model. The 'Analysis Results' panel on the right shows the file path and analysis details: 'Result: C:/Temp/PuneEducationSeminar_15Oct08/SampleFiles/forcp.h3d', 'Subcase 2 - Static: Static Analysis', and 'Frame 1'. The 'Project' panel on the left shows the 'HyperView' project with 'Global' and 'Elements' (4) listed. A legend on the left indicates stress values from 6.391E+00 to 9.173E+03. A text box in the center of the 3D view reads: 'Select the **Animation-Controls** icon' and 'Press **Enter** to continue'. The bottom control panel includes 'Deformed shape' settings (Result type: Displacement (v), Scale: Scale factor, Type: Uniform, Value: 1.000000), 'Resolved in' settings (Global System (proj: none), System), and 'Undeformed shape' settings (Show: None, Color: Component). The 'Animation Controls' icon is highlighted with a red box in the bottom right of the toolbar. The status bar at the bottom shows 'Subcase 2 - Static' and 'Static Analysis'.

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forcp.mvw - HyperWorks v9.0

File Edit View Page Applications Graphics Tools Utilities Help

Project: HyperView

Components

Entities: Global, Elements: 4

Analysis Results 1 of 1

Contour Plot
Element Stresses (2D & 3D)(vonMises, Max)
Analysis system
Result: C:/Temp/PuneEducationSeminar_15Oct08/SampleFiles/forcp.h3d
Subcase 2 - Static: Static Analysis
Frame 2

9.173E+03
8.154E+03
7.136E+03
6.117E+03
5.099E+03
4.080E+03
3.062E+03
2.043E+03
1.025E+03
6.391E+00
No result
Max = 9.173E+03 (2D 505)
Min = 6.391E+00 (2D 1735)

Click box (80, 200) (X: 450, Y: 100)

The slider bar controls the animation-speed (the rate at which frames are played)

Press **Enter** to continue

Max Frame Rate: (Frames/sec) 60
36
1

Current: 2
Increment: 1
Number of steps: 4
 Bounce

Ready Subcase 2 - Static Static Analysis 1

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forcp.mvw - HyperWorks v9.0

File Edit View Page Applications Graphics Tools Utilities Help

Project: HyperView

Components

Entities: Global, Elements: 4

Analysis Results 1 of 1

Result: C:/Temp/PuneEducationSeminar_15Oct08/SampleFiles/forcp.h3d
Subcase 2 - Static: Static Analysis
Frame 2

Contour Plot
Element Stresses (2D & 3D)(vonMises, Max)
Analysis system

9.173E+03
8.154E+03
7.136E+03
6.117E+03
5.099E+03
4.080E+03
3.062E+03
2.043E+03
1.025E+03
6.391E+00
No result

Max = 9.173E+03 (2D 505)
Min = 6.391E+00 (2D 1735)

Click box (80, 200) (X: 450, Y: 100)

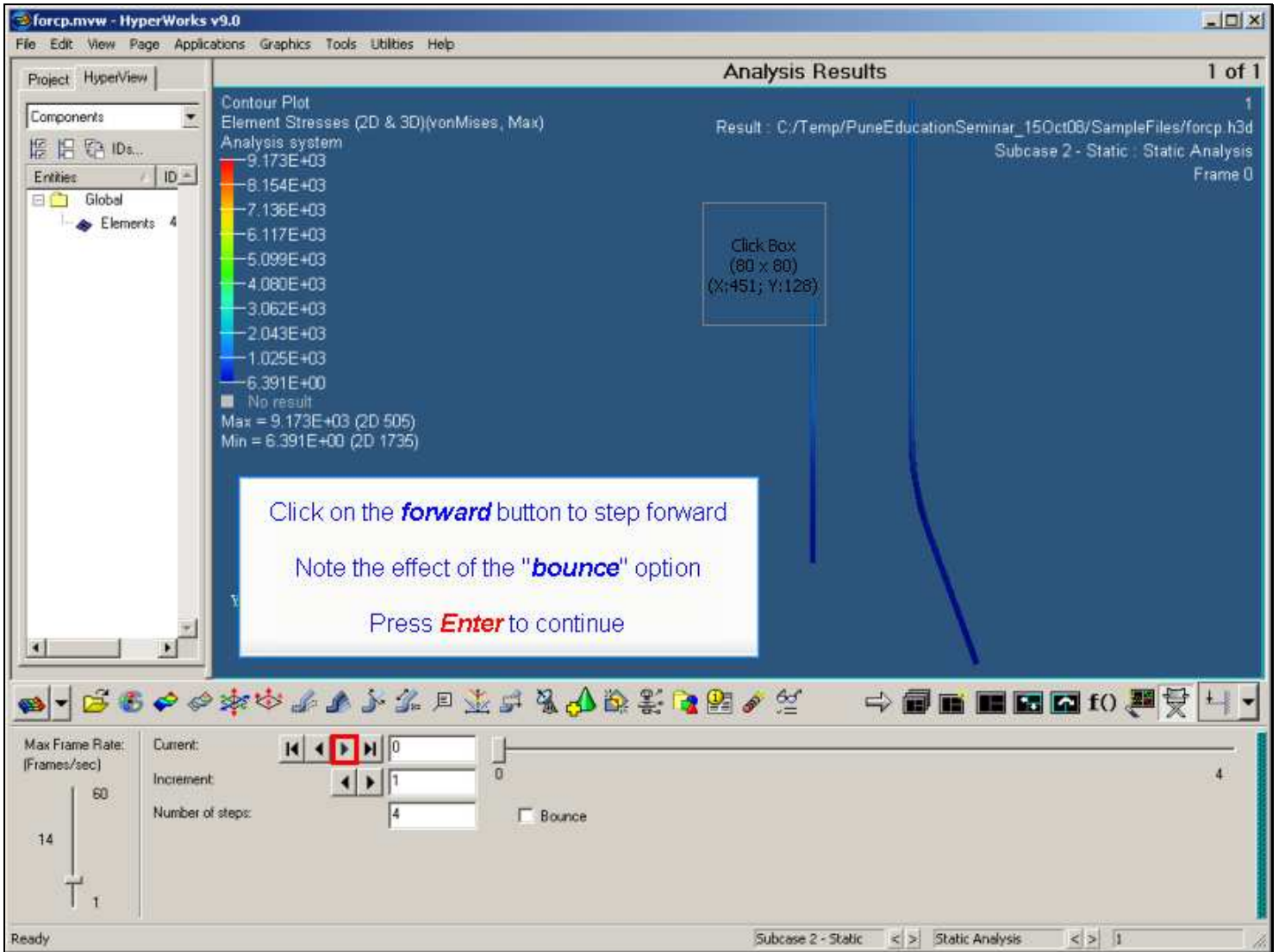
The frames can also be controlled individually - click on the **rewind** button to go to the first frame

Press **Enter** to continue

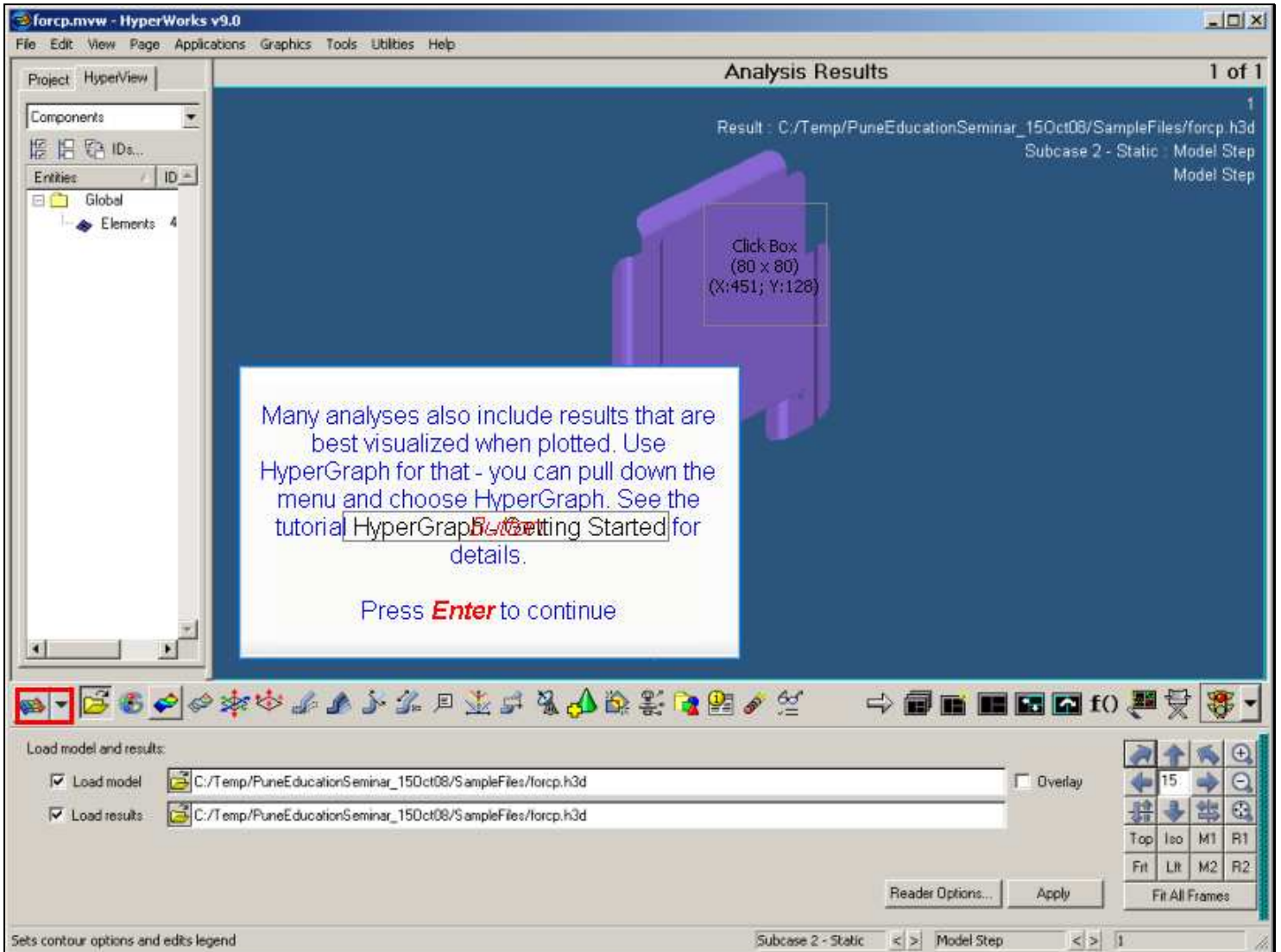
Max Frame Rate: (Frames/sec) 60
Current: 2
Increment: 1
Number of steps: 4
 Bounce

Ready Subcase 2 - Static Static Analysis 1

Slide 30 - Slide 30



Slide 31 - Slide 31



Slide 32 - Slide 32

More tutorials



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Exit

