

Distance between 2 models

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OctoNus Stereo Viewer 4.4.0.33 and higher now offers instrument for quality audit of reconstructed 3D models (meshes). You can find this instrument after opening two 3D models in single view (layer) and than simultaneously select two layers in the similarly named panel. On figure below you can see in rectangle area 1 two selected layers, and in area 2 "Comparison 3D models" panel (see *Figure 1*).

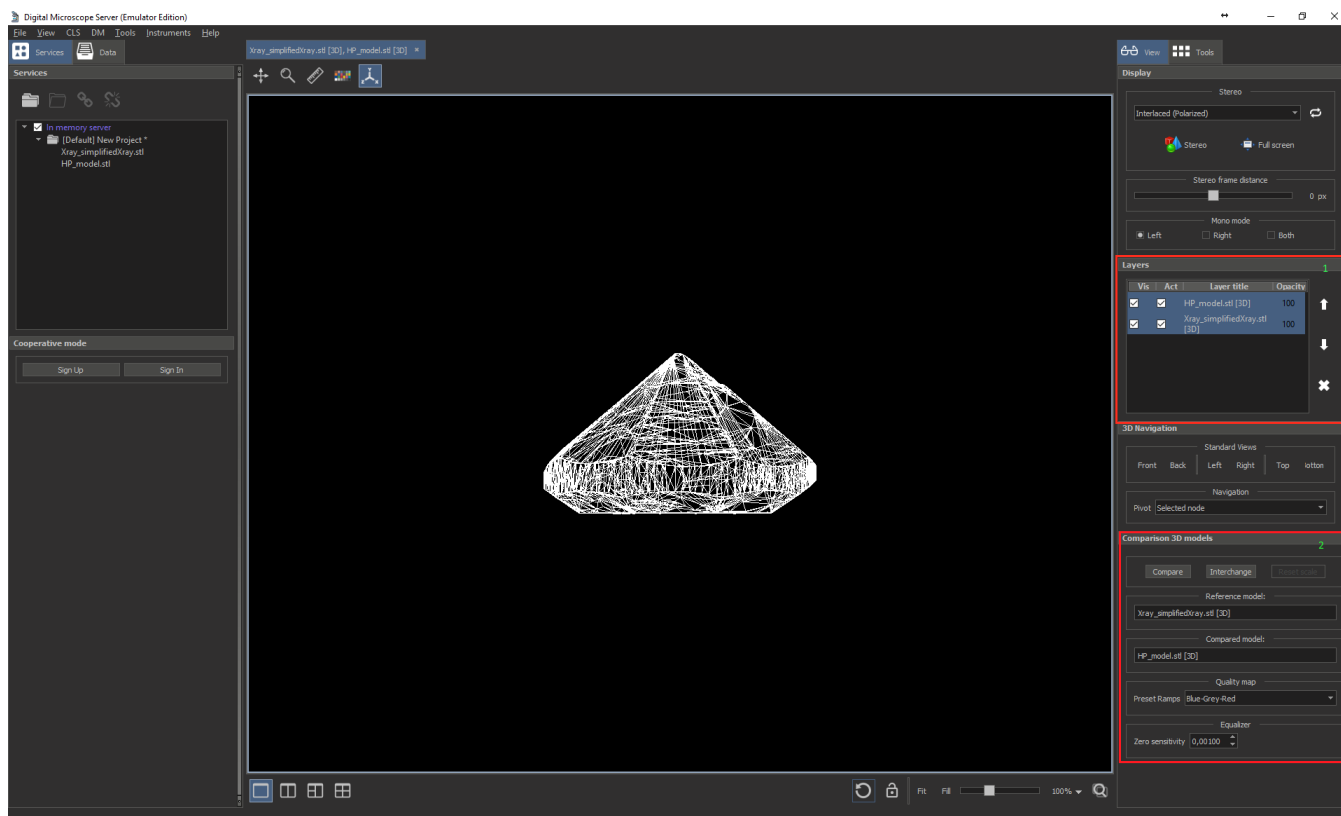
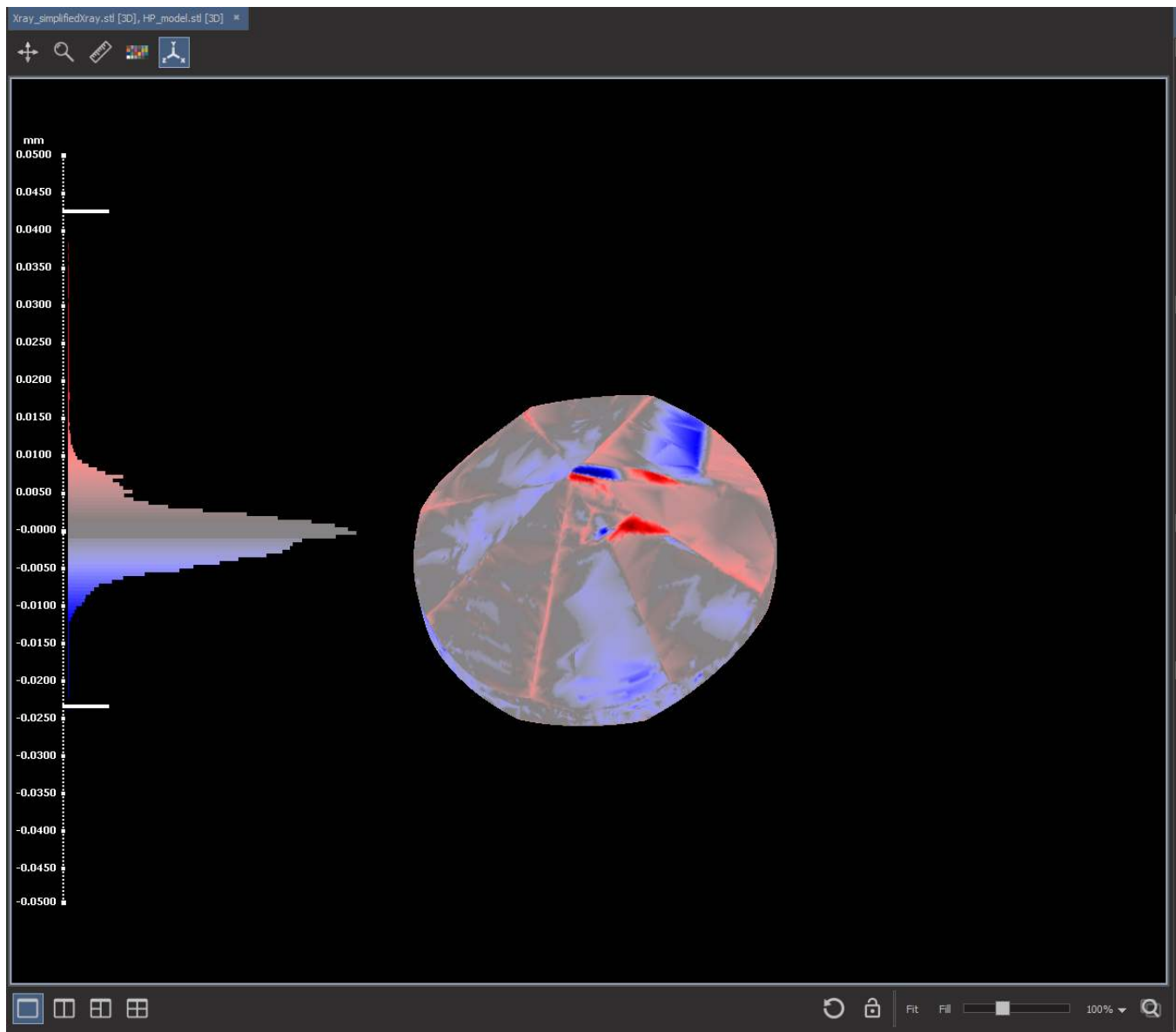


Figure 1. Active view with 2 selected layers

Models comparison

The comparison instrument computes the signed (per vertex) distance between a mesh and a reference mesh. In the box named "Compared model" there is the mesh that is measured, vertex by vertex, computing distance from the Reference model (mesh). You can change the compared model pressing the button "Interchange". To obtain the result of comparison you should press the button "Compare". On *Figure 2* you can see main view with visualization of comparison result.



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In this window the comparison instrument displays measure scale and colour mesh. The comparison result is divergences (distances) at every vertex of the model. Unit of measure is millimetre. Every divergence value maps into the colour chart. On the Figure 2 you can see "Blue-Grey-Red" colour chart. For example, value 0.001 mm maps into grey colour, -0.025 mm into dark blue, 0.043 mm into dark red.

Management of colour settings

To choose alternative colour palette, select desired item from "Preset Ramps" list in "Quality map" section (see *Figure 3*).

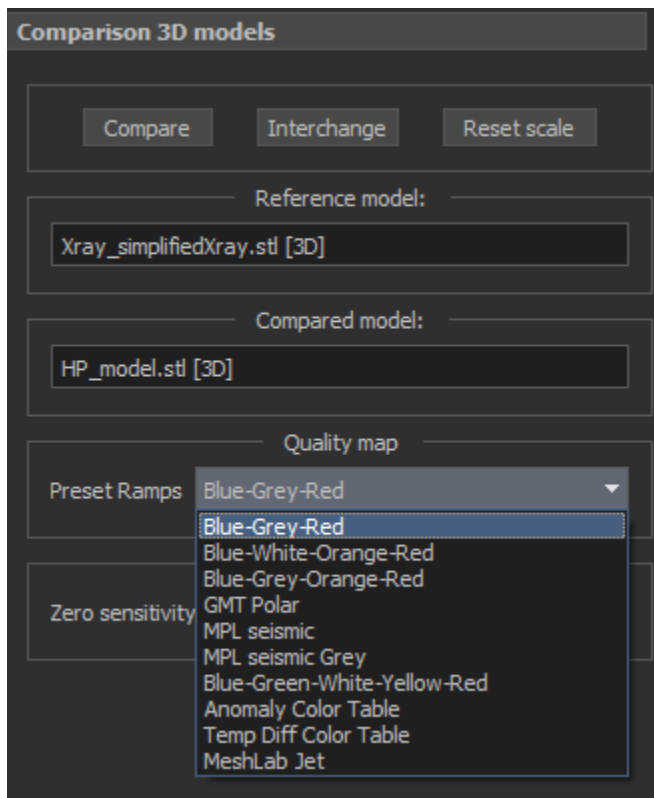


Figure 3. Colour chart preset selection.

Management of colour mapping

To ignore unimportant divergence (close to a zero) you can specify threshold in "Zero sensitivity" spin box (see Figure 4).

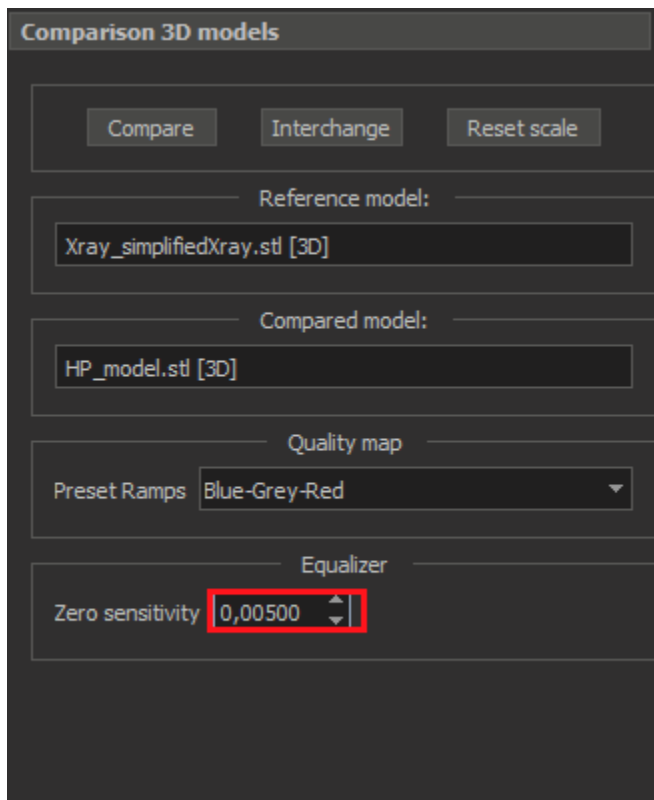


Figure 4. Setup unimportant distance range

For instance, you can see on Figure 5 comparison visualization in case zero sensitivity = 0.005 mm and "Blue-Grey-Red" colour chart.

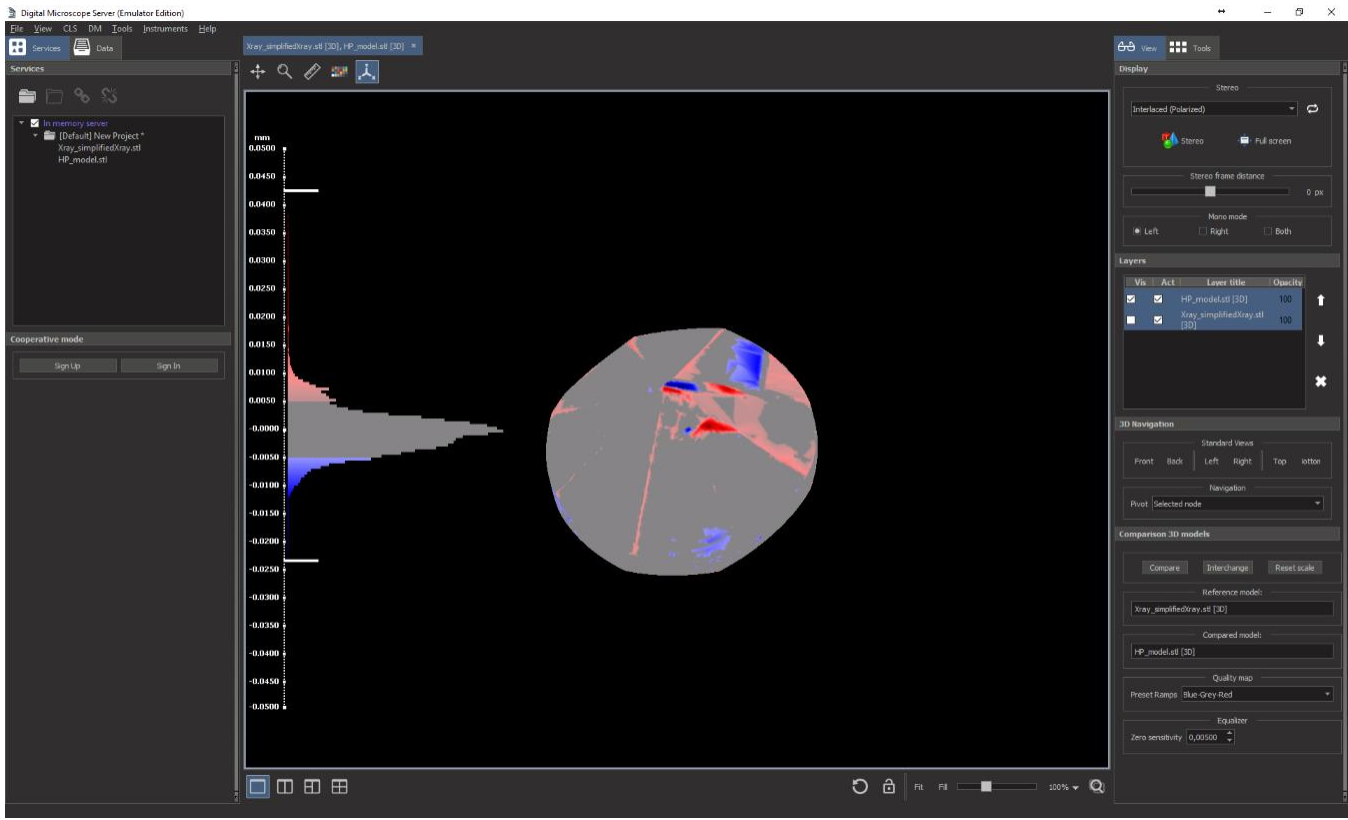


Figure 5 Example zero sensitivity set up to 0.005 mm

To emphasize difference for minimum or maximum distance you can change the distance scale with histogram. If you modify scale bounds colour mapping will be changed. By default the distance scale placed on the left part of view.

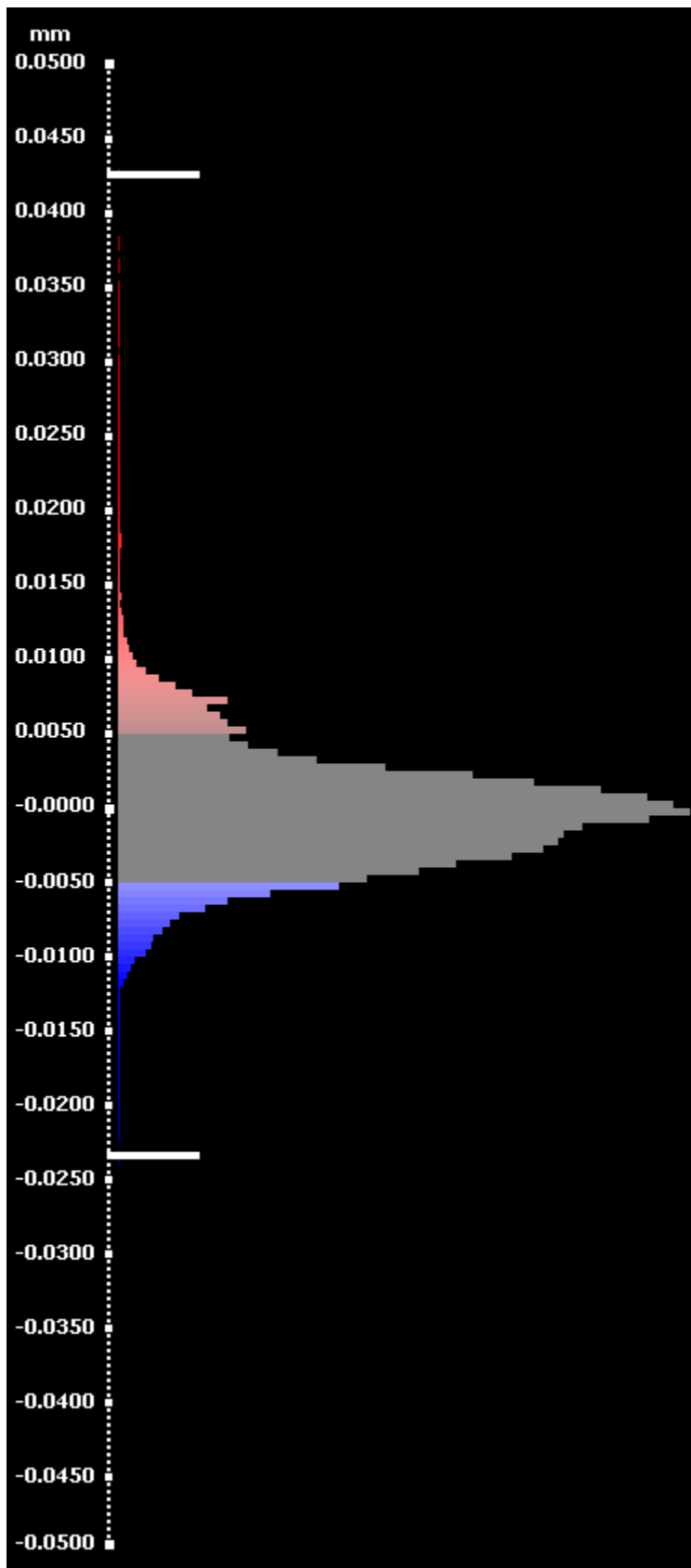


Figure 6 Distance scale with histogram

For example, to modify upper bound scale you should move mouse to white horizontal tick on the top of scale until the mouse cursor will be turned into



Next press the left mouse button and drag white scale tick to desired distance value. After the left mouse button release colour mapping will be recalculated. Also if new both the bounds is decreased more than 2 times relative to the previous values the distance scale will be expanded (see example on *Figure 7*).

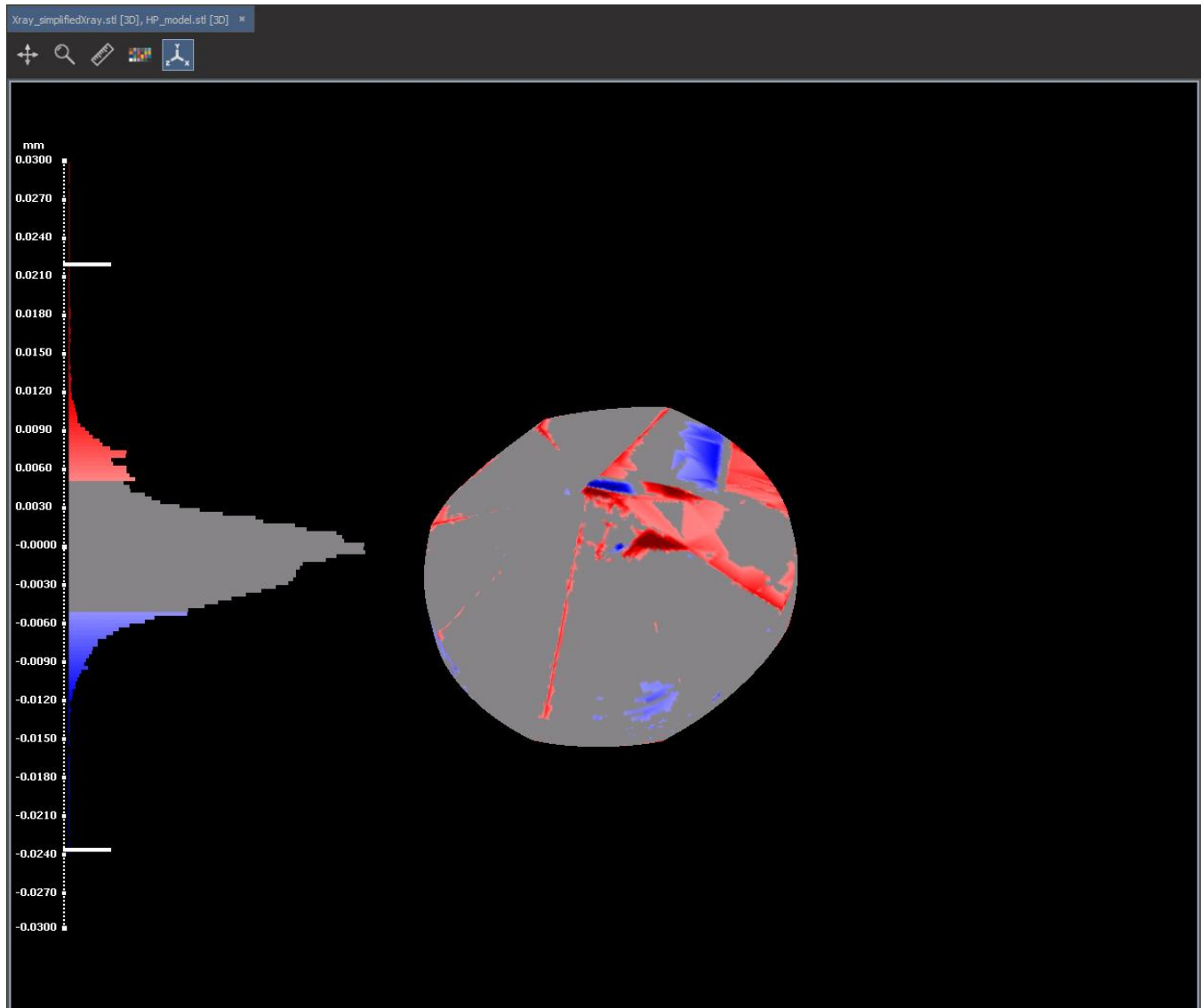


Figure 7 Expanded scale after upper bound decreasing

If you need to expand upper bound you should drag white tick to up. In case of low bound you should drag down tick. To restore origin scale bounds you can push the button "Reset scale" (see *Figure 3*). To simplify colour scale visualization you can use shortcut "**Ctrl-Q**". This shortcut switches scale visualization between histogram mode and line palette.

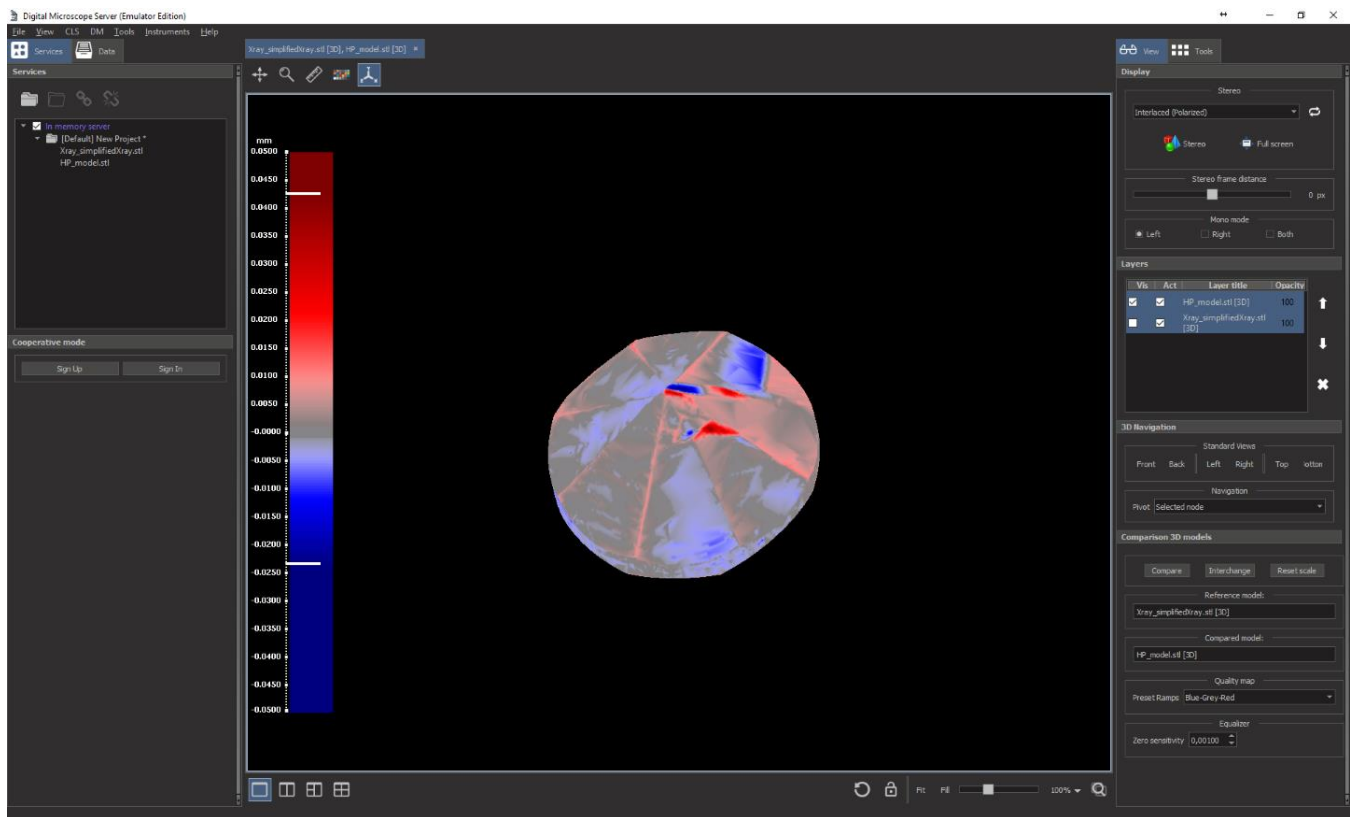


Figure 8 Line colour palette mode for distance scale

Additional features

You can use the next shortcuts and menus View Model Comparison:

Shortcut	Short name	Description
Ctrl-L	Align Left	Align scale with histogram on the left part of view
Ctrl-R	Align Right	Align scale with histogram on the right part of view
Ctrl-T	Align Top	Align scale with histogram on the top part of view
Ctrl-B	Align Bottom	Align scale with histogram on the bottom part of view
Ctrl-Q	Change scale mode	Changing scale visualization between histogram and line palette