- 1 -

Study of a temperature gradient metamorphism of snow from 3-D images: time evolution of microstructures, physical properties and their associated anisotropy.

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Auxiliary Materials

General Information

- 2 -

In the following, we provide the 3D visualizations of the seven images of snow samples used in our study. Images are cubic and have a size of 5.5 x 5.5 x 5.5 mm^3. For a better visualization of the facetted shapes, the images are presented "upside down": the top (respectively, the base) of the images corresponds to the lowest (highest) and warmest (coolest) side of the physical sample.The arrows in blue, green and red correspond to the x-, y- and z-directions of the images, respectively, z being along the direction of gravity. The color code is defined as follows:

- **Figures 1.a – 7.a:** Colors represent **the mean curvature** of surfaces ranging from +36 and -36 mm^{-1} such as the convexities, flat shapes and concavities are shown in red, yellow and green, respectively.

- **Figures 1.b – 7.b:** Colors and represent **the Gaussian curvature** of surfaces ranging from +781 and -781 mm^{-2}, such as the dome-shaped (concave or convex), flat or cylindrical and saddle-shaped surfaces are shown in red, yellow and green, respectively.

Sample *0A* – Rounded Grains (RG)
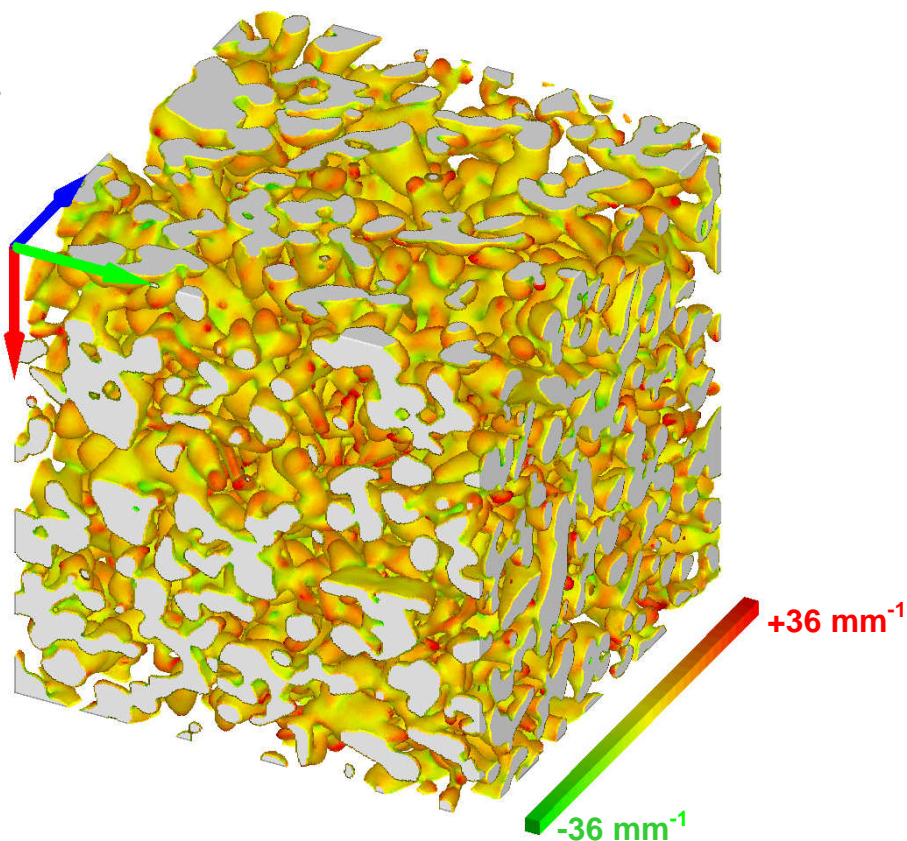
0 hour under
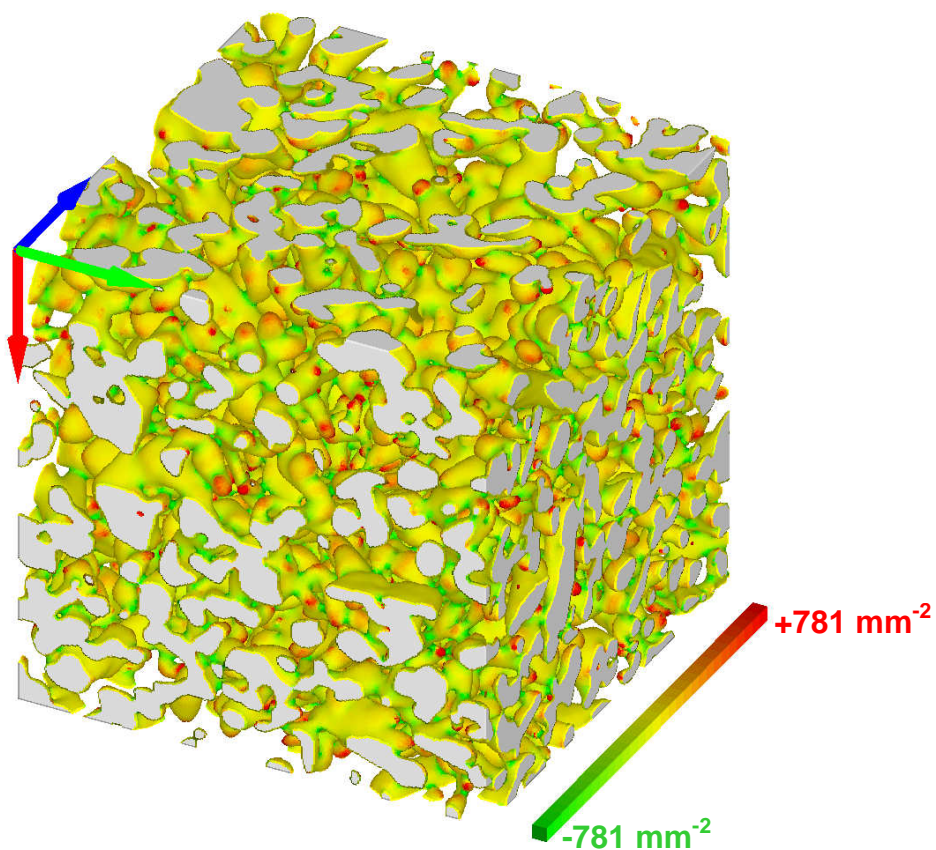temperature gradient.

Figure 1.a: Mean curvature.

Figure 1.b: Gaussian curvature.

Sample 1*A* – Rounded Grains (RG)
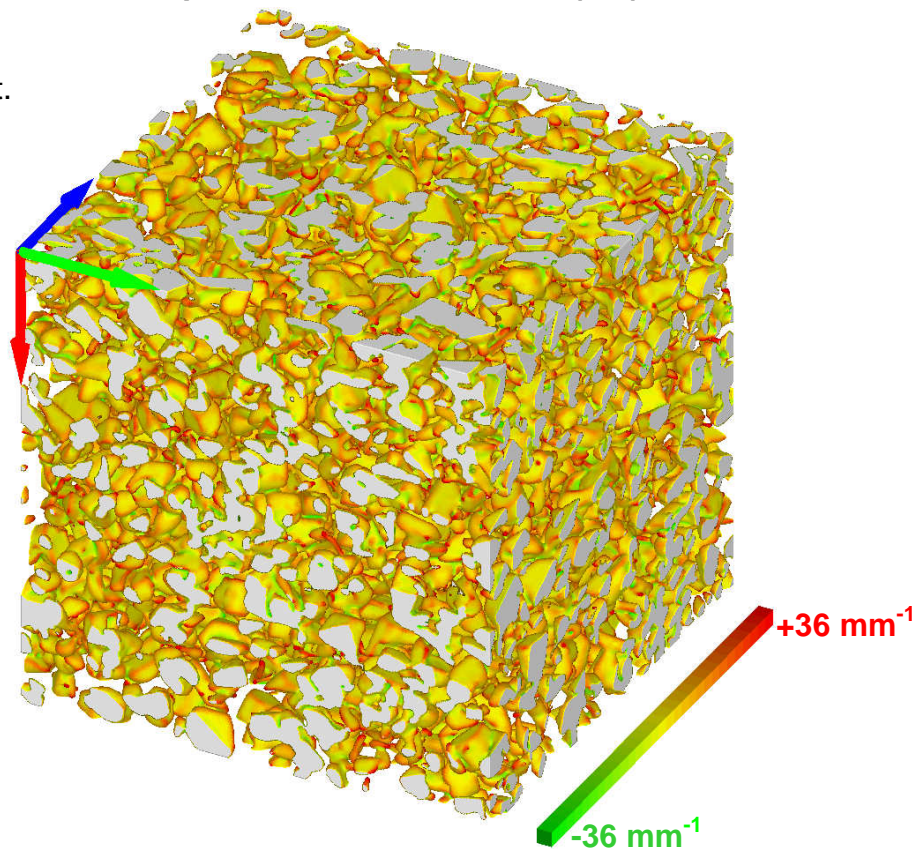
73 hours under
temperature gradient.

+36 mm^{-1}

-36 mm^{-1}

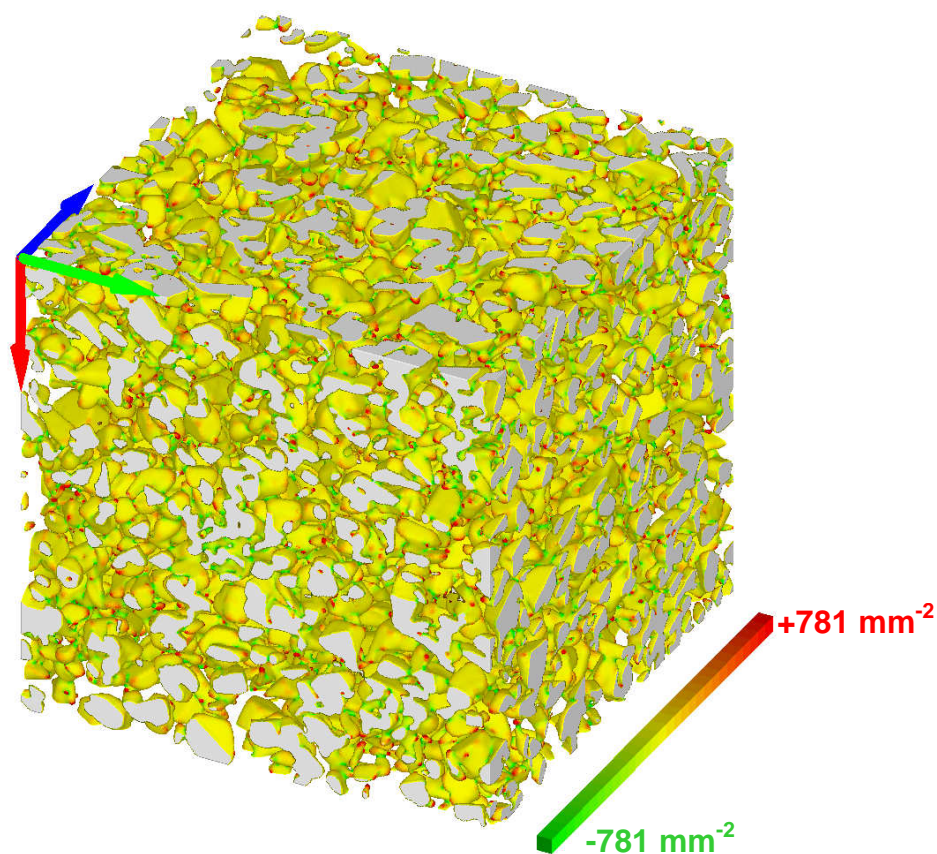**Figure 2.a: Mean curvature.**

+781 mm^{-2}

-781 mm^{-2}

Figure 2.b: Gaussian curvature.

Sample 2*A* – Facetted Crystals (FC)

144 hours under
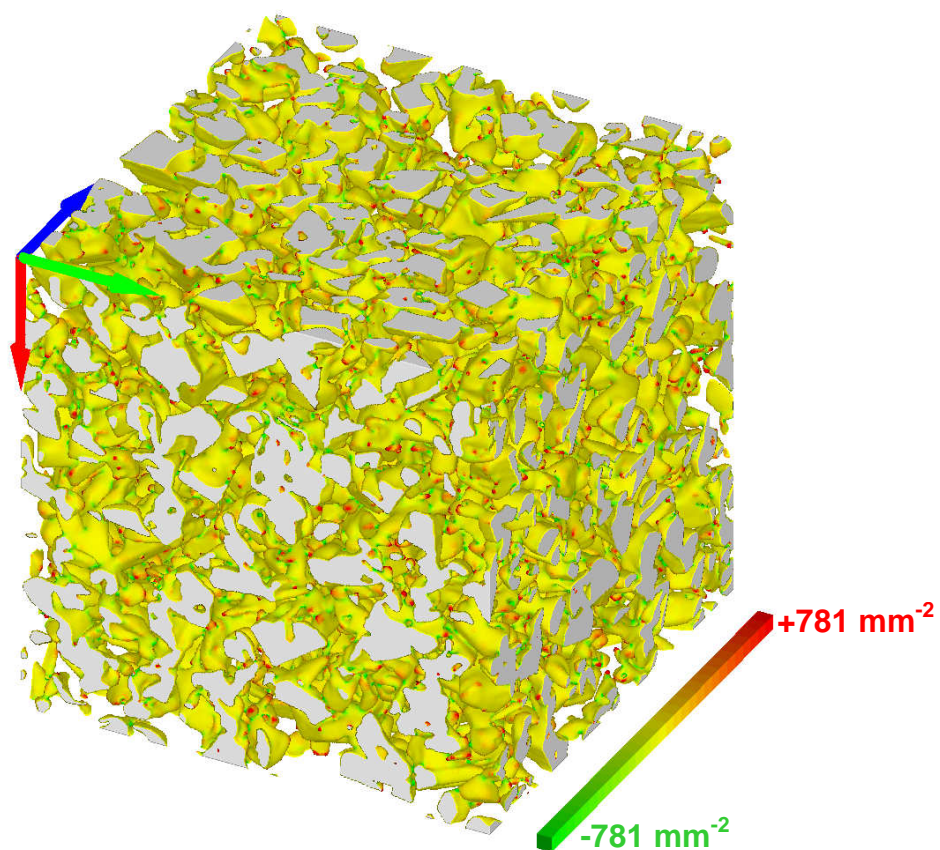temperature gradient.
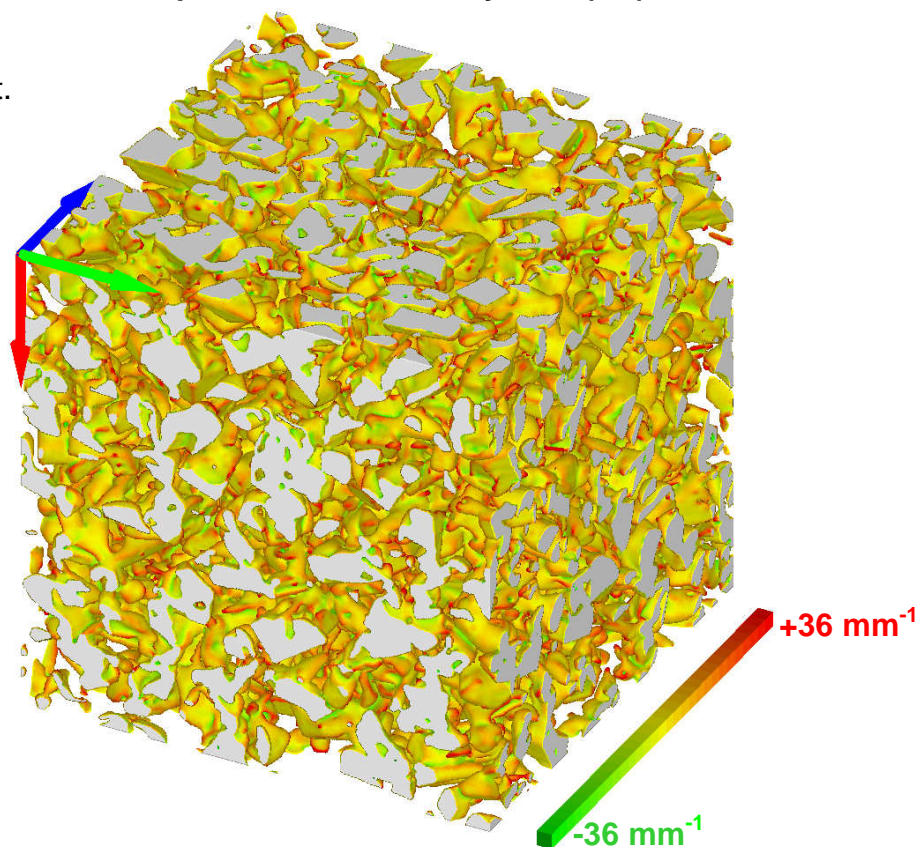
Figure 3.a: Mean curvature.

Figure 3.b: Gaussian curvature.

Sample 3*A* – Depth Hoar (DH)

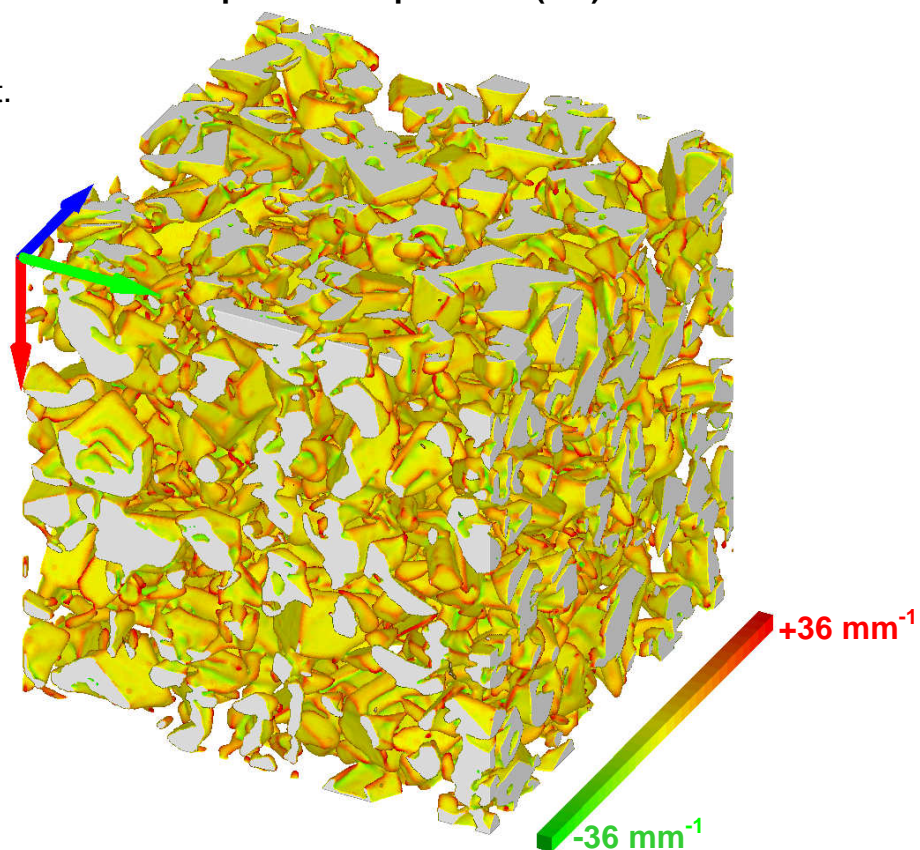217 hours under temperature gradient.

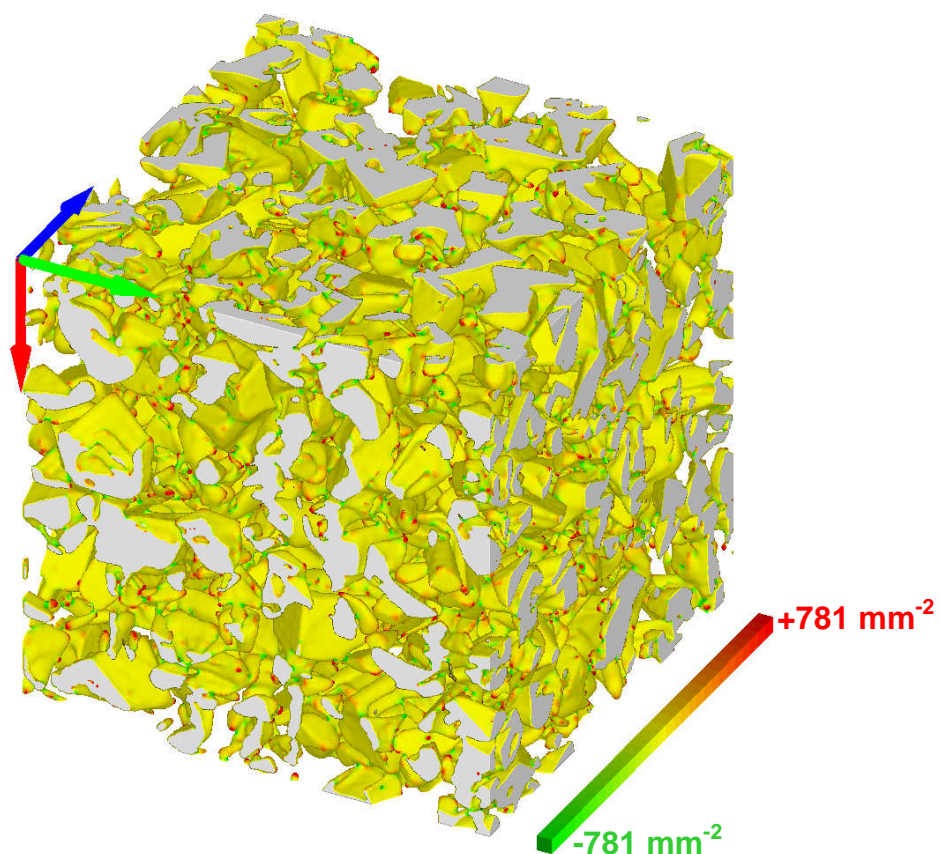Figure 4.a: Mean curvature.

Figure 4.b: Gaussian curvature.

Sample 4*A* – Depth Hoar (DH)
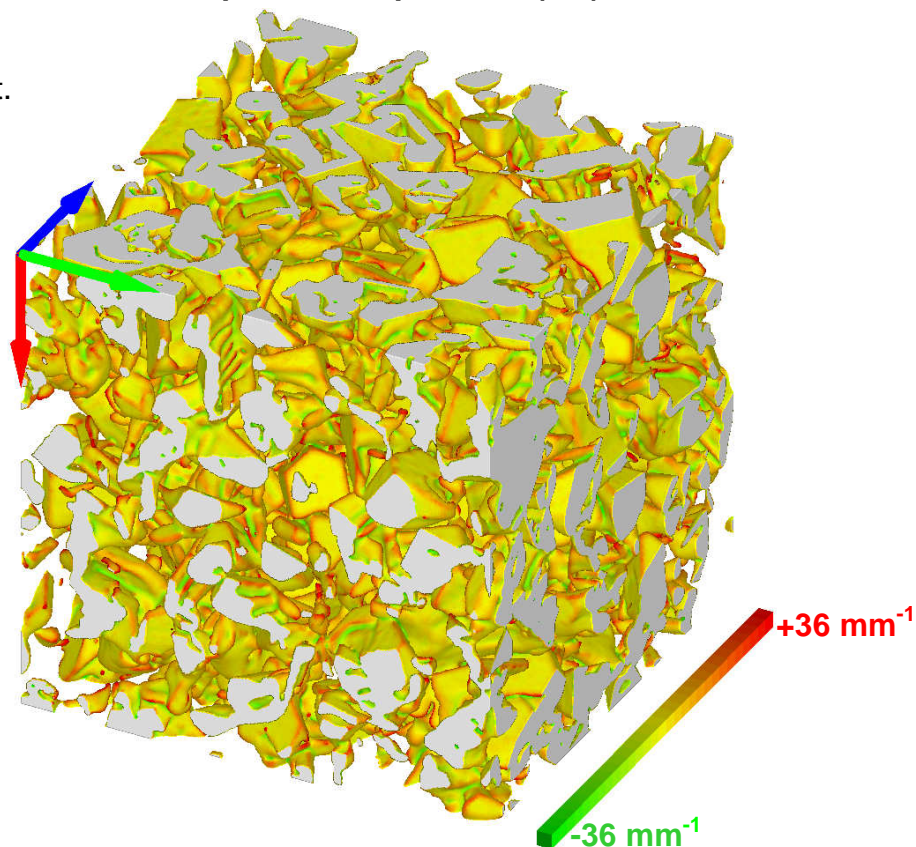
313 hours under temperature gradient.
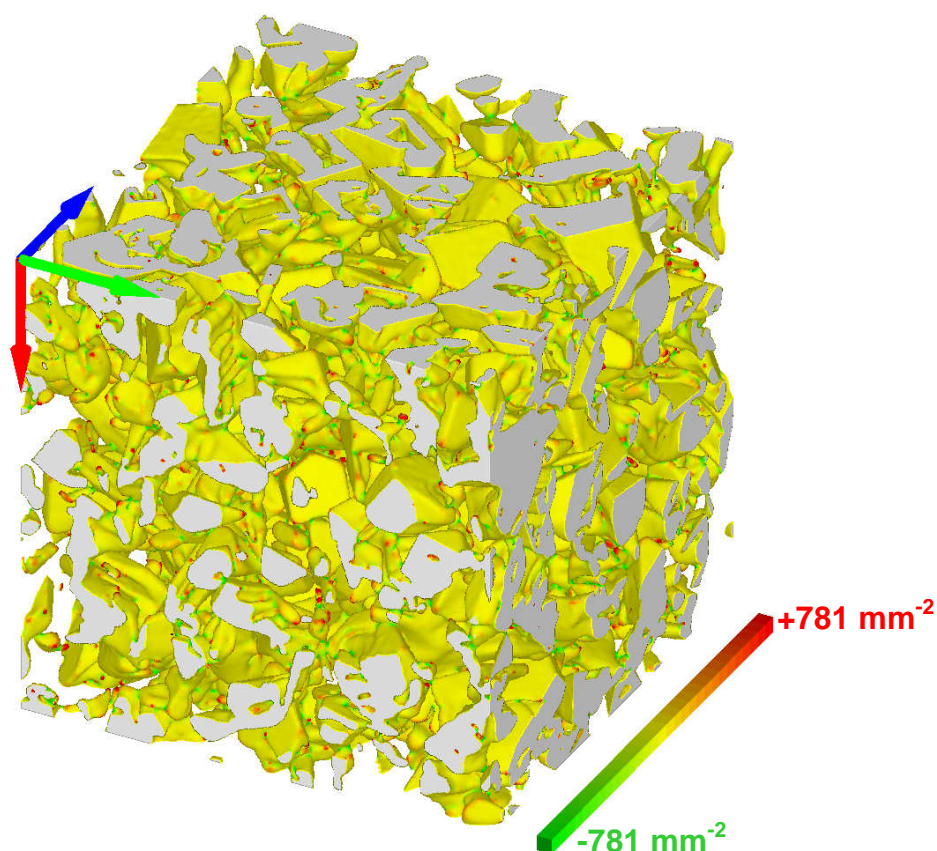

Figure 5.a: Mean curvature.

Figure 5.b: Gaussian curvature.

Sample 5G – Depth Hoar (DH)
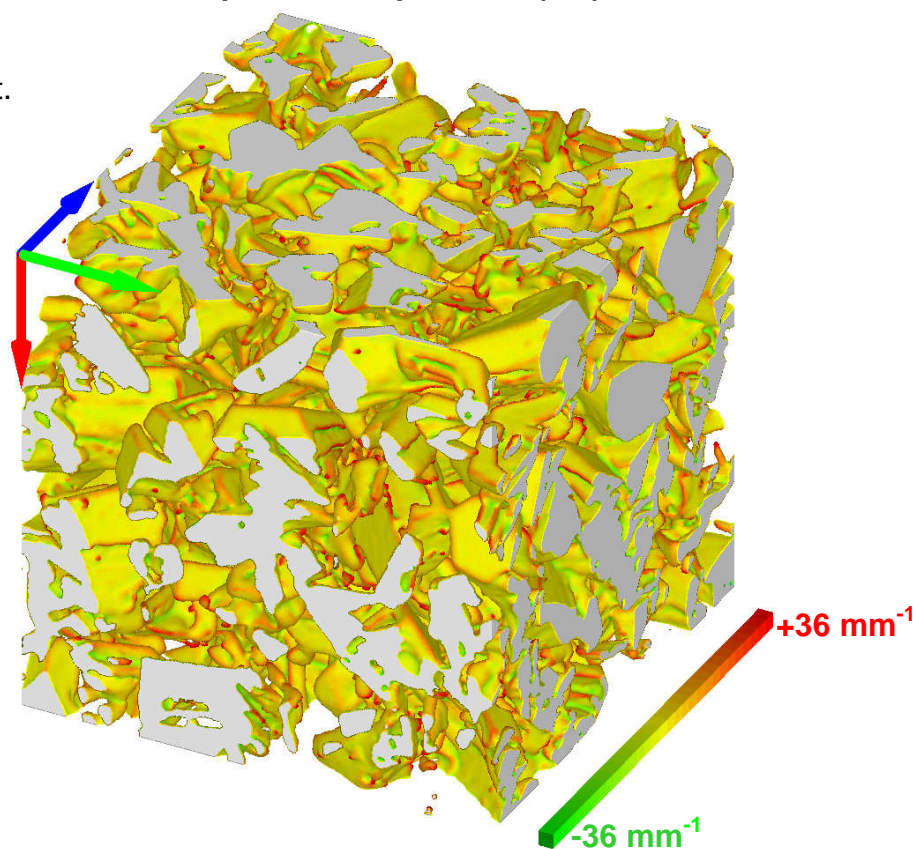
409 hours under temperature gradient.
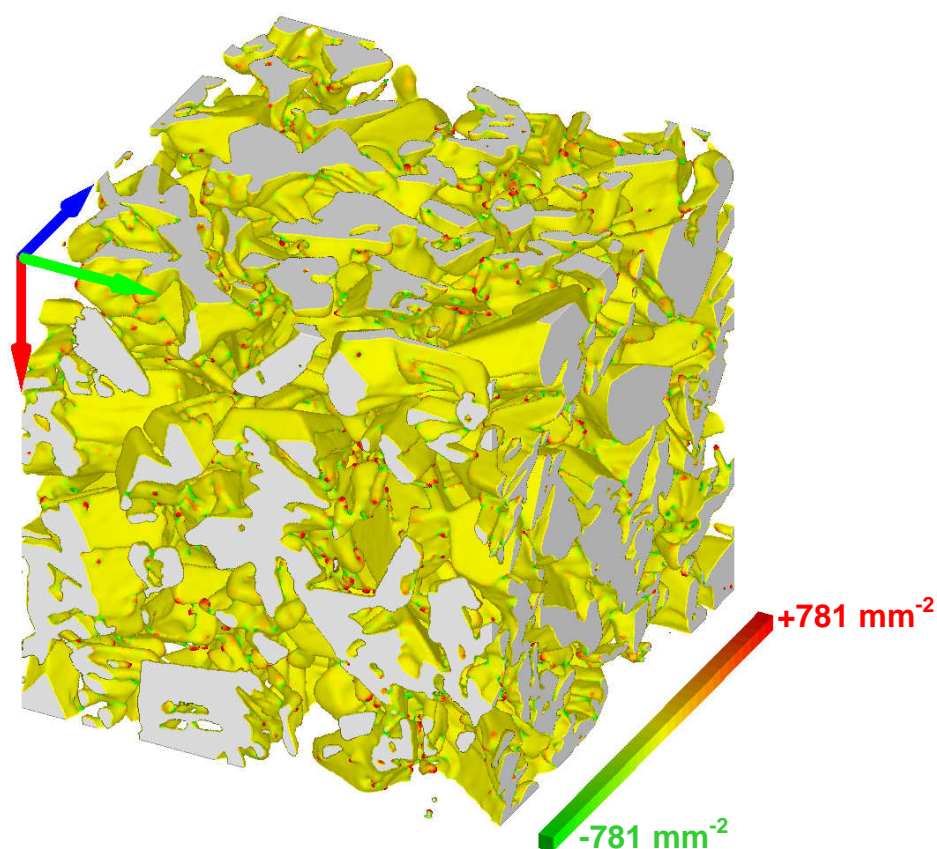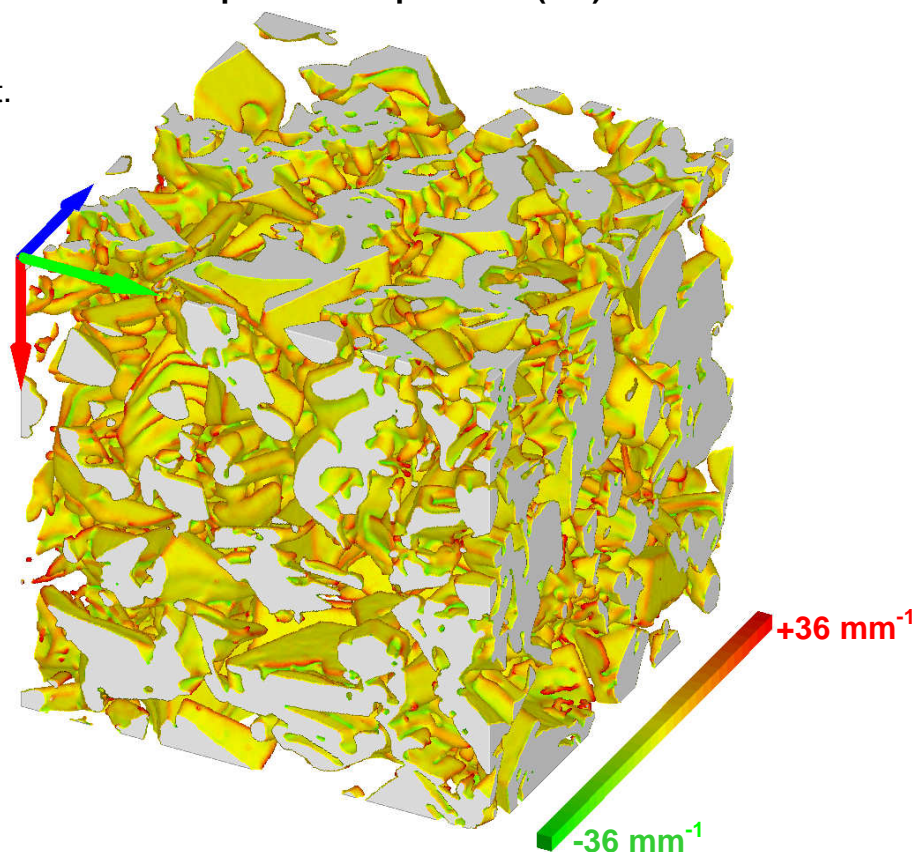

Figure 6.a: Mean curvature.

Figure 6.b: Gaussian curvature.

Sample 7G – Depth Hoar (DH)

500 hours under temperature gradient.

+36 mm^{-1}
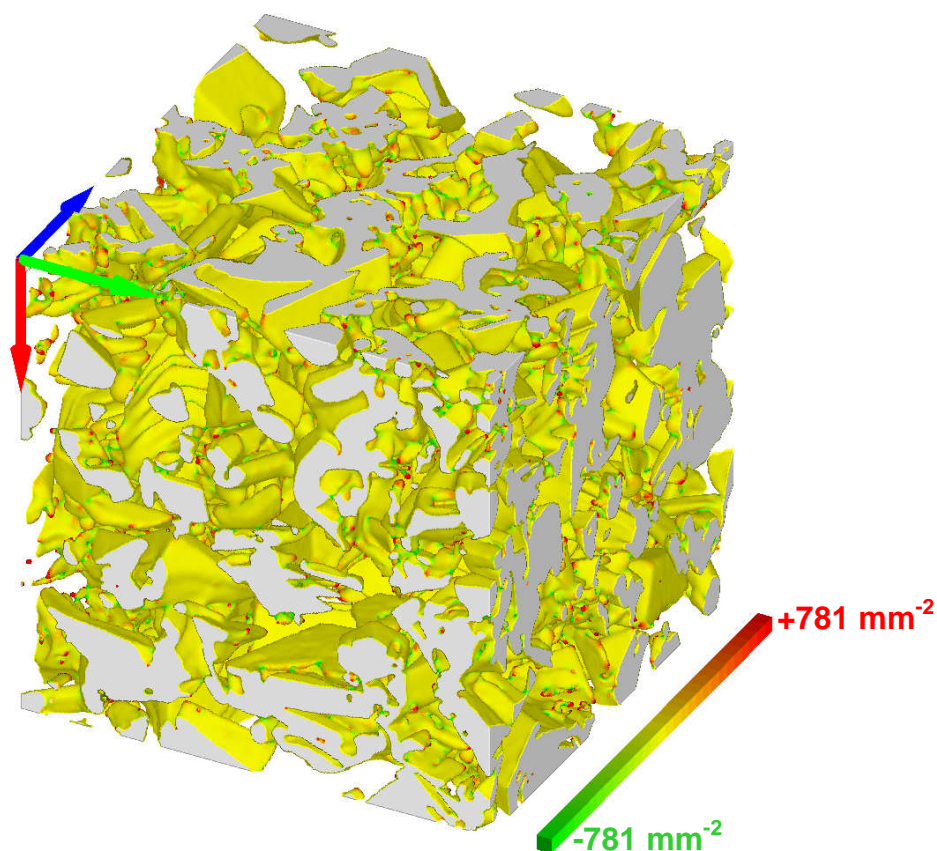
−36 mm^{-1}

Figure 7.a: Mean curvature.

+781 mm^{-2}

−781 mm^{-2}

Figure 7.b: Gaussian curvature.