Quantitative Analysis of Pore Space Structure in Dry and Wet Soil by Integral Geometry Methods

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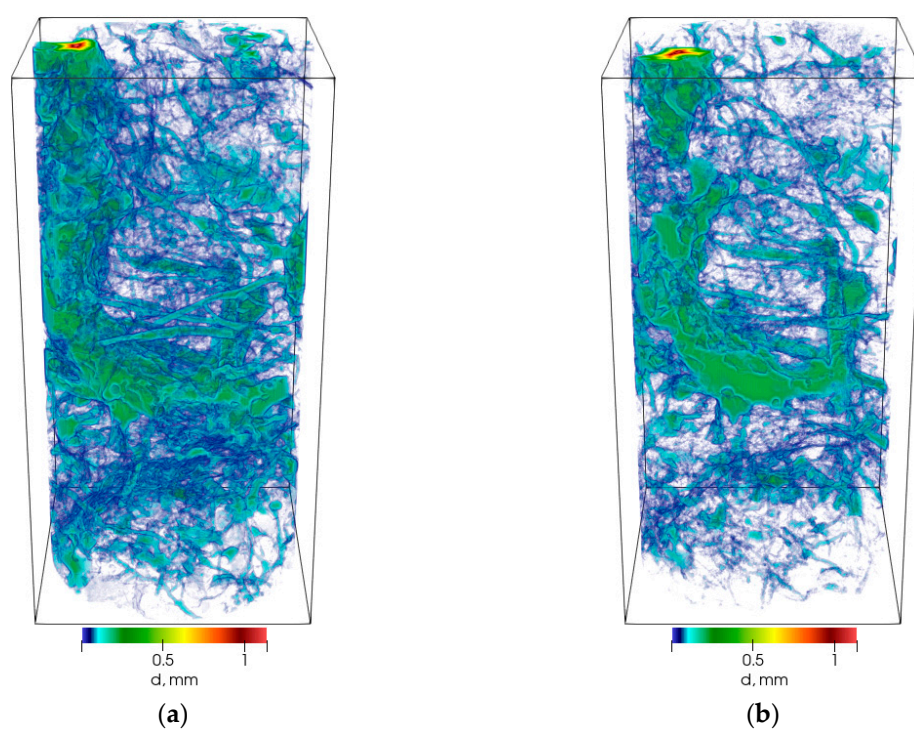***** Correspondence: ivonin.dmitriy@physics.msu.ru (D.I.)
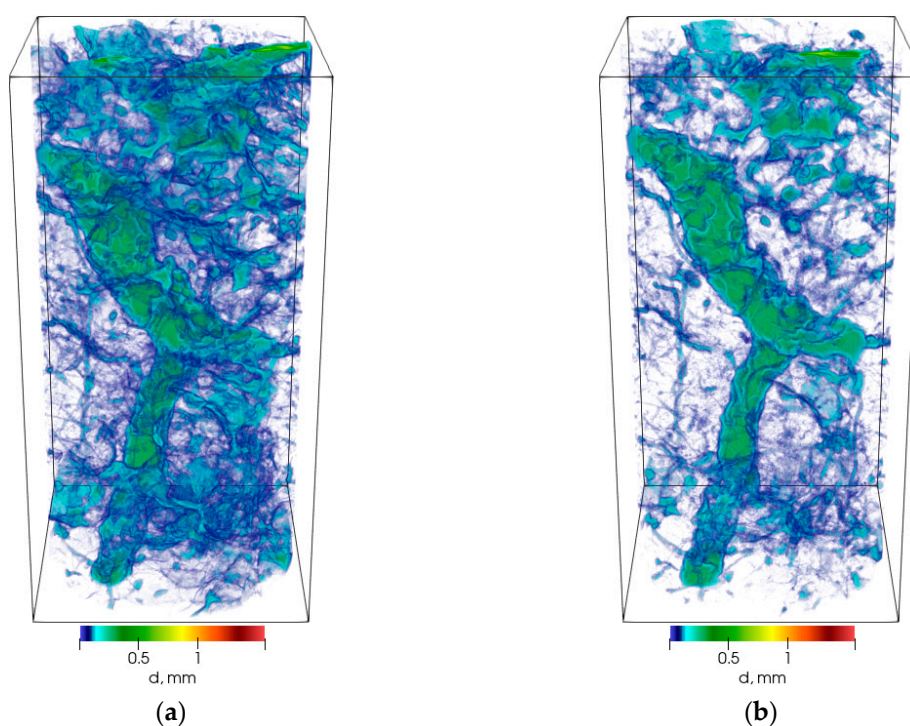
Figure S1. Void visualization of a sample which was taken from 0–10 cm depth from the Arable horizon: (a) in dry condition; (b) in moisture–saturated condition. The Euclidean distance to the solid phase is illustrated in color.
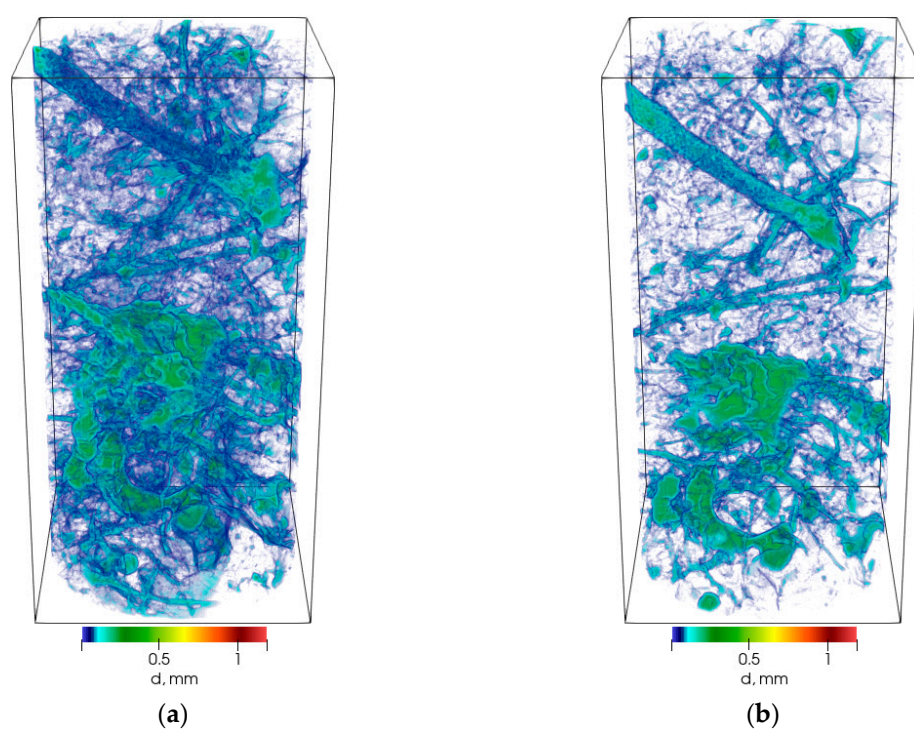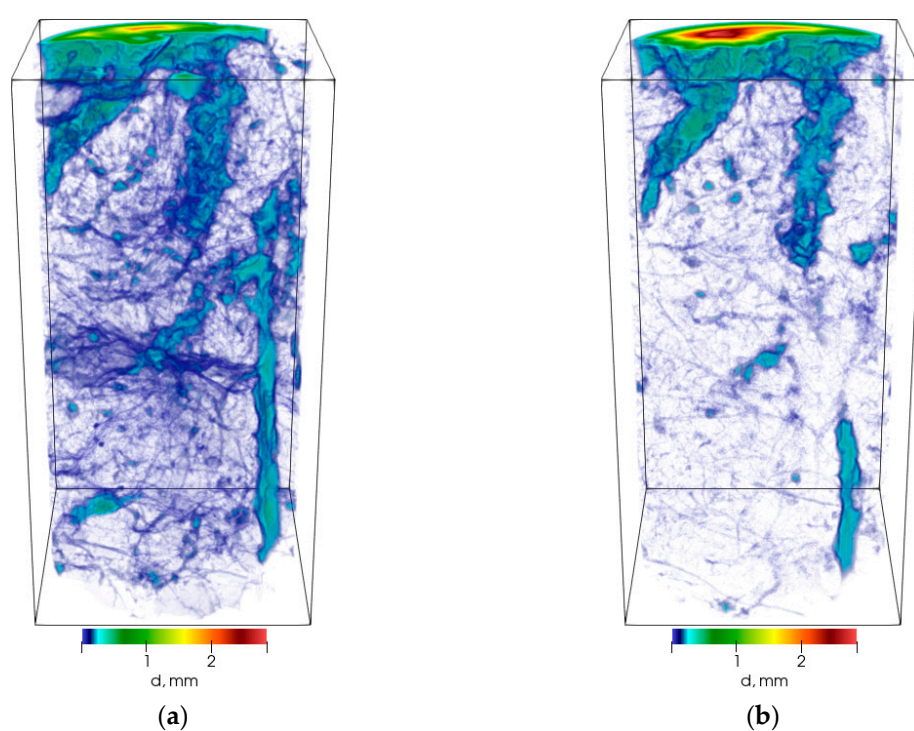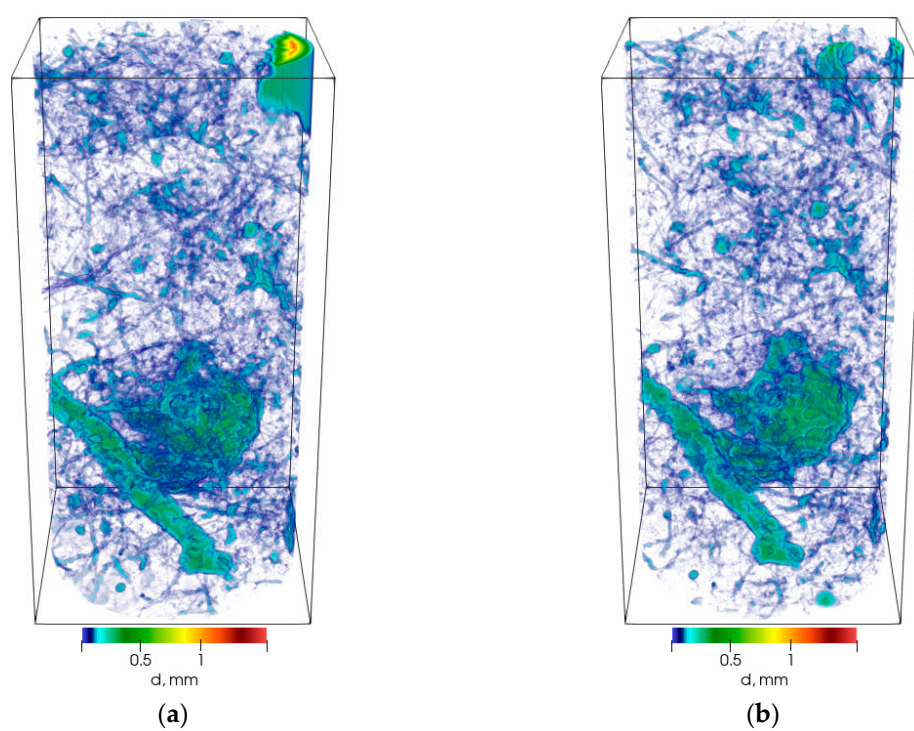
Figure S2. Void visualization of a sample which was taken from 0–10 cm depth from the Arable horizon: (a) in dry condition; (b) in moisture–saturated condition.

Figure S3. Void visualization of a sample which was taken from 0–10 cm depth from the Arable horizon: (a) in dry condition; (b) in moisture–saturated condition.

Figure S4. Void visualization of a sample which was taken from 10–20 cm depth from the Arable horizon: (a) in dry condition; (b) in moisture–saturated condition.
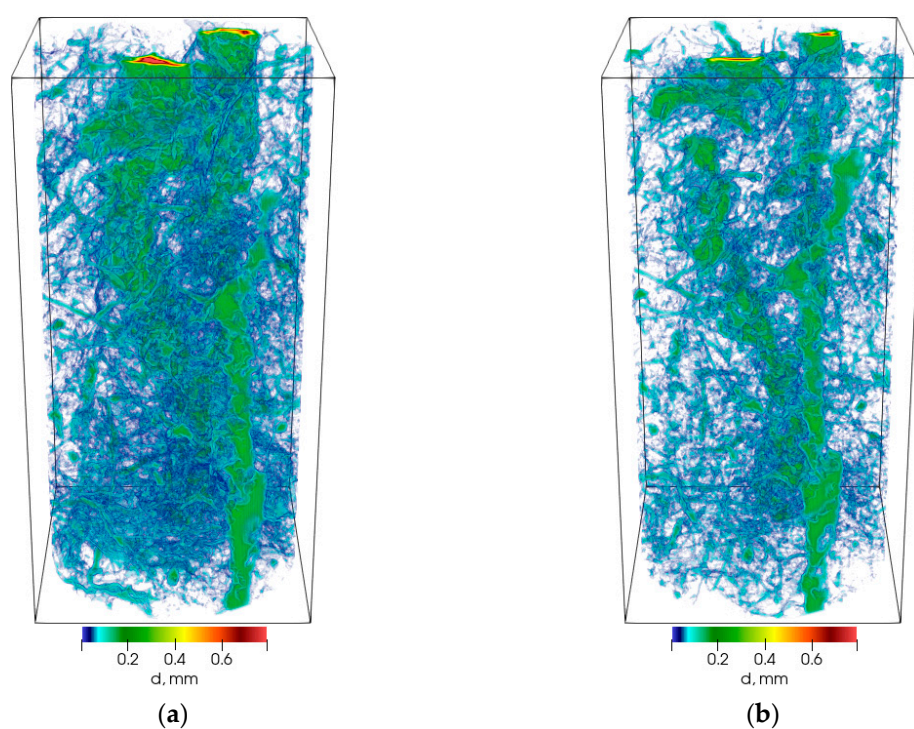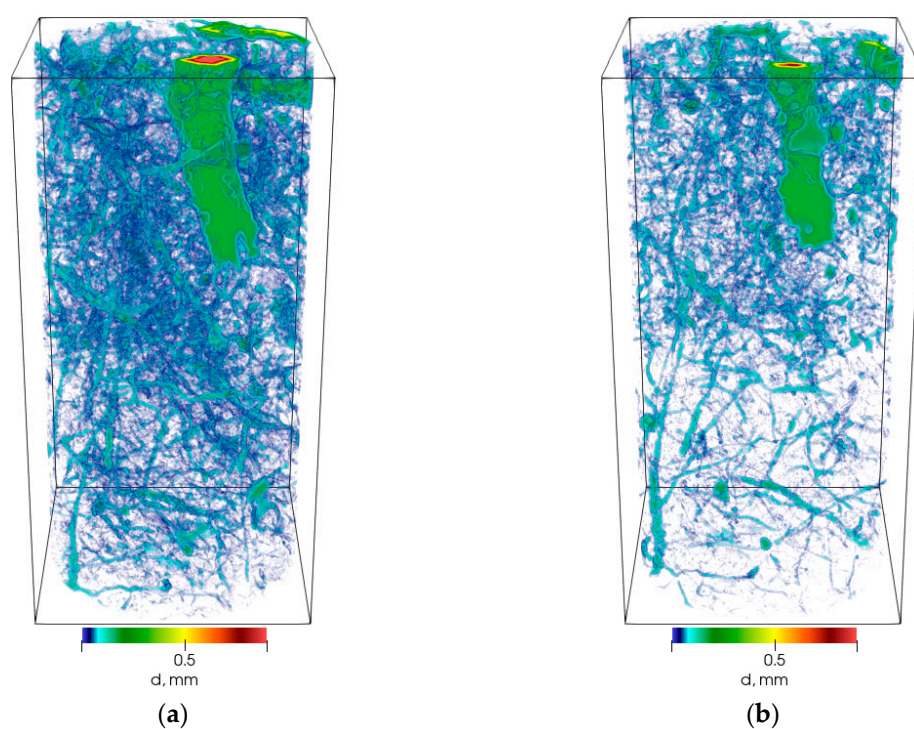

Figure S5. Void visualization of a sample which was taken from 10–20 cm depth from the Arable horizon: (a) in dry condition; (b) in moisture–saturated condition.

Figure S6. Void visualization of a sample which was taken from 20–30 cm depth from the A2 horizon: (a) in dry condition; (b) in moisture–saturated condition.

Figure S7. Void visualization of a sample which was taken from 20–30 cm depth from the A2 horizon: (a) in dry condition; (b) in moisture–saturated condition.

(**a**)   (**b**)

Figure S8. Void visualization of a sample which was taken from 30–40 cm depth from the A2 horizon: (a) in dry condition; (b) in moisture–saturated condition.

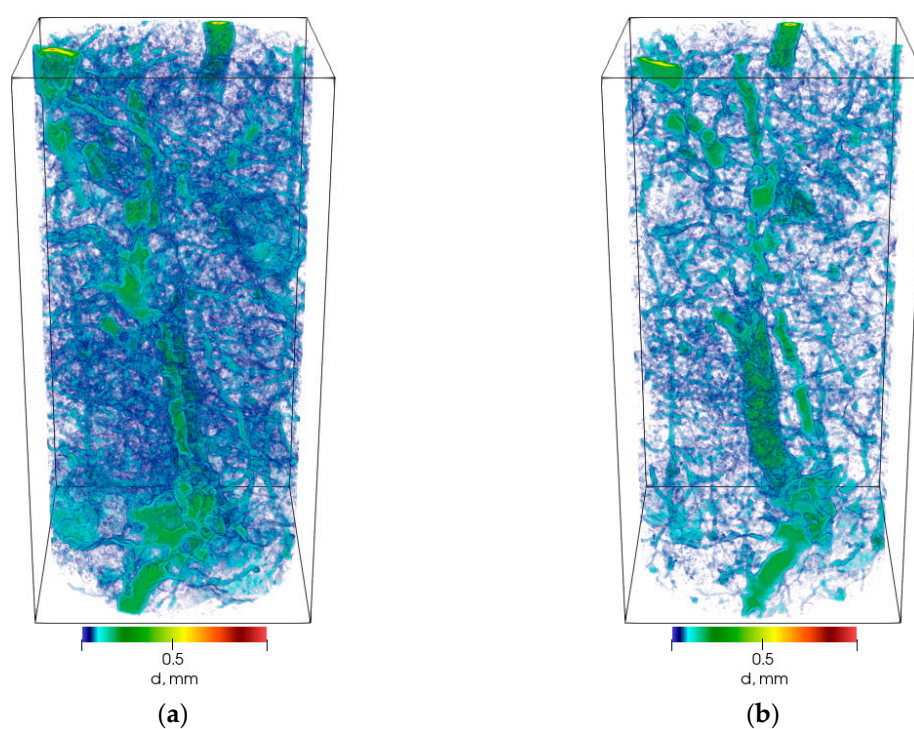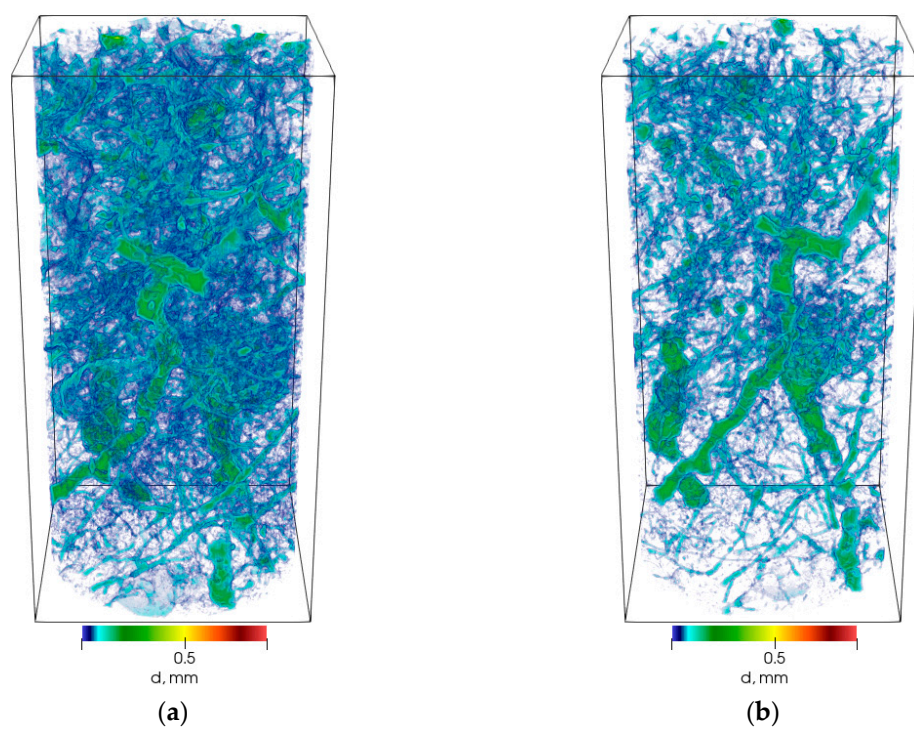(**a**)   (**b**)

Figure S9. Void visualization of a sample which was taken from 30–40 cm depth from the A2 horizon: (a) in dry condition; (b) in moisture–saturated condition.

(**a**)

(**b**)

Figure S10. Void visualization of a sample which was taken from 40–50 cm depth from the AB horizon: (a) in dry condition; (b) in moisture–saturated condition.
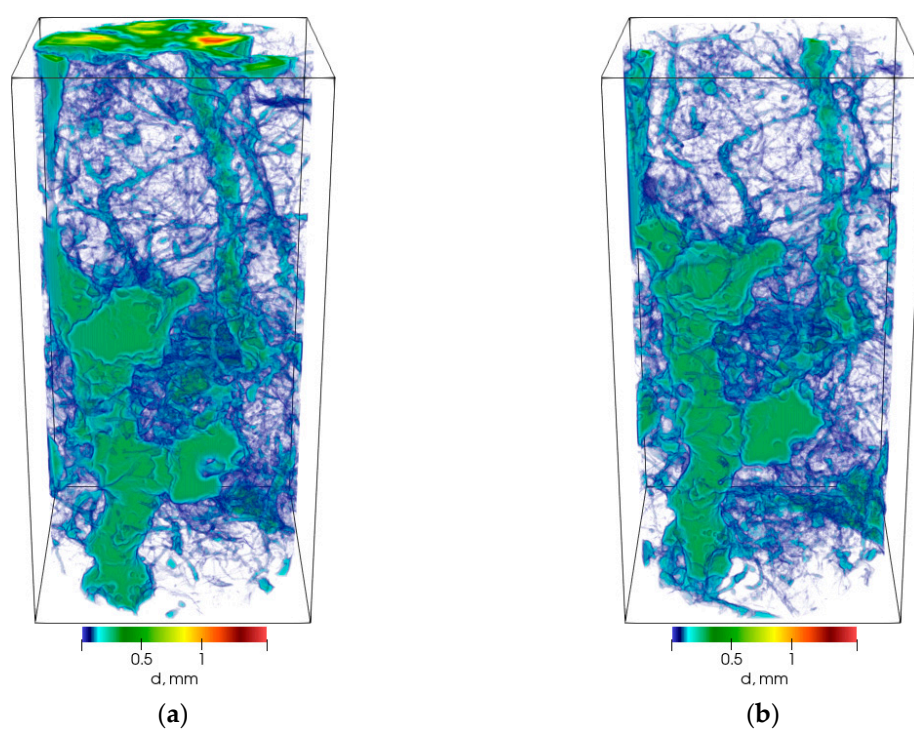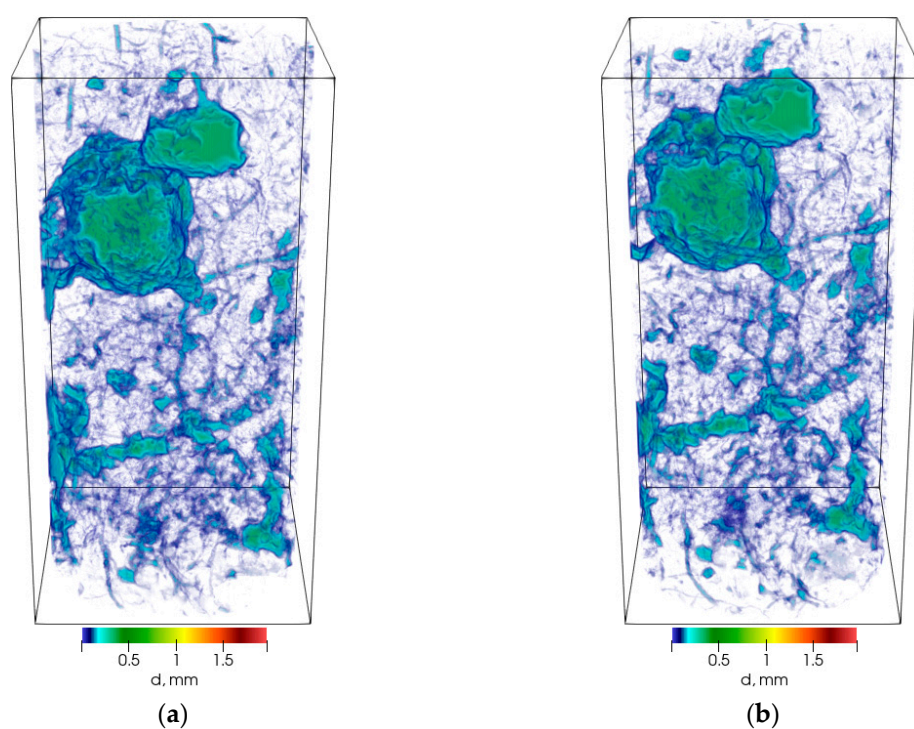

(**a**)

(**b**)

Figure S11. Void visualization of a sample which was taken from 80–90 cm depth from the B2 horizon: (a) in dry condition; (b) in moisture–saturated condition.
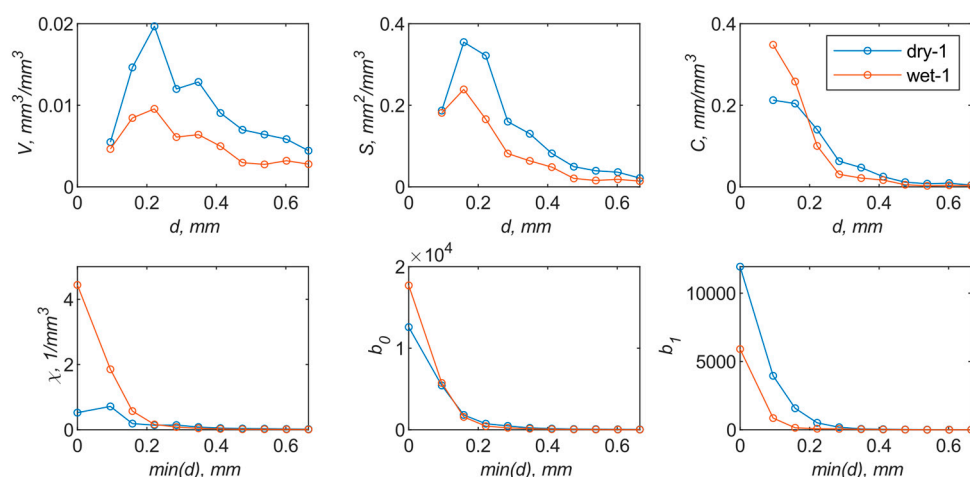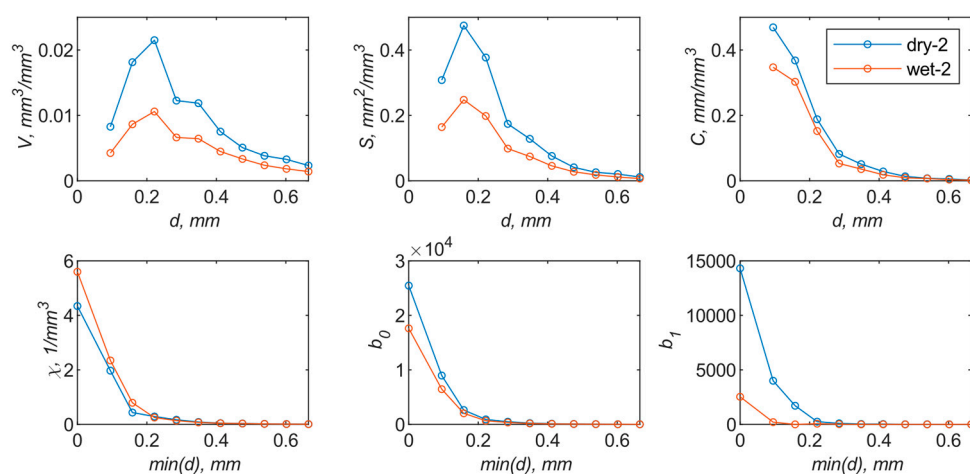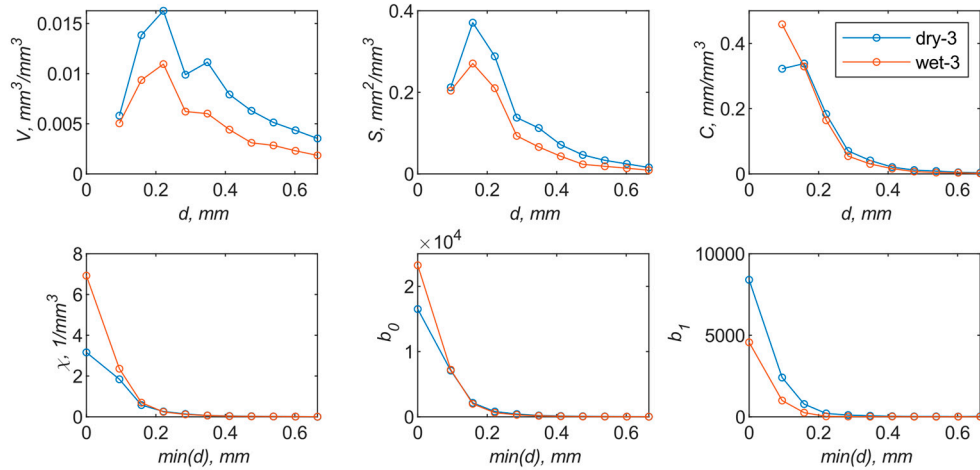
Figure S12. Distribution of pore characteristics as a function of pore sizes for a sample from Arable horizon in the 0–10 cm depth in a dry condition (blue color) and in wet condition (red color). The values V, S, C are represented by non–cumulative pores sizes distribution, whereas χ, b_0, b_1 values are presented versus the minimum pore diameter. The minimum pore diameter corresponds to the diameter of the spherical structural unit used for morphological opening.

Figure S13. Distribution of pore characteristics as a function of pore sizes for a sample from Arable horizon in the 0–10 cm depth in a dry condition (blue color) and in wet condition (red color). The values V, S, C are represented by non–cumulative pores sizes distribution, whereas χ, b_0, b_1 values are presented versus the minimum pore diameter. The minimum pore diameter corresponds to the diameter of the spherical structural unit used for morphological opening.
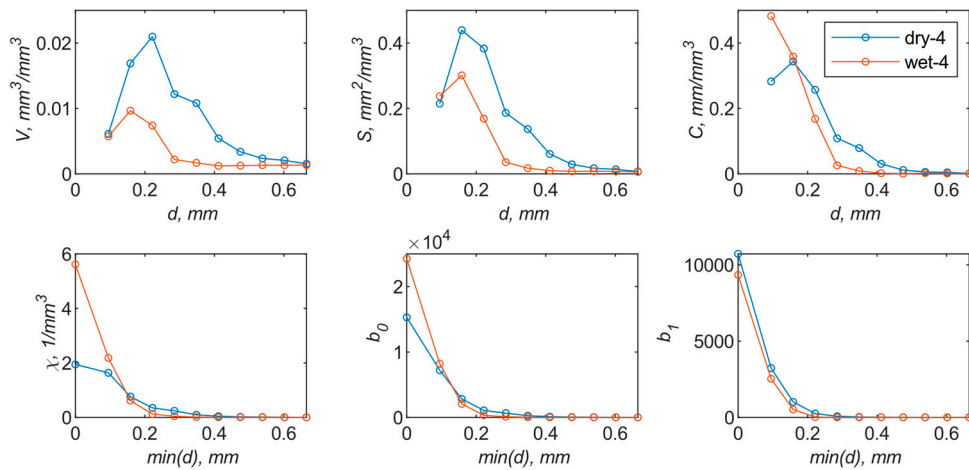
Figure S14. Distribution of pore characteristics as a function of pore sizes for a sample from Arable horizon in the 0–10 cm depth in a dry condition (blue color) and in wet condition (red color). The values V, S, C are represented by non–cumulative pores sizes distribution, whereas χ, b_0, b_1 values are presented versus the minimum pore diameter. The minimum pore diameter corresponds to the diameter of the spherical structural unit used for morphological opening.

Figure S15. Distribution of pore characteristics as a function of pore sizes for a sample from Arable horizon in the 10–20 cm depth in a dry condition (blue color) and in wet condition (red color). The values V, S, C are represented by non–cumulative pores sizes distribution, whereas χ, b_0, b_1 values are presented versus the minimum pore diameter. The minimum pore diameter corresponds to the diameter of the spherical structural unit used for morphological opening.
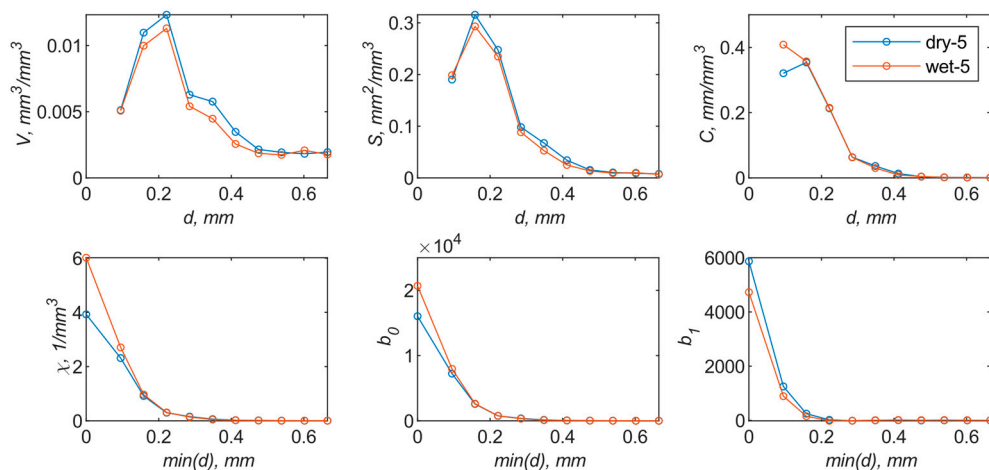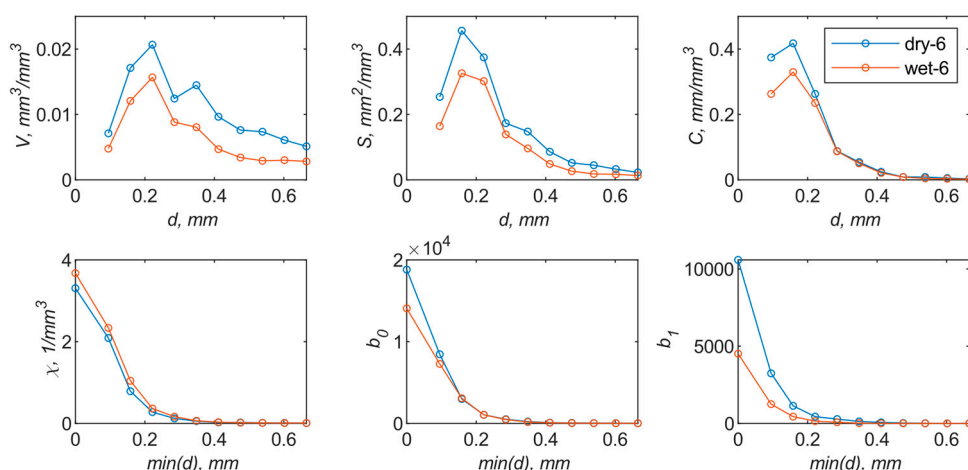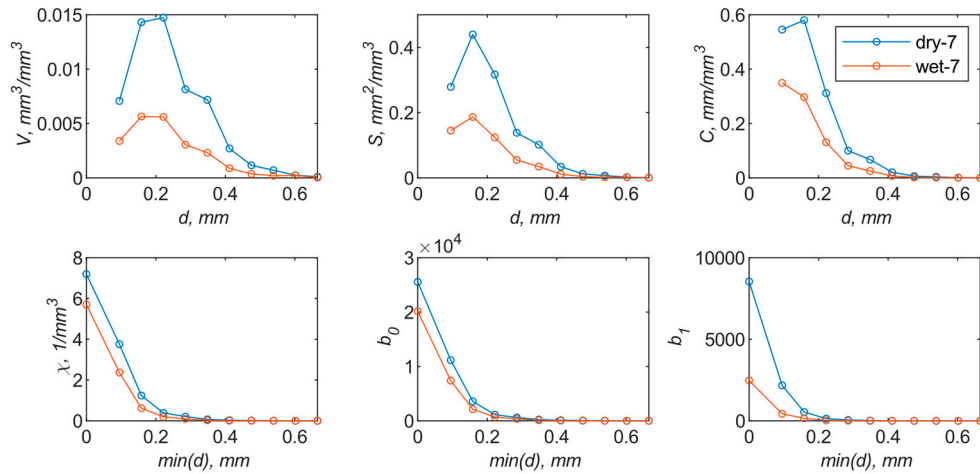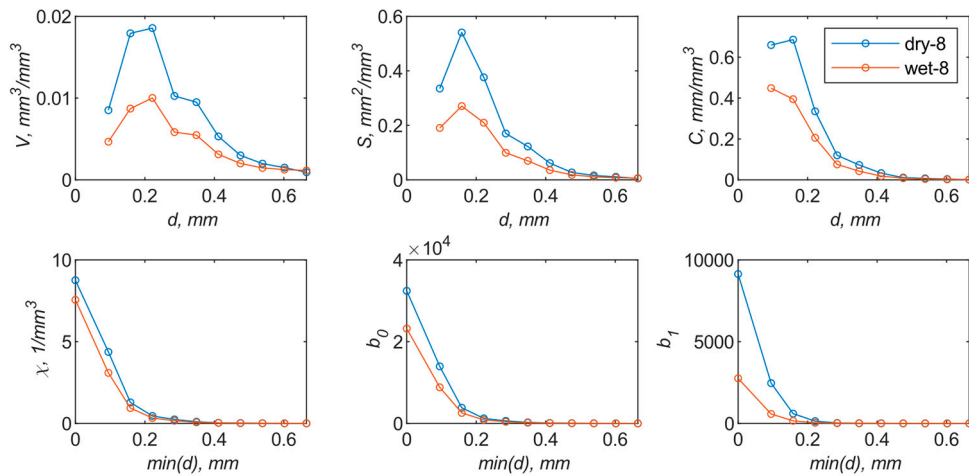
Figure S16. Distribution of pore characteristics as a function of pore sizes for a sample from Arable horizon in the 10–20 cm depth in a dry condition (blue color) and in wet condition (red color). The values V, S, C are represented by non–cumulative pores sizes distribution, whereas χ, b_0, b_1 values are presented versus the minimum pore diameter. The minimum pore diameter corresponds to the diameter of the spherical structural unit used for morphological opening.

Figure S17. Distribution of pore characteristics as a function of pore sizes for a sample from A2 horizon in the 20–30 cm depth in a dry condition (blue color) and in wet condition (red color). The values V, S, C are represented by non–cumulative pores sizes distribution, whereas χ, b_0, b_1 values are presented versus the minimum pore diameter. The minimum pore diameter corresponds to the diameter of the spherical structural unit used for morphological opening.

Figure S18. Distribution of pore characteristics as a function of pore sizes for a sample from A2 horizon in the 20–30 cm depth in a dry condition (blue color) and in wet condition (red color). The values V, S, C are represented by non–cumulative pores sizes distribution, whereas χ, b_0, b_1 values are presented versus the minimum pore diameter. The minimum pore diameter corresponds to the diameter of the spherical structural unit used for morphological opening.
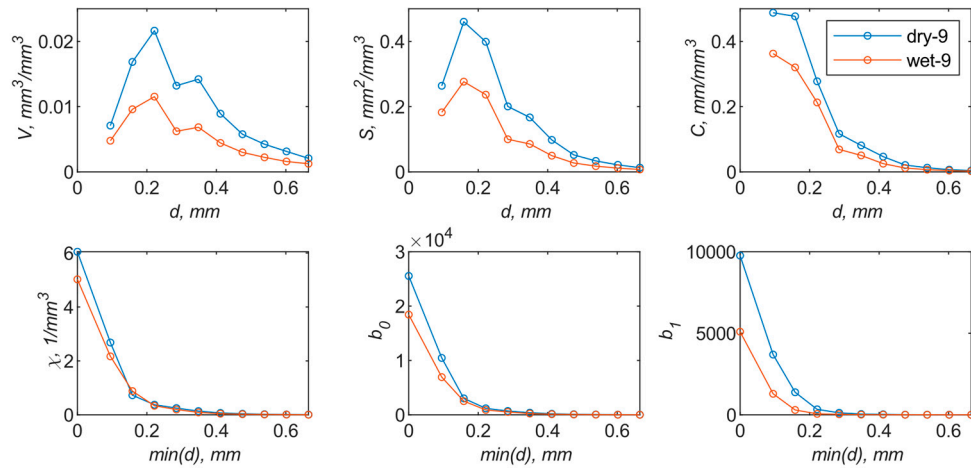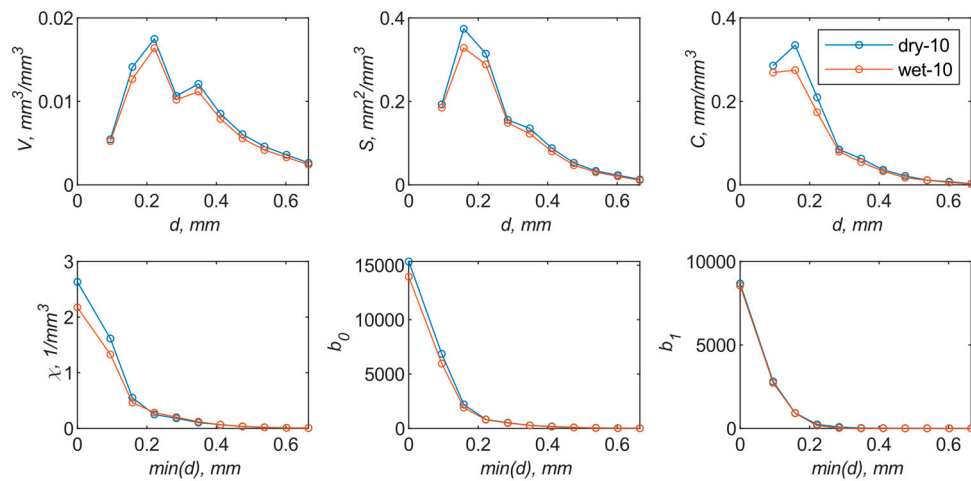

Figure S19. Distribution of pore characteristics as a function of pore sizes for a sample from A2 horizon in the 30–40 cm depth in a dry condition (blue color) and in wet condition (red color). The values V, S, C are represented by non–cumulative pores sizes distribution, whereas χ, b_0, b_1 values are presented versus the minimum pore diameter. The minimum pore diameter corresponds to the diameter of the spherical structural unit used for morphological opening.

Figure S20. Distribution of pore characteristics as a function of pore sizes for a sample from A2 horizon in the 30–40 cm depth in a dry condition (blue color) and in wet condition (red color). The values V, S, C are represented by non–cumulative pores sizes distribution, whereas χ, b_0, b_1 values are presented versus the minimum pore diameter. The minimum pore diameter corresponds to the diameter of the spherical structural unit used for morphological opening.
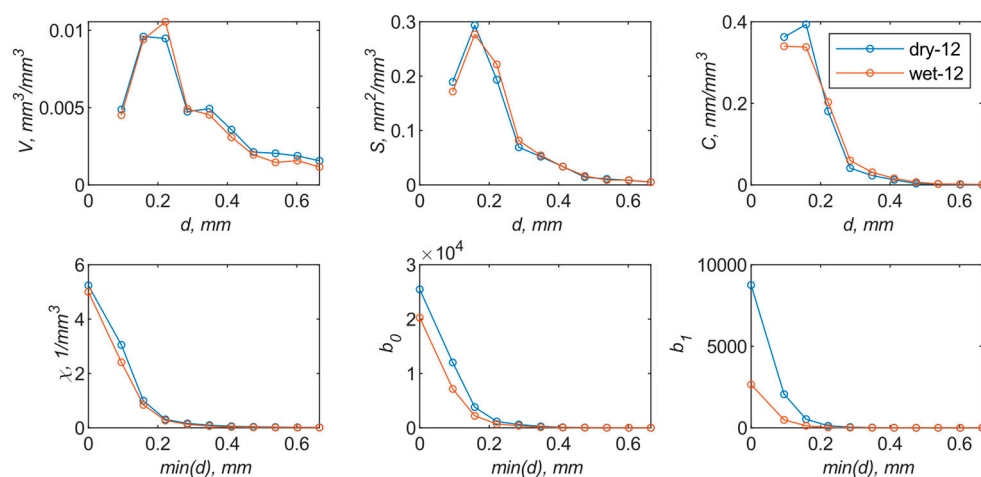

Figure S21. Distribution of pore characteristics as a function of pore sizes for a sample from AB horizon in the 40–50 cm depth in a dry condition (blue color) and in wet condition (red color). The values V, S, C are represented by non–cumulative pores sizes distribution, whereas χ, b_0, b_1 values are presented versus the minimum pore diameter. The minimum pore diameter corresponds to the diameter of the spherical structural unit used for morphological opening.

Figure S22. Distribution of pore characteristics as a function of pore sizes for a sample from B2 horizon in the 80–90 cm depth in a dry condition (blue color) and in wet condition (red color). The values V, S, C are represented by non–cumulative pores sizes distribution, whereas χ, b_0, b_1 values are presented versus the minimum pore diameter. The minimum pore diameter corresponds to the diameter of the spherical structural unit used for morphological opening.