



Freezing and thawing of water in fully saturated packed sand sample

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Freezing and thawing experiments were carried out in the laboratory on fully saturated packed sand sample (15 cm in diameter and 20 cm in height). The experimental setup consisted of plastic tube covered on its sides and bottom by insulation layers. The sample assembly was placed into the precisely controlled freezer chamber. The top of the sample was covered by a stainless steel plate. Initially the sample was equilibrated at +3 and +5 °C then the temperature inside the chamber was changed to -10, -20 and -30 °C. The inner temperature of sand sample was monitored in four depths by thin temperature sensors (109 SS, Campbell Scientific) horizontally inserted into the sample. Temperature development in four temperature sensors was obtained during freezing and thawing cycles. The experiment aims to provide information on freezing dynamics and thermo-mechanical changes during the freezing and thawing cycles. The data will be further evaluated by numerical simulations.