

**Table 2 Model parameterization of soil column**

Soil parameters	Goltsy landscape (gravelly loam)	Source of the parameter value
Density, kg/m <sup>3</sup>	2700	Grave, 1959; Grave & Koreisha, 1960; Grave et al., 1964; Koreisha, 1963
Porosity, m <sup>3</sup> /m <sup>3</sup>	0.42	Grave, 1959; Grave & Koreisha, 1960; Grave et al., 1964; Koreisha, 1963
Maximum water holding capacity, m <sup>3</sup> / m <sup>3</sup>	0.12	Grave, 1959; Grave & Koreisha, 1960; Grave et al., 1964; Koreisha, 1963
Maximum ice holding capacity, m <sup>3</sup> / m <sup>3</sup>	0.26	Grave (1959)
Infiltration coefficient, mm/min	10-0.1	Semenova et al. (2013)
Specific heat capacity, J/(kg°C)	840	Typical properties of soil material
Specific heat conductivity, W/(m°C)	1.5	Typical properties of soil material
Hydraulic parameters of the flow elements	0.005-10	Manual calibration