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Award-winning paper in 2018.

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Announcement

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Award-winning paper in 2018

Papers published in *Environmental Geotechnics* are eligible for awards from the Institution of Civil Engineers. Papers from any of the ICE journals can be nominated for several awards. In addition, each journal has awards dedicated to their specific subject area.

On Friday 4 October 2019, ICE president Andrew Wyllie presented an award to the following papers published in *Environmental Geotechnics* in 2018. The editorial panel nominated their best papers and an awards committee chaired by Robert Armitage allocated the awards.

Environmental Geotechnics Prize

The Environmental Geotechnics Prize was awarded to Sedighi *et al.* (2018).

Abstract

Soil atmospheric interactions play an important role within the thermal energy balance and seasonal temperature variations of the ground. This paper presents a formulation for the surface boundary conditions related to interactions between soil and atmosphere. The boundary condition formulated considers heat flow at the soil-atmosphere interface through mechanisms of shortwave radiation, long-wave radiation, sensible radiation and latent heat radiation. The effects of surface moisture flux on energy balance at the interface are explicitly included in the formulation. The developed boundary condition has been implemented in a numerical model for coupled thermal, hydraulic and mechanical behaviour of unsaturated soils. The evaporation component of the model is tested, and the results are compared with data from an experimental study at the surface of an area of agricultural land reported in the literature. The results of modelling have been found to compare favourably with the reported data set. The formulation developed for the soil atmospheric boundary condition allows climatic variables, including solar radiation, ambient air temperature, relative humidity, wind speed, rainfall and evaporation, to be incorporated in the long-term analysis of energy balance. This also enables a further detailed inspection of the climate's role in ground thermal behaviour of ground source heat systems.

REFERENCE

Sedighi M, Hepburn BDP, Thomas HR and Vardon PJ (2018) Energy balance at the soil atmospheric interface. *Environmental Geotechnics* **5**(3): 146–157, <https://doi.org/10.1680/jenge.15.00054>.



Benjamin Hepburn, Majid Sedighi and Phillip Vardon, winners of the Environmental Geotechnics Prize, with ICE president, Andrew Wyllie