

## **The Root Zone: Soil Physics and Beyond**

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The root zone is an important gateway through which plants obtain their resources. It is arguably the most important (and least understood) component in the soil–plant–atmosphere continuum. Analyzing the root zone in terms of functionality, we identify several key processes and data requirements that must be addressed individually, and then mutually, to understand the root zone. These include: (i) water flow in the vicinity of roots and across the root interface; (ii) nutrient transport and uptake; (iii) root respiration and soil aeration, (iv) root morphologies, soil mechanics, and root growth dynamics; (v) noninvasive measurements at various scales; (vi) the rhizosphere heat regime; (vii) the rhizosphere microbiome; and (viii) relations between root zone conditions and root and plant growth.

The proposed special issue targets various physical, biological, and chemical aspects of water and nutrient flow, transport, and uptake in this important region that controls both agronomic production and environmental aspects related to water and agrochemical dynamics in the root zone. We welcome contributions from researchers from different disciplines who study these root zone processes (soil, root, and microbiome) at different scales, seeking both pure scientific understanding of the processes and their application for the benefit of society. Special emphasis will be given to novel measurement and modeling tools at various scales and to interdisciplinary research.

Deadline for submission of papers: 1 Jan. 2017