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The first two editors of *Vadose Zone Journal* reflect about the professed need 10 years ago for a dedicated outlet focusing on vadose zone research, the creation of the journal in 2002 by the Soil Science Society of America in collaboration with the Geological Society of America, the rapid rise of the journal, and a thanks to all those who worked hard to made the journal so successful in a short period of time.

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## Vadose Zone Journal: A Decade of Multidisciplinary Research

**Ten years ago** we welcomed you to the first issue of *Vadose Zone Journal* (VZJ). As the first two editors of VZJ, we very much remember the enormous excitement about finally having a dedicated outlet designed to bring much-needed direction to vadose zone research (van Genuchten, 2002; Hopmans et al., 2006). Initiation of the journal in the early 2000s was motivated by the recognition that the vadose zone is fundamental to many scientific and engineering disciplines, while historically vadose zone research had been performed mostly from disciplinary perspectives, with often limited knowledge of related work in other fields. The result was that our understanding of the vadose zone for too long had remained fragmentary and incomplete.

Before its publication we had much debate about the best title for the journal, one that would encourage contributions from a diverse field in the earth and environmental sciences, with a focus on subsurface processes within the unsaturated zone. In the end we adopted the name *Vadose Zone Journal* to clearly show the intent of VZJ to serve not only the soil and agricultural communities, but to seek contributions and readership from across a broad range disciplines. Interest in the vadose zone had been expanded considerably during the past several decades by recognizing that many industrial, municipal, and engineering activities were also impacting the vadose zone, including its intrinsic connections with groundwater and the atmosphere. The vadose zone had become an active focus of research by a broad range of disciplines, including soil- and geophysics, hydrogeology, soil- and geochemistry, microbiology, terrestrial ecology, the atmospheric sciences, and many engineering disciplines.

Advances in vadose zone research have been truly astonishing during the past 20 years or more, with progress increasingly being made in multidisciplinary ways. As we wrote 10 years ago (van Genuchten, 2002): “Unfortunately, or perhaps fortunately, disciplines can no longer exist and thrive in isolation.” The scientific community indeed needed a home for research that covers all of the physical, chemical, biological, and ecological aspects of the vadose zone. As such, we believe that our journal helped to break down some of the barriers between the different disciplines and professional societies involved (SSSA, GSA, AGU, EGU, ACS, ASCE, INTERPORE, ASA, ASABE, and many others), while also narrowing the still severe gap between the state-of-the-science and the state-of-the-practice.

When we started VZJ, the journal was meant to report fundamental and applied research on such topics as experimentation and modeling of variably saturated fluid flow, heat, solute and vapor phase transport, transport processes in the capillary fringe, land-surface hydrology, waste disposal activities, stewardship of contaminated sites, microbial and biogeochemical processes, carbon sequestration, and the environmental fate and transport of a range of inorganic and organic chemicals, nonaqueous phase liquids, colloids, microorganisms, and radionuclides. Papers in that first issue covered a broad range of topics, including the impacts of climate change on the chemical composition of deep vadose zone waters, solute transport in the Hanford vadose zone, effluent drainage from mining heaps, water flow and solute transport in fractured rock, virus and colloid transport, dynamic effects on the soil hydraulic properties, and root-water uptake. Many of these topics remain relevant to this day, and we are sure will remain a focus of vadose zone research for years to come.

Abbreviations: ACS, American Chemical Society; AGU, American Geophysical Union; ASA, American Society of Agronomy; ASABE, American Society of Agricultural and Biological Engineers; ASCE, American Society of Civil Engineers; EGU, European Geosciences Union; GSA, Geological Society of America; INTERPORE, International Society for Porous Media; SSSA, Soil Science Society of America.

Growth of the journal since its inception has been impressive by any standard. The first complete year with four issues (in 2003) contained some 85 papers covering 800 pages, while in 2012 we published 135 papers covering more than 1300 pages. The 2-yr impact factor the last several years fluctuated near or above 2.0, and the 5-yr impact factor at approximately 3.0. Very remarkable was VZJ's immediacy factor, which from the very beginning has been consistently at the very top in the soil science and water resources categories. However, far more impressive than these numbers has been to us the enormous breadth and depth of papers published in VZJ. The breadth is probably best illustrated by the many special issues VZJ has published over the years covering a range of topics at the very heart of vadose zone

research. Table 1 lists the special issues that have been published in the journal thus far, along with their web links.

Launching *Vadose Zone Journal* in the early 2000s certainly was not easy given great uncertainty on how it would affect existing journals within the profession. As such we very much appreciated the forward-looking vision and support of SSSA and GSA in initiating the new journal. In the end SSSA was prepared to be the main sponsor and publisher of VZJ, in collaboration with GSA. The one main regret we had was that AGU at the time elected not to be part of the effort. Especially important within SSSA in the late 1990s were the efforts by Donald Nielsen, Glendon Gee, Bob Luxmoore, and Warren Dick for guiding VZJ through the

Table 1. List of special issues published in *Vadose Zone Journal* since its inception in 2002 (also at <https://www.soils.org/publications/vzj/special-sections>).

Year, volume (issue)	Topic (with VZJ web link)
2003, 2(2)	Transport and Remediation of Complex Multiphase Systems
2003, 2(4)	Advances in Measurement and Monitoring Methods
2004, 3(1)	Flow and Transport Processes at the Idaho National Engineering & Environmental (INEEL) Site
2004, 3(2)	Colloids and Colloid-Facilitated Transport of Contaminants in Soils
2004, 3(2)	Uncertainty in Vadose Zone Flow and Transport Processes
2004, 3(3)	Advances in Vadose Zone Hydrology Using the TOUGH Codes
2004, 3(4)	Hydrogeophysics
2005, 4(2)	ZNS'03 Vadose Zone Research
2005, 4(3)	Los Alamos National Laboratory
2005, 4(4)	Soil Water Sensing
2006, 5(1)	From Field- to Landscape-Scale Vadose Zone Processes
2006, 5(3)	Parameter Identification and Uncertainty Assessment
2007, 6(2)	The Savannah River Site
2007, 6(2)	Soil Biophysics
2007, 6(3)	Groundwater Resources Assessment Under the Pressures of Humanity and Climate Change
2007, 6(4)	The Hanford Site
2008, 7(1)	The TOUGH2 Codes
2008, 7(1)	Ground Penetrating Radar in Hydrogeophysics
2008, 7(2)	Multiscale Mapping
2008, 7(2)	Vadose Zone Modeling
2008, 7(3)	Roots and Root Function
2008, 7(4)	Nonclassical Transport
2009, 8(1)	Fractals
2009, 8(2)	Unsaturated Zone Interest Group, USGS
2009, 8(3)	The Agrosphere Institute, Jülich, Germany
2009, 8(4)	Coupled Surface-Subsurface Modeling
2010, 9(1)	Artificial Drainage
2010, 9(2)	Preferential Flow
2010, 9(3)	Coupling Soil Science and Hydrology with Ecology
2010, 9(3)	Pore-Scale Processes
2010, 9(4)	Patterns in Soil-Vegetation-Atmosphere Systems
2011, 10(1)	HOBE, A Hydrological Observatory
2011, 10(1)	Trace Gases
2011, 10(2)	Landslides
2011, 10(3)	Critical Zone Observatories
2012, 11(1)	Soil Architecture and Function
2012, 11(2)	Reactive Transport Modeling
2012, 11(3)	Multi-Scale Interfaces in Unsaturated Soil, MUSIS
2012, 11(3)	The Soil-Plant-Atmosphere Continuum
2012, 11(4)	Model Data Fusion in the Vadose Zone
2012, 11(4)	Contaminants in the Vadose Zone
2013, 12(1)	Frozen Soils
2013, 12(2)	Soil Water Sensors and Measurement Technologies
2013, 12(3)	Scaling in Soil and Complex Porous Media
2013, 12(3)	Remote Sensing for Vadose Zone Hydrology
2013, 12(4)	Frontiers of Hydrogeology in Vadose Zone Research
2013, 12(4)	Digital Soil Mapping
2013, 12(4)	VZJ Anniversary Issue

very lengthy approval process within SSSA. We also thank Lisa Al-Amoodi for serving all of these past years as our Managing Editor in Madison, WI. The first issue eventually appeared in August 2002, with some 150 submissions that first year. The rapid acceptance of VZJ within the scientific community reflected the recognition that vadose zone processes play a prominent role in many interdisciplinary environmental and resource management issues and that a dedicated vadose zone journal was indeed very much needed and wanted. As such we very much thank the authors, reviewers, and readers of the first several issues for supporting the new journal. It is indeed the authors, reviewers, and readers who ultimately will determine the success of a journal, the quality and type of papers that are being published, and the direction in which a journal will grow. Clearly, VZJ is now filling an important and unique niche in interdisciplinary research through its focus on the critical zone between the earth surface and permanent water table, which is the most biologically active compartment of the biosphere and central to our very existence on this planet.

We end by again thanking the many individuals that helped us getting the journal started early on, and all those that have worked hard to make and keep the journal successful. This includes current and past editors and associated editors, SSSA staff in Madison, and above all the authors, reviewers, and readers of *Vadose Zone Journal*. We also appreciated the invitation by Jasper Vrugt and Dani Or to include this brief reflection about the journal in their special issue commemorating the 10-year anniversary of *Vadose Zone Journal*. Thanks again to all!

## References

- van Genuchten, R. 2002. Welcome to Vadose Zone Journal. *Vadose Zone J.* 1(1):1–2 doi:10.2136/vzj2002.1000.
- Hopmans, J.W., D. Or, T. Illangasekare, and R. van Genuchten. 2006. Editorial: The future of Vadose Zone Journal. *Vadose Zone J.* 5(1):125. doi:10.2136/vzj2006.0002le