

KOHOUT EARLY CAREER AWARD

Presented to

Scott Jasechko

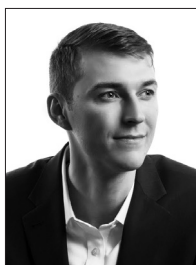
Indianapolis, Indiana, USA

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Hydrogeology Division
The Geological Society of America

Scott Jasechko



Scott is an assistant professor at the University of California at Santa Barbara, in the Bren School of Environmental Science and Management. He completed his master's degree at the University of Waterloo (2010–2011), his doctorate at The University of New Mexico (2011–2014), and spent three years as faculty in the Department of Geography at the University of Calgary (2015–2017) before joining UCSB in November 2017.

Scott was born in Victoria, British Columbia, Canada. His first research experience was through the High School Internship Program led by the British Columbia Cancer Agency, where Scott worked on a project focused on the Interleukin-2 receptor and T-cell proliferation.

Some of Scott's latest works—a trio of papers in *Nature Geoscience*—evaluated fresh water “ages” in rivers and aquifers around the world. The age of water is closely related to its vulnerability to contaminants and its role in chemical weathering. Scott and his colleagues' collaborative work demonstrates that (i) $\sim 1/3$ of global river waters are “young” (referring to rain and snow that took less than a few months to reach the river); and (ii) that global aquifers are dominated by “fossil waters”—those that recharged before the current Holocene epoch began. These works have key implications for better understanding earth systems processes, as well as better understanding how to manage water resources.

Scott's follow-on research is exploring the abundance and depth of groundwater wells around the world. These data provide a glimpse into the ways that humans rely upon and impact Earth's groundwater reserves. As the primary perennial drinking water supply to billions of people and the source of $\sim 40\%$ of irrigation waters, understanding human-groundwater linkages will be increasingly important in the decades to come.

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What an honor it is to present Dr. Scott Jasechko as the 2018 Kohout Early Career Award recipient. This award recognizes emerging leaders. Scott's contributions have already propelled him to the very top of his field. The questions he addresses through the applications of isotopes and through data mining are germane to many global water resource issues and to finding local solutions. Scott is driven not just by curiosity but more so by the vision of improving humanity's lot. Our hydrogeologic community has much to embrace in Scott's young career, and we are fortunate that he is the present and future of our field.

Scott uses large datasets to understand how we can preserve the quality and sustain the quantity of water resources. His numerous papers, which have appeared in journals such as *Nature*, *Nature Geoscience*, and the *Proceedings of the National Academy of Sciences* place our science in its rightful prominence. His publications, which apply isotopic tracers to better understand the stores and fluxes of precipitation, moisture, groundwater, lakes and rivers, are required reading.

Scott's synthesis of isotopic and well data could take an entire career. Achieving this is remarkable. His global analysis has shown that 30% of river water is a few months old, that most of stored groundwater was recharged before the Holocene, that groundwater recharge is distinctly seasonal, that 80–90% of terrestrial water flux to the atmosphere is through transpiration, and that in 14 states in the U.S., 37% of hydraulically fractured wells are within 2 km of at least one recently constructed domestic well.

Scott has brought together many decades worth of research in his isotopic fingerprinting. His scientific fingerprints are sure to last as long, and I would not be surprised to see them in the future editions of our beloved textbooks.

—Bayani Cardenas, *Citationist*

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The Kohout Early Career Award is considered annually in accordance with the bylaws of the Division. It is awarded to a distinguished early-career scientist (35 years of age or younger throughout the year in which the award is to be presented or within 5 years of receiving their highest degree or diploma) for outstanding achievement in contributing to the hydrogeologic profession through original research and service, and for the demonstrated potential for continued excellence. The recipient need not be a member of the Hydrogeology Division, or of the Society.

The Kohout Early Career Award is funded by a generous bequest from the estate of Francis A. Kohout, a long-time USGS hydrologist. Francis Kohout was the 1961 recipient of the AGU's Robert E. Horton Award (now Hydrologic Sciences Award). Kohout conducted hydrogeologic and marine geologic research primarily along the continental margin of North America. He is probably best known for the so-called "Kohout convection", the geothermally driven circulation of sea water deep into carbonate platforms (as illustrated in the figure below).

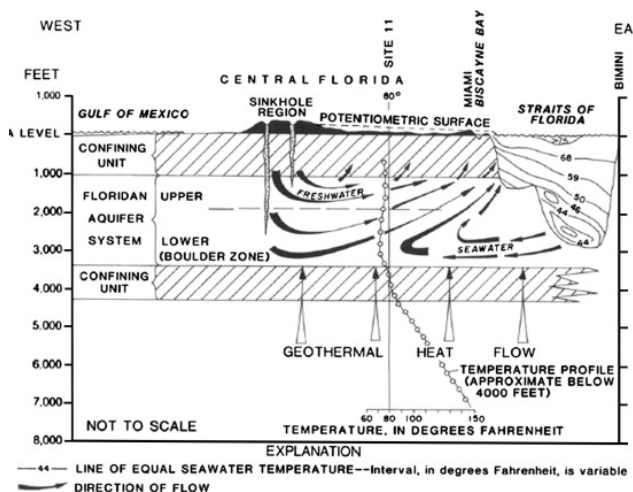


Figure from Kohout, F.A., 1965, A hypothesis concerning cyclic flow of salt water related to geothermal heating in the Floridan aquifer: New York Academy of Sciences Transactions, ser. 2, v. 28, no. 2, p. 249-271.