DR. SAMUEL WARREN **SCOTT**

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EDUCATION

ETH ZURICH July 2016 | Zurich, Switzerland
PH.D. IN GEOCHEMISTRY

ICELAND SCHOOL OF ENERGY August 2011 | Reykjavik, Iceland
M.SC. IN SUSTAINABLE ENERGY

PITZER COLLEGE May 2009 | Claremont, California, USA
B.A. IN EARTH SYSTEM SCIENCES

RESEARCH RECORD

ETH ZURICH | PH.D. | Supervisors: Prof. Dr. Thomas Driesner and Dr. Philipp Weis

- Developed novel model of supercritical geothermal resource formation
- Revealed how primary geologic factors control thermal structure and location of upflow/boiling zones
- Elucidated link between depth, phase separation style and heat transfer dynamics in saline systems

UNIVERSITY OF ICELAND | M.SC. | Supervisors: Dr. Andri Stefánsson and Dr. Stefán Arnórsson

- Reconstructed aquifer fluid compositions of excess-enthalpy wells accounting for phase segregation
- Updated conceptual model of Hellisheidi geothermal field emphasizing geochemistry of reactive gases

PITZER COLLEGE | UNDERGRADUATE | Supervisor: Dr. Robert Gaines

- Found empirical evidence of bacterial-mediated reduction of iron in common clay minerals

HONORS AND AWARDS

2012	Doctoral Research Fellowship	Swiss National Science Foundation
2011	National Geothermal Academy Student Fellowship	U.S. Department of Energy
2010	M.Sc. Project Grant	Reykjavik Energy

WORK EXPERIENCE

2016-pres.	Post-doctoral Researcher, ETH Zurich	Zurich, Switzerland
2003-2012	Piano Technician, Mark Scott Piano Services	Fairfield, Connecticut
2008-2009	Resident Assistant	Pitzer College

PROFESSIONAL OUTREACH

- Invited reviewer for *Water Resources Research*, *Hydrogeology Journal*, *Journal of Geochemical Exploration, Geoscience Frontiers, Journal of Marine and Petroleum Geoscience,* and other journals
- Member of American Geophysical Union, Geochemical Society, Geothermal Resources Council

RESEARCH SKILLS

COMPUTING

- Numerical modeling with the CSMP++ platform, including mesh generation and post-processing
- Data analysis with MATLAB and Python
- Reconstruction of aquifer fluid compositions based on surface measurements using WATCH

LABORATORY

- Experience with ion & gas chromatography, UV/Vis- and IR-spectroscopy, XRD, and ICP-AES
- Preparation, treatment and analysis of geothermal fluid samples

FIELD

- Sampling geothermal well discharges using Webre Separators
- Performing/interpreting well measurements (i.e. temperature/pressure, flow, enthalpy, drawdown)

OTHER

- German (Goethe B2) and Spanish; Classically-trained pianist; Experienced outdoorsman

REFERENCES

- Dr. Thomas Driesner, ETH Zurich, email: thomas.driesner@erdw.ethz.ch; Phone: +41446326803
- Dr. Andri Stefansson, University of Iceland, email: as@hi.is; Phone: +3545254252
- Dr. William Harvey, POWER Engineers, email: bharvey@powereng.com; Phone: +12087883456

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PUBLICATIONS

IN PREPARTION

(with S. Fekete, T. Driesner, P. Weis) Temporal variations of stable isotope signatures at hydrothermal advection fronts. In preparation.

(with M. Hermanska, A. Stefansson, N. Keller) Supercritical fluids and contact alteration around magmatic intrusions. In preparation.

PUBLISHED

2017 (with T. Driesner, P. Weis) Boiling and condensation of saline geothermal fluids above magmatic intrusions. *Geophysical Research Letters*. (in press) doi: 10.1002/2016GL071891

2016 (with T. Driesner, P. Weis) The thermal structure and temporal evolution of high-enthalpy geothermal systems. *Geothermics*. 62:33-47 doi: 10.1016/j.geothermics.2016.02.004

2015 (with T. Driesner, P. Weis) Geologic controls on supercritical geothermal resources above magmatic intrusions. *Nature Communications*. 6:7837, doi:10.1038/ncomms8837

2014 (with D. Zezin, T. Driesner, C. Sanchez-Valle, T. Wagner) Volumetric properties of mixed electrolyte aqueous solutions at elevated temperatures and pressures. The systems $CaCl_2$–NaCl– H_2O and $MgCl_2$–NaCl–H_2O to 523.15 K, 70 MPa, and ionic strength from (0.1 to 18) $mol{\cdot}kg^{-1}$. *Journal of Chemical & Engineering Data*. 59:8, 2570–2588, doi: 10.1021/je500371u

2014 (with I. Gunnarsson, S. Arnórsson, A. Stefánsson) Gas chemistry, boiling and phase segregation in a geothermal system, Hellisheidi, Iceland. *Geochimica et Cosmochimica Acta*. 124, 170-189, doi:10.1016/j.gca.2013.09.027

SELECTED RECENT ABSTRACTS

2016 (with Melchior Grab, Samuel Scott, Beatriz Quintal, Eva Caspari, Hansruedi Maurer, Stewart Greenhalgh) Seismic properties of fluid bearing formations in magmatic geothermal systems: can we directly detect geothermal activity with seismic methods? EGU General Assembly Conference Abstracts, Vienna, Austria

2015 (with T. Driesner, P. Weis) Hydrology of a supercritical flow zone near a magmatic intrusion in the IDDP-1 well – Insights from numerical modeling, World Geothermal Congress, Melbourne, Australia

2015 (with T. Driesner, P. Weis) A New Generation of Numerical Simulation Tools for Studying the Hydrology of Geothermal Systems to “Supercritical” and Magmatic Conditions, World Geothermal Congress, Melbourne, Australia

2014 (with P. Weis, T. Driesner) Numerical modeling of the thermal structure and evolution of hydrothermal systems, Third International Conference on Computational Methods for Thermal Problems, Lake Bled, Slovenia

2011 (with I. Gunnarsson, S. Arnórsson, A. Stefánsson, E. Gunnlaugsson) Gas Geochemistry of the Hellisheidi Geothermal Field, SW-Iceland, Thirty-Sixth Workshop on Geothermal Reservoir Engineering, Stanford University

2011 (with I. Gunnarsson, B. Sigfússon, A. Stefánsson,, S. Arnórsson, E. Gunnlaugsson) Injection of H_2S from the Hellisheidi Geothermal Field, SW-Iceland, Thirty-Sixth Workshop on Geothermal Reservoir Engineering, Stanford University