Eyal Shalev (Stanislavsky)

Curriculum Vitae

2018

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Education:

Ph.D. 2004	Hydrogeology, Geophysics: Johns Hopkins University, USA.
	Thesis: Applications of poroelasticity theory and finite element
	modeling to seismically-induced flow in thrust fault environments.
M.Sc. 1999	Hydrogeology: Hebrew University of Jerusalem, Israel. Thesis:
	Paleohydrological modeling of brine, oil and gas migration at the
	Dead Sea Rift.
B.Sc. 1997	Geology: Hebrew University of Jerusalem, Israel.

Appointments:

2004 -present	Researcher at the Geological Survey	of Israel
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Honors and Awards:

The Shraga-Dicker Award, Hebrew University, Jerusalem, 1999. Krieger School of Arts and Sciences Fellowship, 1999. Department of Energy Outstanding Contributions in Geosciences Research, 2001. Christina Balk Fellowship, Johns Hopkins University, 2002.

Student Guidance

M.Sc. Students:

- Matania Caspi, M.Sc., (2008-2010), Title of thesis: "Palaeo-Hydrology of the South-Eastern Mediterranean Coastal Plain Aquifer". Guidance with Prof. Haim Gvirtzman (Hebrew University)
- Roi Ze'evi, M.Sc., (2008-2011), Title of thesis: "Hydrology and 2D Simulation of Submarine Groundwater Discharge at Dor Bay, Southern Carmel Coast". Guidance with Prof. Yishai Weinstein (Bar-Ilan University) and Yoseph Yechieli (Geological Survey of Israel)
- Noam Barnoy, M.Sc., (2009-2011), Title of thesis: "The Discharge Mechanism of the Hot Springs along the Western Dead Sea Shore". Guidance with Prof. Haim Gvirtzman (Hebrew University) and Yoseph Yechieli (Geological Survey of Israel)
- Ran Gabai, M.Sc., (2010-2012), Title of thesis: "The Permeability of Fault Zones: A Case Study from the Dead Sea Rift". Guidance with Prof. Noam Weisbrod (Ben-Gurion University) and Yoseph Yechieli (Geological Survey of Israel)
- Nadav Amir, M.Sc., (2011-2012), Title of thesis: "Numerical Simulation of Submarine Groundwater Flow in the Coastal Aquifer at the Palmahim Area, the

Mediterranean Coast of Israel". Guidance with Prof. Barak Herut (University of Haifa)

- Roi Roded, M.Sc., (2011-2012), Title of thesis: "Basal Heat Flow and Hydrothermal Regime at the Golan-Ajloun Hydrological Basins". Guidance with Prof. David Katoshevski (Ben-Gurion University)
- Hallel Lutzky, M.Sc., (2015-2017), Title of thesis: "Wave forcing effects on groundwater levels". Guidance with Prof. Noam Weisbrod (Ben-Gurion University)
- Ph.D. Students:
 - Imri Oz, Ph.D., (2009-2015), Title of thesis: "Groundwater Flow Patterns Adjacent to a Long-Term Stratified (Meromictic) Lake". Guidance with Prof. Haim Gvirtzman (Hebrew University) and Yoseph Yechieli (Geological Survey of Israel)
 - Elad Levanon, Ph.D., (2011-in progress), Title of thesis: "Reliable Monitoring of the Transition Zone between Fresh and Saline Waters in Coastal Aquifers". Guidance with Prof. Haim Gvirtzman (Hebrew University) and Yoseph Yechieli (Geological Survey of Israel)
 - Hannah Geist, Ph.D., (2014-in progress), Title of thesis: "Deformation Bands in Sandstones" Guidance with Prof. Shmulic Marco (Tel-Aviv University) and Rami Weinberger (Geological Survey of Israel)
- 2017: Organization of the 12th 12th Euro-conference on Rock Physics and Geo-Mechanics, "Bridging between Rock Physics and Structural Geology"

Publication:

- 1. **Stanislavsky, E**, and H. Gvirtzman, Basin-scale migration of continental-rift brines: Paleohydrologic modeling of the Dead Sea basin, *Geology*, 27, 791-794,1999.
- 2. Gvirtzman H, and **E. Stanislavsky**, Palaeohydrology of hydrocarbon maturation, migration and accumulation in the Dead Sea Rift, *Basin Res.*, *12*, *79-93*, 2000.
- 3. Gvirtzman H, and **E. Stanislavsky**, Large-scale flow of geofluids at the Dead Sea Rift, *J. Geochem. Explor.*, *69*, 207-211, 2000.
- 4. Hurwitz S, E. Stanislavsky, V. Lyakhovsky, and H. Gvirtzman, Transient groundwater-lake interactions in a continental rift; Sea of Galilee, Israel, *Geol. Soc. Am. Bull.*, *112*, *1694-1702*, 2000
- 5. **Stanislavsky, E.**, and G. Garven, The minimum depth of fault failure in compressional environments, *Geophys. Res. Lett.*, 29(24), doi: 10.1029/2002GL016363, 2002
- 6. **Stanislavsky, E.**, and G. Garven, A theoretical model for reverse water-level fluctuations induced by transient permeability in thrust fault zones, *Earth Planet. Sci. Lett.*, 210, 579-586, 2003
- Shalev, E., V. Lyakhovsky, and Y. Yechieli, Salt dissolution and sinkhole formation along the Dead Sea shore, *J Geophys. Res.*, 111, B03102, doi:10.1029/2005JB004038, 2006.

- 8. Shalev, E., V. Lyakhovsky, and Y. Yechieli, Is Convective Heat Transport Significant at the Dead Sea Basin?, *Geofluids*, 7, 292-300, 2007.
- 9. Gvirtzman, H., E. Shalev, O. Dehan, and Y. Hazor, Large-scale infiltration experiments into unsaturated stratified loess sediments: monitoring and modeling, *J. Hydrol.*, 349, 214-229, 2007
- 10. Shalev, E., and Y. Yechieli, The mechanism of the discharge of the thermal springs along the western shore of the Dead Sea, *Isr. J. Earth Sci.*, 56, 19-27, 2007
- Weinberger, R., A. Sneh, and E. Shalev, Hydrogeological insights in antiquity as indicated by Canaanite and Israelite water systems, *J. Archaeol. Sci.*, doi: 10.1016/j.jas.2008.06.024, 2008.
- 12. Kiro, Y., Y. Yechieli, V. Lyakhovsky, **E. Shalev**, and A. Starinsky, Time response of the water table and saltwater transition zone to a base level drop, Water Resources Research, 44, doi:10.1029/2007WR006752, 2008
- Shalev, E., A. Lazar, S. Wollman, S. Kington, Y. Yechieli, and H. Gvirtzman, Biased Monitoring of Freshwater-Saltwater Mixing Zone in Coastal Aquifers, *Ground water*, 47, 49-56, 2009
- 14. Yechieli , Y.,Kafri, U.,Wollman, S.,**Shalev, E.,** Lyakhovsky, V., The effect of base level changes and geological structures on the location of the groundwater divide, as exhibited in the hydrological system between the Dead Sea and the Mediterranean Sea, *J. Hydrol.*, 378, 218–229, 2009
- 15. **Shalev, E.,** and Gvirtzman H, 2009, Brine migration from the Dead Sea basin, Melach Haaretz, 4, 106-120 (in Hebrew)
- Yechieli, Y., Shalev, E., Wollman, S., Kiro, Y., and Kafri, U., Response of the Mediterranean and Dead Sea coastal aquifers to sea level variations, *Water Resour. Res.*, 46, doi:10.1029/2009WR008708, 2010
- 17. Sneh, A., Weinberger, R., and **Shalev, E.,** The Why, How, and When of the Siloam Tunnel Reevaluated, *BASOR*, 57-65, 2010
- 18. Weinberger, R., Sneh, A., and **Shalev, E**. The fault beneath their feet: How the Israelites found water inside Hazor. Biblical *Archaeol. Review*, 36, 65-67, 2010
- 19. Oz, I., **Shalev, E.,** Gvirtzman, H., Yechieli, Y., and Gavrieli, I., Groundwater flow patterns adjacent to long-term stratified (meromictic) lake, *Water Resour*. *Res.*, 47, doi:10.1029/2010WR010146, 2011
- 20. Yechieli, Y., Kafri, U., and Shalev, E., 2012, The effect of climate and anthropogenic sea level changes on Israeli coastal aquifers, in Treidel, H., Martin-Bordes, J. L., and Gurdak, J. J. (eds.), Climate Change Effects on Groundwater Resources, A Global Synthesis of Findings and Recommendations, pp. 205-223, CRC Press/Balkema, Leiden, The Netherlands
- 21. Shalev, E., and Lyakhovsky, V., Viscoelastic damage modeling of sinkholes formation, *J. struct. Geol.* 42, 163-170, 2012
- 22. Roded, R., Shalev, E., Katoshevski, D., Basal heat-flow and hydrothermal regime at the Golan–Ajloun hydrological basins, *J. Hydrol.*, 476, 200-211, 2013
- 23. Shalev, E., Lyakhovsky, V., Weinstein, Y., and Ben-Avraham, Z., The thermal structure of Israel and the Dead Sea Fault, *Tectonophys.*, 602, 69-77. doi:10.1016/j.tecto.2012.09.011, 2013

- 24. Kafri, U., **Shalev, E.,** Lyakhovsky, V., Wollman, S., and Yechieli, Y., Numerical Modeling of Seawater Intrusion into Endorheic Hydrological Systems, : *Hydrogeology J.*, 21, 1001-1010, 2013
- 25. **Shalev, E**., and Lyakhovsky, V., Modeling Reservoir Stimulation induced by wellbore fluid injection, Proceedings of the thirty-eighth workshop on geothermal reservoir engineering, Stanford University, 2013
- 26. Shalev, E., and Lyakhovsky, V., The processes controlling damage zone propagation induced by wellbore fluid injection, *Geophys. J. Int.*, 2013
- 27. Levanon, E., Yechieli, Y., Shalev, E., Friedman, V., and Gvirtzman, H., Reliable Monitoring of the Transition Zone between Fresh and Saline Waters in Coastal Aquifers, *Groundwater Monitor. Remed.*, 33, 101-110, 2013
- 28. Amir, , N., Kafri, U., Herut, B., and **Shalev, E**., Numerical Simulation of Submarine Groundwater Flow in the Coastal Aquifer at the Palmahim Area, the Mediterranean Coast of Israel, *Water Resours. Man.*, 27, 4005-4020, 2013
- 29. **Shalev, E.**, Calo, M., and Lyakhovsky, V., Formation of damage zone and seismic velocity variations during hydraulic stimulation: numerical modeling and field observations, *Geophys. J. Int.*, 195, 1023-1033.
- 30. Gabay, R., **Shalev, E.**, Yechieli, Y., Sagy, A., and Weisbrod, N., The permeability of fault zones: A case study from the Dead Sea rift, *Hydrogeology J*.,22, 425-440, 2014
- Shalev, E., Lyakhovsky, V., Ougier-Simonin, A., Hamiel, Y., Zhu, W., Inelastic compaction, dilation and hysteresis of sandstones under hydrostatic conditions, *Geophys. J. Int.*, 197, 920-925, 2014
- 32. Oz, I., **Shalev, E.,** Yechieli, Y., Gavrieli, I., and Gvirtzman, H., Flow dynamics and salt transport in a coastal aquifer driven by a stratified saltwater body: Lab experiment and numerical modeling, *J. Hydrol.*, 511, 665–674, 2015
- Lyakhovsky, V., Zhu, W., and Shalev, E., Visco-poroelastic damage model for brittle-ductile failure of porous rocks, *J Geophys. Res.*, 120, doi:10.1002/2014JB011805, 2014.
- 34. Oz, I., **Shalev, E.,** Yechieli, Y., and Gvirtzman, H., Saltwater circulation patterns within the freshwater–saltwater interface in coastal aquifers: Laboratory experiments and numerical modeling, *J. Hydrol.*, 530, 734–741, 2015
- 35. **Shalev, E.,** Kurzon, I., Doan, M.-L., and Lyakhovsky, V.,. Water-level oscillations caused by volumetric and deviatoric dynamic strains. *Geophys. J. Int.* 204, 841-851. doi: 10.1093/gji/ggv483, 2016.
- 36. Levanon, E., **Shalev, E.,** Yechieli, Y., and Gvirtzman, H., Fluctuations of freshsaline water interface and of water table induced by sea tides in unconfined aquifers. *Ad. Water Resour.* 96, 34-42. <u>doi:10.1016/j.advwatres.2016.06.013</u>, 2016.
- 37. **Shalev, E.,** Kurzon, I., Doan, M.-L., and Lyakhovsky, V., Sustained water Level changes caused by damage and compaction induced by teleseismic earthquakes. *J Geophys. Res.*, 121, 4943-4954, doi: 10.1002/2016JB013068, 2016
- 38. Dody A, Rosenzweig R, Calvo R, and Shalev E. How thick should cover layer be for waste disposal facility?. ASME J. Nuclear Rad. Sci., doi:10.1115/1.4035405., 2017
- 39. Levanon, E., Yechieli, Y., and Gvirtzman, H., Shalev, E., Tide-induced fluctuations of salinity and groundwater level in unconfined aquifers field

measurements and numerical model, J. Hydrol., Journal of Hydrology, 551, , Pages 665-675, 2017

- 40. Kafri, U., Yechieli, Y., Wollman, S., **Shalev, E.** A possible brine supply from the Afar continental endorheic hyper saline lakes to the Red Sea bottom brine pools, *Hydrogeology J.* doi.org/10.1007/s10040-018-1828-9, 2018
- 41. Tzoufka, K., Magri, F., Rödiger, T., Inbar, N., **Shalev, E.,** Möller, P., Raggad, M., Rosenthal, E. Siebert, C. The effect of hydraulic anisotropies on intensely exploited groundwater resources: the numerical evaluation of a hydrothermal transboundary aquifer system in the Middle East. *Hydrogeology J.* doi.org/10.1007/s10040-018-1827-x, 2018
- 42. Gajst, H., Weinberger, R., Zhu, W., Lyakhovsky, V., Marco, S., Shalev, E. Effects of pre-existing faults on compaction localization in porous sandstones,. Tectonophysics, 747-748, 1-15, doi.org/10.1016/j.tecto.2018.09.002, 2018