

# Curriculum Vitae

Name: Yael Kiro

Born: 11/8/1978, Israel.

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## **Education:**

- July 2013-present      **Postdoctoral position, Lamont-Doherty Earth Observatory, Columbia University.** Paleoclimate reconstruction from evaporite rocks (petrography, chemistry and fluid inclusions). Mentors: Prof. Steven Goldstein, Dr. Yochanan Kushnir.
- 2013                      **PhD, Geology**  
Institute of Earth Sciences, the Hebrew University of Jerusalem. Thesis topic: Dead Sea-aquifer interaction, insights from radium isotopes. Under the supervision of Prof. Yoseph Yecheieli, Prof. Abraham Starinsky and Dr. Yishai Weinstein.
- 2006                      **M.Sc., Geology, *magna cum laude***  
Institute of Earth Sciences, the Hebrew University of Jerusalem. Research thesis subject: The effect of the Dead Sea level changes on the fresh-saline interface in the alluvial fan of Wadi Arugot. Under the supervision of Dr. Yoseph Yecheieli, Prof. Abraham Starinsky and Dr. Vladimir Lyakhovsky.
- 2003                      **B.Sc., Geology, the Hebrew University of Jerusalem**

## **Research experience:**

- 2013                      *post doctorate.* Sedimentology and geochemistry of halite, Interglacial climate, Development of methods for paleoclimate interpretation from the sediments of the Dead Sea cores obtained by the deep drilling project. U-Th dating of sediments including halite.
- 2007-2013              *Ph.D studies.* Studying lake– and sea–groundwater interaction in the Dead Sea coastal system using radon and radium isotopes, combined with hydrological and geochemical modeling. I focused on seawater circulation in aquifers, its potential effect on coastal water chemistry, radionuclide geochemistry in a coastal aquifer, barite precipitation, adsorption processes and water–rock interaction of the Ca-chloridic brine of the Dead Sea, and showed that saline groundwater circulation in the Dead Sea is a fundamental process affecting the trace element composition of the lake water.
- 2003-2006              *M.Sc studies.* Studied the effect of sea level changes on coastal aquifers using analytical and numerical modeling and comparing with Dead Sea hydrological and geochemical field data.

### **Workshops and Internships**

- 2009 Three-month internship at the US Geological Survey working with Dr. Clifford I. Voss on modeling radium isotope distribution in coastal aquifers using a numerical density-dependent groundwater flow model (SUTRA-MS).
- 2008 Pre-conference short course: Variable Density Modeling and Hydrogeochemical Analysis of Seawater Intrusion instructed by: M. Bakker, G. O. Essink, A. Vandenbohede, P. Stuyfzand, and V. Post. SWIM – 20<sup>th</sup> Salt Water Intrusion Meeting, Naples, Florida.
- 2006 Pre-conference short course: Practical Modeling of Saltwater Intrusion instructed by: C. I. Voss and G. Barrocu. First International Joint Salt Water Intrusion Conference – SWIM-SWICA, Cagliari, Sardinia.

### **Professional Experience:**

- 2014, 2015 **Lamont-Doherty Earth Observatory:** Mentoring undergraduate students, summer internship program.
- 2010–2012 **Hebrew University of Jerusalem:** counting lab director
- 2004–2011 **Hebrew University of Jerusalem:** Teaching assistant.  
Courses taught: Stratigraphy, Maps and cross-sections, the Dynamic Earth, Earth Mineral and rocks, Groundwater Hydrology, Groundwater Contamination, Sea Floor Mapping.
- 2002–2003 **Israel Geological Survey:** Research assistant with “Groundwater Infiltration Well Monitoring Project” in the Arava Valley (head of project: Y. Yeichieli).
- 2002 **Israel Geological Society (IGS):** Assistance with organization of the IGS annual meeting.

### **Community Activity:**

- 2014-2015 **Lamont-Doherty Earth Observatory Columbia University: organizer of the geochemistry Seminar.**
- 2012 **Friends of the Earth ME: outreach activity,** hydrogeology advice on “protecting groundwater sources” project.
- 2011 **Adam Teva V’Din (Israel Union for Environmental Defense): outreach activity,** advice and literature review in hydrological issues (e.g. Dead Sea Works, fertilizing).
- 2011 **The Institute of Earth Sciences, the Hebrew University,** organizing Dead Sea–Red Sea meeting on the 14/12/11.
- 2010-2011 **Israel Geological Society:** Member of the organizing committee of the annual meeting.
- 2000-2012 **Outreach projects:** lecturing and guiding teachers and high school students in environmental issues; tutoring underprivileged youth at learning centers; environmental youth projects and education activity with the Society for the Protection of Nature in Israel and the Green Course.

Peer Review of submitted manuscripts to the journals of *Advances in Water Resources*, *Water Resources Research*, *Chemical Geology*, *Marine Pollution Bulletin*, *Global and Planetary Change*, *Applied geochemistry*.

### Awards

- 2014 Prof. Yaacov Bentor Award for an outstanding doctoral work on the geology of Israel and its surrounding area.
- 2014 Postdoctoral fellowship for Excellent PhD students, the Hebrew University
- 2014 Climate Center Award, Columbia University (for field and lab work)
- 2014 Climate Center Award, Columbia University (for analysis and lab work)
- 2012 Scripps Institution of Oceanography Postdoctoral Scholar Program (I declined)
- 2009-2012 The Harry and Sylvia Hoffman Leadership and Responsibility Program Scholarship for excellent Ph.D students.
- 2011 Wolf Foundation Scholarship for Excellence
- 2010 The Israel Association of Water Resources Goldschmidt Award for young scientists on successfully completion of MS.c
- 2009, 2011 Rieger-Jewish National Fund fellowship in environmental studies
- 2009 United States – Israel Binational Science Foundation (BSF) travel grant for young scientists, funded three months internship in the U.S Geological Survey
- 2008 Israel Association of University Women prize
- 2006 Scholastic award from the Harry and Margaret Ben Fund and the South African Zionist Women's Fund

### Selected Talks:

- 2015 **Dartmouth College**, Extreme aridity cycles in the Middle East during the last interglacial
- 2013 **Binghamton University**, Dead Sea–aquifer interaction: insights from radium isotopes
- 2011 **LDEO**, Seawater circulation in coastal aquifers – insights from radium isotopes in the Dead Sea
- 2009 **U.S Geological Survey**, Reston. Radium behavior in the variable density flow field of the Dead Sea coastal aquifer.

### Publications

- Kiro Y.**, Goldstein S.L., Lazar B., Stein, M., 2015, Environmental implications of salt facies in the Dead Sea, *Geological Society of America Bulletin*, in press.
- Kiro Y.**, Weinstein Y., Yechieli Y., Starinsky A., 2015, Radon and radium isotopes in the hydrogeological system of the Dead Sea, *Chemical Geology*, v. 411, 155-171.

**Kiro Y.**, Weinstein Y., Yechieli Y., Starinsky A., 2014, The extent of seawater circulation in the aquifer and its role in elemental mass balances: a lesson from the Dead Sea accepted to *Earth and Planetary Science Letters*, v. 394, 146-158.

**Kiro Y.**, Weinstein Y., Starinsky A., Yechieli Y., 2013, Groundwater ages and reaction rates during seawater circulation in the Dead Sea aquifer *Geochimica et Cosmochimica acta*. v. 122, 17-35.

**Kiro Y.**, Yechieli Y., Voss C.I., Starinsky A., Weinstein Y., 2012, Modeling radium distribution in coastal aquifers during sea level changes: the Dead Sea case, *Geochimica et Cosmochimica acta*, v. 88, 237-254.

Yechieli Y., Shalev E., Wollman S., **Kiro Y.**, Kafri U., 2010, Response of the Mediterranean and Dead Sea coastal aquifers to sea level variations, *Water Resources Research*, v. 46, W12550.

**Kiro Y.**, Yechieli Y., Lyakhovsky V., Shalev E., Starinsky A., 2008, Time response of the water table and saltwater transition zone to a base level drop, *Water Resources Research*, v. 44, W12442.

Thomas C., Ebert Y., **Kiro Y.**, Stein M., Ariztegui D., and the DSDDP Scientific Team, Microbial sedimentary imprint on the deep Dead Sea sediment, *in revisions for The Depositional Record*.

In preparation:

**Kiro Y.**, Goldstein S.L., Garcia-Veigas J., Lazar B., Stein M., Salt and water budgets and lake level changes in the Dead Sea during the past interglacials (in preparation to *Earth and Planetary Science Letters*)

**Reports**

**Kiro Y.**, 2007, The effect of the Dead Sea level drop on the groundwater system in the alluvial aquifer in its vicinity, 108 pp, GSI report GSI/05/2007.

**conferences Proceedings:**

**Kiro Y.**, Starinsky A., Yechieli Y., Voss C.I., Weinstein Y., The application of radium isotopes in the evaluation of the saline water circulation in the Dead Sea coastal aquifer. In: Water rock interaction meeting, Guanajuato, Mexico, conference proceedings, 2010.

**Kiro Y.**, Yechieli Y., Lyakhovsky V., Shalev E., Starinsky A., Dynamic Groundwater Equilibrium during a Base Level Drop: The Dead Sea Case. In: SWIM – 20<sup>th</sup> Salt Water Intrusion Meeting, Naples, Florida, conference proceedings, 2008.

**Other publications:**

**Kiro Y.**, The effect of Dead Sea water circulation in the aquifer on its chemical composition (in Hebrew), Melach Haaretz v. 7, 2013.

**Conferences Abstracts and presentations:**

**Kiro Y.**, Goldstein S.L., Kushnir Y., Stein M., Lazar B., Extreme aridity cycles in the Middle East during the last interglacial revealed by halite deposition in the Dead Sea, **Scales and Scaling in the Climate System: Bridging theory, climate models and data**, QC, Canada, 2015.

**Kiro Y.**, Goldstein S.L., Kushnir Y., Garcia-Veigas J., Stein M., Lazar B., Aridity cycles in the Middle East during the last interglacial revealed by halite deposition in the Dead Sea, **XIX INQUA Congress**, Nagoya, Japan, 2015.

- Kiro Y.**, Goldstein S.L., Garcia-Veigas J., Stein M., Lazar, B., Halite Deposition in the Dead Sea as an Indicator of Water and Solute Budgets, **International Limnology Congress ILIC6**, Reno, 2015.
- Kiro Y.**, Weinstein Y., Yechieli Y., Starinsky A., The Role of Saline Lake Water circulation in aquifers: the Dead Sea mass balances, **International Limnology Congress ILIC6**, Reno, 2015.
- Kiro Y.**, Goldstein, S.L, Lowenstein, T.K., Garcia-Veigas J., Stein, M., Lazar, B., Extreme aridities in the Middle East during the last interglacials revealed by the halite sections from the Dead Sea cores. **AGU fall meeting**, San-Francisco, 2014.
- Kiro Y.**, Goldstein, S.L, Lowenstein, T.K., Garcia-Veigas J., Stein, M., Lazar, B., Extreme aridities revealed by halite deposits in the Dead Sea basin during the late Quaternary. **Dead Sea Deep Drilling Project, Ein Gedi 1<sup>st</sup> workshop**, 2014.
- Kiro Y.**, Goldstein, S.L, Lowenstein, T.K., Garcia-Veigas J., Stein, M., Lazar, B., Sedimentology, petrography and chemistry of halite in the Dead Sea basin. **The Mediterranean Messinian salinity crisis: from geology to geobiology, RCMNS Interim Colloquium**, Torino, 2014.
- Kiro Y.**, Goldstein, S.L, Lowenstein, T.K., Stein, M., Lazar, B., Halite sedimentology and petrography basin as an indicator for paleoenvironment and paleoclimate. **Israel Geological Society Annual Meeting**, Conference abstract, 2014.
- Kiro Y.**, Weinstein Y., Starinsky A., Yechieli Y., Radium mass balance in the Dead Sea – time scale and quantification of circulation in the aquifer. **AGU fall meeting**, San-Francisco, 2013.
- Kiro Y.**, Weinstein Y., Starinsky A., Yechieli Y., Time-scales and geochemical processes of seawater circulation in aquifers: a lesson from the Dead Sea, **Geological Society of America annual meeting**, Charlotte, 2012.
- Kiro Y.**, Weinstein Y., Starinsky A., Yechieli Y., Groundwater-lake interaction in the Dead Sea area , **Fourth Kaplan Symposium**, Jerusalem-Ein Gedi, 2012.
- Kiro Y.**, Weinstein Y., Starinsky A., Yechieli Y., The impact of lake water circulation in the aquifer on the Dead Sea water chemistry, **The Israeli association for aquatic sciences conference**, Kinneret college on the Sea of Galilee, 2012.
- Kiro Y.**, Yechieli Y., Starinsky A., Weinstein Y., Radon and radium in the hydrological system of the Dead Sea, **The Israeli association of water resources meeting**, 2012.
- Kiro Y.**, Weinstein Y., Starinsky A., Yechieli Y., Groundwater-lake interaction in the Dead Sea area. **AGU fall meeting**, San-Francisco, 2011.
- Kiro Y.**, Radon and radium in the Dead Sea hydrological system. **ICGG-11, International conference in gas geochemistry**, San-Diego, 2011.
- Kiro Y.**, Weinstein Y., Yechieli Y., Starinsky A., Sea water circulation in coastal aquifers as inferred from radium isotopes: the Dead Sea case, **Goldschmidt conference**, Prague, 2011.
- Kiro Y.**, Weinstein Y., Yechieli Y., Starinsky A., Gavrieli I., Sea water circulation in coastal aquifers – insights from radium isotopes in the Dead Sea, **Gordon research conference on chemical oceanography**, Andover, New Hampshire, 2011.
- Kiro Y.**, Weinstein Y., Yechieli Y., Starinsky A., Dead Sea water circulation in the aquifer: new insights from radium isotopes. **Israel Geological Society Annual Meeting**, Conference abstract, 2011.
- Kiro Y.**, Weinstein Y., Yechieli Y., Starinsky A., Voss C.I., Radium behavior on the variable-density flow field of the Dead Sea aquifer, **21<sup>st</sup> Salt Water Intrusion Meeting**, Azores, 2010.

- Kiro Y.,** Weinstein Y., Yechieli Y., Starinsky A., Voss C.I., Adsorption and precipitation of radium during saline water circulation in the Dead Sea aquifer. **The 3rd Kaplan Symposium - Challenges of the Global Water Shortage**, 2010.
- Kiro Y.,** Weinstein Y., Yechieli Y., Starinsky A., Voss C.I., Radium behavior of the variable-density flow field of the Dead Sea alluvial aquifer. International conference – **Radium and Radon Isotopes as Environmental Tracers**, Jerusalem, 2010.
- Kiro Y.,** Weinstein Y., Yechieli Y., William C.B., Gavrieli I., Starinsky A., Radium mass balance in the Dead Sea, Implications toward lake-aquifer interactions. International conference – **Radium and Radon Isotopes as Environmental Tracers**, Jerusalem, 2010.
- Kiro Y.,** Weinstein Y., Yechieli Y., Starinsky A., Voss C.I., Radium behavior of the variable-density flow field of the Dead Sea alluvial aquifer. **Israel Geological Society Annual Meeting**, 2010.
- Kiro Y.,** Weinstein Y., Yechieli Y., Starinsky A., Radium isotopes and Radon in the Dead Sea hydrogeological system. **Israel Geological Society Annual Meeting**, 2009.
- Kiro Y.,** Yechieli Y., Lyakhovsky V., Shalev, E., Starinsky, A., Groundwater dynamic equilibrium during a base level drop: the Dead Sea Case. **Israel Geological Society Annual Meeting**, 2008.
- Kiro Y.,** Yechieli Y., Lyakhovsky V., Shalev E., Starinsky A., Simulations of groundwater flow and saline water circulation during a lake level drop: The Dead Sea case. **Israel Geological Society Annual Meeting**, 2007.