

**YEHOUDA ENZEL**

**Prof. Leo Picard Chair in Geology**  
**Professor of Earth Sciences**

**Mailing Addresses**

Institute of Earth Sciences  
The Hebrew University of Jerusalem  
Edmond J. Safra campus  
Givat Ram, Jerusalem, 91904, Israel  
Tel: 972-2-6584-210 (office) or 6584-686 (main office); Cell: +972-54-8820697;  
Fax: 972-2-5662581  
E-mail: [yehouda.enzel@mail.huji.ac.il](mailto:yehouda.enzel@mail.huji.ac.il)

**EDUCATION**

<b>Years</b>	<b>Institution</b>	<b>Field of Study</b>	<b>Degree</b>
1977-1981	Hebrew University	Geology+Physical Geography	B.Sc., 1981
1980-1984	Hebrew University	Physical Geography	M.Sc., 1984
1986-1990	University of New Mexico	Quaternary Geol./geomorphology	Ph.D., 1990
1990-1992	University of Arizona,	Paleohydrology-Hydrology	Post-Doc.

**Nominations at The Hebrew University of Jerusalem**

1992- Lecturer; 1997- Senior Lecturer (tenure); 2001- Assoc. Professor; 2005- Prof. of Earth Sciences

**Selected Professional activities****Hebrew University and Departmental Committees/Positions**

Chair, Institute of Earth Sciences, 2015-  
Head, Environmental Studies, Faculty of Science, 2006-2011

**OTHER ACADEMIC POSITIONS**

2012 Visiting Professor & Senior Research Scientist, LDEO, Columbia University  
2006 Visiting Professor, University of Washington, USA  
2005 Visiting Professor, Wollongong University, Australia  
2005-2006 Visiting Professor, Macquarie University, Australia  
1999-2000 Distinguished Visiting Professor, Desert Research Institute, Reno, Nevada  
1990-1995 Research Intern, and later Faculty Research Associate, University of Arizona

**Awards**

- 2015- Fellow of the Geological Society of America
- 2013- Prof. Leo Picard Chair in Geology
- 2012- Water Resources Research Editors' Choice Award
- 2009- Israel Geological Society, The R. Freund Award (best published paper)
- 2005- Geological Society of America, Farouk El-Baz Desert Research Award
- 1995- Hebrew University Golda Meir Foundation- Fellowship
- 1990- UNM Department of Geology Alumni Award

**EDITORIAL BOARDS**

- 2001-2016 *Quaternary Research* – Editorial and advisory board
- 2007-2012 Editor, *Israel Journal of Earth Sciences*
- 2005-2008 *Geology* – Associated editor
- 2000-2007 *Geological Society of America Bulletin* – Associate editor

**SELECTED OTHER ACTIVITIES**

- 2015 Co-Organizer- Batsheva de Rothschild Seminar (Israel Academy of Science) on Dust, Loess, and Soils, Jerusalem and the Negev.
- 2015 Co-organizer- Session T04, INQUA, Japan. Dust and loess formation.
- 2013 Co-organizer - Session 166 (T25), GSA Annual Meeting, Denver.
- 2012 Graduate students' seminar (Hydroclimatic Changes and Geomorphic Processes in Arid Environments, LDEO-Columbia University.
- 2010-2011 Geological Society of America QG&G Div., elected panel member
- 2009 INQUA-GLOCOPH 2009 Workshop and Fieldtrip (10 days), organizer (w/N. Greenbaum).
- 2008 Geological Society of America annual meeting session (T-17) co-organizer.
- 2006 Short course in paleoflood hydrology contribution to risk analyses, Engineering Department, University of Stuttgart.
- 2002 Scientific Committee- International Workshop: “*Paleofloods, Historical Data & Climatic Variability: Applications in Flood Risk Assessment*”. Barcelona, Oct. 2002
- 2001-2011 Chair of the Israel committee for Quaternary research (nomination by the President of the Israeli Academy of Sciences and Humanities-representing Israel in INQUA)
- 2000, 2003. 2009 Citationist of the Geological Soc. of America Farouk El-Baz Award for Desert Research.

**SELECTED INVITED INTERNATIONAL PRESENTATIONS**

- 2015 Invited Presentation, GSA Annual Meeting, session 201
- 2015 Invited presentation, Session on Eastern Mediterranean paleoclimatology, INQUA Japan
- 2013 Invited presentation. Session 229- GSA Annual Meeting, Denver.
- 2012 Keynote lecture, 4th International Conference on Alluvial Fans, UAE.
- 2012 Lamont-Doherty Earth Observatory (LDEO), Columbia University.
- 2006 Earth and Planetary Sciences, University of Washington.
- 2002, 2005 Geological Society of America, Farouk El Baz Lecture and Pardee keynote lecture
- 2000, 2005 Macquarie University, Sydney, Australia (a series of four seminars)
- 2000, 2005 University of Wollongong, Australia (a series of two and five seminars, respectively)
- 2004 Short course (12 hrs): Paleoflood Hydrology. International Doctoral Program, Environmental Water, Dept. of Civil and Environmental Engineering, Univ. of Stuttgart
- 2004 Keynote speaker- Spanish Association of Geomorphologists, Toledo
- 2004 Istanbul Technical University-Eurasian Institute

2002	PHEFRA- Paleoflood, Historical floods and Climate Variability: Applications in Flood Risk Assessment, International Workshop, Barcelona
2000	Water Research Center, University of Western Australia, Perth
2000	Desert Research Institute, Reno
2000	University of Arizona, Tucson- Institute of Planet Earth
2000	New Mexico Inst. Technology, Socorro
2000	University of New Mexico, Albuquerque.

## RESEARCH GRANTS

- 1) 1991-1994- National Science Foundation (USA) - "Variations in the monsoon intensities recorded in Holocene flood deposits in India" – with V. R. Baker, Y. Enzel, L. L. Ely (University of Arizona).
- 2) 1992- National Geographic Society (Research & Exploration) - "Timing of paleolakes in Baja California, Mexico" - with L. Ely, and B. Allen (University of Arizona).
- 3) 1992- Atomic Energy Commission of Israel - "Terrace scarp degradation in the hyperarid southern Arava Valley, Israel- implication to earthquake hazards and paleoseismicity".
- 4) 1992- Hebrew University Internal Funds - "Isotopes as tracers of salt and dust in desert soils, the Negev Desert, Israel".
- 5) 1994- Hebrew University Internal Funds- "Flood prevention in the Ayalon-Yarkon drainage system, Israel". With H. Gvirtzman
- 6) 1994- Atomic Energy Commission of Israel - "Paleoseismicity and earthquakes in the southern Arava".
- 7) 1994-1995 – Israel Department of Energy - “Late Quaternary lake-level fluctuations and neotectonics recorded in the Nahal Darga fan-delta, Israel” Funded to: Y. Eyal (Ben Gurion Univ.) and Y. Enzel (Hebrew Univ.).
- 8) 1995-1997 - National Science Foundation (USA) - "Holocene lacustrine records of decade- to century scale variations in monsoon precipitation, NW India" (University of Arizona) with V. R. Baker and L. L. Ely (Central Washington University).
- 9) 1995- Atomic Energy Commission of Israel - "Holocene tectonic activity and earthquakes hazards from the sequences of the fan-delta of Nahal Darga, western margins of the Dead Sea".
- 10) 1995 – Israel Department of Energy - "Computerized model for accumulation of Salic and Gypsic soil horizons during the Holocene and late Pleistocene in the extreme arid environment of the Arava, Israel".
- 11) 1995-1998 - Israel Water Authority “Reducing inundation in the Dan area and its Ayalon Transportation System by flood control and recharge into the Yarkon-Taninim Aquifer.” With H. Gvirtzman.
- 12) 1996- Israel Water Authority (Netzivut Ha'maim) “Flooding and prehistoric floods in the Arava in estimating long-term recharge”.
- 13) 1996-1997 - Atomic Energy Commission of Israel - "Tectonic geomorphology of the Galilee- implication for paleoseismicity”.
- 14) 1996-1998 - The Israel Science Foundation - “Dating of geomorphic surfaces in hyperarid regions: A new approach using the luminescence method”. Funded to N. Porat (Isr. Geol. Survey) and Y. Enzel (Hebrew University).
- 15) 1995-1998 - Various organizations - Studies in India: Funded to Dr. Y. Enzel (Hebrew University).

- 16) 1998-2000 - Science Ministry - Synoptic patterns, storm tracks, and spatial distribution of flood producing rains in the Negev. Funded (split into two) to Y. Enzel (Hebrew University) and Y. Avni (Ramon Research Center).
- 17) 1997-2000 - Other diverse sources for flood research.
- 18) 1998-2001 - US-Israel Bi-national Science Foundation - "Aggregation of Meteorological Radar Data: A new Approach in Basin Hydrology". With E. Morin (HUJI), U. Shamir (The Technion) and K. Georgakakos (HRC-San Diego).
- 19) 2000-2003 - European Union 5<sup>th</sup> Program- SPHERE (Systematic Paleoflood and Historical data for the improvement of flood Risk Estimation-). Partner #2 of 9.
- 20) 1999-2003 - Israel Science Foundation- Lake Lisan and Dead Sea level variations during the last 70,000 years.
- 21) 2000-2001 - Ministry of Infrastructure- Debris flows on the western escarpment of the Dead Sea- records and hazards to infrastructure.
- 22) 2000-2001 - International Arid Land Consortium- The feasibility of water harvesting and storage in shallow aquifers in the eastern Badia of Jordan. With R. French (DRI-Nevada) N. Abu-Jaber (Yarmuk U., Jordan).
- 23) 2001-2002 - Atomic Energy Commission of Israel – Review of Shivta Site PSAR.
- 24) 2002 - Hebrew University Internal Grants (Aims Byudks-Ring) Dating destructive earthquakes using cosmogenic Be and Al in rockfalls. With Prof. Michael Paul.
- 25) 1999-2002 - Israel Water Authority (Netzivut Ha'maim). Development of hydrological model for estimating runoff parameters using meteorological data and drainage basin characteristics. Funded to Soil Erosion Research Station (PIs. E. Morin, R. Garti, M. Getker, U. Shamir, and Rosenfeld, D.).
- 26) 2002- Ring Foundation, Duration and frequency of droughts in Israel and the Middle East. With Dr. H. Gvirtzman and Prof. Uri Dayan.
- 27) 2002-2004 - DFG, Urbanization impact on hydrology (surface, subsurface and water quality).
- 28) 2003-2004 - Israel Water Authority (Netzivut Ha'maim). Determining the duration of daily rainfall breaks (funded through A. Kessler Consulting).
- 29) 2004-2005 - International Arid Land Consortium (IALC). Direct measurement of flood water percolation in arid lands, With Dr. O. Dahan (Ben Gurion U) and Eric MacDonald (DRI). Funded mainly to BGU.
- 30) 2003-2008 - US-Army Research Office: Integrated Desert Environments: Forecasting terrain and dust conditions. Collaborative Research Proposal Submitted by Desert Research Institute, University of Washington, Hebrew University and Israel Geological Survey.
- 31) 2004-2007 - EU-VI Programme. WADE: Floodwater recharge of alluvial aquifers in dryland environments (Namibia, South Africa, Spain, and Israel).
- 32) 2003-2007 - US-Israel Bi-National Science Foundation: Long-Term Evolution of Bedrock Canyons on Arid Escarpments: The Margins of the Dead Sea Transtensional Basin. With: Itai Haviv (HUJI) K. Whipple (MIT/ASU) and J. Stone (U of Wash.).
- 33) 2004-2005 - Dead Sea R&D Center: Incision and deposition in tributaries in response to Dead Sea lake level drop; implications to infrastructure collapse.
- 34) 2006-2008- US-AID (CDR program): Flood recharge into arid alluvial aquifers along the western Namibia rivers. (with Desert Research Foundation of Namibia).
- 35) 2008-2012- Israel Science Foundation: Cliff retreat and talus slopes: Production and transport rates of sediments in hyperarid basins that dictate landform evolution. With Drs. R. Amit (co-PI, Isr. Geol. Survey) and A. Matmon, I. Haviv (CO-PI, Hebrew U).

- 36) 2009-2011 – BMBF-MOST (GLOWA): Hydrological drought analysis in the Jordan River catchment. With Drs. E. Morin, T. Grodek (Geography).
- 37) 2009-2013- US-Israel Bi-National Science Foundation, Predicting flash floods and their risk in a dry climate. With Profs. E. Morin, Dr. K. Georgakakos, and U. Dayan.
- 38) 2009-2012- GLOWA subproject 4.4: Coupling of Weap and TRAIN-ZIN in the Lower Jordan River. With Drs. Tamir Grodek and Efrat Morin.
- 39) 2012-2015- ISF Centers of Excellence- The Dead Sea borehole - The longest archive of the Levant geological and geophysical environments (climate, seismicity, magnetism), PI (w/Prof. Yigal Erel) of Sub-program No 2: The eastern Mediterranean and Levant paleo-climates from the sediments of the Dead Sea core: Paleo-hydrology, regional paleo-climatology, and aeolian dust.
- 40) 2012-2013- Israel Ministry of Infrastructure - Coastal and stream mouth erosion by modern and historical Dead Sea level rise: Implications to future widespread lateral erosion from planned water imports and level rises of the Dead Sea.
- 41) 2013-2015- Dead Sea Works- Changes in the regulated channel of Nahal HaArava during the last decades, southern Dead Sea basin. (W/ Prof. E. Morin).
- 42) 2015-2017- DFG - The Eastern Mediterranean - Levant paleoclimates: paleohydrology and extreme floods from the long ICDP Dead Sea core. With PIs: A. Brauer (GFZ, Potsdam) and J. Hasan (AQU, Jerusalem) and in collaboration with M. Ali AlQutob (AQU), Y. Erel (HUJI), B. Lazar (HUJI), and E. Morin (HUJI).
- 43) 2014-2018- ISF Centers of Excellence- The Dead Sea borehole - The longest archive of the Levant geological and geophysical environments (climate, seismicity, magnetism), Sub-program No 2: The eastern Mediterranean and Levant paleo-climates from the sediments of the Dead Sea core: Paleo-hydrology, regional paleo-climatology, and aeolian dust.

## **TEACHING**

### **GRADUATE STUDENTS:**

#### **MSc:**

- 1) Galit Kadan: Dead Sea Lake-Level Fluctuations and a Record of Earthquakes from the Fan-Delta of Nahal Darga. 1997. (w/ Y. Eyal, Ben Gurion University) (Grader Award, Isr. Geol. Soc.).
- 2) Hagai Ettinger: Modern and Paleofloods in the Ayalon-Yarkon Drainage System. 1996. (w/ H. Gvirtzman)
- 3) Oded Laub: The Control of Land Use over Flood Generation in the Ayalon-Yarkon Drainage system. (w/ H. Gvirtzman)
- 4) Hagit Ben-David: Extreme storms and Debris Flows on the Western Escarpment of the Dead Sea.
- 5) Eldad Barzilay: Modeling the Accumulation of Salic and Gypsic Soil Horizons in the extreme arid environment of the Arava, Israel as indicators to the Pleistocene-Holocene climate changes. (w/ R. Amit- Geol. Survey).
- 6) Ron Kahana: Synoptic climatology control on rainfall and extreme floods in the Negev Desert and the Arava valley, Israel.
- 7) Daniel Gluck: Neotectonics of the southwestern bounding fault of the Dead Sea basin. (w/ A. Heimann) (Grader Award-Isr. Geol Soc)
- 8) Yael Sagy: The morphology and tectonism of the Jordanian Arava mountain front and its control on alluvial fan size and distribution. (w/ R. Amit- Geol. Survey)
- 9) Rachel Menashe. Pleistocene environmental changes in the Western Negev. (w/ R. Amit- Geol. Survey)
- 10) Nathan Shefer. Paleofloods and floods on the Ardech River, France.
- 11) Gila Kuperman. Holocene Flooding episodes in the Arava (w/ M. Bar-Matthews and R. Amit).
- 12) Liran Ben-Moshe. Longitudinal profiles of alluvial streams of tributaries to the fast falling Dead Sea (w/ E. Zilberman).
- 13) Gal Karniel. The photographic record of the Dead Sea environmental changes (Culture Studies, HU).

- 14) Ayelet Sagy: Paleomagnetism of the Ubediya Fm.: One of the earliest out-of-Africa site (w/ H. Ron and O. Bar Yosef).
- 15) Ariel Cohen. The use of Cs-137 in determining erosion rates in semiarid drainage basin, Ruhama, Israel.
- 16) Michael Davis. Late Quaternary geomorphic response to climate, lake levels, and tectonism in the hyperarid northern Arava, Israel. (w/ A. Matmon and E. Zilberman).
- 17) Yuval Shani, co-advisor, Ben Gurion University, Floodwater infiltration and recharge of shallow alluvial aquifers. (w/ Ofer Dahan and Yoseph Yechieli).
- 18) Yonatan Bahat, co-advisor, Hydrological response of a hyperarid watershed: modeling approach. (w/ E. Morin)
- 19) Yonathan Goldsmith, co-advisor, The composition of Negev rock varnish in human artifacts. (w/M. Stein).
- 20) Maayan Harel, co-advisor, Dust sources into Mediterranean sandy red soils (Hamra) in the Israeli coastal Plain. (w/ R. Amit).
- 21) Michal Ben-Yisrael, co-advisor, The geochemistry of primary aeolian loess in the Negev: detecting the different sources of the coarse and fine fractions. (w/Y. Erel & R. Amit).
- 22) Matias Groisman, co-advisor, Coastal and stream mouth erosion by modern and historical Dead Sea level rise. (w/A. Mushkin)
- 23) Elad Dente, The evolution of Nahal HaArav in the southern basin of the Dead Sea in response to natural and artificial flows under lowering of base level. (w/ E. Morin and N. Lensky).
- 24) Ido Sirota, Present-day halite deposition on the Dead Sea lake floor (w/ N. Lensky).
- 25) Ran Shemesh, The erosion of the Israeli coastal cliff (w/Oded Katz and Onn Crouvi)
- 26) Nathalie Neagu, The evolution of Nahal Zafit-Tamar (w/Ari Matmon).

#### **PhD:**

- 1) Dr. Ari Matmon: Late Cenozoic Landscape Evolution of the Galilee: A Key in Understanding Regional Tectonism. Was at USGS-Menlo Park; currently: Professor in the Hebrew University. (Ben-Tor Award-Inst Earth Sci, Keynote Speech, Isr. Geol. Soc.).
- 2) Dr. Efrat Morin: Aggregation of meteorological radar data for runoff prediction; currently: Professor in the Hebrew University. (Goldshmidt Award, Isr. Hydro. Assoc. ).
- 3) Dr. Yuval Bartov: Lake Lisan lake-level fluctuations during the last 70 ka. Currently Chief Geologist of IEL, Israel (Grader Award-Isr. Geol Soc.; Shraga-Diker, Inst. Earth Sci. Award; Ben Tor Award).
- 4) Dr. Revital (Ken-Tor) Bookman: Holocene earthquakes and lake levels from the post-Lisan deposits in the Dead Sea. (mainly replacing A. Agnon for ~2 years). Post-doc in Syracuse University; currently: lecturer in Haifa University (Shraga-Diker, Inst. Earth Sci. Award).
- 5) Dr. Itai Haviv. Quantifying and modeling bedrock canyon evolution: the western escarpment of the Dead Sea rift. (Asher P. Schick Award in Geomorphology; Canadian Friends of the Hebrew University Fellowship; Shraga-Diker, Inst. Earth Sci. Award). (w/ Ari Matmon). Post-doctorate in Caltech; currently: lecturer in Ben Gurion University of the Negev.
- 5) Dr. Onn Crouvi: Depositional processes, diagenesis and pedogenesis of late Pleistocene eolian dust and loess in the northern Negev desert. Senior Researcher in the Geological Survey of Israel.
- 6) Maayan Harel, co-advisor, Formation of sandy reddish soils (Hamra) and the accretion of the Israeli Mediterranean Coastal Plain. (w/ R. Amit)
- 7) Elchanan Zuker, co-advisor, Salt tectonic impact on the submarine channels in the Eastern Mediterranean (w/ Z. Gvirtzman).
- 8) Yoav Ben Dor, co-advisor, Paleohydrology of storms and floods from the Deep Dead Sea core. (w/Yigal Erel)

#### **Post-Doctorates**

Dr. Noam Greenbaum, Flooding and prehistoric floods in the Arava in estimating long-term recharge (1996-1997) (Senior Lecturer, Haifa University).

**Courses Taught:**

- 1) Quaternary Geomorphology: one semester. 1992, 1994, 1996, 1998, 2001, 2003, 2008, 2011, 2013, 2015. (3 credit hours + three days field trip). Senior undergraduate and graduate students' seminar on climate and tectonic impact on geomorphology and continental environments.
- 2) Field Methods in Quaternary Research: one semester, 5-7 days field camp, 5 lectures. 1993, 1995, 1997, 1999, 2000, 2002, 2004, 2007, 2011, 2013, 2015 (5-5.5 credit hours). Senior undergraduate and graduate students. Extracting information from lacustrine, fluvial, slope, and soil environments, Active tectonics, fluvial responses to various impacts (base level, climate at all scales, human activity)
- 3) Landscape Evolution: each year, one semester, lectures, exercises, two days field camp/field trip. 1994-2015 (5-4 credit hours): Introductory course in geomorphology for senior undergraduate science students.
- 4) Extreme Events in Geomorphology: one semester, lectures and exercises, papers by students. 1993, 1997 (3 credit hours). Advance class for seniors and graduate students (including advanced statistics of extremes, energy in the fluvial systems, etc.).
- 5) Natural Hazards, 11 times 1992-2006 (3 credit hours). Lectures. Senior Geography students. Mainly, a critical evaluation how hazards are perceived by planners and alternative ways. Challenging the lack of data through geologic approaches.
- 6) Field Camp in Geomorphology: One semester, 7 field days for Geography undergraduates and class lectures, 1996-7 (12 students).
- 7) Students' Seminar in Physical Geography and Geology: 1992-1997. (about 20 graduate and undergraduate students).
- 8) Independent research of senior undergraduates (senior thesis). Seven students during the years.
- 9) Tectonic Geomorphology. Graduate students seminar (Jointly with Prof. A. Agnon) 1999 (14 students)
- 10) Natural Disasters (One fourth of the class taught with 3 other lecturers). One semester 1998, 2000, 2001.
- 11) Pro-seminar in Physical Geography. Senior Geography undergraduates. Frequency and magnitude in geomorphology. 2003, 2004.
- 12) Quaternary geomorphology of the northern and southern Negev (3 days fieldtrip, Geography and Earth Sciences senior undergraduate and graduate students), 2004.
- 13) Central Negev Geology. Senior undergraduate and graduate students fieldtrip (4-5 days, 10-12 students; with Y. Avni and E. Zilberman) 2007, 2013.
- 14) Environmental Studies Program graduate student seminar, 10-20 students. (2006, 2007, 2008, 2009, 2010, 2011)
- 15) Students-Teachers seminar. Senior undergraduates of the Environmental Studies Program, two semesters. 25-35 students. Annually 2006-2014.
- 16) Selected topics in environmental studies. 3-4 individual day trips to selected sites of major environmental problems in Israel. Environmental Studies Program, ~40 junior undergraduate students. Annually, 2007-2013.