

Maayan Yehudai

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Max Planck Institute for Chemistry, department of climate geochemistry
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Current position

Post-Doc Fellow of the Minerva Stiftung at the Max Planck Institute for Chemistry, department of Climate-Geochemistry

(2020-present)

Host advisors: Dr. Alfredo Martinez Garcia and Prof. Gerald Haug

Focus: Nitrogen isotope and organic biogeochemistry, paleoceanography and paleoclimate.

Education

2014-2020

PhD, Earth and Environmental science, Columbia University

Advisors: profs. Jerry McManus, Steven L. Goldstein and Gisela Winckler

Focus: Geochemistry, paleoceanography and paleoclimate.

Thesis title: *Geochemical studies of marine sediments from the Atlantic Ocean: Implications for past transitions in ocean circulation and dust deposition*

2011-2014

M.Sc., Oceanography

Institute of Earth Sciences, the Hebrew University of Jerusalem.

Advisors: profs. Moredechai Stein, Boaz Lazar and Amotz Agnon

Thesis title: *Calcitic corals from the northern red sea as paleohydrological monitors.*

2007-2010

B.Sc., Geology and environmental Sciences

Ben Gurion University in the Negev, Be'er Sheva.

Senior thesis title: *Distribution of magmatic and serpentine filled fractures in Troodos ophiolite, Cyprus.*

Supervisor: prof. Yaron Katzir

Research Interests

Paleoclimatology, Geochemistry, Paleoceanography, Biogeochemistry, Chemical-Oceanography, past/present Carbon Cycle dynamics, Past Ocean circulation, Global Nutrient Budgets

Research Experience

Postdoc Minerva Fellowship position at the Max Planck Institute for Chemistry, 2020-present

Advisors: Prof. Gerald Haug and Dr. Alfredo Martinez-Garcia

Projects:

- Pliocene-Pleistocene changes reconstruction in subtropical Atlantic productivity from N-isotopes
- Climatic and Anthropogenic impacts on Nutrient Cycling in the northern Gulf of Aqaba- insights from N-isotopes

Skills acquired:

Lab: Deep-ocean sediments and corals sample processing (picking, crushing), clean lab procedures and maintenance, mass spectroscopy (Thermo MAT253 Plus).

Field work: (future) Campaigns in the Red Sea for the purpose of seawater, coral and sediment samplings.

PhD student, Lamont Doherty Earth Observatory, Columbia University, 2014-2020

Advisors: Profs. Jerry F. McManus, Steven L. Goldstein, Gisela Winckler

Projects:

- Reconstruction of Atlantic Ocean circulation across the Mid-Pleistocene- Transition using Nd isotopes.
- Long-term changes in dust deposition at the nutrient poor Great Bahama Bank.

Skills acquired:

Lab: Deep-ocean sediments-sample processing (picking, crushing), clean lab procedures and maintenance (cleaning, dissolution, column chemistry), mass spectrometry (Atom ICP-MS, multi collector ICP MS, ELEMENT ICP MS)

Quantitative and computational: Age model tuning; proxy-data processing, time series analysis.

Field work: Graduate students field trip to the Bahamas carbonate platform (June 2015)

Gulf of Mexico oceanographic cruise participant (NSF funded) to study carbonate chemistry changes due to Hurricane activity (September 2017).

Graduate student field trip to Basin and Range tectonic region, Nevada (November 2016)

Graduate student Sevier Foreland and Orogen field trip, Utah (May-June 2019)

MSc student, Hebrew University of Jerusalem, Israel, 2011-2014

Advisors: Profs Mordechai Stein, Boas Lazar and Amotz Agnon

Project:

U-Th dating of uplifted altered coral reefs at the Gulf of Aqaba, Jordan

Skills acquired:

Quantitative and computational: Developed a quantitative model and a numerical solution to date the timing of uplifted coral terraces' alteration to calcite through interaction with freshwater, and the original reef deposition age, at The Gulf of Aqaba

Field work: excursions to north-eastern Gulf of Aqaba, Eilat and Barbados, Coralreefs mapping and sampling

Lab: Sample processing, column chemistry, mass spectrometry (multi collector ICP-MS), XRD

BSc student, Ben Gurion University in the Negev, Israel, 2007-2010

Senior Thesis Advisor: Prof. Yaron Katzir

Project:

The petrography and structure of peridotite hosted fractures filled with primary igneous minerals and secondary hydrous minerals, in the Troodos ophiolite.

Skills acquired:

Computational: statistical analysis of fractures spatial distribution and direction

Field work: Troodos ophiolite, Cyprus, fracture system mapping, sampling and crack measurements

Lab: sample processing and thin section petrographic data acquisition and analysis

Teaching experience

Teaching assistant at Columbia University:

The Carbon Cycle (with prof. Wallace Broecker), 2017

Responsibilities:

prepared recap-lectures for the end of each class, crafted homework assignments and graded them, graded exams and ran office hours.

The Climate System (With profs. Jerry McManus and Adam Sobel), 2016

Responsibilities:

Prepared and instructed labs and report assignments and graded them, worked in collaboration with other TAs to grade and develop lab reports, ran office hours.

Barbados Field trip (With prof. Steve Goldstein), 2016

Responsibilities:

Student research mini-projects mentoring, as prep for the field trip.

Oceanography (With prof. Bärbel Hönlisch), 2015

Responsibilities: Created and graded homework assignments and exams, ran office hours.

Teaching experience at the Hebrew University for the following courses:

Minerals and rocks, Magmatic and metamorphic petrology, Petrology lab, Stratigraphy, Geology and geophysics of the marine environment (at the Inter-University institute in Eilat), 2011-2013

Responsibilities:

prepared recap-lectures, prepared and instructed labs and report assignments and graded them, crafted homework assignments and graded them, graded exams and ran office hours.

Publications

Yehudai M., Kim J., Jaume-Seguí M., Goldstein S. L., Pena L. D., and Bickert T. (2021) Evidence for a Northern Hemispheric trigger of the 100,000-year glacial cyclicity, *PNAS*

Yehudai M., Lazar B., Kohn-Bar N., Shaked Y., Agnon A. and Stein M. (2016), U-Th dating of calcitic corals from the Gulf of Aqaba, *Geochimica et Cosmochimica Acta*

Bar N., Agnon A., **Yehudai M.**, Lazar B., Shaked Y. and Stein M. (2018) Last interglacial sea levels and regional tectonics from fossil coral reefs in the northeast Gulf of Aqaba, *Quaternary Science Reviews*

Farmer J.R., Hönisch B., Haynes L.L., Kroon D., Jung S., Ford H.L., Raymo M.E., Bell D.B., Jaume-Seguí M., Goldstein S.L., Pena L.D., **Yehudai M.**, and Kim J. (2019), Deep Atlantic Ocean carbon storage and the rise of 100,000-year glacial cycles, *Nature Geoscience*

Farmer J.R., Goldstein S.L., Haynes L.L., Hönisch B., Kim J., Pena L., Jaume-Seguí M. & **Yehudai M.**, (2019) Data constraints on ocean-carbon cycle feedbacks at the mid-Pleistocene transition. *Past Glob. Chang. Mag.* 27, doi:<https://doi.org/10.22498/pages.27.2.62>

Jaume-Seguí, M., Goldstein, S.L., Pena, L.D., Kim, J., **Yehudai, M.**, Knudson, K.P., Bolge, L., Ferretti, P., (2020) Distinguishing glacial AMOC and interglacial non-AMOC Nd isotopic signals in the deep western Atlantic over the last 1 myr. *Paleoceanography and paleoclimate*, doi:<https://doi.org/10.1029/2020PA003877>

Kim, J., Jaume-Seguí, M., **Yehudai, M.**, Knudson, K. P., Goldstein, S. L., Pena, L. D., and Ferretti, P., (2021) North Atlantic Deep Water during Pleistocene interglacials and glacials. *Quaternary Science Reviews*, doi:<https://doi.org/10.1016/j.quascirev.2021.107146>

In preparation

Yehudai M., Kim J., Jaume-Seguí M., Goldstein S. L., Pena L. D., and Bickert T., Modes in Atlantic overturning circulation over the past 1.5 Million years, *in prep*

Yehudai M., Ridge S., Tweed L. and Goldstein S. L., Addressing the nagging concentration problem in Nd-isotopes as ocean mixing tracers, *in prep*

Yehudai M., Framer J.R, Straub M., Studer A., Martinez-Garcia A. and Haug G., Pliocene-Pleistocene reconstruction of nitrogen fixation in the Equatorial Atlantic, *in prep*

Funding and Awards

Minerva Postdoctoral Fellowship (Minerva Stiftung, <http://www.minerva.mpg.de/>), 2021

Nominee: K. Patricia Cross Future Leaders Award, 2020 (<https://www.aacu.org/AM20/CrossAward>)

International Conference on Paleoceanography (ICP13) Travel Grant (provided by The Oceanography Society (TOS)), 2019

National Science Foundation fellowship, Urbino Summer School for Paleoclimatology Scholarship, 2017

1st Mark Pagani Student Poster Award, Urbino Summer School for Paleoclimatology, 2017

Chevron Student Initiative Fund, Lamont Doherty Earth Observatory, 2017

Outstanding Student Paper Award, American Geophysical Union Fall Meeting, 2016

Nominee: Thirty-fourth Sara Langer Book Prize for contributions to academic and student life at Lamont-Doherty, 2016

Baster scholarship for students in the oceanography department, The Hebrew University of Jerusalem., 2012

Professional Development

Innovative Teaching Summer Institute certification, Columbia University, 2017

Urbino Summer school for paleoceanography and paleoclimate, Urbino, Italy
(National Science Foundation fellow, Mark Pagani Student Poster Award recipient), 2017

Communicating Science Course
Columbia University, 2016

Professional administrative experience

Pear journal review: Arabian Journal of Geoscience, Geophysical Research Letters, Nature Communications

Climate-Geochemistry **seminar coordinator**, Max Planck Institute for Chemistry, 2020-present

1st Wally Broecker Symposium: volunteer, 2019

Goldschmidt geochemical conference, **session co-convener**, 8D: Dynamics and Mechanisms of Warm Climates and Climate Transitions, 2018

Geochemistry **seminar coordinator**, Lamont Doherty Earth Observatory, 2016-2017

Kaplan Symposium: paleoceanography and Paleoclimatology: Volunteer, 2012

Israel Geological Society annual meeting: Volunteer, 2011

Community and Diversity service

[Science Abroad](#) organization, Earth Science and geology field manager, 2020-present

Graduate Student Committee Diversity and Mentoring Chair, Lamont Doherty Earth Observatory, 2018-2019

Lamont-Doherty Professional Conduct Committee Member

[LDEO Gender & Diversity Group](#): Founder and organizer, 2016-2020

Columbia University Graduate Student Advisory Committee: Earth and Environmental Science representative, 2014-2015

Columbia University Graduate Student Advisory Committee: Earth and Environmental Science representative, 2014

Outreach and Science Communication

UN Ocean Decade Lab Satellite Event on Digital Twin Ocean Cities: Panelist, 2021

[Israel Arts and Science Academy](#) - Climate Awareness Week guest lecturer, 2021

Research as Art annual competition: organizer, 2014-2019

LDEO Open House: Volunteer, GEOTRACES exhibit, 2019
LDEO Open House: Volunteer, Lamont Core Lab, 2017
Sun-Earth Day at American Museum of Natural History: Volunteer, 2017
Girl's Science Day: Experiment instructor, 2015
LDEO Open House: Volunteer, tour guide, 2014

Invited Talks (seminars)

Yehudai M., U-Th dating of calcitic corals and their application for paleo-hydrology, *Lamont Doherty Earth Observatory Geochemistry Seminar*, Oct. 16th, 2015

Yehudai M., Northern Hemispheric trigger for the Mid-Pleistocene-Transition, *Ben-Gurion University, Israel*, April 16th, 2018

Yehudai M., Northern Hemispheric trigger for the Mid-Pleistocene-Transition, *Weismann institute, Israel*, October 7th, 2018

Yehudai M., Atlantic Meridional Overturning Circulation over the Pleistocene from Nd isotopes perspective, *Ben-Gurion University, Israel*, October 16th, 2018

Yehudai M., Northern Hemispheric trigger for the Mid-Pleistocene-Transition, *Hebrew University, Israel*, October 17th, 2018

Yehudai M., Northern Hemispheric trigger for the Mid-Pleistocene-Transition, *Cambridge, UK* October 19th, 2018

Conferences Talks

Yehudai, M., Kim, J., Jaume-Seguí, M., Goldstein, S. L., Pena, & Bickert, T., Northern Hemispheric trigger for The Mid-Pleistocene Transition, *Goldschmidt geochemical conference*, Boston, 2018

Yehudai M., Northern Hemispheric trigger for the Mid-Pleistocene-Transition, *AGU Fall Meeting*, Dec. 2018 (**Invited**)

Conferences Abstracts and Posters (partial)

Yehudai, M., Goldstein, S. L., Pena L., Kim, J., Jaume-Seguí, M., Basak C., Knudson K, Hartman A. E., & Lupien R, The Atlantic Meridional Overturning Circulation Over Time From Nd Isotopes, *European Geophysical Union General Assembly Conference Abstracts*, 2020

Yehudai, M., Kim, J., Jaume-Seguí, M., Goldstein, S. L., Pena L., & Bickert, T., Northern Hemispheric trigger for The Mid-Pleistocene Transition, *European Geophysical Union General Assembly Conference Abstracts*, Vienna, Austria, 2018

Yehudai, M., Kim, J., Jaume-Seguí, M., Goldstein, S. L., Pena, L. D., Haynes, L., Hönisch, B., Farmer, J., Ford, H., Raymo, M.E., & Bickert, T., The Equatorial Atlantic Ocean Thermohaline

Circulation Across the Mid-Pleistocene Transition, *Past Global Changes Open Science Meeting*, abstract ID-02357, Zaragoza, Spain, 2017

Yehudai, M., Kim, J., Jaume-Seguí, M., Goldstein, S. L., Pena, L. D., Haynes, L., Hönlisch, B., Farmer, J., Ford, H., Raymo, M.E., Ferretti, P. & Bickert, T., Changes in North to Equatorial Atlantic Ocean Thermohaline Circulation Across the Mid-Pleistocene Transition, *International Conference of Paleoceanography*, abstract #596, Utrecht, Netherlands, 2016

Yehudai, M., Kim, J., Jaume-Seguí, M., Goldstein, S. L., Pena, L. D., Haynes, L., Hönlisch, B., Farmer, J., Ford, H., Raymo, M.E., & Bickert, T., Changes in Atlantic Ocean Thermohaline Circulation Across the Mid-Pleistocene Transition, *American Geological Union Fall Meeting*, abstract ID-197873, San Francisco, USA, 2016

Yehudai M., Lazar B., Kohn N., Shaked Y., Agnon A. & Stein M., U-Th dating of calcitic corals from the Gulf of Aqaba indicates freshwater activity during sapropels S5 and S4, *American Geophysical Union Fall Meeting*, abstract #PP33D-1270, San Francisco, USA, 2014

Yehudai M., Lazar B., Kohn N., Shaked Y., Agnon A. & Stein M., Calcitic Corals from the Northern Red Sea as Paleohydrological Monitors, *Mineralogical Magazine, Goldschmidt geochemical conference*, Abstract ID- 77(5) 2557, Florence, Italy, 2013

Yehudai M., Abelson M., Katzir Y., Distribution of magmatic and serpentine filled fractures in Troodos ophiolite, Cyprus, *Israel Geological Society annual meeting*, Israel, 2011

Media Coverage

“Seafloor cores suggest sticky, thick glaciers caused mysterious shift in ice age rhythms” *Science, Earth news*, story by Paul Voosen, Aug. 22nd 2018

<http://www.sciencemag.org/news/2018/08/seafloor-cores-suggest-sticky-thick-glaciers-caused-mysterious-shift-ice-age-rhythms>

“Are glaciers behind perplexing shift in paleoclimate Ice Age patterns?” *Glacier Hub featured story*, story by Natalie Belew, Sept. 19th, 2018

<http://glacierhub.org/2018/09/19/are-glaciers-behind-perplexing-shift-in-paleoclimate-ice-age-patterns/>

Memberships

2016-2020	The New York Academy of Sciences: member
2016-present	European Association of Geochemistry
2014-present	American Geophysical Union
2010-2020	Israel Geological society

Recommendation letters

Prof. Jerry McManus
Lamont Doherty Earth Observatory
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Prof. Steve Goldstein
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