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Education

- 2005-2007 B.A. in Archaeology and Comparative literature, Hebrew University, Jerusalem, Israel
- 2008-2009 Supplement courses for acceptance to the Earth Science M.Sc program, Hebrew University, Jerusalem, Israel
- 2010-2011 M.Sc in Geology and Geochemistry, Hebrew University, Jerusalem, Israel
Thesis: *Characterizing rock varnish developed on earliest Holocene Negev flint artifacts as a potential environmental or climatic indicator*
Advisers: Enzel, Y. and Stein, M.
- 2015 M.Phil in Earth and Environmental Sciences, Columbia University, New York
- 2012-2017 PhD in Geochemistry and Paleoclimate, Lamont-Doherty Earth Observatory of Columbia University, New York
Thesis: *Trans-Asian glacial - interglacial paleohydroclimate: reconstructed using lake geomorphology and organic and inorganic stable isotopes*
Advisers: Broecker, W. S., Polissar, P. J. and deMenocal, P.B.

Academic appointments

- 2017-2018 Post-doctoral Fellow, California Institute of Technology
Host: Adkins, J. and Sessions, A.
- 2019-present Senior Lecture, Hebrew University of Jerusalem

Research interests

My research focuses on investigating processes that govern the global hydrologic cycle by quantifying the magnitude, timing and spatial distribution of precipitation and temperature on decadal, millennial, and orbital timescales. I combine geomorphology with isotope geochemistry (compound specific stable isotopes (δD , $\delta^{13}C$), traditional stable isotopes (δD , $\delta^{18}O$, $\delta^{13}C$), clumped isotopes and U/Th dating) to investigate how the status of lakes have changed through time. I use hydrological models and outputs of climate models to quantify and evaluate the empirical data I collect. I am also interested in how human societies respond to climate change throughout history and in the present.

Fellowships and awards

- 2014 Peretz-Grader award for excellence in research from the Israel Geological Society.
- 2017 Bruce C. Heezen Award for outstanding academic and research achievement in the Earth Sciences, Lamont-Doherty Earth Observatory, Columbia University.
- 2017 Caltech Postdoctoral Geochemistry Option Fellowship

Publications**Publications in refereed journals**

- 2021 Zhang, S., Xu, H., Lan, J., **Goldsmith, Y.**, Torfstein, A., Zhang, G., Zhang, J., Song, Y., Zhou, K., Tan, L., Xu, X., and Enzel, Y., Dust storms in northern China during the last 500 years. *Science China Earth Sciences*, 64:813-824.

- 2020 Barzilai, O., **Goldsmith, Y.**, Shemer, M., Porat, N., and Crouvi, O. Evidence for a Middle Paleolithic flint workshop in Arnona, south Jerusalem. *Journal of the Israel Prehistoric Society*, 50:6–34.
- 2020 **Goldsmith, Y.**, and Xu, H. Samples not in stratigraphic order are not suitable to constrain ages of paleo- lake stands. *Journal of Quaternary Sciences*, 2020: 1-2.
- 2020 Xu, H., **Goldsmith, Y.**, Tan, L., Lan, J., Wang, X., Lang, L., Sheng, E., Liu, B., Yu, K., Ye, Y., Yan, D., Zhou, K and Zhou, X.. Juxtaposition of Western Pacific Subtropical High on Asian Summer Monsoon Shapes Subtropical East Asian Precipitation. *Geophysical Research Letters*, 47:e2019GL084705.
- 2019 **Goldsmith, Y.**, Polissar, P. J., deMenocal, P. B. and Broecker, W. S., From plants to soils – leaf wax δD and $\delta^{13}C$ variability reduction during integration into soils, recorded along a rainfall gradient in Israel. *JGR: Biogeosciences*, 124(9):2898-2916.
- 2019 Shelach-Lavi, G., Mingyu, T., **Goldsmith, Y.**, Wachtel, I., Ovadia, A., Xiongfei, W. and Marder, O., Onset of northeast China sedentism and domestication occurred during wet conditions. *PLoS ONE*, 14(7):e0218751.
- 2019 Yan, D., Xu, H., Yang, M., Lan, J., Hou, W., Wang, F., Zhang, J., Zhou, K., An, Z., and **Goldsmith, Y.** 2019. Responses of cyanobacteria to climate and human activities at Lake Chenghai over the past 100 years. *Ecological Indicators*, 104:755-763.
- 2019 Xu, H., Song, Y., **Goldsmith, Y.**, and Lang, Y., 2019. Meridional ITCZ shifts modulate tropical/subtropical Asian monsoon rainfall. *Science Bulletin*, 64: 1737-1739.
- 2018 Crouvi, O., Barzilai, O., **Goldsmith, Y.**, Amit, R., Porat, N., and Enzel, Y. 2018. Mid- and Late Pleistocene dust accretion in Jerusalem's prehistoric sites indicating a drastic change in upwind Levant deserts. *Quaternary Science Reviews*, 191:101-117.
- 2017 **Goldsmith, Y.**, Polissar, P. J., Ayalon, A., Bar-Matthews, M., Broecker, W. S. and deMenocal, P. B., 2017. The modern and LGM hydrological cycles of the Eastern Mediterranean and the Levant from a water isotope perspective. *Earth and Planetary Science Letters*, 457:302-312.
- 2017 **Goldsmith, Y.**, Broecker, W. S., Xu, H., Polissar, P. J., deMenocal, P. B., Porat, N., Lan, J., Zhou, W., Cheng, P. and An, Z. 2017. Reply to Liu et al.: East Asian summer monsoon rainfall dominates Lake Dali lake area changes. *Proceeding of the National Academy of Sciences*, 114(15): E2989-2990.
- 2017 **Goldsmith, Y.**, Broecker, W. S., Xu, H., Polissar, P. J., deMenocal, P. B., Porat, N., Lan, J., Zhou, W., Cheng, P. and An, Z. 2017. Northward extent of East Asian Monsoon covaries with intensity on orbital and millennial timescales. *Proceeding of the National Academy of Sciences*, 114(8): 1817-1821.
- 2016 Shelach-Lavi, G., Mingyu, T., **Goldsmith, Y.**, Wachtel, I., Ovadia, A., Xiongfei, W. and Marder, O., 2016. Human adaptation and socio-economic change in Northern China: Results of the Fuxin regional survey. *Journal of Field Archaeology*, 41(4):467-485.
- 2014 Davidovich, U., **Goldsmith, Y.**, Porat, R. and Porat, N., 2014. Dating and interpreting desert structures: The enclosures of the Judean Desert, Southern Levant, re-evaluated. *Archaeometry*, 56:878-897.
- 2014 **Goldsmith, Y.**, Stein, M. and Enzel, Y., 2014. From Dust to varnish: Geochemical constraints on rock varnish formation in the Negev Desert, Israel. *Geochimica et Cosmochimica Acta*. 126:97-111.
- 2012 **Goldsmith, Y.**, Stein, M. and Enzel, Y., 2012. Systematic Mn fluctuations in laminated rock varnish developed on coeval early Holocene flint artifacts along a climatic transect, Negev desert, Israel. *Quaternary Research*, 78: 474-485.
- 2011 Marder, O., Malinsky-Buller, A., Shahack-Gross, R., Ackermann, O., Ayalon, A., Bar-Matthews, M., **Goldsmith, Y.**, Inbar, M., Rabinovich, R. and Hovers, E., 2011. Archaeological horizons and fluvial processes at the Lower Paleolithic open-air site of Revadim (Israel). *Journal of Human Evolution*, 60(4): 508-522.
- 2011 Grosman, L., **Goldsmith, Y.** and Smilansky, U., 2011. Morphological analysis of Nahal Zihor Handaxes: A chronological perspective. *PaleoAnthropology*, 2011:203-215.

Reports

- 2019 Shelach-Lavi, G., Mingyu, T., **Goldsmith, Y.**, Su, J., Marder O., Tu, D., and Shavit, R. 2019. 2015 Nian Liaoningsheng Fumengxian Jiagiagouxi yizhi shijue baogao (Report on the 2015 test excavations at the Jiagiagouxi site, Fumeng County, Liaoning Province; 2015). *Bianjian kaogu yanjiu*, 25:1-40.
- 2011 **Goldsmith, Y.** Characterizing rock varnish developed on earliest Holocene Negev flint artifacts as a potential environmental or climatic indicator. *GSI report*. GSI/33/2011.

Theses

- Goldsmith, Y. 2017.** Trans-Asian glacial - interglacial paleohydroclimate: reconstructed using lake geomorphology and organic and inorganic stable isotopes (PhD submitted to Columbia University, Supervisors: Broecker, W. S., deMenocal, P.B. and Polissar, P. J.)
- Goldsmith, Y. 2011.** Characterizing rock varnish developed on earliest Holocene Negev flint artifacts as a potential environmental or climatic indicator. (M.Sc. thesis submitted to the Hebrew University in Jerusalem, Supervisors: Enzel, Y. and Stein, M).

Invited talks

- 2020 **Goldsmith, Y.**, Water isotopes in rain, plants and soils in Israel – from modern systematics to paleoclimate. Environmental Department, Hebrew University.
- 2020 **Goldsmith, Y.**, Quantifying Holocene rainfall and evaporation in East Asia. Geological Survey of Israel.
- 2020 **Goldsmith, Y.**, Systematics of rain, soil and speleothem water isotopes in Israel and their applicability to archaeology. Institute of Archaeology, Hebrew University.
- 2020 **Goldsmith, Y.**, Quantifying Holocene rainfall and evaporation in East Asia. Weizmann Institute.
- 2019 **Goldsmith, Y.**, East Asian Paleo water availability. USC.
- 2019 **Goldsmith, Y.**, Wally the Hydrologist. Broecker symposium, Columbia University.
- 2018 **Goldsmith, Y.**, Paleohydrology of the East Asian monsoon. Cal-State Long Beach.
- 2017 **Goldsmith, Y.**, The oscillating fringe of the East Asian monsoon and it's impact of social evolution in North China. Climate Change and Human Migration – Busan, South Korea.
- 2016 **Goldsmith, Y.**, The oscillating fringe and paleo-intensity of the East Asian monsoon reconstructed using closed-basin lake-area and δD_{wax} . Caltech.
- 2016 **Goldsmith, Y.**, Did the oscillating fringe and intensity variations of the East Asian monsoon impact the onset of domestication and urbanization in North China? University of Connecticut.
- 2016 **Goldsmith, Y.**, The oscillating fringe and paleo-intensity of the East Asian monsoon reconstructed using closed-basin lake-area and δD_{wax} . Institute of Earth Environment - Chinese Academy of Sciences, Xi'an.
- 2016 **Goldsmith, Y.**, The oscillating fringe and paleo-intensity of the East Asian monsoon reconstructed using closed-basin lake-area and δD_{wax} . Weizmann Institute.
- 2016 **Goldsmith, Y.**, The oscillating fringe and paleo-intensity of the East Asian monsoon reconstructed using closed-basin lake-area and δD_{wax} . Beer Sheva University.
- 2015 **Goldsmith, Y.**, The modern and LGM hydrological cycles of the Eastern Mediterranean and the Levant from a water isotope perspective. Weizmann Institute.
- 2015 **Goldsmith, Y.**, The modern and LGM hydrological cycles of the Eastern Mediterranean and the Levant from a water isotope perspective. Hebrew University.

Conference presentations

- 2021 **Goldsmith, Y.**, Burstyn Y., Towards reconstructing paleo-water activity using lake level and gastropod TE/Ca ratios. EGU 2021
- 2021 Kutuzov, I., Oved-Rosenberg, Y., **Goldsmith, Y.**, Eizenshtat, Z., Feinstein, S and Amrani. Geochemical characteristics of the oil pollution and their use for forensic and natural weathering studies. IGS 2021.
- 2018 **Goldsmith, Y.**, Pairing Stable Isotopes with Lake Level – A Path for Reconstructing Paleo-Evaporation? Goldschmidt 2018.
- 2017 **Goldsmith, Y.**, The oscillating fringe of the East Asian monsoon. Asian monsoon variability workshop, Xi'an China.
- 2017 **Goldsmith, Y.**, Late Pleistocene – Holocene water availability in South China. Comer Conference.
- 2017 **Goldsmith, Y.**, The oscillating fringe of the East Asian monsoon. GSA 2017.
- 2016 **Goldsmith, Y.**, The oscillating fringe and paleo-intensity of the East Asian monsoon reconstructed using closed-basin lake-area and δD_{wax} . AGU 2016.
- 2016 **Goldsmith, Y.**, Closing the closed-basin-lake gap in East Asia. Comer Conference.
- 2016 **Goldsmith, Y.**, Northeastern China lake-area record confirms rainfall interpretation of Chinese cave deposits records. Loess Forum, Xi'an China.
- 2015 **Goldsmith, Y.**, Broecker, W.S., Xu, H., Polissar, P., deMenocal, P., Porat, N., Peng, C., Zhou, W. and An, Z. Precessional and millennial scale precipitation shifts of the East Asian Summer Monsoon recorded by paleo-lake levels from Dali Lake, Inner Mongolia, China. Comer Conference.
- 2015 **Goldsmith, Y.**, The modern and LGM hydrological cycles of the Eastern Mediterranean and the Levant from a water isotope perspective. GFD (Geophysical fluid dynamics) Days conference 2015 (III), Sde Boqer, Israel.
- 2015 **Goldsmith, Y.**, Polissar, P. J, deMenocal, P. B. and Broecker, W. S. (Poster) Soil $\delta D_{leafwax}$ as a proxy for $\delta D_{precipitation}$. Constraining the climatic interpretation of soil $\delta D_{leafwax}$ and $\delta^{13}C_{leafwax}$ recorded along a rainfall gradient in Israel. PlantWax2015, Switzerland.
- 2014 **Goldsmith, Y.**, Broecker, W.S., Xu, H., Polissar, P., deMenocal, P., and An, Z. Spatial-latitude shifts of the East Asian Summer Monsoon recorded by paleo-shorelines from Dali Nou'er Lake, Inner Mongolia, China. Comer Conference.
- 2013 Crouvi, O., Barzilai, O., **Goldsmith, Y.**, Porat, N., Amit, R., and Enzel, Y. Geoarchaeology of Prehistoric sites in southern Jerusalem: Sediments, Paleosols, dust and flint artifacts. Prof. Gerald M. Friedman Seminar Day in Current Research in Geo-Archaeology.
- 2012 **Goldsmith, Y.** Rock varnish as a potential environmental or climatic indicator. Geological Survey of Israel annual meeting, Jerusalem.
- 2012 **Goldsmith, Y.** Characterizing rock varnish developed on earliest Holocene Negev flint artifacts as a potential environmental or climatic indicator. Israel Geological Society annual meeting, Ashkelon.
- 2012 Ekshtain, R., Sharon, I., Goldsmith, Y., and Birkenfeld, M. Marking old territories: Using ArcGIS models for raw material survey areas in the Levantine Middle Paleolithic. A case study from Qafzeh cave, Israel. Debating Spatial Archaeology: International Workshop on Landscape and Spatial Analysis in Archaeology. Santander, Spain.
- 2008 **Goldsmith, Y.**, and Sharon, I. Positioning Strategies of Square and Oval Iron Age Enclosed Sites in the Negev – A Geographic Approach. New approaches for computer applications in the Archaeology and Cultural Heritage of the Southern Levant.