

HAGIT P. AFFEK

Date of place of birth: October 23, 1971, Washington DC, USA.
Affiliation: The Fredy & Nadine Herrmann Institute of Earth Sciences,
The Hebrew University of Jerusalem
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EDUCATION

BA - 1994, Technion (Chemistry); MSc - 1994, Weizmann Institute of Science (Chemistry);
PhD - 2003, Weizmann Institute of Science (Environmental Sciences and Energy Research);
postdoc - 2003-2007, Caltech (Geological and Planetary Sciences).

APPOINTMENTS

Yale University (Geology & Geophysics):
Assistant Professor - 2007, Associate Professor - 2012;
Hebrew University:
Associate Professor - 2015.
Administrative appointments (Yale University):
Director of Postdocs Affairs - 2011-2012.
Deputy director of the Earth Systems Center for Stable Isotopic Studies - 2010-2015.

AWARDS AND HONORS

Kavli Fellow – 2013
Annual prize of the Israel Chemical Society - 2003
Early Career Scientist Award, Gordon Research Conference of Biogenic Hydrocarbons & the
Atmosphere – 2002
Outstanding student paper award at the AGU spring meeting - 2002
Outstanding student paper award in the Conference of the Israel Society for Ecology and
Environmental Quality Sciences – 2000
Dean's List of the faculty of chemistry in the Technion – 1993, 1994.

SELECTED PROFESSIONAL ACTIVITY

Associate Editor for Geochimica et Cosmochimica Acta - 2014-present.
Biogeochemistry Theme chair for Goldschmidt conference 2016.
Session chair in international conferences – AGU 2015, Goldschmidt 2009, 2011.
Organizing committee member for the annual Clumped isotopes workshop – 2013, 2014, 2015.
NSF panel member, 2014.
Reviewer for a range of journals and funding authorities.

SELECTED TEACHING

Yale University: The global carbon cycle; Forensic Geoscience.
Hebrew University: Atmospheric chemistry.

LIST OF PUBLICATION or Google scholar site

Google scholar:

https://scholar.google.com/citations?hl=en&user=uavx7qgAAAAJ&view_op=list_works

JOURNAL ARTICLES (# INDICATES STUDENT OR POSTDOC FIRST AUTHOR)

- **Affek H.P.**, Ronen D. and Yakir D. (1998) Production of CO₂ in the capillary fringe of a deep phreatic aquifer. *Water Resources Research* 34(5), 989-996.
- **Affek H.P.** and Yakir D. (2002) Protection by isoprene against singlet oxygen in leaves. *Plant Physiology* 129(1), 269-277.
- **Affek H.P.** and Yakir D. (2003) Natural abundance carbon isotope composition of isoprene reflects incomplete coupling between isoprene synthesis and photosynthetic carbon flow. *Plant Physiology* 131, 1727-1736.
- **Affek H.P.**, Krisch M.J. and Yakir D. (2006) Effects of intra-leaf variations in carbonic anhydrase activity and gas exchange on leaf C¹⁸O isoflux in *Zea mays*. *New Phytologist* 169(2), 321-329.
- **Affek H.P.** and Eiler J.M. (2006) Abundance of mass 47 CO₂ in urban air, car exhaust and human breath. *Geochimica et Cosmochimica Acta* 70, 1-12.
- Ghosh P., Adkins J., **Affek H.P.**, Balta B., Guo W., Schauble E. A. and Eiler J.M. (2006) ¹³C-¹⁸O bonds in carbonate minerals: A new kind of paleothermometer. *Geochimica et Cosmochimica Acta* 70, 1439-1456.
- **Affek H.P.**, Xu, X. and Eiler J.M. (2007) Seasonal and diurnal variations of ¹³C¹⁸O¹⁶O in air: Initial observations from Pasadena, CA. *Geochimica et Cosmochimica Acta* 71. 5033-5043.
- **Affek H.P.**, Bar-Matthews M., Ayalon A., Matthews A., and Eiler J.M. (2008) Glacial/interglacial temperature variations in Soreq cave speleothems as recorded by 'clumped isotope' thermometry. *Geochimica et Cosmochimica Acta* 72. 5351-5360.
- Newman S., Xu X., **Affek H.P.**, Stolper E., Epstein S. (2008) Changes in mixing ratio and isotopic composition of CO₂ in urban air in the Los Angeles basin, California, between 1972 and 2003. *Journal of Geophysical research - atmospheres*. 113. D23304.
- Huntington K., Eiler J., **Affek H.P.**, Guo W., Bonafacie M., Yeung L.Y., Thiagarajan N., Passey B., Tripathi A., Daëron M., Came R. (2009) Methods and limitations of 'clumped' CO₂ isotope (Δ₄₇) analysis by gas source isotope ratio mass spectrometry. *Journal of Mass Spectrometry* 44. 1318-1329.
- Yeung L.Y.*, **Affek H.P.***, Hoag K.J., Guo W., Wiegel A.A., Atlas E.L., Schauffler S.M., Okumura M., Boering K.A. and Eiler J.M. (2009) Large and unexpected enrichment in stratospheric ¹⁶O¹³C¹⁸O and its meridional variations. *PNAS* 106 (28). 11496-11501 (*equal contribution by Yeung and Affek).
- Keating-Bitonti C., Ivany L., **Affek H.**, Douglas P., Samson S. (2011) Warm, not super-hot, temperatures in the Early Eocene subtropics. *Geology* 39 (8). 771-774.
- Zaarur S.#, Olack G.A., **Affek H.P.** (2011) Paleo-environmental implications of clumped isotopes in land snails shells. *Geochimica et Cosmochimica Acta* 75. 6859-6869.
- Dennis K.J., **Affek H.P.**, Passey B.H., Schrag D.P., Eiler J.M. (2011) Defining an absolute reference frame for 'clumped' isotope studies of CO₂. *Geochimica et Cosmochimica Acta*. 75. 7117-7131.
- Brand U., Posenato R., Came R., **Affek H.**, Angiolini L., Azmy K., Farabegoli E. (2012) The end Permian mass extinction: a volcanic CO₂ and CH₄ – climatic catastrophe. *Chemical Geology*. 322-3. 121-144.

- Kluge T.[#], **Affek H.P.** (2012) Quantifying kinetic fractionation in Bunker cave speleothems using Δ_{47} . *Quaternary Science Reviews*. 49. 82-94.
- Saenger C.[#], **Affek H.P.**, Felis T., Thiagarajan N., Lough J.M., Holcomb M. (2012) Carbonate clumped isotope variability in shallow water corals: Temperature dependence and growth-related vital effects. *Geochimica et Cosmochimica Acta*. 99. 224-242.
- Kluge T.[#], **Affek H.P.**, Marx T., Aeschbach-Hertig W., Riechelmann D.F.C., Scholz D., Riechelmann S., Immenhauser A., Richter D.K., Fohlmeister J., Wackerbarth A., Mangini A., Spötl C. (2013) Reconstruction of drip-water $\delta^{18}\text{O}$ based on calcite oxygen and clumped isotopes of kinetic speleothems from Bunker Cave (Germany). *Climate of the Past*. 9. 377-391.
- **Affek H.P.** (2013) Clumped isotopic equilibrium and the rate of isotope exchange between CO_2 and water. *American Journal of Science*. 313. 309-325.
- Zaarur S.[#], **Affek H.P.**, Brandon M.T. (2013) A revised calibration of carbonate clumped isotopes thermometer. *Earth and Planetary Research Letters*. 382. 47-57.
- Kluge, T.[#], **Affek, H.P.**, Zhang, Y.G., Dublyanski, Y., Spötl, C., Immenhauser, A., Richter, D.A., (2014) Clumped isotope thermometry of cryogenic cave carbonates. *Geochimica et Cosmochimica Acta*. 126, 541-554.
- Came R.E., Brand U., **Affek H.P.** (2014) Calibration of the carbonate clumped isotope paleothermometer using modern brachiopods. *Chemical Geology*. 377, 20-30.
- Douglas P.[#], **Affek H.P.**, Ivany L., Houben A.J.P., Sijp W., Sluijs A., Scouten S., Pagani M. (2014) Pronounced zonal heterogeneity in Eocene southern high latitude sea surface temperatures. *PNAS*. 111(18), 6582-6587.
- Kluge T.[#], **Affek H.P.**, Spötl C. Dublyansky Y. (2014) Devils Hole paleotemperatures and implications for oxygen isotope equilibrium fractionation. *Earth and Planetary Research Letters*. 400, 251-260.
- **Affek H.P.**, Zaarur S. (2014) Kinetic isotope effect in CO_2 degassing: insight from clumped and oxygen isotopes in laboratory precipitation experiments. *Geochimica et Cosmochimica Acta*. 143, 319-330.
- **Affek H.P.** Ayalon A., Bar-Matthews M., Bursteyn Y., Matthews A., Zaarur S. (2014) Accounting for kinetic isotope effects in Soreq Cave (Israel) speleothems. *Geochimica et Cosmochimica Acta*. 143, 303-318.
- Zaarur S.[#], **Affek H.P.**, Stein M. (2016) Last glacial-Holocene temperatures and hydrology of the Sea of Galilee and Hula Valley from clumped isotopes in *Melanopsis* shells. *Geochimica et Cosmochimica Acta*. 179, 142-155.

BOOK CHAPTERS:

- Affek, H.P. (2012) Clumped isotope paleothermometry: Principles, applications, and challenges. in Linda C. Ivany and Brian Huber (eds.), *Reconstructing Earth's Deep-Time Climate – The State of the Art in 2012*. Paleontological Society Papers, v. 18. 101-114.
- Affek H.P., Yakir D. (2014) The stable isotopic composition of atmospheric CO_2 . In Holland H.D. and Turekian K.K. (eds.) *Treatise on Geochemistry*, Second Edition, vol. 5pp. 179-212. Oxford: Elsevier.

POPULAR SCIENCE:

Yale Alumni Magazine Forum article 'What we know about the climate'. July/August 2010.

INVITED CONFERENCE AND WORKSHOPS TALKS

ISOTOPES 2015 conference (June 2015)

Instructor in University of Utah IsoCamp summer school (June 2014)

Goldschmidt conference keynote talk (June, 2014)

Clumped isotopes workshop, Harvard University (January, 2013)

Short course on Paleoclimate Proxies at the 2012 GSA Meeting (November, 2012)

Goldschmidt conference (June, 2012)

Clumped isotopes workshop, Imperial College, London, UK (August, 2011)

Clumped isotopes workshop, University of Washington (April, 2010)

Goldschmidt conference (July, 2008)

Med-CLIVAR conference (June, 2008)

Gordon Research Conference of Biogenic Hydrocarbons & the Atmosphere (September, 2002).