

# Allison W. Jacobel

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## Office Address

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## Summary

Oceanographer with applied knowledge of stable and radiogenic isotope systematics, marine geology and paleoclimatology. Advanced experience with climate reconstructions on orbital and millennial timescales using geochemical and micropaleontological techniques to analyze marine archives.

## Education

**Ph.D. Columbia University** 2017  
Department of Earth and Environmental Sciences

**M.A. Columbia University** 2013  
Department of Earth and Environmental Sciences

**B.A. Macalester College** 2011  
Geology Department, with Honors, Magna Cum Laude  
Minor in Environmental Studies

## Research Experience

**Postdoctoral Research Scientist** Columbia University August 2017-Present

- Reconstruction of glacial respired CO<sub>2</sub> concentrations in the Pacific
- Analysis of carbon isotope gradients between benthic foraminifera species

**Scientific Party**, RRS Discovery (DY081) July-Aug 2017

- Principal sedimentologist and core curator
- ITRAX XRF core logging

**Doctoral Dissertation**, Columbia University 2014-2017

- Reconstructed dust fluxes and ITCZ shifts over the last four glacial cycles
- U-series isotope analysis of sediments (<sup>238</sup>U, <sup>232</sup>Th, <sup>230</sup>Th, <sup>231</sup>Pa)
- First-authored research results published in Nature Communications and EPSL

**Scientific Party**, RRS James Cook (JC094) October-Dec 2013

- ROV sampling, sediment coring, sample curation and CTD/Niskin analysis
- Foraminifera biostratigraphy, assemblage analysis and stable isotope analyses

**Masters Thesis**, Columbia University 2011-2013

- Stable isotope and trace element analyses of *Globigerinoides ruber*
- Coulometry and spectrophotometry of marine sediments

**Scientific Party**, R/V Marcus G. Langseth (ML1208) June 2012

- Sediment coring, sample curation, water sampling and geophysical surveying

**Honors Thesis**, Macalester College Department of Geology 2010-2011

- X-Ray diffractometry of coastal marine clays

**Undergraduate Research Internships** 2008-10

- NSF REU, Lamont-Doherty Earth Observatory
- Summer Student Fellow, Woods Hole Oceanographic Institution
- NSF REU, University of Texas at Austin
- Results of all three research projects presented at AGU

## Publications

**Jacobel, A.W.**, McManus, J.F., Anderson R.F. and Winckler, G. Repeated storage of respired carbon in the equatorial Pacific Ocean over the last three glacial cycles. *Nature Communications*, 8 (2017). DOI:10.1038/s41467-017-01938-x

**Jacobel, A.W.**, McManus, J.F., Anderson R.F. and Winckler, G. Climate-related response of dust flux to the central equatorial Pacific over the past 150 kyr. *Earth and Planetary Science Letters*, 457C (2017) pp. 160-172. DOI:10.22498/pages.25.2.118

Costa, K.M., **Jacobel, A.W.**, McManus, J.F., Anderson, R.F., Winckler G. and Thiagarajan, N. Deglacial patterns of surface productivity in the Equatorial Pacific. *Global Biogeochemical Cycles* (2017), 31 pp. 850-865, 2017. DOI: 10.1002/2016GB005579

Hillaire-Marcel, C., Maccali, J., de Vernal, A., Cuny, K., **Jacobel, A.**, LeDuc, C., Ghaleb, B., McManus, J., Stein, R., Polyak, L. Revised chronology of late Quaternary sequences from the central Arctic Ocean based on "extinction ages" of their excesses in  $^{231}\text{Pa}$  and  $^{230}\text{Th}$ . *Geochemistry, Geophysics, Geosystems*, 18, 45734585. DOI:10.1002/2017GC007050

Capron, E., Vzquez, R., He, F., **Jacobel, A.W.** and Zhang, X. Spatial pattern and temporal evolution of glacial terminations over the last 800 ka. *Past Global Changes Magazine*, vol. 25(2), 118, 2017. DOI:10.22498/pages.25.2.118

**Jacobel, A.W.**, McManus, J.F., Anderson R.F. and Winckler, G. Large Deglacial Shifts of the Pacific Intertropical Convergence Zone. *Nature Communications*, 7 (2016). DOI:10.1038/ncomms10449

Lyle, M., Pockalny, R., Polissar, P., Lynch-Stieglitz, J., Bova, S., Ford, H., Hertzberg, J., Hovan, S., **Jacobel, A.W.**, *et al.* Dynamic carbonate sedimentation on the Northern Line Islands Ridge, Palmyra Basin. *Marine Geology*, 379 (2016). DOI:10.1016/j.margeo.2016.06.005

Lynch-Stieglitz, J., Polissar, P.J., **Jacobel, A.W.**, *et al.*, Glacial-Interglacial Changes in Central Tropical Pacific Surface Seawater Property Gradients. *Paleoceanography*, 30 (2015). DOI:10.1002/2014PA002746

## Manuscripts in Progress

Ng, H.C., Robinson, L.F., McManus, J.F., Ivanovich, R.F., Gregoire, L.J., Mohamed, K.J., **Jacobel, A.W.**, Henry, L.G. and Chen, T. Coherent deglacial changes in deep Atlantic Ocean circulation. (In revision at *Nature Communications*).

Reimi, M.A., Marcantonio, F., Lynch-Stieglitz, J., **Jacobel, A.W.**, McManus, J.F. and Winckler G. The Penultimate Glacial Termination and Large Migrations of the Pacific Intertropical Convergence Zone. (In preparation for *Nature Geoscience*).

**Jacobel, A.W.**, Pavia, F., McManus, J.F., Anderson R.F., Winckler, G. and Jaccard, S. Glacial Respired Carbon Storage. (In preparation for *Quaternary Science Reviews*-invited research article).

## Selected Presentations

**Jacobel, A.W.**, McManus, J.F., Anderson R.F. and Winckler, G. Repeated storage of respired carbon in the equatorial Pacific Ocean over the last three glacial cycles, Abstract PP23D-01 (talk). 2017 Fall Meeting AGU, New Orleans, LA.

**Jacobel, A.W.**, McManus, J.F., Anderson R.F. and Winckler, G. Glacial Carbon Storage: Evidence from the Equatorial Pacific, (invited talk) Comer Climate Conference 2017.

Costa, K., McManus, J., **Jacobel, A.**, Anderson, R. and Winckler, G. The missing sink for  $^{231}\text{Pa}$  in the glacial North Pacific. Abstract (01928). 2017 PAGES Meeting. Zaragoza Spain.

Ng, H.C., Robinson, L., McManus, J.F., Falcon, K.M., **Jacobel, A.W.**, Henry, L.G.

and Chen, T. Controls of  $^{231}\text{Pa}/^{230}\text{Th}$  in the Atlantic Ocean both today and in the past. Abstract (02259). 2017 PAGES OSM, Zaragoza, Spain.

Passow, M.J., Takahashi, T., Fiore, A.M., Clifton, O.E., Nitsche, F., McManus, J.F., Winckler, G., **Jacobel, A.W.**, Leland, C. and Rao, M. Sharing Cutting-Edge Climate and Paleoclimate Research with Teachers and Students through Earth2Class, Abstract (174). 2017 AMS Annual Meeting, Seattle, WA.

**Jacobel, A.W.**, McManus, J.F., Anderson R.F. and Winckler, G. Quantitative Comparison of Deglacial ITCZ Shifts, (invited talk). 2016 QUIGS meeting, Montreal, Canada.

**Jacobel, A.W.**, McManus, J.F., Anderson R.F. and Winckler, G. Tropical Responses to High Latitude Climate Forcing: Insights from dust fluxes over four glacial cycles, (invited talk). University of Illinois Urbana-Champaign, Department of Geology, 2016.

**Jacobel, A.W.**, McManus, J.F., Anderson R.F. and Winckler, G. Tropical Feedbacks on High Latitude Forcing: The perspective from dust, P-498 (poster). 2016 International Conference on Paleoceanography, Utrecht, NL.

**Jacobel, A.W.**, Costa, K.M., McManus, J.F., Anderson R.F. and Winckler, G. 130 kyr of Dust Fluxes in the Equatorial Pacific: Implications for ITCZ movement and intensity, Abstract PP31A-2220 (poster). 2015 Fall Meeting, AGU, San Francisco, CA.

McGrath, S., **Jacobel, A.** and McManus, J. Geochemical comparison of pink and white Globigerinoides ruber: Investigating habitat niches and their paleoclimatic significance, Abstract 41-5 (poster). 2015 Fall Meeting, GSA, Baltimore, MA.

**Jacobel, A.W.**, McManus, J.F., Anderson R.F. and Winckler, G. Pentultimate Deglacial Dust Fluxes in the Equatorial Pacific: Implications for ITCZ Movement and a Common Mechanism for Glacial Terminations, Abstract PP44A-03 (talk). 2014 Fall Meeting, AGU, San Francisco, CA.

Ng, H.C., Robinson, L., McManus, J.F., Falcon, K.M. and **Jacobel, A.W.** 2014. Deep Equatorial Atlantic Ocean Circulation over the Last 25,000 Years Insights from  $^{231}\text{Pa}/^{230}\text{Th}$ ,  $^{14}\text{C}$  and Sortable Silt Grain Size, Abstract PP11B-1352 (poster). 2014 Fall Meeting, AGU, San Francisco, CA.

#### **Awards and Honors**

Goodfriend Prize for Best Student Paleoclimate Paper	2015
AGU Outstanding Student Paper Award	2015
GSA Charles A. and June R.P. Ross Research Award	2015
Kenneth and Linda Ciriacks Graduate Fellowship	2015
NSF Graduate Student Fellowship Honorable Mention	2012
Columbia University Faculty Fellow	2011
Hugh S. Alexander Endowed Prize in Geology	2011
Barry M. Goldwater Scholarship	2010

#### **Grants and Funding**

Brown University Voss Postdoctoral Fellowship	2018
Rolex Explorer's Club Grant	2017
Earth Institute Research Assistant Funding (to support G. Sahwell)	2016
NSF AMS Summer Policy Colloquium Fellowship	2016
LDEO Climate Center Grant	2015
GSA Graduate Student Research Grant	2015
Columbia University Travel Grant (AGU 2015)	2015
Graduate Climate Conference Travel Grant	2015
GSA Annual Meeting Exxon Mobil Travel Grant	2015

	Columbia University Travel Grant (AGU 2014)	2014
	LDEO Climate Center Grant	2014
	NSF Stable Isotope Course Fellowship	2014
	NSF Urbino Paleoclimate Summer School Fellowship	2013
	American Geophysical Union Travel Grant	2008
<b>Certificates and Workshops</b>	ENG1: International seafarers medical certification	2017
	NSF Expert Witness Training Academy	August 2016
	AMS Summer Policy Colloquium	June 2016
	Columbia University Certificate in Collaborative Learning	October 2015
	Columbia University Certificate in Innovative Teaching	June 2015
	University of Utah Stable Isotope Course	Summer 2014
	University of Urbino Paleoclimate Summer School	Summer 2013
	US Coast Guard STCW 95: Sea Survival Techniques	2013
<b>Computer Skills</b>	<b>Software:</b> ArcGIS, Ocean Data View, Analyseries, Illustrator and Photoshop	
	<b>Languages:</b> MATLAB, LaTeX and R	
<b>Teaching</b>	<b>Guest Lecturer:</b> The Climate System	Spring 2014-2017
	<b>Teaching Assistant (TA):</b> Paleoclimatology	Spring 2014
	<b>TA:</b> The Climate System	Fall 2012, Fall 2011
	<b>TA:</b> Paleoclimatic and Tectonic Studies of Barbados	Spring 2012
	<b>TA:</b> History and Evolution of the Earth	Fall 2011
	<b>TA:</b> Field Excursion: The Mojave Desert	January 2011
	<b>TA:</b> Geomorphology	Spring 2010
	<b>Writing Assistant:</b> Water Science and Policy	Fall 2009
<b>Mentoring</b>	<b>Earth Institute Research Mentor:</b> Kalila Morsink (Columbia)	2017
	<b>Earth Institute Research Mentor:</b> Gemma Sahwell (Barnard)	2016
	<b>NSF REU Intern Mentor:</b> Sarah McGrath (College of Wooster)	2015
	<b>C-MORE Mentoring Workshop</b>	Spring 2014
	<b>Mentor:</b> Ph.D. student Logan Brenner (Columbia)	2012-2017
	<b>Research Mentor:</b> Kelly Luis (Columbia)	2014
	<b>Research Mentor:</b> Christina Hernandez (Columbia)	2012-13
	<b>Research Mentor:</b> Brianna King (RPI)	2012
<b>Outreach</b>	Women in Science at Columbia	2011-Present
	Girl's Science Day	2011-2017
	American Museum of Natural History Earth-Sun Day Activity Leader	Spring 2017
	Rutgers Preparatory Guest Speaker	Fall 2016
	Earth2Class Instructor	Fall 2016
	New York Science and Engineering Fair	2015, 2016
	LDEO Open House	2011, 2012
	Columbia University Earth Insitute Blogger	2012-2015
<b>Community Participation</b>	Manuscript reviewer for Geophysical Research Letters	2017
	Manuscript reviewer for Nature Communications	2016
	American Geophysical Union: Member	2008-Present
	Dept. of Earth and Env. Sci. Graduate Student Committee	2012-2013
	President of the Macalester Geology Club	2009-2011