CURRICULUM VITAE

DAVID NICHOLSON

MARINE CHEMISTRY AND GEOCHEMISTRY DEPARTMENT
WOODS HOLE OCEANOGRAPHIC INSTITUTION

CONTACT

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EDUCATION

10/2009 Ph.D. in Oceanography
University of Washington, Seattle, WA
Advisor, Professor Steve Emerson
Nitrogen, oxygen and the noble gases as tracers of upper-ocean productivity and air-sea gas fluxes

1/2004 M.S. in Geological and Environmental Sciences
Stanford University, Stanford, CA
Advisor, Professor Adina Paytan
Phosphorus status of phytoplankton in Monterey and San Francisco Bays

6/2003 B.S. in Geological and Environmental Science, Chemistry minor,
Stanford University, Stanford, CA

RESEARCH INTERESTS

- Biogeochemical and ecosystem models of varying complexity
- Dissolved gas tracers and air-sea gas exchange
- Tracers of primary productivity
- Cycling of carbon, oxygen and nutrients in the marine environment
- Autonomous platforms and sensors for biogeochemistry

RESEARCH POSITIONS

8/2011 - Present **Assistant Scientist**
Woods Hole Oceanographic Institution, Woods Hole, MA

10/2009 - 8/2011 **Postdoctoral Investigator, Supervisor: Scott Doney**
Woods Hole Oceanographic Institution, Woods Hole, MA

6/2009 - 10/2009 **Visiting Graduate Student, Supervisor: Scott Doney**
Woods Hole Oceanographic Institution, Woods Hole, MA

5/2004 - 10/2009 **Research Assistant, Supervisor: Steve Emerson**
School of Oceanography, University of Washington, Seattle, WA

5/2001 - 12/2003	**Research Assistant, Supervisor: Adina Paytan** Geological and Environmental Sciences, Stanford University, Stanford, CA
8/2000 - 11/2000	**NSF Research Experience for Undergraduates, Supervisor Dennis Hansell** Bermuda Biological Station for Research, Ferry Reach, Bermuda

TEACHING

Spring 2006	**TA, The Carbon Cycle and Greenhouse Gases** University of Washington, Seattle, WA
Spring 2003	**TA, Introductory Geology** Stanford University, Stanford, CA
Fall 2002	**TA, Scientific Writing in Earth Sciences** Stanford University, Stanford, CA

PUBLICATIONS

Nicholson, D., R.H.R Stanley, E. Barkan, D. M. Karl, B. Luz, P. Quay, S. Doney. (2012) Evaluating triple oxygen isotope estimates of gross primary production at the Hawaii Ocean Time-series and Bermuda Atlantic Time-series Study sites. *Journal of Geophysical Research - Oceans*

Nicholson, D., (2011) Comment on: "Technical note: Consistent calculation of aquatic gross production from oxygen triple isotope measurements" by Kaiser (2011), *Biogeosciences 8*, 2993-2997.

Nicholson, D., S. Emerson, S. Khatiwala, R. C. Hamme. (2011) An inverse approach to estimate bubble-mediated air-sea gas flux from inert gas measurements. Proceedings on the 6th International Symposium on Gas Transfer at Water Surfaces. Kyoto University Press.

Nicholson, D., S. Emerson., N. Caillon, J. Jouzel, and R. C. Hamme. (2010) Constraining ventilation during deepwater formation using deep ocean measurements of the dissolved gas ratios N_2/Ar, Kr/Ar and δ^{40}Ar. *Journal of Geophysical Research – Oceans*, C11015

Nicholson, D., S. Emerson, C.C. Eriksen. (2008) Net community production in the deep euphotic zone of the subtropical North Pacific gyre from glider surveys. *Limnology and Oceanography*. 53: 2226-2236.

Emerson, S., C. Stump, **D. Nicholson** (2008) Net biological oxygen production in the ocean: remote and in-situ measurements of O_2 and N_2 in surface waters. *Global Biogeochemical Cycles*. 22, GB3023.

Nicholson, D., Sonya Dyhrman, Francisco Chavez and Adina Paytan. (2006) Alkaline phosphatase activity in the phytoplankton communities of Monterey Bay and San Francisco Bay. *Limnology and Oceanography*. 51(2), 874-883.

Sabine, C. L., L. Juranek, C. Lee, **D. Nicholson**, and A. Ver . (2004) Understanding North Pacific Carbon Cycle Changes, *Eos Trans.* AGU, 85(42), 419.

SELECTED TALKS

Bigelow Laboratory for Ocean Sciences, April 2011, Boothbay Harbor, Me. Applying Dissolved Gas Tracers to Constrain the Ecophysiology of Ocean Primary Productivity

WHOI Marine Chemistry and Geochemistry Seminar, March 2011, Woods Hole, MA. Applying Dissolved Gas Tracers to Constrain the Ecophysiology of Ocean Primary Productivity

ASLO Aquatic Sciences Meeting, February 2011, San Juan, Puerto Rico. Evaluating triple oxygen isotope tracer estimates of gross primary production at the Hawaii Ocean Time-series and Bermuda Atlantic Time-series Study sites.

Lamont Doherty Earth Observatory Geochemistry Seminar, February 2011, New York, NY Evaluating isotopic tracers of primary production in the ocean

WHOI Biogeochemistry Seminar Series, August 2010, Woods Hole, MA. Evaluating triple oxygen isotope tracer estimates of gross primary productivity at BATS and HOT.

6th International Symposium on Gas Transfer at Water Surfaces, May 2010, Kyoto, Japan Parameterizing bubble-mediated gas fluxes using observations and modeling of inert gases in the deep ocean

AGU Ocean Sciences Meeting , February 2010, Portland, OR. Constraining ventilation during deep water formation using deep ocean inert gas measurements.

WHOI Marine Chemistry and Geochemistry Departmental Seminar, June 2009, Woods Hole, MA. Inert gas tracers of gas exchange and bubble fluxes during deep-water formation

University of Washington Chemical Oceanography Seminar, May 2009, Seattle, WA. Inert gas tracers of ventilation during deep-water formation

M.I.T. Earth and Planetary Sciences PAOC Lunch Seminar, April 2009, Cambridge, MA Constraining ventilation during deepwater formation using deep-ocean measurements of the inert gas ratios $^{40}Ar/^{36}Ar$, Kr/Ar, N_2/Ar

Dissertations in Chemical Oceanography, October 2008, Honolulu, HI. Nicholson, David and Steven Emerson. Quantifying net community production and the influence of Rossby waves at Station Aloha using autonomous Seagliders

University of Washington Chemical Oceanography Seminar, December 2007, Seattle, WA. A Seaglider survey of oxygen, temperature, and salinity: biological oxygen production in the subtropical North Pacific

1st Graduate Climate Conference, April 2006, Seattle, WA. Biologically produced oxygen in the subtropical North Pacific

AGU/ASLO Ocean Sciences Meeting , February 2006, Honolulu, HI. Nicholson, David, Steve Emerson, Charlie Eriksen and Chuck Stump. Biologically produced oxygen in the subtropical North Pacific: a 4-D Seaglider survey of oxygen, temperature and salinity.

POSTER PRESENTATIONS

PICES/ICES Young Investigators Symposium, April,2012, Mallorca, Spain. Nicholson, David, Rachel Stanley, Ivan Lima and Scott Doney Modeling dissolved gas tracers of primary productivity

AGU/ASLO Ocean Sciences Meeting, February 2012, Salt Lake City, UT. Nicholson, David, Rachel Stanley, Ivan Lima and Scott Doney. Assessing the triple oxygen isotope tracer of photosynthesis in a global model.

Chemical Oceanography Gordon Conference, August 2009, Tilton, NH. Nicholson, David, Steven Emerson, Roberta Hamme, Nicolas Callion and Jeff Severinghaus. Inert gas tracers of gas exchange during deepwater formation

Fall American Geophysical Union Meeting, December 2008, San Francisco, CA. Nicholson, David and Steven Emerson. Noble gas constraints on gas exchange during deepwater formation

AGU/ASLO Ocean Sciences Meeting , March 2008, Orlando, FL Nicholson, David, Steve Emerson, Charles C. Eriksen. Net community production in the deep euphotic zone of the subtropical North Pacific from glider surveys: the role of Rossby waves.

2nd Graduate Climate Conference, October 2007, Seattle WA. Nicholson, David, Steve Emerson, Chuck Stump and Charles. C. Eriksen Biological oxygen production in the subtropical North Pacific gyre from autonomous Seaglider measurements.

Chemical Oceanography Gordon Conference, August, 2007, Tilton, NH. Nicholson, David, Steve Emerson, Chuck Stump and Charles. C. Eriksen. Rossby waves and biological oxygen production in the subtropical North Pacific: observations from the Seaglider.

PICES Line P Symposium, July, 2006, Victoria, Canada. Nicholson, David, Steve Emerson, Charles. C. Eriksen. In Situ measurements of oxygen in the upper ocean: biological productivity on diurnal to annual scales

Fall American Geophysical Union Meeting, December 2002, San Francisco, CA • Poster presentation on Alkaline phosphatase activity in Monterey and San Francisco Bays

AGU/ASLO Ocean Sciences Meeting , February 2002, Honolulu, HI Poster presentation on methods for quantifying alkaline phosphatase activity

AWARDS AND HONORS

• Best Poster Award, PICES/ICES Young Investigator Symposium, April 2012, Mallorca, Spain
• NASA Earth System Science Graduate Fellow, Fall 2006 – Fall 2009
• Organizer: The Graduate Climate Conference I, April 2006, Seattle, WA
  - founded and organized a national conference for climate science graduate students
• UW Program on Climate Change Graduate Fellow, June 2004 – June 2005
• Scripps Institute of Oceanography Reagents Fellowship (declined), 2004

OTHER ACTIVITIES

• Chemical Oceanography Gordon Conference, August 2011, Proctor Academy, NH
• Ocean Carbon and Biogeochemistry Summer Workshop, July, 2011, Woods Hole, MA
• A Biogeochemical Flux Program Aligned with the Ocean Observatories Initiative, May, 2011, Woods Hole, MA
• Organizer: Ocean and Climate Change Institute (OCCI) Southern Ocean and Climate Lecture Series. Spring 2011
• Project team member for NOAA Global Carbon Program (NA 100AR4310093) with Drs.

Rachel Stanley and Scott Doney. May 2010 – April 2013
• Ocean Carbon and Biogeochemistry Summer Workshop, July, 2009, Woods Hole, MA
• Dissertations Symposium on Chemical Oceanography (DISCO) Oct. 2008, Honolulu, HI
• Surface Ocean Lower Atmosphere Studies (SOLAS) Summer School. Oct.-Nov., 2007, Corsica, France.
• Chemical Oceanography Gordon Conference, August 2005, Tilton, NH
• Understanding North Pacific Carbon Cycle Changes workshop, June 2004, Seattle, WA

REVIEWER

Global Biogeosciences, Biogeosciences, Journal of Geophysical Research – Oceans, Water Resources Research, Deep-Sea Research I, Proceeding of the 6th International Symposium on Gas Transfer at Water Surfaces

PROFESSIONAL ORGANIZATIONS

American Geophysical Union
American Society of Limnology and Oceanography
European Geophysical Union

FIELD EXPERIENCE

CCGS John P. Tully. 2007. Northeast Pacific. Line Papa Cruise. ~3 weeks
R/V Ka`imikai-o-Kanaloa. 2004. Hawaii Ocean Time-series #162
R/V Point Lobos. 2002-2003. Monterey Bay, CA. Numerous day cruises
R/V New Horizon. 2001. California Margin/Eastern North Pacific. ~2 weeks

SKILLS

Autonomous instruments and sensors
Ocean biogeochemical/ecosystem modeling
Isotope Ratio Mass Spectrometry
Ultra High Vacuum Techniques