

Melinda R. Nicewonger

PhD Candidate

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EDUCATION	PhD University of California, Irvine , Earth System Science, <i>Current</i> Advisor: Dr. Eric S. Saltzman Research topic: Utilizing hydrocarbons trapped in polar ice cores to reconstruct past biomass burning emissions
	MS University of California Irvine , Earth System Science, <i>2015</i> Advisor: Dr. Eric S. Saltzman
	BS Texas A&M University , Meteorology, <i>2013</i> Graduated Cum Laude Minored in Mathematics and Geology Major GPA: 4.0/4.0, Overall GPA: 3.6/4.0
HONORS AND AWARDS	Ice Core Young Scientists (ICYS) Travel Grant , 2016 National Science Foundation Graduate Research Fellowship , 2014 National Science Foundation REU Fellow , Summer 2012 Jesse Jones and Mary Gibbs Scholarship , 2009-2013
RESEARCH EXPERIENCE	University of California Irvine , 2013-Present Graduate Student Researcher , Saltzman/Aydin Lab <ul style="list-style-type: none">• Reconstruct trace gas atmospheric histories from ice cores• Utilize gas chromatography and mass spectrometry University of California Irvine , June-Aug 2012 NSF REU Fellow <ul style="list-style-type: none">• Investigated methods to correct for <i>in situ</i> hydrolysis loss of carbonyl sulfide in different ice cores. Led to a publication.• Gained experience working with gas chromatography, mass spectrometry and computer modeling/programming.
TEACHING EXPERIENCE	<i>University of California Irvine</i> , Irvine, CA Teaching Assistant , Earth System Science Dept., January – March 2017 <ul style="list-style-type: none">• Class title: Physical Geology, ESS 7; Class size: 190 Teaching Assistant , Earth System Science Dept., March – June 2014 <ul style="list-style-type: none">• Class title: On Thin Ice, ESS 21; Class size: 280• Led weekly discussion activities and hosted review sessions.

- FIELD EXPERIENCE** South Pole Ice (SPICE) Core Drilling Project, *South Pole, Antarctica*
Science team member, Nov 2015–Dec 2015
- Assisted with ice core logging and processing during the second field season
- South Pole Ice (SPICE) Core Drilling Project, *South Pole, Antarctica*
Science team member, Nov 2014 – Feb 2015
- Assisted with ice core logging and processing during the first field season.
- National Ice Core Laboratory (NICL), *Denver, CO*
Ice core scientist/handler, 2013 – Present
- Collected ice core samples for trace gas research
 - Assisted on the core processing line for the South Pole Ice Core
- Desert Research Institute, *Reno, NV*
Graduate Student Researcher, Aug 2013
- Assisted with analysis of organic acids in a Greenland ice core (ES/MS/MS)
- PUBLICATIONS** **Nicewonger, M. R.**, K. R. Verhulst, M. Aydin, and E. S. Saltzman (2016), Preindustrial atmospheric ethane levels inferred from polar ice cores: A constraint on the geologic sources of atmospheric ethane and methane, *Geophys. Res. Lett.*, 43, 214–221, doi:10.1002/2015GL066854.
- Aydin, M., J. E. Campbell, T. J. Fudge, K. M. Cuffey, **M. R. Nicewonger**, K. R. Verhulst, and E. S. Saltzman (2016), Changes in atmospheric carbonyl sulfide over the last 54000 years inferred from measurements in Antarctic ice cores. *J. Geophys. Res. Atmos.*, 120, doi: 10.1002/2015JD024235.
- Aydin, M., T. J. Fudge, K. R. Verhulst, **M. R. Nicewonger**, E. D. Waddington, and E. S. Saltzman (2014), Carbonyl sulfide hydrolysis in Antarctic ice cores and an atmospheric history for the last 8000, *J. Geophys. Res. Atmos.*, 119, doi:10.1002/2014JD021618.
- ORAL PRESENTATIONS** South Pole Ice Core Science Meeting, La Jolla, CA, “*Measuring ethane and acetylene in polar ice cores to quantify long-term biomass burning and geologic hydrocarbon emissions*”, September 2016
- WAIS Divide/SPICE Core Science Meeting, La Jolla, CA, “*Ethane measurements in polar ice cores and preindustrial ethane emissions from biomass burning and geologic sources*”, September 2015
- POSTER PRESENTATIONS** AGU Fall Meeting, San Francisco, CA, “Measurements of acetylene in air extracted from polar ice cores”, **presenter**, December 2016
- AGU Fall Meeting, San Francisco, CA, “*Pre-industrial ethane levels inferred from polar ice cores*”, co-author, December 2014.

AGU Fall Meeting, San Francisco, CA “*Carbonyl sulfide hydrolysis in polar ice cores and the feasibility of recovering a paleoatmospheric history*”, **presenter**, December 2012

PROFESSIONAL AFFILIATIONS American Geophysical Union, 2012-Present
American Meteorological Society 2016-Present

OUTREACH **CLEAN Education**
Board Member/Treasurer, University of California Irvine, 2015-Present

- Graduate student led climate education outreach program
- Present at elementary schools, businesses and other events

Physical Science Undergraduate Mentor (PSUM) Program

Mentor, Fall 2016-Present

- Mentored three undergraduate students in the Earth Science Department

Ice Core Laboratory Tours

University of California Irvine, July 2014 – Present

- Lead tours of the ice core research lab at UC Irvine for visitors and undergraduate students. Visitors range from 5th grade to business professionals.

COMPUTER SKILLS **Programming:** Matlab