

CHARLOTTE MARIE BEALL

PH.D. CANDIDATE

9500 GILMAN DRIVE MC0206

LA JOLLA, CA 92093

CBEALL@UCSD.EDU

STATEMENT OF PURPOSE Research aims to identify drivers of biologically-enhanced marine ice nucleating particle (INP) emissions and contribute to INP observations in under-sampled regions.

EDUCATION

EXP 2020

SCRIPPS INSTITUTION OF OCEANOGRAPHY (SIO), La Jolla, CA

Ph.D., Earth Sciences

JAN 2018

M.S., Earth Sciences

MAY 2011

UNIVERSITY OF TEXAS AT AUSTIN, Austin, TX

B.A., Plan II Honors with High Honors (Top 10%)

SELECTED HONORS

AUG 2018

Graduate Student Research Program Fellowship (SCGSR), DOE Office of Science

MAR 2017

Fellowship, Friends of the International Center

JAN 2017

Frontiers of Innovation Scholars Program Fellowship, University of California San Diego

JUN 2015

Outstanding Mentor of the Year Award, Scripps Institution of Oceanography

MAY 2015

UC Carbon Neutrality Initiative Fellowship, University of California Office of the President

SEPT 2014

San Diego Diversity Fellowship, University of California San Diego

SEPT 2014

Krinsk Award, Scripps Institution of Oceanography

DEC 2013

Tau Beta Pi, Alpha Chapter of Texas, University of Texas at Austin

PUBLICATIONS

Beall, C. M., Dale Stokes, M., Hill, T. C., DeMott, P. J., DeWald, J. T., & Prather, K. A. (2017). Automation and heat transfer characterization of immersion mode spectroscopy for analysis of ice nucleating particles. *Atmospheric Measurement Techniques*, 10(7), 2613–2626. doi:10.5194/amt-10-2613-2017

Michaud, J. M., Thompson, L. R., Kaul, D., Espinoza, J. L., Richter, R. A., Xu, Z. Z., Lee, C., Pham, K. M., **Beall, C. M.**, Malfatti, F., Azam, F., Knight, R., Burkart, M. D., Dupont, C. L. & Prather, K. A. Taxon-specific aerosolization of bacteria and viruses in an experimental ocean-atmosphere mesocosm. *Nat. Commun.* **9**, (2018).

McCluskey, C. S., Hill, T. C. J., Sultana, C. M., Laskina, O., Trueblood, J., Santander, M. V., **Beall, C. M.**, Michaud, J. M., Kreidenweis, S. M., Prather, K. A., Grassian, V., DeMott, P. J. A mesocosm double feature: Insights into the chemical make-up of marine ice nucleating particles. *J. Atmos. Sci.* JAS-D-17-0155.1 (2018). doi:10.1175/JAS-D-17-0155.1

Pham, D. Q., O'Brien, R., Fraund, M., Bonanno, D., Laskina, O., **Beall, C.**, Moore, K. A., Forestieri, S., Wang, X., Lee, C., Sultana, C., Grassian, V., Cappa, C. D., Prather, K. A. & Moffet, R. C. Biological Impacts on Carbon Speciation and Morphology of Sea

Spray Aerosol. *ACS Earth Sp. Chem.* acsearthspacechem.7b00069 (2017). doi:10.1021/acsearthspacechem.7b00069

Wang, X., Deane, G. B., Moore, K. A., Ryder, O. S., Stokes, M. D., **Beall, C. M.**, Collins, D. B., Santander, M. V., Burrows, S. M., Sultana, C. M. & Prather, K. A. The role of jet and film drops in controlling the mixing state of submicron sea spray aerosol particles. *Proc. Natl. Acad. Sci.* **114**, 6978–6983 (2017)

McCluskey, C. S., Hill, T. C. J., Malfatti, F., Sultana, C. M., Lee, C., Santander, M. V., **Beall, C. M.**, Moore, K. A., Cornwell, G. C., Collins, D. B., Prather, K. A., Jayarathne, T., Stone, E. A., Azam, F., Kreidenweis, S. M. & DeMott, P. J. A dynamic link between ice nucleating particles released in nascent sea spray aerosol and oceanic biological activity during two mesocosm experiments. *J. Atmos. Sci.* JAS-D-16-0087.1 (2016). doi:10.1175/JAS-D-16-0087.1

Wang, X., Sultana, C. M., Trueblood, J., Hill, T. C. J., Malfatti, F., Lee, C., Laskina, O., Moore, K. A., **Beall, C. M.**, McCluskey, C. S., Cornwell, G. C., Zhou, Y., Cox, J. L., Pendergraft, M. a., Santander, M. V., Bertram, T. H., Cappa, C. D., Azam, F., DeMott, P. J., Grassian, V. H. & Prather, K. a. Microbial Control of Sea Spray Aerosol Composition: A Tale of Two Blooms. *ACS Cent. Sci.* 150518113258002 (2015). doi: 10.1021/acscentsci.5b00148

PRESENTATIONS

Beall, C. M., Könemann, T., Hill, T.C., DeMott, P.J., Harder, H., Pöhlker, C., Lelieveld, J., Weber B., Andreae, M.O., Stokes, M.D., Prather, K.A., Observations of Ice Nucleating Particles Over the Red Sea, Arabian Gulf and Mediterranean During AQABA. Oral Presentation at 2019 European Geophysical Union General Assembly, 10 Apr 2019, Vienna, Austria.

Beall, C. M., DeMott, P. J., Hill, T. C., Prather, K. A. Molecular and Microbial Linkages to Marine Ice Nucleating Particles and Effects of Atmospheric Aging. Poster presented at 2018 National Science Foundation Reverse-Site Visit, 12 Mar 2018, Alexandria, VA.

Beall, Charlotte, Amaya, Dillon, Faggiani-Dias, Daniela. Drivers of global precipitation changes. Press conference, United Nations Framework Convention on Climate Change, 15 Nov 2017, Bonn, Germany.

Charlotte Beall and Amato Evan. From Erosion to Rain: How Climate Changes Dust in the Atmosphere. Press conference, United Nations Framework Convention on Climate Change, 17 Nov 2016, Marrakech, Morocco.

MEDIA

Beall, C. M. Interview with Maureen Cavanaugh. “Scripps PhD Student On Progress Made at UN’s Climate Change Conference.” KPBS Midday Edition. 21 Nov 2016, San Diego, California.

RELEVANT EXPERIENCE

JUN – SEPT 2017

GRADUATE STUDENT RESEARCHER – Max Planck Institute for Chemistry, AQABA Campaign

- Led INP measurement campaign on 3-month research cruise in the Red Sea, Indian Ocean, Persian Gulf and Mediterranean Sea, collected filters and seawater daily for offline analysis
- Sourced funding for materials, clean facility access, international cryoshipment and travel from Max Planck Institute and Scripps Institution of Oceanography

- SUMMER '15 and '16 RESEARCH MENTOR FOR UNDERGRADUATES
- Directed and supervised 2 independent research projects
- NOV 2013 – JUN 2014 UNDERGRADUATE STUDENT RESEARCH ASSISTANT – Outdoor Air Quality Laboratory, University of Texas at Austin
- Analyzed production site plans and pneumatic device data (MATLAB) to identify relationships between device characteristics and emissions behavior
 - Developed stratified sampling method for total leak capture with high volume (HiVol) sampler
- JUN – AUG 2013 UNDERGRADUATE RESEARCH ASSISTANT – Laboratory for Atmospheric Research, Washington State University
- Developed MATLAB scripts for fast analysis of quality assurance data
 - Assisted with tracer ratio experiments and below-ground measurements during field campaigns

SERVICE

- JUN 2016-2017 Peer Mentor Leadership Team (SIO)
- Coordinated events to support first-year SIO graduate students

- JUN 2015 – 2017 Peer Mentor
- Mentored two first-year SIO graduate students

- SEP 2011 – MAY 2012 Donor Outreach Lead, Attitude Center for Education, Phnom Penh, Cambodia
- Provided fundraising and donor outreach training for staff at a women's education NGO

OUTREACH

- Friends of the International Center Scholarship Awards, May 2018
Speaker
- San Diego Festival of Science and Engineering, Mar 2017 and Mar 2018
Volunteer
- “Air Quality and Climate Change Around the Arabian Peninsula”, SIO Communications Office, Oct 2017
Video Editor
- “COP22 Science and Policy: International Climate Negotiation in the Era of Trump”, SIO Public Event, Mar 2017
Speaker
- AWIS STEM Career Panel for High School Students, Nov 2016
Panelist

SKILLS

- Lab:** Immersion mode droplet assay ice spectroscopy for measurement of INP concentrations, Finite Element Analysis based heat transfer/flow simulations, nanoparticle tracking analysis, fluorescence microscopy, microbe cultivation.
- Field:** Filter collection of INPs, rainwater and seawater collection for INP measurements, international cryoshipping logistics
- Technology:** MATLAB, R, SolidWorks, LabView
- Languages:** Mandarin (Conversational, Written); German (Conversational, Written)