Robert D. **Jaquette**

Experimental · Researcher

Jaquette@udel.edu https://robertjaquette.github.io/ RobertJaquette

Education

Ph.D. Candidate, Marine Science: Physical Ocean Science and Engineering — *Newark, Delaware*

University of Delaware — *August 2017 - Present*

- Advisor: Dr. Fabrice Veron
- Topic: Production and Dynamics of Inertial Droplets from Wind-Forced Breaking Mechanical Waves

B.S. Applied Mathematics and Physics — *Newark, Delaware*

University of Delaware — *Graduation: May 2017*

Research Experience

Air Sea Interaction Research Group, (ASI-Lab) — *Lewes, Delaware & Newark, Delaware*

Undergraduate Student Researcher - Air Sea Interaction (Dr. Fabrice Veron) — *Jan. 2014 - Present*

- Worked as Nucleus Fellowship recipient, Summer Scholar, and Hoffman Scholar
- Conducted experimental work studying Marine Aerosol production and transport under various wind and wave conditions using particle tracking velocimetry and laser induced fluoresce techniques

Massive Star Research Group, (Bartol Research Institute) — *Newark, Delaware*

Undergraduate Student Researcher - Stellar Astrophysics (Dr. Stanley Owocki) — *2015 - 2017*

- Project funded by NASA's Delaware Space Grant Program involving rewriting parts of the Virgina Hydrodynamics One Code (Fortran 90), along with deriving analytic solutions/initial conditions (Matlab, Mathematica, and Python) to develop a 2-dimensional hydrodynamic model of a radiatively confined circumstellar dust cloud

Publications

Erinin, M. A., Néel, B., Ruth, D. J., Mazzatenta, M., **Jaquette, R. D.**, Veron, F., Deike, L. (2022). Three-dimensional measurements of air entrainment and enhanced bubble transport during wave breaking. *Geophysical Research Letters*, 49, e2022GL099436. (PDF)

Ruth, D. J., Erinin, M. A., Néel, B., Mazzatenta, M., **Jaquette, R. D.**, Veron, F., Deike, L. (2022). Speed and acceleration of droplets generated by breaking wind-forced waves. *Geophysical Research Letters*, 49, e2022GL098426. (PDF)

Skills and Abilities

Known Scientific Techniques

- Particle Tracking Velocimetry, Particle Imaging Velocimetry, Laser Induced Fluoresce

Computer Programs and Software

- (Proficient): Arduino, MATLAB, Mathematica, Labview, Latex, Microsoft Office, Sketchup, Origin

Computer Languages

- (Proficient): Python, Fortran 90, C++
- (Novice): Java

Certifications

- Boater Safety Education certificate: Passed Mandatory Boating Safety Course (Administered by U.S Coast Guard)
- PADI Basic Diver Certification: Passed PADI Diving Certification, shows ability to dive to 60 feet during good conditions (Administered by Blue Horizons Dive Shop/University of Delaware)

Professional Groups

American Meteorological Society: Student Membership

Aug. 2016 - Present

American Physical Society: Student Membership

Aug. 2016 - Present

Honors & Awards

Academic

2017-2018	**Fellowship**, University of Delaware - Okie Graduate Fellowship	*Newark, Delaware*
2016	**Scholarship**, University of Delaware - Summer Scholar/Hoffman Scholar	*Newark, Delaware*
2014	**Fellowship**, University of Delaware Nucleus - Nucleus Fellowship	*Newark, Delaware*
2011	**Winner**, Delaware Valley Science Fair - American Meteorological Society Award	*Philadelphia, Pennsylvania*
2011	**Honorable mention**, Delaware Valley Science Fair - Environmental Category	*Philadelphia, Pennsylvania*

Presentation

*** denotes presentation speaker**

Jaquette, R.* and Moss, S. and Veron F., 2019: Size Distributions and Dynamics of Sea Spray Droplets Produced by Breaking Waves in Various Wind Speeds *THESIS Workshop: Newark, Delaware*

Moss, S.* and **Jaquette, R.** and Veron F., 2019: Size Distributions and Dynamics of Sea Spray Droplets Produced by Breaking Waves in Various Wind Speeds *APS Division of Fluid Dynamics Annual Meeting: Seattle, Washington*

Jaquette, R.* and Veron, F., 2020: The Sensitivity of Spume Droplet Trajectories to Initial Conditions, *APS Division of Fluid Dynamics Annual Meeting: Chicago, Illinois* (remote)

Rocha-Brownell K.* and **Jaquette, R.** and Veron, F. and Richter, D., 2020: Turbulent Transport of Spray Droplets Near Realistic Multispectral Surface Waves *APS Division of Fluid Dynamics Annual Meeting: Chicago, Illinois* (remote)

Jaquette, R.* and Veron, F., 2021: Production of Large Marine Aerosols from Wind Forced Mechanical Breaking Waves *APS Division of Fluid Dynamics Annual Meeting: Phoenix, Arizona*

Erinin, M.* and Neel, B. and Ruth, D. and Mazzatenta, M. and **Jaquette, R.** and Veron, F. and Deike, L., 2021: Spray Generation by Naturally and Mechanically Forced Wind-Waves *APS Division of Fluid Dynamics Annual Meeting: Phoenix, Arizona*

Mazzatenta, M.* and Erinin,M. and Neel,B. and Ruth,D. and **Jaquette,R.** and Veron,F. and Deike, L., 2021: Laboratory experiments on wind-wave breaking dynamics and the associated drops, bubbles, and underwater turbulence *APS Division of Fluid Dynamics Annual Meeting: Phoenix, Arizona*