

# Aaron M. Jubb

Cooperative Institute for Research in  
Environmental Sciences (CIRES)  
Chemical Sciences Division  
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## Professional Appointments

**CIRES Research Scientist I** **2012 - Present**  
**Chemical Sciences Division – Atmospheric Composition and Chemical Processes Lab**  
**Earth Systems Research Laboratory**  
**National Oceanic and Atmospheric Administration and University of Colorado - Boulder**  
**Boulder, Colorado 80305**

- Supervisor: Dr. James B. Burkholder

## Education

**Ph.D. Analytical Chemistry - Department of Chemistry and Biochemistry** **2006-2012**  
**The Ohio State University, Columbus, Ohio 43210**

- Advisor: Dr. Heather C. Allen
- Dissertation title: “Vibrational Spectroscopic Investigations of Sulfate Behavior at Environmental Interfaces”

**B.A. Chemistry - Department of Chemistry** **2002-2006**  
**Lawrence University, Appleton, Wisconsin 54911**

- Advisors: Dr. Karen J. Nordell (Academic) and Dr. David E. Thompson (Research)

## Professional Affiliations

- American Chemical Society
- American Geophysical Union

## Awards and Honors

- Faure Award - International Association of GeoChemistry – **2011**
- Global Center of Excellence Workshop Fellowship – Tohoku University, Sendai, Japan – **2011**
- Student Travel Award – Annual Meeting of the Geological Society of America – **2011**
- Student Travel Award – Gordon Research Conference: Vibrational Spectroscopy – **2010**

## Publications

- 1) “Atmospheric Chemistry of Methyl-perfluoroheptene-ether Mixtures: OH Radical Reaction Rate Coefficients, Atmospheric Lifetimes, and Global Warming Potentials”  
**A.M. Jubb**, T. Gierczak, M. Baasandorj, R.L. Waterland, and J.B. Burkholder – *In Preparation*
- 2) “1,2-Dichlorohexafluoro-Cyclobutane (1,2-c-C<sub>4</sub>F<sub>6</sub>C<sub>12</sub>, R-316c) a Potent Ozone Depleting Substance and Greenhouse Gas: Atmospheric Loss Processes, Lifetimes, and Ozone Depletion and Global Warming Potentials for the (*E*)- and (*Z*)- Stereoisomers”  
V.C. Papadimitriou, M.R. McGillen, S.C. Smith, **A.M. Jubb**, R. Portmann, B.D. Hall, E.L. Fleming, C.H. Jackman, and J.B. Burkholder  
*Submitted to Journal of Physical Chemistry A* – 8/6/2013
- 3) “Laser Effects on Volta Potential Transients Recorded by a Kelvin Probe”  
D. Verreault, **A.M. Jubb**, G.S. Frankel, M. Stratmann, H.C. Allen, and R. Posner  
*ECS Electrochemistry Letters*, **2013**, 2 (5), H19-H21
- 4) “Sulfate Adsorption at the Buried Hematite – Solution Interface Investigated using Total Internal Reflection (TIR)-Raman Spectroscopy”  
**A.M. Jubb**, D. Verreault, R. Posner, L.J. Criscenti, L.E. Katz, and H.C. Allen  
*Journal of Colloid and Interface Science*, **2013**, 400, 140–146
- 5) “Simultaneous In-situ Kelvin Probe and Raman Spectroscopy Analysis of Electrode Potentials and Molecular Structures at Polymer Covered Salt Layers on Steel”  
R. Posner, **A.M. Jubb**, G.S. Frankel, M. Stratmann, and H.C. Allen  
*Electrochimica Acta* , **2012**, 83, 327-334
- 6) “Bisulfate Dehydration at Air – Solution Interfaces Probed by Vibrational Sum Frequency Generation Spectroscopy”  
**A.M. Jubb** and H.C. Allen  
*Journal of Physical Chemistry C*, **2012**, 116 (24), 13161-13168
- 7) “Sulfate Adsorption at the Buried Fluorite – Solution Interface Revealed by Vibrational Sum Frequency Generation Spectroscopy”  
**A.M. Jubb** and H.C. Allen  
*Journal of Physical Chemistry C*, **2012**, 116 (16), 9085-9091

- 8) "A Simultaneous Kelvin Probe and Raman Spectroscopy Approach for In-situ Surface and Interface Analysis"  
R. Posner, **A.M. Jubb**, G.S. Frankel, M. Stratmann, and H.C. Allen  
*Electrochimica Acta*, **2012**, 76, 34-42
- 9) "Environmental Chemistry at Vapor – Water Interfaces: Insights from Vibrational Sum Frequency Generation Spectroscopy"  
**A.M. Jubb**, W. Hua, and H.C. Allen  
*Annual Reviews of Physical Chemistry*, **2012**, 63, 107-130
- 10) "Organization of Water and Atmospherically Relevant Ions and Solutes: Vibrational Sum Frequency Spectroscopy at the Vapor – Liquid and Liquid – Solid Interfaces"  
**A.M. Jubb**, W. Hua, and H.C. Allen  
*Accounts of Chemical Research*, **2012**, 45 (1), 110-119
- 11) "Electric Field Reversal of  $\text{Na}_2\text{SO}_4$ ,  $(\text{NH}_4)_2\text{SO}_4$ , and  $\text{Na}_2\text{CO}_3$  relative to  $\text{CaCl}_2$  and  $\text{NaCl}$  at the Air – Aqueous Interface revealed by Phase-Sensitive Sum Frequency"  
W. Hua, **A.M. Jubb**, and H.C. Allen  
*Journal of Physical Chemistry Letters*, **2011**, 2, 2515-2520
- 12) "Vibrational Spectroscopic Characterization of Hematite, Maghemite, and Magnetite Thin Films Produced by Vapor Deposition"  
**A.M. Jubb** and H.C. Allen  
*ACS Applied Materials and Interfaces*, **2010**, 2 (10), 2804-2812
- 13) "Nitrate Anions and Ion Pairing at the Air – Aqueous Interface"  
M. Xu, C.Y. Tang, **A.M. Jubb**, X. Chen, and H.C. Allen  
*Journal of Physical Chemistry C*, **2009**, 113 (6), 2082-2087

## Presentations

- 1) "Atmospheric Chemistry of Six Methyl-perfluoroheptene-ethers Used as Heat Transfer Fluid Replacement Compounds: Measured OH Radical Reaction Rate Coefficients, Atmospheric Lifetimes, and Global Warming Potentials"  
**A.M. Jubb**, T. Gierczak, M. Baasandorj, R.L. Waterland, and J.B. Burkholder  
Poster presented at the 2013 Fall Meeting of the American Geophysical Union, December **2013**, San Francisco, CA.
- 2) "Atmospheric Chemistry of Methyl-perfluoroheptene-ethers (MPHEs): OH Radical Reaction Rate Coefficients, Atmospheric Lifetimes, and Global Warming Potentials"  
**A.M. Jubb**, T. Gierczak, M. Baasandorj, R.L. Waterland, and J.B. Burkholder  
Poster presented at the 2013 Global Monitoring Annual Conference, May **2013**, Boulder, CO.
- 3) "Sulfate Adsorption at Buried Mineral/Solution Interfaces Probed via Vibrational Surface Spectroscopy"  
**A.M. Jubb**, D. Verreault, and H.C. Allen  
Invited talk at the 22<sup>nd</sup> V.M. Goldschmidt Conference, June **2012**, Montreal, Quebec, Canada.

- 4) “Ion Organization and Reversed Electric Field at Air – Aqueous Interfaces Revealed by Heterodyne-Detected Sum Frequency Generation Spectroscopy”  
W. Hua, Z. Huang, **A.M. Jubb**, and H.C. Allen  
Invited talk at the 67<sup>th</sup> meeting of the International Symposium on Molecular Spectroscopy, June **2012**, Columbus, OH.
- 5) “Bisulfate ( $\text{HSO}_4^-$ ) Dehydration at the Vapor – Solution Interface Probed by Vibrational Sum Frequency Generation Spectroscopy”  
**A.M. Jubb** and H.C. Allen  
Contributed talk at the 67<sup>th</sup> meeting of the International Symposium on Molecular Spectroscopy, June **2012**, Columbus, OH.
- 6) “Probing Adsorption of Aqueous Selenate at Mineral Surfaces via Total Internal Reflection Raman Spectroscopy”  
**A.M. Jubb** and H.C. Allen  
Contributed talk at the 2011 Geological Society of America Annual Meeting, October **2011**, Minneapolis, MN.
- 7) “Linear and Non-linear Optical Spectroscopic Investigations of Anion Adsorption at Environmentally Relevant Aqueous – Mineral Interfaces: Sulfate Adsorption at Fluorite and Hematite Surfaces”  
**A.M. Jubb** and H.C. Allen  
Contributed talk at the 242<sup>nd</sup> American Chemical Society National Meeting, August **2011**, Denver, CO.
- 8) “Anion Binding at the Aqueous – Mineral Interface via Vibrational Sum Frequency Generation: Sulfate Adsorption at the Fluorite Surface”  
**A.M. Jubb** and H.C. Allen  
Poster presentation at the 242<sup>nd</sup> American Chemical Society National Meeting, August **2011**, Denver, CO.
- 9) “Probing Water and Solute Structure at Environmental Interfaces: Vibrational Sum Frequency Generation Studies”  
**A.M. Jubb**, W. Hua, and H.C. Allen  
Invited talk at the Global Center of Excellence (COE) Summer School, August **2011**, Tohoku University, Sendai, Japan.
- 10) “Electrolyte Binding at the Aqueous – Solid Interface: A Vibrational Sum Frequency Generation Investigation”  
**A.M. Jubb** and H.C. Allen  
Poster presented at the Vibrational Spectroscopy Gordon Research Conference, August **2010**, University of New England, Biddeford, ME.
- 11) “Mesoporous Silica: Structural Control and Variation”  
**A.M. Jubb** and D.E. Thompson  
Contributed talk at the Physical Sciences and Mathematics Undergraduate Research Symposium November **2005**, University of Chicago, Chicago, IL.