

Leigh A. Patterson

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Education

Colorado State University, Fort Collins, CO 80523 **June 2009**
Master of Science in Atmospheric Science
GPA: 3.96

The Pennsylvania State University, University Park, PA 16802 **Dec. 2006**
Bachelor of Science in Meteorology
GPA/Major GPA: 3.64/3.76

Research Experience

GEOS-CHEM Sulfate Partitioning Study **July 2009 - present**
Colorado State University under Dr. Colette Heald
This work will assess the accuracy of cloud presence in the GEOS-CHEM model, and investigate how sulfate aqueous chemistry is represented within the model.

Biomass Burning Emissions Research **June 2007 – June 2009**
Colorado State University under Dr. Jeffrey L. Collett
Chemical smoke marker source profiles for wildland fires were created, and these source profiles were combined with a fuelbed model to estimate the emissions of smoke markers. Maps of the potential emissions were created for the contiguous United States.

Gas Chromatography Development **June 2006 - Aug. 2006**
NOAA Earth Science Research Lab under Dr. Bradley Hall
A channel for a gas chromatograph to measure hydrogen, methane and carbon monoxide was created using spare parts, and the channel was used to diagnose hydrogen contamination in tanks of ambient air.

Mid-Atlantic Estuarine Climate Modeling Research **Sept. 2005 - June 2007**
The Pennsylvania State University under Dr. Raymond Najjar
This work used historical climate data to investigate the accuracy of seven downscaled IPCC global climate models in three major estuaries in the Mid-Atlantic region. Projections of the future climate for these estuaries were created, and changes in future streamflow were estimated.

I designed and completed an independent research project that provided evidence for magma veining and dyking in the Main Ethiopian Rift.

Publications and Presentations

Najjar, R., **L. Patterson** and S. Graham (2009), Climate simulations of major estuarine watersheds in the Mid-Atlantic region of the United States. *Climatic Change*, 95, 139-168.

doi: 10.1007/s10584-008-9521-y

Sullivan, A.P., A. S. Holden, **L.A. Patterson**, G.R. McMeeking, S.M. Kreidenweis, W.C. Malm, W.M. Hao, C.E. Wold, and J.L. Collett (2008), A method for smoke marker measurements and its potential application for determining the contribution of biomass burning from wildfires and prescribed fires to ambient PM_{2.5} organic carbon. *Journal of Geophysical Research*, 113, D22302.

doi:10.1029/2008JD010216

Patterson, L.A., B.A. Schichtel, A.P. Sullivan, J.L. Collett, Jr., A.S. Holden, S.M. Kreidenweis, W.C. Malm (2008), Development of a Wildland Fire Smoke Marker Emissions Map for the Contiguous United States. AGU Fall Meeting, 15-19 December, San Francisco, CA. (Poster)

Patterson, L., B. Hall and J.W. Elkins (2006), Measuring Hydrogen, Methane and Carbon Monoxide with Gas Chromatography Using Electron Capture Detection. NOAA Fourth Education and Science Forum, 30 October – 1 November, Tallahassee, FL. (Poster)

Patterson, L., B. Hall and J.W. Elkins (2006), Measuring Hydrogen and Methane with Gas Chromatography Using Electron Capture Detection. NOAA Educational Partnership Program Student Conference, 31 July – 2 August, Silver Spring, MD. (Talk)

Patterson, L., T.O. Rooney and T. Furman (2005), The Magmatic Plumbing System of Quaternary Basalts in the Main Ethiopian Rift. AGU Fall Meeting, 5-9 December, San Francisco, CA. (Poster)

Awards

American Meteorological Society Graduate Fellowship	2007 - 2008
NOAA Ernest F. Hollings Scholarship	2005 - 2006
1 st place talk in session, NOAA Educational Partnership Student Conference	2006
1 st place undergraduate poster, NOAA Fourth Education and Science Forum	2006

Leadership Experience

President	American Association for Aerosols Research Student Chapter at Colorado State University	2008-2009
Co-president	Colorado State University Triathlon Team	2008
Judge	Air and Waste Management Special Award at the Colorado State Science Fair	2008