# Megan A. Mave

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## EDUCATION

**University of Montana** **Expected Graduation: June 2018**

M.S. Geosciences/Geochemistry

**Thesis Title:** Photochemical cycling of reactive oxygen species in hydrothermal systems in Yellowstone National Park: Impacts on biosignature preservation

**Major GPA:** 3.95 **Overall GPA:** 3.90

**Relevant Coursework:** Chemistry of Hot Springs, Environmental Chemistry, Imperial Barrel Competition, Microbial Physiology, Sedimentary Basin Analysis, Sedimentary Petrology.

**The Ohio State University** **Graduated: May 2016**

B.S. Petroleum Geology & Geophysics *with Research Distinction*

**Thesis Title:** Tank Experiments to Quantify Fate of Microcystin in Shallow Coastal Sediments.

**Major GPA:** 3.86 **Overall GPA:** 3.63

**Relevant Coursework:** Applied Geophysics, Data Analysis, Energy Geophysics (focus on well logs), Field Geology, Geochemistry, Geomicrobiology, Mineralogy, Advanced Oceanography, Petroleum Geology, Petrology, Sedimentology & Stratigraphy, and Structural Geology.

## GRANTS AND SCHOLARSHIPS

ASUM Research and Creative Scholarship: 2018
Buschman Earth Science Scholarship: 2016; 2015
Undergraduate Research Scholar Award: 2015
Sigma Xi Grant-in-Aid of Research: 2017; 2015
University Trustees Scholarship: 2012-2016
Edmund Spieker Memorial Field Scholarship: 2015

## RESEARCH EXPERIENCE

**Graduate Research Assistant, University of Montana** **July 2016 to Present**
**PI: Dr. Nancy Hinman**

Collaborative project with NASA's Astrobiology Institute and SETI aimed to refine pathways of reactive oxygen species (ROS) formation and decay, specifically the influence of transition metal redox cycling on ROS cycling and implications of such on biosignature preservation. Field experiments were run on analogous hot springs at Yellowstone National Park. Conclusions from both lab and field experiments will be applied to potential biosignature detection on Mars.

**Undergraduate Thesis, Ohio State University** **March 2015 to May 2016**
**PI: Dr. Audrey Sawyer**

Collaborative project with the EPA designed to quantify the transport and degradation of microcystin-LR (one of the most common hepatotoxins released by cyanobacteria) in surface water and shallow groundwater, and access the susceptibility of shallow coastal aquifers to microcystin contamination via a laboratory wave tank simulation.

**Research Assistant, Byrd Polar and Climate Research Center** **August 2014 to June 2015**
**PI: Dr. Michael Durand**

Collaborative research with NASA on the SWOT (Surface Water and Ocean Topography) Definition Team. Used virtual reference station network-based, real time kinematic GPS and level loggers to measure Olentangy River elevation within 3cm, and a range-finder to measure width at 20 different sites in order to develop a method for ground-based predictions of spatial and temporal changes in water storage in the event of a flood wave, and to serve as a continuity check for satellite-derived measurements.

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## Teaching Experience

**Graduate Teaching Assistant, University of Montana** **August 2016 to Present**
Instructor for Physical Geology lab, History of Life, and Earth History and Evolution laboratory sections.

**Undergraduate Teaching Assistant, Ohio State University** **January 2015 to January 2016**
Instructor for Planet Earth, Earth Through Time, Mineralogy, and Petrology laboratory sections

## Presentations and Publications

2018 Poster Talk at American Chemical Society's National Meeting and Expo on Master's Thesis work
2018 Publication submitted to Limnology and Oceanography, 2nd author, "Removal of algal toxin microcystin-LR in permeable coastal sediments: physical and numerical models."
2017 Department talk with AAPG IBA Team, "Petroleum Potential Evaluation of Bristol Bay Basin, AK", University of Montana.
2017 Presentation at the AAPG Imperial Barrel Awards, Rocky Mountain Section, 3rd place finalist.
2016 Department talk, "Photochemical Cycling of Reactive Oxygen Species: Impacts on Biosignature Preservation", University of Montana.
2016 Poster Presentation in the Denman Forum, "Wave tank experiments to determine fate of microcystin in coastal sediment", Ohio State University.

## Skills

**Software:** ADCP, ArcGIS, BasinMod, MATLAB, Petrel, YSI.
**Applied:** Ample field experience with water sampling of rivers, lakes, and hot springs. 7+ weeks of geologic mapping and related fieldwork. Experience with colorimetric and fluorometric chemical analyses in both lab and field settings. Experience with IC and ICP, sidewall and whole core interpretation, geophysical well log manipulation and interpretation, 2D and limited 3D seismic interpretation, experience with basin modeling and subsidence curve generation, total station surveying, and experience installing and sampling piezometers, level loggers, and seepage meters.

## Conferences

2018 American Chemical Society National Meeting and Expo on New Orleans, LA
2015 AAPG ACE in Denver, CO

## Affiliations and Leadership

American Association of Petroleum Geologists (Treasurer, 2017), Abilities: Volunteer and Activism Student Group (Secretary 2014, Treasurer 2015), American Cheical Society, American Geophysical Union, North Coast Isshinryu Karate Federation (sensei ranking), Sigma Gamma Epsilon Geology Honors Society.

## References

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|---|---|---|
| Dr. Nancy W Hinman | Dr. Michael Hofmann | Dr. Marc Hendrix |
| Graduate Research Advisor | IBA Advisor | Professor |
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