

# **MONICA CATHERINE BYRNE**

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## **EDUCATION**

- 2003-present.** MIT, Department of Earth, Atmospheric and Planetary Sciences. Ph.D. candidate in Geobiology.  
*Coursework includes Marine Chemistry, Isotope Chemistry, Marine Geology, Adv. Organic Geochemistry.*
- 1999-2003.** Wellesley College. Bachelor of Arts in Biological Chemistry. Religion minor.  
*Coursework includes Organic Chemistry I, II; Microbial Responses to Environmental Stress; Microbial Physiology and Biochemistry; Physical Chemistry; Biochemistry I, II; The Dynamic Earth (Geology I); Earth and Life Through Time (paleontology and the fossil record); Molecular Genetics; Cell Physiology; Calculus I, II; Physics I.*
- 1998-1999.** Lebanon Valley College.  
*Coursework: English Communications I, II.*
- 1993-1999.** Lebanon Catholic School. Salutatorian.

## **RESEARCH POSITIONS**

- 2003.** CTD watchstander and research assistant on WHOI research cruise: *R/V Knorr 173/2*, Port-of-Spain, Trinidad to Wood's Hole, Massachusetts.
- 2002.** NASA Research Associate in Ames Astrobiology Academy.
- 2001.** NASA Scholar in Astromaterials Division at Johnson Space Center.  
Member and treasurer of Wellesley College KC-135 Zero Gravity Experiment Team.
- 2000.** Lockheed Martin Research Intern in Planetary Sciences and Solar System Exploration Division at NASA Johnson Space Center.

## **GRANTS AWARDED**

- 2003.** MIT Earth, Atmospheric and Planetary Sciences Student Research Fund Travel Grant.  
NASA Astrobiology Institute Student Travel Grant.  
Mineralogical Society of America Student Scholarship for Short Course Attendance, Napa Valley.
- 2002.** NASA Astrobiology Institute Student Presentation Grant.  
Wellesley College Student Travel Grant for Presentation at a Conference.  
Pennsylvania Space Grant Consortium Summer Stipend.
- 2001.** Wellesley College Summer Research Stipend.  
Wellesley College Student Travel Grant for Presentation at a Conference.
- 2000.** Wellesley College Summer Research Stipend.  
Wellesley College Student Travel Grant for Presentation at a Conference.

## **PRESENTATIONS AND INVITED LECTURES**

- 2002.** International Workshop: The Bridge Between the Big Bang and Biology. Istituto di Astrofisica Spaziale.  
*A Microbial Graveyard: Microscale Morphological Observations of a Hypersaline Stromatolite.*  
Wellesley College Tanner Conference. *Astrobiology: The Study of Life in the Universe.*
- 2001.** Geological Society of America Annual Meeting, Evaporites Session (also served as co-chair).  
*An Evaporite System: Biota on Fractured Stromatolite Surfaces and Biofilm Samples.*  
Wellesley College Tanner Conference. *The First Martian Life Forms? A Terrestrial Analog.*  
NASA Astrobiology Institute Annual Meeting. Poster session presenter.
- 2000.** Geological Society of America Annual Meeting. Poster session presenter.

## **PUBLICATIONS (AS PRINCIPAL CONTRIBUTOR)**

- 2002.** Byrne, Monica C.; Morris, Penny A.; Wentworth, Susan J; Brigmon, Robin L.; McKay, David S. *Microbial Biota from Fractured Stromatolite and Biofilm Samples: Biomarkers from a Hypersaline Lake*. Manuscript in revision, J. Astrobio.
- 2001.** Byrne, Monica C.; Morris, Penny A.; Wentworth, Susan J; Brigmon, Robin L.; McKay, David S. *Microbial Biota from Fractured Stromatolite and Biofilm Samples: Biomarkers from a Hypersaline Lake*. GSA Ann. Mtg. Abstr., 2001.
- 2000.** Byrne, Monica C.; Morris, Penny A.; Wentworth, Susan J; Brigmon, Robin L.; McKay, David. *Scanning Electron Microscopy of Biogenic Features in a Bahamian Stromatolite (Storr's Lake): A Microbial GSA Graveyard*. Ann. Mtg. Abstr., 2000.

## **LABORATORY TECHNIQUES**

Scanning electron microscopy, electron dispersive X-ray spectrometry, thin layer chromatography, column chromatography, enzyme assays, IR spectroscopy, GCMS, distillation, melting points, boiling points, refractometry, polarimetry, cell transformations, gel digests, *in situ* hybridization, PCR amplification, cell radiolabeling, fluorescence microscopy, fluorescence spectroscopy, NMR (nuclear magnetic resonance) for organic molecules and Roberts extractions.

## **LANGUAGES**

Familiarity with German, Attic Greek, Latin, American Sign Language and Sanovian.

## **SERVICE AND EXTRACURRICULAR**

- 2003.** Earned FAA Private Pilot License for cross-country and recreational flight in single-engine aircraft. Learned to play guitar (or at least "Seven Bridges Road").
- 2001.** Earned Sailing License for solo excursions on Lake Waban. Served as General Manager and President of the Wellesley College BlueNotes. Produced, soloed on and arranged music for BlueNotes' 2001 a cappella CD, *Bluephoria*.
- 2000.** Served as Resident Advisor for Severance Dormitory, 2000-01.