

EDUCATION

- 2014-2015 **Doctoral Student: Planetary Science** Hampton, VA
Hampton University
Technologies for Remote Biosignature Detection
- 2011 **MSc: Space Studies** Strasbourg, France
International Space University
Focus on Life Sciences, Astrobiology, Astrosociology
- 2010 **BA: Astronomy, Minor: Geology** Boulder, CO
University of Colorado
Focus on Planetary Science and Astrobiology

RESEARCH

- 2014-present **NASA Research Grant - NASA Langley** Hampton, VA
National Aeronautics Institute

Technologies for Biosignature Detection
Advisor: Dr. William Moore
Hampton University/National Aeronautics Institute
- Developing LIDAR technology to execute Raman Spectroscopy remotely as a biosignature detection tool for use on future rovers and spacecraft.
- 2011-2013 **NAI Research Grant** Denver, CO
Denver Museum of Nature & Science

Particle Flux to Titan and Astrobiological Implications
Advisor: Dr. David Grinspoon DMNS/Library of Congress
- Examining all the possible sources of particles to Titan (E-Ring Particles, Interplanetary Dust Particles).
 - Creating a model to understand the amount of elemental flux over time.
- 2011 **Masters Thesis** Strasbourg, France
International Space University Moffett Field, CA
Research conducted at NASA Ames

Challenges Associated by the Remote Detection of Biosignatures
Thesis Advisors:
Dr. Chris McKay (NASA), Dr. Hugh Hill (International Space University)

- Researched challenges associated with remotely detecting early biosignatures (focused on Methane), and their challenges when detecting and placing their origin on Earth and extrapolating these challenges to detection on Exoplanets.
- I examined the sources of methane on Earth, current detection technologies, field experience of detecting methane, false negatives, and funding challenges.

2010 **Undergraduate Thesis – UROP Grant** **Boulder, CO**
University of Colorado

Remote Detection of Biosignatures on an Evolving Earth-like planet

Thesis Advisor: Dr. Webster Cash, University of Colorado

- Acquired simulated atmospheric models of Earth's atmosphere through time, provided by the Virtual Planetary Lab (PI – Dr. Victoria Meadows)
- Used models coded in IDL produced for the external coronagraph exoplanet imaging mission concept (New Worlds Observer) to determine if and what biosignatures could be detected from a simulated “exo-Earth” at varying points in history, and at varying distances away.

EMPLOYMENT HISTORY

2014 **Integrated Ocean Discovery Program (IODP)** **College Station, Tx**
Education Officer for the JOIDES Resolution expedition 350 (Pacific Ocean)

- Communicating science onboard the JOIDES to the general public
- Raising STEM awareness and promoting STEM fields and women in STEM
- Creating educational materials for k-12 students
- Creating media (images, videos, graphics) communicating onboard activity
- Social media (facebook, twitter, instagram, blogging)

2011-2014 **Denver Museum of Nature & Science (DMNS)** **Denver, Colorado**
Astrobiology Research Assistant

Advisor: Dr. David Grinspoon

Funding: NAI Titan as a Prebiotic Chemical System grant – research & E/PO
NASA Radiation Assessment Detector grant – E/PO

- Managing scientific media and content through museum policy and NASA policy to be disseminated to the public.
- Responsible for social media presence of events and promotion of events
- Research on the Astrobiology of Titan – Particle flux to Titan.
- Titan E/PO, evaluation of impact on E/PO activities at the museum.
- Created & disseminated informational content for RAD on social media, and at DMNS
- Created and maintain Dr. Grinspoon's personal website (funkyscience.net)

- '11-present **Blue Marble Space Institute of Science** **Seattle, Washington**
Research Scientist
- Researched and presented on the topic of METI (messaging extraterrestrial intelligence).
 - Published results in the peer reviewed Space Policy journal and made available on [arXiv.org](https://arxiv.org)
 - Co-founded SAGANet – Social Action for a Grassroots Astrobiology Network (www.saganet.org)
 - Website design, website editing (html), video production & editing, communication, evaluation, mentoring
 - Founded DVML – Distant Vantage Media Labs (www.distantvantage.org/)
 - STEM media creation (art, graphics, design, science songs/raps), website design, website editing (html)
- 2011 **NASA Ames Research Center** **Moffet Field, California**
Intern
- Project: *Challenges Associated with the Remote Detection of Biosignatures.***
Advisor: Dr. Chris McKay
- Research and fieldwork for the completion of a Master Thesis
- 2007-2010 **New Worlds Observer - CU** **Boulder, Colorado**
Research assistant & team lead for Education & Public Outreach
- Research on spectroscopy, remote detection of biosignatures, exoplanets, early-earth atmosphere.
 - Created relevant STEM educational materials for all ages.
- 2005-2010 **Fiske Planetarium** **Boulder, Colorado**
Outreach staff and presenter
- Presented over 100 star talks in planetarium
 - Ran astronomy educational planetarium shows
 - Presented astronomy/astrobiology/STEM content to several local Denver/Boulder schools
 - Trained on StarLab portable planetarium, and Science on a Sphere
- 2004 **Deep Impact Mission – UMD** **College Park, MD**
Intern
- Research on comets and spectroscopy
 - Provided airmass calculations for optimum ground-based observing during impact
 - Provided informational content for the Deep Impact website

PROFESSIONAL QUALIFICATIONS & EXPERIENCE

LEADERSHIP PROJECTS

- Space in Your Face!: Started and curated the highly successful seasonal space outreach event in Denver, Colorado – presenting space science to young adults in exciting and often over-the-top ways, involving: skits, space raps/songs, and comedy. (See: www.facebook.com/SpaceInYourFaceDenver)
- Astrobiology Club: Started and co-led the first Astrobio club at the University of Colorado '06-'10. (See: www.facebook.com/groups/2221810485/)

SOCIAL MEDIA & WEB DESIGN

- Active science content provider for SAGANet.org
- Experience on NING web platforms (custom social network)
- Active on the following social networks: Facebook (<https://www.facebook.com/julia.demarines>), Instagram @mote_of_dust (https://instagram.com/mote_of_dust/), Twitter @LifeNspace (<https://twitter.com/LifeNspace>), Tumblr (<http://demarines.tumblr.com/>)
- Blogger - paleblueblog.org, oases2012.blogspot.com/, imonaboat.org
- Website design (HTML, wordpress, googlesites) - www.funkyscience.net, www.distantvantage.org, www.DearET.org

MANAGEMENT EXPERIENCE

- Managing STEM multimedia (images, videos, articles, event fliers) through policies at the Denver Museum of Nature & Science to align with NASA policy.
 - I managed the production and dissemination of the following videos <https://vimeo.com/album/1891554> and coordinated with NASA Jet Propulsion Lab to disseminate them on their website (<http://solarsystem.nasa.gov/naititan/multimedia/>)
- Co-Managed the 2010 and 2011 Astrobiology Research Focus Group workshops and the 2011 Astrobiology Graduate Conference.
- Managed the Titan as a Prebiotic Chemical System Team meeting in April 2013 at the Denver Museum of Nature and Science (arranged meeting rooms, tours, food).
- Co-founder and co-manager/Admin of SAGANet.org (Social Action for a Grassroots Astrobiology Network) – an interactive social network dedicated to astrobiology outreach and education. (www.SAGANet.org)

COMPUTER SKILLS

- IDL (Interactive Data Language) – created a program to input atmospheric models into observing technology code for the proposed New Worlds Observer mission.
- Microsoft Office, Adobe Design Suite, experienced in Wordpress blogs, basic HTML and Dreamweaver, iMovie

SCIENTIFIC INSTRUMENTATION

- Sommer Bousch Observatory (Boulder, CO), 24, 18 and 16 inch telescopes
- Apache Point Observatory (Sunspot, NM) 2.5m telescope
- Raman Spectrometer
- Gas Chromatograph Mass Spectrometer

GRANTS & AWARDS

- 2014 Winner of JOIDES Resolution Expedition 350 graphic design contest
- 2013 NAI E/PO "Life Out There" Grant (co-author) – Tour of an educational, visual, musical show called "Life Out there" with the House Band of the Universe
- 2012 First place winner of the Astrobiology Research Focus Group Competition (<http://astrobiology.com/2012/10/2012-early-career-research-focus-group.html>)
- 2012 Winner of AbGradCon logo contest (see <http://www.abgradcon.org/abgradcon2012/>)
- 2011 NASA Ames Honor Award: Group Achievement Award for field work at Railroad Valley Playa
- 2011 NASA Young Professional travel grant – Assisted with the attendance and presentation of research at the Astrobiology and Philosophy conference (Hven, Sweden) and the International Astronautical Congress (Capetown, South Africa).
- 2010 Apogaea Creative Art grant – created art installation displayed at event
- 2009 UROP Grant (Undergraduate Research and Opportunity Program): For modeling the detection of variable extrasolar atmospheric pre-photosynthetic biosignatures via New Worlds Observer
- 2009 Third Place winner of the Astrobiology Research Focus Group Competition
- 2008 Member of New Worlds Observer team nominated for a NASA Group Honor Award

PUBLICATIONS

K. C. Yu, **J. DeMarines**, D. H. Grinspoon. (2014). It's Life Out There: An astrobiological multimedia experience for digital planetariums. *Planetarian – Journal of the International Planetarium Society*. Vol. 43, Issue 4. 22-28.

L. Barge, A. Pulschen, A. Emygdio, C. Congreve, D. Kishimoto, A. Bendia, A. Teles, **J. DeMarines**, D. Stoupin. (2013). Life, the Universe, and Everything: An Education Outreach Proposal to Build a Traveling Astrobiology Exhibit. *Astrobiology*. Vol. 13, Issue 1.

Atri, D., **DeMarines, J.**, Haaq-Misra, J. (2010). A Protocol for Messaging to Extraterrestrials. *Space Policy*.

DeMarines, J., Cash, W., Domagal-Goldman, S., Meadows, S. (2010). Remote Detection of Biosignatures of Primitive and Evolved Life on Extrasolar Planets. [Abstract]. AbSciCon, League City, Tx, USA.

Atri, D., **DeMarines, J.**, Haqq-Misra, J. (2010). A Protocol for Messaging to Extraterrestrial Intelligence. [abstract]. AbSciCon, League City, Tx, USA

DeMarines, J. (2010). Social implications of the Discovery of Life on Extrasolar Planets. [abstract]. Second Symposium on Astrosociology, Laurel, Md, USA.

Atri, D., **DeMarines, J.**, Haqq-Misra, J., Wu L. (2009). A Protocol for Messaging to Extraterrestrial Intelligence. NAI Newsletter. 3rd Place at the Astrobiology Research Focus Group (RFG), Pack Forest, WA, USA.

DeMarines, J. (Co-Author). (2009). Astro2010 PPP RFI Response: THE NEW WORLDS OBSERVER. University of Colorado, Boulder, Whitepapers for the Astro2010 Survey Committee

DeMarines, J., Cash, W., Oakley, P., Arney, G. (2008) Detecting Biosignatures in an Evolving Earth-like Atmosphere via New Worlds Observer [abstract]. In: American Geophysical Union Fall Meeting; Dec 15-19; San Francisco, Ca, *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract P33D-08.

DeMarines, J., Cash, W., Oakley, P., Arney, G. (2008) Detecting Biosignatures in an Evolving Earth-like Atmosphere via New Worlds Observer [abstract]. In: XII ISSOL Meeting- XV International Conference on the Origin of Life.; Aug 24-29; Florence, Italy. 2008. Pg 225. Abstract P-8-8.

DeMarines, J., Cash, W., Oakley, P., Arney, G. (2008) Detecting Biosignatures of an Evolving Atmosphere of an Earth-Like Planet via New Worlds Observer [abstract]. In: Astrobiology, Volume 8, Number 2, April 2008. Mary Ann Liebert, Inc. AbSciCon, Santa Clara, Ca. Section 17, pg. 372. Abstract 17-03-P.

DeMarines, J. (2007). Astrobiology: Past, Present and Future [abstract]. In: Astrobiology, Volume 7, Number 3, June 2007. Mary Ann Liebert, Inc. Bioastronomy Conference. San Juan, Puerto Rico. Pg 536. Abstract P-106.

STEM RELATED TEACHING, LECTURING, MENTORING

- May 13th 2015 – “Messaging ET life: Who Speaks for Earth?” – lecture at Jones Planetarium, Hampton, Va
- April 4th, 2015 - Raman-Lidar Multiprobe for Planetary Environments and Life Detection
- November, 2014 – Virtually mentoring a 5th grade student to complete a project on Venusian clouds and sulfuric acid for a science fair through SAGANet.org ‘Discovery Room’ mentoring program
- October 22nd, 2014 – Hampton University Atmospheric and Planetary Science Seminar – “Particle Flux on Titan and Implications for a Biosphere” – Hampton, Va
- April-May 2014, 44 virtual science presentations to over 1,000 students from the JOIDES Resolution regarding planetary geology, plate tectonics, and geology
- Nov 6th, 2013 – “Why Astrobiology is Cool & Astrobiology Activities at DMNS” - Denver, Co
- 2011-2014 – Weekly “Cruisin’ the Cosmos” presentations at Gates Planetarium at the Denver Museum of Nature & Science
- Nov – Dec 2013, Pittsburg High School SAGANet.org mentoring – mentoring at-risk high school students to complete an Astrobiology project in a classroom competition
- April 2013 – iTeach –Mentoring an elementary school student with their family for a science project
- 2012 Navajo Nations NASA Space Camp – Astrobiology activities, lectures – Navajo Reservation
- 2006-2011 Fiske Planetarium Outreach
 - Over 100 Astronomy/Astrobiology presentations at the Univ. of Colorado Fiske Planetarium
 - Invited Astrobiology Speaker at Winter Park Star Safari (’10, ’09), Vail Starry Nights (’08)

CONFERENCE PARTICIPATION & WORKSHOPS (SP – SPEAKER, PO – POSTER)

2015

- (PO) VEXAG, Hampton, VA
- (PO) Astrobiology Science Conference, IL
- (PO) Emerging Researchers in Exoplanet Science Symposium, PA

2014

- (PO) NASA Nordic Astrobiology Winter School, HI
- (PO) American Geophysical Union, CA

2013

- (SP) UNM Mentoring Conference, NM
- (SP) AbGradCon, Montréal, Canada
- NAI E/PO Retreat, NM
- Astronomical Society of the Pacific, San Jose, CA

2012

- (SP) UNM Mentoring Conference, NM
- (SP) AbSciCon, GA
- (PO) Comparative Climatology Conference, CO
- Mars Science Lab Teacher Training Workshop, AZ

2011

- Mentoring Conference, NM
- Space Visions, CO
- (SP) International Astronautical Congress (IAC), Cape Town, South Africa
- (SP) History and Philosophy of Astrobiology Conference, Ven, Sweden
- Lunar Planetary Science Conference, CA
- (SP) Astrobiology Graduate Conference (AbGradCon), MT
- Graduate Research Focus Group (RFG), MT

2010

- IAC – Prague, Czech Republic
- Sagan Exoplanet Workshop, CA
- Lunar Science Forum, CA
- AbGradCon, Tällberg, Sweden
- (SP) AbSciCon, TX
- (SP) Second Symposium on Astrosociology, MD

2009

- (PO) AbGradCon, WA
- Accepted to speak, AGU conference, San Francisco, CA

2008

- (PO) ISSOL, Florence, Italy
- (SP) AbGradCon, CA
- (PO) AbSciCon, CA

2007

- (PO) BioAstronomy conference, San Juan, Puerto Rico

PROFESSIONAL MEMBERSHIPS, COMMITTEES AND SERVICE

- SAGANet.org
- Skirts in Science (women in science support group at the Denver Museum of Nature & Science)
- ASP (Astronomical Society of the Pacific)
- BMSIS (Blue Marble Space Institute of Science)
- AAS (American Astronomical Society)
- AGU (American Geologic Union)
- SEDS (Students for the Exploration and Development of Space)
- FAR (Forum for Astrobiology Research)
- Astrobiology Club (CU)

ATHLETIC & ARTISTIC ACOMPLISHMENTS

Athletic: Completed two 50-kilometer trail running races, in 2007, and 2010. Competed on the University of Colorado Triathlon Team ('06-'08) and Track and Field Team ('02-'07). Dive coach and swim coach.

Artistic: Photography & paintings displayed: Boulder Museum of Contemporary Art, during the Elev8 show ('10); Illiterate Magazine, "Childhood" edition ('08); Shot! Magazine, "Secrets" edition ('08); Rush Café, Boulder ('08); "Fall from Grace" Fundraiser ('08); Café Play, Boulder ('08), Burnt Toast, Boulder ('07); Apex Gallery, Denver ('06).

REFERENCES

Hampton University advisor – Dr. William Moore: William.moore@Hampton.edu

NASA Langley advisor – Dr. Nurul Abedin: m.n.abedin@nasa.gov

Blue Marble Space/SAGANet.org collaborator – Dr. Sanjoy Som: Sanjoy@BMSIS.org

JOIDES Resolution Education Officer coordinator – Sharon Cooper scooper@oceanleadership.org

NASA Astrobiology Institute E/PO Coordinator - Daniella Scalice: daniella.m.scalice@nasa.gov

Denver Museum of Nature & Science - Dr. David Grinspoon: David@funkyscience.net

International Space University – Advisor Dr. Hugh Hill Hugh.Hill@isunet.edu

NASA Ames Research Center – Advisor Dr. Chris McKay Chris.McKay@NASA.gov

New Worlds Observer - Dr. Webster Cash: Webster.Cash@colorado.edu

Fiske Planetarium - Francisco "Tito" Salas Francisco.Salas@colorado.edu

Deep Impact Mission - Dr. Lucy McFadden: mcfadden@astro.umd.edu