

DCO EARLY CAREER SCIENTIST WORKSHOP

University of the Azores
Ponta Delgada, Portugal
31 August – 5 September 2015

SPONSORS



ALFRED P. SLOAN
FOUNDATION



**WEST
Systems**



AGENDA

MEETING HASHTAG: #DCOECS15

Sunday, 30 August 2015

All day **Arrival in Ponta Delgada.** Check in at the University Student House
Airport pickup arranged by the organizing committee

Monday, 31 August

Until 16:00 **Arrival in Ponta Delgada.** Check in at the University Student House
Airport pickup arranged by the organizing committee

16:00 **Registration.** University of the Azores
Hall of the Complexo Científico (location for all workshop sessions)

17:00 **Welcome and Icebreaker**
Members of the organizing committee.

17:00 – 17:20 *Welcome to the Second DCO Early Career Scientist Workshop*
Donato Giovannelli, Workshop PI, Rutgers University, USA

17:20 - 17:30 *Welcome to the University of the Azores*
Fátima Viveiros, Co-Organizer, CVARG University of the Azores, Portugal

17:30 – 17:45 *An introduction to the Reservoirs and Fluxes Community*
Dana Thomas, Co-Organizer, Stanford University, USA

- 17:45 – 18:00** *An introduction to the Deep Life Community*
Cody Sheik, Co-Organizer, University of Minnesota Duluth, USA
- 18:00 – 18:15** *An introduction to the Deep Energy Community*
Alysia Cox, Co-Organizer, Montana Tech of the University of Montana, USA
- 18:15 – 18:30** *An introduction to the Extreme Physics and Chemistry Community*
Dan Hummer, Co-Organizer, Carnegie Institution of Washington, USA
- 18:30 – 20:00** *Icebreaker activity (with light refreshments)*
Katie Pratt, Co-Organizer, University of Rhode Island, USA
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20:15 **Walk to Hotel Camões**

20:30 **Dinner**
Welcome by the Director of CVARG (representing the Rector of the University of the Azores) and the President of CIVISA

Tuesday, 1 September

- 07:30 – 08:15** **Breakfast**
Provided in University Student House
- 08:30 – 08:50** **Walk to the University meeting room**
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- 09:00** **Morning Session I**
Participant talks: 10 minutes each with 5 minutes for questions and discussion
Room: Anf.1, Complejo Científico
- Moderator: **Cody Sheik**, University of Minnesota Duluth, USA
- 09:00 – 09:15** *Welcome and logistical announcements*
Organizing committee
- 09:15 – 09:30** *Microbial Communities of the Hyperarid Areas of the Atacama Desert*
Armando Azua-Bustos, Blue Marble Institute of Science, Chile
- 9:30 – 9:45** *Noble Gas Characteristics of Hydrocarbon Systems*
Peter Barry, University of Oxford, UK
- 9:45 – 10:00** *Carbon Release Through Hydrothermal Venting at the Arctic Mid-Ocean Ridges (AMOR)*
Tamara Baumberger, University of Bergen, Norway
- 10:00 – 10:15** *Carbonate Stability at Lower Mantle Conditions*
Eglantine Boulard, Institut Neel, France
- 10:15 – 10:30** *Microbial Community Dynamics in a Tropical Serpentinizing Peridotite: Santa Elena Ophiolite, Costa Rica*
Melitza Crespo-Medina, CECIA - Inter-American University of Puerto Rico
- 10:30 – 10:45** *Methane Cycle: Interaction Between Geothermal Fluids and Microbiota*
Antonina Lisa Gagliano, INGV Palermo, Italy
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- 10:45 – 11:00** **Coffee Break and Poster Session I Setup**
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- 11:00** **Morning Session II**
Participant talks: 10 minutes each with 5 minutes for questions and discussion
- Moderator: **Dan Hummer**, Carnegie Institution of Washington, USA
- 11:00 – 11:15** *Dissolution of Carbonate Minerals in Subduction Zone Fluids*
Sebastien Facq, University of Cambridge, UK
- 11:15 – 11:30** *Metal-Silicate Reactions in the Presence of Carbon with Application to Earth's Core Formation*
Rebecca Fischer, Smithsonian/UC Santa Cruz

- 11:30 – 11:45** *Using Neutron Scattering and MD Simulations to Understand Confined Geofluids*
Siddharth Gautam, Ohio State University, USA
- 11:45 – 12:00** *Large-scale Organization of Metamorphic CO₂ Degassing in the Nepal Himalayas*
Frédéric Girault, Ecole Normale Supérieure de Paris, France
- 12:00 – 12:15** *The Last Step of Volcanic Unrest in Turrialba Volcano: a New Stage of Magmatic Eruptions*
Gino Gonzalez, University of Costa Rica
- 12:15 – 12:30** *Deep Carbon: SiC in Mantle and Mantle-Generated Rocks*
Jin-Xiang Huang, Macquarie University, Australia
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- 12:30 – 13:00** *Group Activity: DCO Pictionary*
Dana Thomas, Stanford University, USA
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- 13:00 – 13:45** **Lunch**
University cafeteria
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- 14:00** **Afternoon Session I**
Participant talks: 10 minutes each with 5 minutes for questions and discussion

Moderator: **Fátima Viveiros**, CVARG University of the Azores
- 14:00 – 14:15** *Logistical announcements*
Organizing committee
- 14:15 – 14:30** *VMS Deposits in the Sumail Ophiolite, Oman: Influences of the MORB to Supra-Subduction Setting Transition in Ore-Forming Processes at the Oceanic Upper Crust*
Ana Patrícia Jesus, German University of Technology in Oman
- 14:30 – 14:45** *Crustal Methane in Finland*
Riikka Kietäväinen, Geological Survey of Finland
- 14:45 – 15:00** *Origins of Majoritic Inclusions in Diamond*
Kate Kiseeva, University of Oxford, UK
- 15:00 – 16:30** **Introduction to Furnas Volcano and the surrounding area**
- 15:00 – 15:25** *Deep-origin CO₂ at Furnas Volcano: from a silent CO₂ flux emission to the visible hydrothermal fumaroles*
Fátima Viveiros, CVARG University of the Azores
- 15:25 – 15:40** *Conditions for mafic magma storage beneath fissure zones at São Miguel Island (Azores archipelago) revealed by hydrocarbonic fluid inclusions*
Vittorio Zanon, CVARG University of the Azores
- 15:40 – 15:55** *Soil CO₂ and ²²²Rn diffuse degassing at Furnas Volcano - Importance and applications*
Catarina Silva, CVARG University of the Azores

15:55 – 16:15	<i>The “old” SWAT of carbon sequestration: living on the edge</i> Paula Aguiar, CIBIO - Research Center in Biodiversity and Genetic Resources/InBIO Associate Laboratory
16:15 – 16:30	Group discussion
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16:30 – 16:50	Coffee Break and Poster Session I Setup
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17:00	Afternoon Session II
17:00 – 18:00	<i>DCO Engagement/Social Media for Scientists/An Introduction to Filming in the Field and GoPro Distribution</i> Katie Pratt , University of Rhode Island, USA
18:00 – 20:00	Poster Session I (<i>with light refreshments</i>) All local participants plus McDermott, Mikhail, Miller, Osburn, Padilla-Crespo, Price, Schwarzenbach, Serovaiskii, Steen, Nadeau, Vishal, Yucel, Glenn, LaRowe, Le Voyer, Masotta
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20:15	Walk to Hotel Camões
20:30	Dinner
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Wednesday, 2 September – Field Day I

07:30 – 08:00 **Breakfast**
Provided in University Student House

08:00 – 08:30 **Walk to the University to pick up the bus**

09:00 **Bus departs to Furnas Volcano**

Programmed stops at: view of Fogo Volcano intracaldera lake; visit to the tea factory (the only place in Europe where tea is planted and produced); view of the Furnas caldera (with discussion of the main geologic aspects and recent volcanism)

13:30 **Lunch at a local restaurant (Cozido das Furnas:** a traditional stew of different meats and vegetables, with numerous regional variations. In the Furnas Valley, this dish is cooked by placing the pot in the ground where it is heated by volcanic steam for 6 hours)

Visit the Furnas Lake and Furnas Village fumarolic fields

18:30 **Arrival back in Ponta Delgada**

20:00 **Meet in front of University Student House**
Walk to Hotel Camões

20:30 **Dinner**

Thursday, 3 September

- 07:30 – 08:15** **Breakfast**
Provided in University Student House
- 08:30 – 08:50** **Walk to the University meeting room**
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- 09:00** **Morning Session III**
Participant talks: 10 minutes each with 5 minutes for questions and discussion
Room: Anf.1, Complejo Científico
- Moderator: **Alysia Cox**, Montana Tech of the University of Montana, USA
- 09:00 – 09:15** *Logistical announcements*
Organizing committee
- 09:15 – 09:30** *Pathways for Abiotic Organic Synthesis at Submarine Hydrothermal Fields*
Jill McDermott, University of Toronto, Canada
- 9:30 – 9:45** *The Relationship Between Mantle Petrology and Atmospheric Chemistry*
Sami Mikhail, University of St Andrews, UK
- 9:45 – 10:00** *Mineral Transformations in CO₂ Fluids*
Quin Miller, University of Wyoming, USA
- 10:00 – 10:15** *Microbes, Lipids, and Isotopes: Ongoing Science of the Osburn Laboratory*
Maggie Osburn, Northwestern University, USA
- 10:15 – 10:30** *Detection of Organohalide-Respiring Chloroflexi in Subsurface Environments and Distribution of dcpA, a 1,2-dichloropropane to propane Reductive Dehalogenase*
Elizabeth Padilla-Crespo, UPRM/UIPR, Puerto Rico
- 10:30 – 10:45** *Abiotic production of methane in a Coastal Serpentine-Hosted Hydrothermal System: The Prony Hydrothermal Field (New Caledonia)*
Roy Price, SUNY Stony Brook, USA
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- 10:45 – 11:00** **Coffee Break and Poster Session II Setup**
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- 11:00** **Morning Session IV**
Participant talks: 10 minutes each with 5 minutes for questions and discussion
- Moderator: **Donato Giovannelli**, Rutgers University, USA
- 11:00 – 11:15** *The Source of Carbon During Continental Water-Peridotite Interaction*
Esther Schwarzenbach, Virginia Tech, USA
- 11:15 – 11:30** *Analysis of Crude Oil Stability Under Thermobaric Conditions of Earth Crust and Upper Mantle*
Aleksandr Serovaiskii, Russian Gubkin State University, Russia

- 11:30 – 11:45** *Is There a Limit to How Slowly You Can Eat? Organic Carbon and Heterotrophic Microorganisms in Subsurface Sediments*
Andrew Steen, University of Tennessee, USA
- 11:45 – 12:00** *Alkaline and Carbonatite Magmatism and Metasomatism during a Collisional Orogen: Insights from Montviel Alkaline Complex, Canada*
Olivier Nadeau, University of Ottawa, Canada
- 12:00 – 12:15** *Multiphase CO₂ Behavior in Deep Carbon Sink*
Vikram Vishal, Stanford University, USA, and IIT Roorkee, India
- 12:15 – 12:30** *Carbon Oxidation and Fixation Through Sulfur-Dependent Pathways at the Seafloor*
Mustafa Yucel, Middle East Technical University, Turkey
- 12:30 – 12:45** *Connections between atmospheric CO₂, radiative cooling, and cumulus cloud dynamics through physically realistic visualization*
Ian Glenn, University of Utah, USA
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- 13:00 – 13:45** **Lunch**
University cafeteria
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- 14:00** **Afternoon Session III**
Participant talks: 10 minutes each with 5 minutes for questions and discussion

Moderator: **Dana Thomas**, Stanford University, USA
- 14:00 – 14:15** *Logistical announcements*
Organizing committee
- 14:15 – 14:30** *Organic Matter in Marine Sediments*
Doug LaRowe, University of Southern California, USA
- 14:30 – 14:45** *Undegassed Carbon Content from a Highly Depleted Segment of the Mid-Atlantic Ridge (1-5°S): Evidence from Melt Inclusions*
Marion Le Voyer, University of Maryland, USA
- 14:45 – 15:00** *CO₂ Bubble Growth in Basaltic, Andesitic, and Rhyodactitic Melts*
Matteo Masotta, Bayerisches Geoinstitut, Germany
- 15:00** **Field trip debrief, demo, and breakout sessions**
- 15:00 – 15:10** *Field trip day I debrief*
Fátima Viveiros, CVARG University of the Azores
- 15:10 – 15:30** *West Systems Demo*
Leonardo Coppo, West Systems
- 15:30 – 15:40** *Metadata Acquisition*
Donato Giovannelli, Rutgers University, USA
- 15:40 – 15:45** *Breakout organization*
Dana Thomas and Dan Hummer

15:45 – 16:30	<p>Breakout Sessions: focused on field trip day II planning. Moderators: One person will lead discussion, the other will take notes and synthesize comments for the report after the break.</p> <p>Guiding questions: What scientific questions would you like to ask on tomorrow's field trip? What types of sampling will be required to address these questions? Where will we need to go to conduct sampling? Do you have the expertise to lead a field team tomorrow?</p> <p>Breakout Group 1 Moderators: Giovannelli/Cox Breakout Group 2 Moderators: Thomas/Hummer Breakout Group 3 Moderators: Sheik/Pratt</p>
16:30 – 16:50	Coffee Break and Poster Session II Setup
17:00	Afternoon Session IV
17:00 – 18:00	<p>Report: Breakout groups One moderator from each group will report back briefly in 5-10 minutes on the outcome of their session. Remaining time (30-40 minutes) for group discussion and finalization of field trip day II plan</p>
18:00 – 20:00	<p>Poster Session II (<i>with light refreshments</i>) All organizing committee plus Azua-Busto, Barry, Baumberger, Boulard, Crespo-Medina, d'Errico, Facq, Fischer, Gagliano, Gautam, Girault, Gonzalez, Huang, Jesus, Kietäväinen, Kiseeva</p>
20:15	Walk to Hotel Camões
20:30	Dinner

Friday, 4 September – Field Day II

07:30 – 08:00	Breakfast Provided in University Student House
08:00 – 08:30	Walk to the University to pick up the bus Bag lunches provided
09:00	Bus departs to Furnas Volcano
18:30	Arrival back in Ponta Delgada
20:00	Meet in front of University Student House Walk to Hotel Camões
20:30	Dinner

Saturday, 5 September

07:30 – 08:15 **Breakfast**
Provided in University Student House

08:30 – 08:50 **Walk to the University meeting room**

09:00 **Morning Session V**
Room: Anf.1, Complexo Científico

09:00 – 9:15 *Logistical announcements*
Organizing committee

09:15 – 9:30 *Field trip day II debrief*
Fátima Viveiros, CVARG University of the Azores

9:30 – 9:45 *Open access publishing options*
Donato Giovannelli, Rutgers University

9:45 – 10:30 **Group Discussion of publishing options and data analysis**

10:30 – 11:00 *Reimbursement procedures*
Donato Giovannelli, Rutgers University

10:45 – 11:00 **Coffee Break**

11:00 **Morning Session VI**

11:00 – 11:15 *Distribution of workshop exit survey and discussion of deepcarbon.net*
GoPro camera return
Katie Pratt, University of Rhode Island, USA

11:15 – 12:30 **Group discussion:**
Moderator: **Donato Giovannelli**, Rutgers University, USA
Scribe: **Katie Pratt**, University of Rhode Island, USA

Guiding questions:

What did you think of this workshop? Improvements for next time?
What would you like DCO leadership to know about DCO Early Career Scientists?
What can DCO do for you?
What can you do for DCO?
How do you use the DCO website?
What would you like to see in the monthly eNewsletter?

13:00 – 13:45 **Lunch**
University cafeteria

14:00 **Afternoon Session V**

14:00 – 14:15 *Brief overview of DCO Summer School 2016*
Sheik/Thomas/Pratt

14:15 – 14:45 *Would you like to host the next DCOECS Workshop?*
Group discussion of possibilities, locations, and organizing committee members

14:45 – 15:00 *Closing Remarks*
Giovannelli/Viveiros

15:00 **Meeting Adjourns**

15:00 – 00:00 **Check out of University Student House**
Transportation to Ponta Delgada airport provided today and tomorrow (5 and 6 September)
For those staying an extra night, dinner in Ponta Delgada TBD.



DEEP CARBON OBSERVATORY

MEETING PARTICIPANTS

Organizing Committee

Donato Giovannelli, Rutgers University, USA
Fátima Viveiros, CVARG, University of the Azores, Portugal
Katie Pratt, University of Rhode Island, USA
Cody Sheik, University of Minnesota Duluth, USA
Daniel Hummer, Carnegie Institution of Washington, USA
Alysia Cox, Montana Tech of the University of Montana, USA
Dana Thomas, Stanford University, USA

Twitter Handle

@d_giovannelli

@katie_phd/@deepcarb
@microbesheik

@danalouisiana

Local Committee (University of the Azores)

César Andrade
Ana Hipólito
Diana Linhares
Lucía Moreno
Joana Pacheco
Catarina Silva
Vittorio Zanon

Participants

Armando Azua-Bustos, Blue Marble Institute of Science, Chile
Peter Barry, University of Oxford, UK @pbarry10
Tamara Baumberger, University of Bergen, Norway
Eglantine Boulard, Institut Neel, France
Leonardo Coppo, West Systems
Melitza Crespo-Medina, Inter-American University of Puerto Rico @M_CrespoMedina
Giuseppe d'Errico, Polytechnic University of Marche, Italy
Sébastien Facq, University of Cambridge, UK
Rebecca Fischer, Smithsonian Institution/University of California Santa Cruz, USA
Antonina Lisa Gagliano, INGV Palermo, Italy
Siddharth Gautam, Ohio State University, USA @qutanxida
Frédéric Girault, École Normale Supérieure de Paris, France
Ian Glenn, University of Utah, USA
Gino Gonzalez, University of Costa Rica
Jinxiang Huang, Macquarie University, Australia
Ana Patrícia Jesus, German University of Technology, Oman
Riikka Kietäväinen, Geological Survey of Finland @riikkakie
Kate Kiseeva, University of Oxford, UK
Doug LaRowe, University of Southern California, USA
Matteo Masotta, Bayerisches Geoinstitut, Germany
Jill McDermott, University of Toronto, Canada
Sami Mikhail, University of St Andrews, UK @samilovesrocks
Quin Miller, University of Wyoming, USA @QuinMiller
Olivier Nadeau, University of Ottawa, Canada
Maggie Osburn, Northwestern University, USA
Elizabeth Padilla-Crespo, UPRM/UIPR, Puerto Rico
Roy Price, SUNY Stony Brook, USA
Esther Schwarzenbach, Virginia Tech, USA
Aleksandr Serovaiskii, Russian Gubkin State University, Russia
Andrew Steen, University of Tennessee, USA @drdrewsteen
Vikram Vishal, Stanford University, USA @vikramvishal12
Marion Le Voyer, University of Maryland, USA
Mustafa Yucel, Middle East Technical University, Turkey @mustyucel