

# VOILA WORKSHOP

Workshop on volatile recycling, tectonics and associated hazards in the Lesser Antilles, held at the University Inn & Conference Centre, St. Augustine

Time	Monday 23rd	Tuesday 24th	Time2	Wednesday 25th	Time3	Thursday 26th	Time4	Friday 27th
	<b>Introductions</b>			<b>Tectonics</b>		<b>Subduction Mantle Wedge and Upper Plate (part 2)</b>		<b>Seismicity, volcanism and hazard assessment</b>
9:00-9:30	Welcome, intro to VOILA project	<b>FIELDTRIP: Leave at 7am from Conference Centre</b>	9:00-9:50	Iain Neill	9:00-9:50	Nestor Cerpa	9:00-9:50	Valerie Clouard
9:30-10:30	<b>Richie Robertson</b>		9:50-10:10	Elizabeth Vanacore	9:50-10:10	Ben Maunder	9:50-10:10	Holli Frey
			10:10-10:30	Jenny Collier	10:10-10:30	David Schlaphorst	10:10-10:30	Oliver Higgins
10:30-11.00	<i>Coffee &amp; cake</i>		10:30-11.00	<i>Coffee, cake, posters</i>	10:30-11.00	<i>Coffee, cake, posters</i>	10:30-11.00	<i>Coffee, cake, posters</i>
11:00-12:00	<b>Poster lightning talks</b>		11:00-11:20	Saskia Goes		<b>Arc magmatism &amp; resources (part 2)</b>	11:00-11:50	<b>Joan Latchman</b>
			11:20-11:40	<b>Tectonics discussion</b>	11:00-11:50	<b>Matthew Thirlwall</b>	11:50-12:10	Steve Tait
				<b>Subduction Mantle Wedge and Upper Plate (part 1)</b>	11:50-12:10	George Cooper	12:10-12:30	<b>Seismicity, volcanism and hazard discussion</b>
12:00-1:00	David Pyle-Disaster Scenario ice breaker		11:40-12:30	<b>Geoff Abers</b>	12:10-12:30	<b>Arc magmatism &amp; resources discussion</b>		
			12:30-1:00	<b>Posters</b>	12:30-1:00	<b>Posters</b>	12:30-1:00	<b>Posters</b>
1:00-2:00	Lunch & posters		1:00-2:00	Lunch & posters	1:00-2:00	Lunch & posters	1:00-2:00	Lunch & posters
	<b>Plate Boundaries and Incoming Plate</b>		2:00-2:20	Steve Hicks	2:00-2:20	Lena Melekhova	2:00-2:20	Lidong Bie
2:00-2:50	<b>Gail Christeson</b>		2:20-2:40	Ben Chichester	2:20-2:40	Michal Camejo-Harry	2:20-2:40	David Pyle
2:50-3:10	Daniel Posse		2:40-3:00	Nick Harmon	2:40-3:00	Aurelie Germa		
3:10-3:40	<i>Break + posters</i>		3:00-3:30	<i>Break + posters</i>	3:00-3:30	<i>Break + posters</i>	2:40-3:30	<i>Wrap-up discussion</i>
3:40-4:10	Richard Davy			<b>Arc magmatism &amp; resources (part 1)</b>	3:30-3:50	Matthew Loader		
4:10-4:30	Rob Allen		3:30-3:50	Roberto Moretti				
4:20-5:30	<b>Posters</b>		3:50-5:00	<b>Posters</b>	3:50-5:00	<b>Posters</b>		
5:30-7:00	<i>Welcome Cocktails</i>	<b>FIELDTRIP: Return at 6-7 pm</b>		<i>Optional evening (tour, drinks, dinner) at Angostura Distillery</i>		<i>7:00 PM Conference Dinner</i>		<i>Optional Trip to bars in Port of Spain</i>

## Monday, September 23<sup>rd</sup>

### ***Introductions***

9:00 Register, Welcome and intro to VOILA project

9:30 **Richie Robertson:**  
TBC

10:30 Coffee & Cake & Posters

11:00 **Poster lightning Talks**

12:00 **David Pyle:**  
Disaster Scenario ice breaker

13:00 Lunch & Posters

### ***Plate Boundaries and Incoming Plate***

14:00 **Gail Christeson:**  
Structure and Basin Evolution of the Caribbean-northeastern South America Arc-Continent Collision Zone From the BOLIVAR Project

14:50 **Daniel Posse:**  
Imaging Seismic Discontinuities Beneath the North American-Caribbean Plate Boundary Using S-to-P Receiver Functions

15:10 Break & Posters

15:40 **Richard Davy:**  
Active-source seismic imaging of the incoming plate: quantifying hydration patterns within the Lesser Antilles subduction system

16:10 **Rob Allen:**  
High resolution seismic imaging of the Lesser Antilles incoming plate, outer rise and accretionary prism: Implications for the hydration of slow-spreading Atlantic lithosphere

16:30 Discussion and Posters

17:30 – Cocktails

## Wednesday, September 25<sup>th</sup>

### ***Tectonics***

- 9:00 **Iain Neill:**  
La Désirade and the plate tectonic origin of the Lesser Antilles basement
- 9:50 **Elizabeth Vanacore:**  
Tomographic Imaging of the Puerto Rico-Virgin Islands Microplate and Subduction Zone
- 10:10 **Jenny Collier:**  
The role of arc migration in the development of the Lesser Antilles: A new tectonic model for the evolution of the eastern Caribbean from active source seismic and magnetic anomaly data

10:30 Coffee, Cake, Posters

11:00 **Saskia Goes:**  
Evolution of Caribbean subduction from P-wave tomography and plate reconstruction

11:20 Discussion

### ***Subduction Mantle Wedge and Upper Plate (part 1)***

11:40 **Geoff Abers:**  
Can seismology image mantle water in subduction zones?

12:30 Discussion & Posters

13:00 Lunch & Posters

14:00 **Stephen Hicks:**  
Seismic attenuation imaging of volatile cycling in the Lesser Antilles subduction zone

14:20 **Ben Chichester:**  
Seismic imaging of the Lesser Antilles subduction zone using S-to-P receiver functions and P-to-S delay times: Insights from VoiLA

14:40 **Nick Harmon:**  
Widespread hydration of the back arc and the link to variable hydration of the incoming plate in the Lesser Antilles

15:00 Break & Posters

### ***Arc Magmatism and Resources (part 1)***

15:30 **Roberto Moretti:**  
Soliciting hydrothermal systems: the case of La Soufrière of Guadeloupe (FWI) unrest

15:50 -  
16:30 Discussion and posters

## Thursday, September 26<sup>th</sup>

### *Dynamics and Evolution*

- 9:00            **Nestor Cerpa:**  
Fluid migration pathways in the mantle wedge: the role of the wedge thermal structure, fluid properties, and fluid influx
- 9:50            **Ben Maunder:**  
Temperatures and flow from kinematic modelling of the Lesser Antilles Subduction Zone
- 10:10          **David Schlaphorst:**  
Variations in crust and upper mantle structure along and across the Lesser Antilles Arc combining seismic land stations and OBS
- 10:30          Coffee, Cake, Posters
- ### *Arc magmatism and resources (part 2)*
- 11:00          **Matthew Thirlwall:**  
Olivine trace element chemistry in the Lesser Antilles: evidence for crustal reworking
- 11:50          **George Cooper:**  
Variations in the supply of fluids to the Lesser Antilles subduction zone
- 12:10          Discussion & Posters
- 13:00          Lunch & Posters
- 14:00          **Lena Melekhova:**  
Formation of continental crust at arc settings
- 14:20          **Michal Camejo-Harry:**  
Syn and post-magmatic processes beneath Petit St. Vincent, Lesser Antilles
- 14:40          **Aurelie Germa:**  
Spatio-Temporal evolution of Martinique island: A record of Lesser Antilles arc activity since the Oligocene
- 15:00          Discussion, Break & Posters
- 15:30          **Matthew Loader:**  
Hydrous magmas trigger igneous garnet fractionation in magmas associated with porphyry systems
- 15:50 -  
16:30          Discussion and posters

## Friday, September 27<sup>th</sup>

### ***Seismicity, volcanism and hazard assessment***

- 9:00 **Valerie Clourard:**  
Recent seismic studies in the central Lesser Antilles : early fruit from the WI permanent virtual seismic network.
- 9:50 **Holli Frey:**  
Provenance of detrital zircons from Dominica, Lesser Antilles
- 10:10 **Oliver Higgins:**  
Geochemical and temporal evolution of the St Kitts magmatic system, Lesser Antilles
- 10:30 Coffee, Cake, Posters
- 11:00 **Joan Latchman:**  
Operational Volcanic and Earthquake Forecasting in the Eastern Caribbean
- 11:50 **Steve Tait:**  
Physical modelling of explosive eruption columns and umbrella clouds and ash dispersal with application to the recent Plinian eruptions of Montagne Pelée, Martinique.
- 12:10 Discussion & Posters
- 13:00 Lunch & Posters
- 14:00 **Lidong Bie (presented by Stephen Hicks):**  
Along arc heterogeneity in local seismicity across the Lesser Antilles subduction zone from a dense ocean-bottom seismometer network
- 14:20 **David Pyle:**  
Compositional Trends and Volatile Fluxes through Volcanic Arcs: Perspectives from southern Chile
- 14:40-15.30 Wrap-up discussion

## Poster presentations

Posters will be displayed through the whole week. On Monday AM, there is an opportunity for those with posters to present a 3 minute lightning talk.

Understanding the petrophysical properties of Montserrat's geothermal reservoir

Racine Basant

Chlorine isotopic composition of thermal springs along the Lesser Antilles arc and fumaroles from La Soufrière de Guadeloupe

Magali Bonifacie

Unradiogenic  $^{87}\text{Sr}/^{86}\text{Sr}$  cumulate plagioclase crystals in xenoliths from Martinique and St. Vincent, Lesser Antilles

Josh Brown

Plume chemistry for eight Lesser Antilles volcanoes obtained during the 2018-2019 Multi-Gas campaign

Thomas Christopher

Slab Tear and Fold of the Caribbean Plate beneath Northwestern South America

John Cornthwaite

P-wave seismic structure of mature Atlantic Ocean crust

Tim Henstock

Reconciling mantle wedge thermal structure with arc lava thermobarometric determinations in oceanic subduction zones

Saskia Goes

Volcano ready communities project St. Vincent and the Grenadines

Monique Johnson

Recent temporal changes in the geochemistry of hydrothermal fluids of  
Dominica, Lesser Antilles

Erouscilla Joseph

Pre-eruptive crystallization conditions in the past 25 Ma at Martinique  
Island as revealed by textural and chemical variation in phenocryst

Abigail Martens

MultiGAS survey from low-T° fumaroles in a tropical environment.  
Effects from internal and external forcing: example from La Soufriere de  
Guadeloupe (FWI)

Severine Moune

The 1902-3 eruptions of the Soufrière, St Vincent: impacts, relief and  
response

David Pyle

Dynamics of back-arc ridge jumps with application to the Caribbean

Jeroen van Hunen

Kinematics of the Lesser Antilles Subduction Zone

Elenora van Rijsingen

Origins of porphyry-type ore deposits in magmatic arcs: the importance  
of magma redox state, volatile flux and geodynamic setting

Jamie Wilkinson