Cruise Report AE1703-Giov 15-1 Sept 7-9, 2016

Ship: RV Atlantic Explorer

Location of research: The cruise track transited from the shipyard in Chareslton NC to BIOS, stopping at Hydrostation S (32°10′ N 64°30′ W)

1. Personnel:

Cruise Participant	Email	Group	Affiliation	Status on Cruise
Stephen Giovannoni	Steve.giovannoni@oregonstate.edu	Giovannoni	OSU	Chief Sci/PI
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Shuting Liu	shutingliu@ucsb.edu	Carlson	UCSB	Post-Doc
Chance English		Carlson	UCSB	Technician
Joanna Warwick-Dugdale	jwd@pml.ac.uk	Temperton	Exeter	Grad Student
Elizabeth Harvey	Elizabeth.Harvey@skio.uga.edu	Harvey	U of Georgia	Scientist
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Camille Poirier	Cpoirier@mbari.org	Worden	MBARI	Post-Doc
Sebastian Sudek	Ssudek@mbari.org	Worden	MBARI	Post-Doc

2. Cruise Objectives:

GROUP	ACTIVITIES
CARLSON / PARSONS	DOM
	POM
	DAPI
	BP
	DCNS/DCAA
	NUTRIENTS
	Zooplankton Excretion Experiment
	Table Isotope Probing experiments
GIOVANNONI	Dissolved Osmolytes Profile

	Tangential Flow Filtration for SAR11 single cell genomics
	Tangential Flow Filtration DOM (Osmolytes) incubations
KUJAWINSKI	DOM collections for FTICRMS
	DOM/seawater incubations
	zoo excretion DOM collection
BLANCO-BERCIAL / MAAS GROUP	MOCNESS Zooplankton Tow
HARVEY	DIC
	microzooplankton grazing and viral mortality experiment
TEMPERTON GROUP	Viral Single Cell Genomics, counts, metagenomics
	Viral DNA Extraction for Minion Sequencing
Worden Group	mesocosm incubations with vitamin B1 and its congeners

3. Synopsis: This cruise departed the shipyard four days after the scheduled departure date due to mechanical problems encountered in the yard. The purpose of this cruise was to sample SAR11 bacterial populations during the spring bloom. During this seasonal period the ecotypes of SAR11 that dominate the water column are different from those found in other seasons. This cruise was relatively challenging due to the delays and a storm that brought following seas on the transit to Bermuda. The science crew's assessment of the value of this cruise was highly favorable due to the excellent sampling it afforded during a period of phytoplankton blooms and mixing. This research focused on sampling and experimental studies that require substantial post cruise processing, so a post-cruise assessment of discovery and impact is not yet available.

4. Chief Scientist Narrative:

Day #	Day &Date	Time (Local)	Event	SIC

1	Wed, 07/Sept/2016	0800	Depart St. Georges for Hydrostation	SJG
1	Wed, 07/Sept/2016	10:20	Arrived at Hydrostation S **Cast #1:** to 250 m. Large volume collection for Giovannoni TFF (120 m; DCM, 130 m) and Grazing experiments (40 m and 200 m)	SJG
1		10:30	**Cast #2:** to 200 m, Temperton viruses 5&40 meters; Carlson DOM incubation 200 m; this requires lonf filtration from Niskin.	SJG
1		16:30	**Cast #3:** Temperton viruses 5&40 m; Giovannoni TFF (120 m; DCM, 130 m)	SJG
1		18:00	**Cast #4:** to 1000 m; core measurements and Muslin osmolytes. All bottles fired.	SJG
1		21:00	**Cast #5:** to 200 m; Harvey grazing 200&40; Temperton viruses 5&80.	SJG
1		22:30	**Cast #6:** to 200 m; 4 Niskins for CAC, Zooplankton exp.	SJG
2	Th, 08/Sept/2016	12:00	**Zooplankton tow:** this was successful; ~ 30 zooplankters were collected for zooplankton excretion exp.	SJG
2		03:00	**Cast #7:** One Niskin from 5 and one from 80 m for BT, viruses.	SJG
2		06:00	**Cast #8:** to 1000 m; core measurements and Muslin osmolytes. All bottles fired.	SJG
2		09:00	**Cast #9:** Bottles 21-24 were fired at 250 m instead of 200. Otherwise samples for grazing and viruses were collected as scheduled.	SJG
2		11:00	**Cast #10:** collected water from 10 m for TFF, and water for BT virus work.	SJG
2			**Planned Cast #11:** Cancelled. This cast was scheduled as backup and not needed.	SJG
2		18:00	**Cast #11:** to 1000 m; core measurements and Muslin osmolytes. All bottles fired.	SJG
2		20:00	Crew recovered floating debris ~ 2x3 m consisting of aluminium honeycomb core, heavily grounded. sandwiched between carbon graphite layers.	SJG
2		21:00	**Cast #12:** to 200 m; Harvey grazing 200&40; Temperton viruses 5&80.	SJG
2		22:00	**Cast #13:** to 300 m; 4 Niskins for CAC, Zooplankton exp.; 16 for Muslin, osmolyte profile to 300.	SJG

3	Friday, 09/Sept/2016	00:00	**Zooplankton Tow:** this was successful; ~ 30 zooplankters were collected for zooplankton excretion exp.	SJG
3		00:300	**Cast #14:** One Niskin from 5 and one from 80 m for BT, viruses.	SJG
3		06:00	**Cast #15:** to 1000 m; core measurements and Muslin osmolytes. All bottles fired.	SJG
3		7:45	Ship repositions	SJG
3		08:30	**Cast #16:** to 1000 m; core measurements and Muslin osmolytes. Bottles 16&17 misfired.	SJG
3		12:00	**Cast #17:** to 600 m; Muslin osmolyte profile; 10 m water for Noel osmolyte uptake exp.; 600 m water for HTCC experiments.	SJG
3		12:30	Arrive at SeaBuoy	SJG
3		1530	Alongside BIOS Unload samples and chemicals De-Mob 10-11, Sept.	

5. Data and Sample Transfer Status

Parameter	Location	Date	PI	Status
Data disk	With SJG to be posted to BIOS-SCOPE dropbox			
CTD cast sheets and Science Log (2 copies)	With SJG to be posted to BIOS-SCOPE dropbox			
Bacterial Production	Samples all run	7-12-16	SJG	
Bulk DOM	N 207	7-12-16	SJG	shipped to UCSB late July
DCNS	N -20 live freezer	7-12-16	SJG	shipped to UCSB late July
DAPI	N -20 Dead freezer or N-80 chest freezer	7-12-16	CAC	RP will prep and count
FCM	N-80 Chest Freezer	7-12-16	CAC	shipped to UCSB late July
POCN	N -20C BIOS-SCOPE freezer	7-12-16	CAC	shipped to UCSB late July

NUTS	N -20C BIOS-SCOPE freezer	7-12-16	CAC	shipped to UCSB late July
DNA- Sterivex	N -70 upright	7-12-16	SG	shipped to OSU late July
DNA – Pump filters	N -80 chest	7-12-16	SG	shipped to OSU late July
TFF concentrate	N -80 chest	7-12-16	SG	shipped to OSU late July
EM sample	N 4° dead fridge	7-12-16	SG	shipped to OSU late July
Dilution Exp samples microscopy	N 4° fridge	7-12-16	LH	shipped to OSU late July
Dilution Exp FCM	-80	7-12-16	LH	shipped to OSU late July
Dilution Exp probe	N -80 and N-20 Dead	7-12-16	LH	processed by RP
MOCNESS Formalin Samples	N 204	7-12-16	LBB/ AM	
MOCNESS-ethanol Samples	N Zoop Fridge	7-12-16	LBB/AM	
Zoopplankton dry mass	N204	7-12-16	LBB/AM	
Anodisc filter	Slides made in N-80	7-12-16	SG	shipped to OSU late July
HR-DOM	N -20 BIOS-SCOPE / Molec freezer	7-13-16	LK/KL	shipped after Sept cruise