

## **RGNO - Regional Graduate Network in Oceanography**

# 6<sup>th</sup> African Ocean Discovery Camp on Integrated Earth Systems Sciences Biogeochemical Oceanography in Upwelling Ecosystems

SAM NUJOMA CAMPUS & MARINE and COASTAL RESEARCH CENTER (SANUMARC) and NATIONAL MARINE INFORMATION and RESEARCH CENTER (NatMIRC)

April 28 to May 24, 2019

Week 1 April 28 - May	5	Morning	Afternoon	Evening
Sunday	28	Travel to Namibia and pick-up at Walvis Bay or Swakopmund	Participants (Students, TAs and Instructors) arrive in Swakopmund at the Municipal Bungalows.	19.30 Welcome and Get Together at the Residence. Pizza and drinks will be provided
Monday	29	07.30 Breakfast at NatMIRC 08.45 Benguela Symposium at NatMIRC. Special Program	Symposium cont.	19.30 Dinner Activities defined by Participants
Tuesday	30	07.30 Bus departs for medical exam. Breakfast box at Medixx. Medical tests for seafarer certificate	will probably last until early afternoon. Shoping for personal needs	18.30 Dinner Activities defined by Participants
Wednesday	01	07.30 Breakfast at NatMIRC 08.30 Tim Eglinton. How is organic matter preserved in sediments? 10.00 Luke Bridgestock. Studying nutrient cycling applying ODV to the GEOTRACES internediate data product	13.30 Lunch at NatMIRC 14.15 Daniel Montluçon. Introduction to Librarybox 14.00 ALL. Designing projects and defining sampling needs	19.00 Dinner Activities defined by Participants
Thursday	02	07.30 Breakfast at NatMIRC 08.30 Luke Bridgestock.  Reconstructing export production using stable Ba-isotopes 10.00 Richard Horaeb. Pre-cruise meeting. Cruise organization. Designing sampling plan. Assignments to cruise legs, signing documents 11.00 Tim Eglinton. Overview of analytical methods used in biogeochemistry	12.30 Lunch box 12.45 Departure from NatMIRC for Henties Bay 14.15 Collecting sampling materials, hard hats, boots, etc. at SANUMARC	19.00 Dinner Activities defined by Participants
Friday	03	07.30 Breakfast at NatMIRC 08.30 Departure from NatMIRC to Walvis Bay harbour. <i>Installing equipment on the MIRABILIS</i> (Harbour access for bus required)	Lunch at local restaurant when finished with installations on the MIRABILIS Eearly afternoon: Prepare for presentation at Student + Alumni Forum.	18.00 Dinner Activities defined by Participants
Saturday	04	07.30 Breakfast at NatMIRC 08.30 <b>Student + Alumni Forum</b> at NatMIRC. Special Program compiled by Mohamed Elsafy	Student + Alumni Forum continued	19.00 Dinner Activities defined by Participants
Sunday	05	Relax, catch up, explore. Breakfast, lunch and are leaving for a Sunday excursion alone or as	•	where you are going, if you

<b>Week 2</b> May 6 - May 12	2	Morning	Afternoon	Evening
Monday	06	07.30 Breakfast at NatMIRC 08.30 ALL, Departure for cruise leg 1 11.00 Instructions onboard the MIRABILIS	Group 1 departs for cruise leg 1. Group 2 returns to SANUMARC laboratories in Henties Bay and sets up laboratories	19.30 Dinner Activities defined by Participants
Tuesday	07	Group 1: at sea Group 2: 07.30 Breakfast at Eagle Holiday Flats 08.30 Bus departs for Lab. 09.00 Kurt Hanselmann. 1. Ecological Concepts. 2. Ocean Acidification	Group 2: Lab work. Preparing for experiments	18.30 Dinner Activities defined by Participants
Wednesday	08	07.30 Breakfast at Appartments 09.00 Group 2 departs from Henties Bay for cruise leg 2 and pickup of group 1	11.30 Group changes. Group 1 disembarks. Group 2 begins cruise leg 2. Group 1: Sample preservation at SANMUARC labs in Henties Bay and moving into appartments	19.00 Dinner Activities defined by Participants
Thursday	09	Group 2 at sea Group 1: 07.30 Breakfast at Appartments 09.00 Kurt Hanselmann. 2. Ocean Acidification and 3. How to make media. 11.00 Work with samples in the lab	Continue working in the lab Analyzing samples, making growth media	19.00 Dinner Activities defined by Participants
Friday	10	Group 2 at sea Group 1: 07.30 Breakfast at Appartments 09.00 Continue working in the lab	Continue working in the lab Analyzing samples, preparing growth media	19.00 Dinner Activities defined by Participants
Saturday	11	Group 2 at sea Group 1: 07.30 Breakfast at Appartments 09.00 Bus departs from Henties Bay to pickup group 2 from cruise leg 2	Group 2 returns from cruise leg 2: Sample preservation at SANMUARC labs in Henties Bay and cleaning sampling materials, hard hats, boots, etc. Moving into Henties Bay appartments	19.00 Dinner Activities defined by Participants
Sunday Mothersday	12	Relax, catch up, explore. Breakfast, lunch and are leaving for a Sunday excursion alone or as	•	where you are going, if you

Week 3 May 13 - May	19	Morning	Afternoon	Evening
Monday	13	07.30 Bus departs, breakfast at SANUMARC 08.30 Kurt Hanselmann. Catchup week 1 lectures for those who missed them 10.00 Gideon Henderson (recorded). Taking it back - Removing CO2 from the atmosphere to limit climate change	Continue working in the lab. Analyzing samples, carrying out experiments	19.30 Dinner Activities defined by Participants
Tuesday	14	07.30 Bus departs for breakfast 09.15 <b>Ocean Highlights Symposium</b> at SANUM students and staff.	ARC. Special Program also for campus	18.00 Dinner with speakers and guests
Wednesday	15	07.30 Bus departs for breakfast 08.30 John Compton. Origin of phosphorite deposits on the Namibian shelf 10.00 Sandy Thomalla. The role of phytoplankton in mediating global climate through stratus cloud albedo in the Benguela System	Continue working in the lab. Analyzing samples, carrying out experiments	19.00 Dinner Activities defined by Participants
Thursday	16	07.30 Bus departs for breakfast 08.30 Jake Bailey. <i>Microbial Metabolisms in the BCE</i> 10.00 Kurt Hanselmann. <i>Evolution of microbial processes in micro- aggregate ecosystems</i>	Continue working in the lab. Analyzing samples, carrying out experiments	19.00 Dinner Activities defined by Participants
Friday	17	07.30 Bus departs from flats for breakfast at SAN 08.30 Chibo Chickwililwa. <i>Excursions to sea wat and farm and salt factory</i> . Special program		18.00 Dinner in Swakopmund Activities defined by
Saturday	18	07.30 Bus departs for breakfast 08.30 Sümeyya Eroglu. <i>Application of</i> stable isotope geochemistry in marine sciences 10.00 Chibo Chikwililwa. <i>Understanding</i> HABs in 2019	Continue working in the lab. Analyzing samples, carrying out experiments	19.00 Dinner Activities defined by Participants
Sunday	19	One-day trip to the Namibian Desert Research 21.30.	Station at Gobabeb. Departure 07.30 from	om appartments. Return ca.

Week 4 May 20 - May	24	Morning	Afternoon	Evening
Monday	20	07.45 Bus departs for breakfast at SANUMARC 08.30 <i>Summarizing results, writing proposals</i> For those who would like to attend the "Blue Oc Swakopmund (Special Program): Transport departs at 09.00 and ends at 15.00	ean Economy" meeting at Nat MIRC in	19.00 Dinner with the mayor of Henties Bay, Hon. Hermann Honeb. Interactions between scientists and the public
Tuesday	21	07.45 Bus departs for breakfast  08.30 Summarizing results, writing proposals  posters  If time allows, begin cleaning up equipment and		19.00 Dinner Activities defined by Participants
Wednesday	22	07.30 Bus departs from flats. Breakfast in Swake 09.00 "Scientific Knowledge applied to the Su Ecosystems" organized by Elena Bruni. Specia	stainable Use of Coastal Upwelling	19.00 Graduation Dinner
Thursday	23	07.45 Bus departs for breakfast at SANUMARC 08.30 <i>Cleaning up, packing, storing RGNO eq</i>	uipment, turning over facility to host	19.00 Dinner and Farewell Party
Friday	24	End of RGNO 2019 Transports to Swakopmund a nd Walvis Bay airp	ort depart accoring to sign-up plan	

## Instructors, TAs, Lecturers, Students, Course Coordinator, Course Directors, Cruise Leader, Symposium Speakers

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H	nstructor lost ruise Leader ogisitics, Visa, Transport, Housing,	I H C L	Technical Assistant Lecturer / Organizer / Speaker / Student Participant Participation in Cruise Leg #	T Y S 1, 2

Legend

### Overall Workshop Plan

RG	NO 2019, Time plan		RGN	O cou	rse we	ek 1				RGNI	RGNK course week 2 RGNL course week 3										RGNO course week 4						MEEO Course Week								
Mo			April				May																										June		
	cation		Swak	opmu	nd and	RVM					Henties B			1	1			1			1							Swak	opmu	nd					
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vve	ek day	-	Su	Mo	Tu	We May1	Th	Fr	Sa	Su	Mo Ti	ı We	Th Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	vve	In	Fr	Sa	Su	Mo	Tu	We	Th Asc	Fr	Sa
	Topics	Students				iviay	_	_	-	_			140		_	_		-			_		-	_	_	_	_		-	_		-	l Mac		
	Productivity. Food Webs	1 2		ANUMARC		equipment and lent	ing to Cruise	Bay			-8 irabilis, eb	۲C, Henties	ory facilities, orkshops. ne	/. Collect			TIS																		
	Degradation Bottom Currents	3 4	at 19.30	NatMIRC, SA	s <sub>ē</sub>	mbling equipm equipment	ojects according	ILIS, Walvis E	out "at home"		. Students: 1 . 3°S, on RV M	End of cruise: Transfer to SANUMARC, Henti Bay. Sample preservation	oup 1: Get acquainted with laboratory facilitistant experiments. Lectures and workshops. Evening: Individual study time	Group 1: Salt Lagoons Walvis Bay. Collect equipment from MIRABILIS, then to SANUMARC		and Tutorials.	welling Syste	d Tutorials.	and Tutorials.	Oyster Farm.	d Tutorials. g week 4	0	on.	on.	×		st					TREACH	i		
	Trace Metal, Organics Thiomargarita	5 6	Participants arrive in Swakopmund. Evening Get-together at 19:30	by experts of	I. all Instructors.	sse	re pr	2: Installing and preparing equipment on the RV MIRABILIS, Walvis	arch carried	d catch up	Group 1: A - H. pling at sea, 23	ise: Transfer Bay. Sample	et acquaintec periments. Le vening: Indiv	: Salt Lagooi from MIRABI	d catch up	periments and	in Marine Upv	I workshops. Afternoon: Experiments and Tutorials. Evening: Individual study time	periments and me	Oyster Hatchery, Oyster Farm.	experiments and second	Desert trip. Namibian Research Institute in Gobabeb	r Design, Preparing Presentation. clean boots and glass ware.	Preparing Presentation., turn over labs.	wakopmund.	ıal Clean-up	2019. Participants depart after breakfast		punudo			VIRONMENTAL EDUCATION AND OUTREACH Application through Richard Horseb et al.			Staffdepart
	Sulfidic Symbioses Coastal	7 8	nd. Evening (	resentations in Swakopr	ertificate incl	rkshops. Aftern Bay collecting	ps. Afternoon: with Cruise Le	ipment on th	ntaton of rese	nties Bay an	Sampl	End of crui	Group 1: G start exp	Group 1	nties Bay an	flernoon: Exp dual study tir	m Research	fternoon: Exp dual study tir	Afternoon: Exp	n Plant, Oysl	ps. Afternoon: Exp	earch Institut	sign, Prepari	sign, Prepari	Nat MIRC S	Shipping Equipment, final Clean-up Evening: Graduation	pants depart	for MEEO	rrive in Swak			AL EDUCAT	, ,		nd RGNO Sta
	Productivity. Food Webs	9 10	Swakopmur	ng System. P	tests for Seafarer Certificate incl. all Ins Study Cruise Plan and prepare projects	ures and workshops.	worksh	oreparing equ	orum, Preser	Free Day. Relax at Henties Bay and catch up	Get acquainted xperiments. Individual study	en tranfer to	16 rabilis, eb.	fenties Bay, nents	Free Day. Relax at Henties Bay and catch up	I workshops. Afternoon: Experiments Evening: Individual study time	Highlights from	vorkshops. A	1 workshops. Afternoon: Exper Evening: Individual study time	Excursion Day: Sea water Desalinarion Plant,	vorkshops. A	amibian Res	l Writing, Poster Des wash overalls, clear	Proposal Writing, Poster Design, Preparing Pres TAs complete inventory, turn over labs.	ymposium at	d Shipping E Evening: (	2019. Partici	Prepare f	MEEO Participants arrive in Swakopmund			MARINE ENVIRONMENTAL			MEEO Participants and RGNO
	Degradation Bottom Currents	11 12	ants arrive ir	uela Upwellir and	Medical tests f	Morning: lect	Morning: lectures Plan a	stalling and p	and Alumni F	Free Day	ANUMARC. Ge lities, start expe s. Evening: Ind	falvis Bay, the	Students: 9 - °S, on RV Mi Richard Hora	NUMARC, H	Free Day	Morning: lectures and v	Symposium, h	Morning: lectures and workshops. Evening: Ind	lectures and v	ay: Sea wate	lectures and workshops. ig: Summary of achieven	Desert trip. N	Proposal Writin TA wash o	pposal Writin TAs α	Open Mini S resentation o	Packing and	End of RGNO		MEEOF			ARINE ENV			MEEOF
	Trace Metal, Organics Thiomargarita	13 14	Particip	to the Bengi	Ä	Project preparation. Morning: lectures consumables for cruises. I	aration. Morn	Groups 1 & 2: In	Student, TA		Transfer to SANUMARC. Get acquainted aboratory facilities, start experiments. and workshops. Evening: Individual study	Salt Lagoons Walvis Bay, then tranfer MIRABILIS	Group 2: A - H. Students: 9 - 16 Sampling at sea, 20°S, on RV Mirabilis, Cruise Leader Richard Horaeb.	e: Back to SA Ie preservatio		Morning: I	OR-RGNO S	Morning: Is	Morning: le	Excursion Di	Morning: lect Evening: 5		ď.	Ä			ш					MEEO-N			
	Sulfidic Symbioses Coastal	15 16		Introduction		Project	Project preparation.	G.			Group 2: Tra with labo Lectures and	Group 2: Sal	San	End of cruise sampl			SC																		
Wo	orking Groups:			A 1 +	. 9		B 2 + 1	10		C 3 + 1		D4+	12	E 5 + 1	13		F6+1	4		37+1	15		H 8 + 1	6											
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	Travel / Relaxatiion: 3	n: 3 days Symposia / Fora: 4 days				ays	Lec	Lectures / Tutorials / Experiments / Writing: 10 days								Cruise incl. Preparation: 7 days Excursi					Excursions: 3 days Total: 27 days				ays	ys MEEO / Teacher Outreach Course: Total 8 days									

### Sponsors





















