



nano news

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- NF-POGO Alumni Network for Oceans -

Journey on...
where the currents
take us

From the Editorial Board

The 5th Issue! NANO News has definitely come a long way since its first release two years ago. It is with great pride that we present to you an active proof substantiating, “*The ocean is the fluid that joins us all together*”. This catch-phrase has been a guiding motto, adopted by NANO members from an NF-POGO Centre of Excellence (CofE) alumnus (Houssem Smeti). With the growing number of NF-POGO alumni, who are now distributed across the globe, it is indeed this one ocean that brings us together, working towards a common goal. It is here that NANO News (among other NANO networking venues) plays its role to keep alumni linked, sharing knowledge, experiences and extending help, advice, and encouragement to each other.

In this issue we follow the continuing journey of the NF-POGO CofE, as it sails to its new home at the Alfred Wegener Institute (AWI), Germany. This will be the 5th year that the CofE has provided young scientists with opportunities to enhance and hone their potentials as the next generation players in earth-ocean observation. At the same time, we look back in retrospect to the beginnings of CofE from its former home at the Bermuda Institute of Ocean Sciences (BIOS), tracing the paths to that part of the ocean where the currents have taken our alumni and how we have fared. What is special in this issue is the collection of articles itself, featuring contributions of alumni from all programmes supported by the Nippon Foundation with POGO, besides the CofE programme. A new face of NANO will be revealed in this issue, when NANO ponders opinions obscuring the boundaries between science, society, and self.

NANO News could have only gotten this far with the continued invaluable support of patrons and the Nippon Foundation, to whom the editorial board and the NANO community is indebted in gratitude. Of course the newsletter itself would not have materialized without the contributions of members of the NANO community who inexhaustively uphold the spirit of networking. To them we express our special thanks. We hope for continued cooperation from the whole NANO community.

Let us discover together where the currents will take us

Kathleen M. Silvano (a.k.a. 'Mimoy')

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This issue:

NF-POGO CofE: Sailing to new seas

The NF-POGO Centre of Excellence at the Alfred Wegener Institute.....	3
NF-POGO CofE in Retrospect: Where it began	4
NF-POGO CofE in Prospect: Where we are now	8

NANO Regional Research Projects

The colors of Life in Latin America	13
Updates from NANO Africa Nearshore Hydrodynamics-Erosion group	15

When NANO ponders

Nimit Kumar: Future of science in developing countries	17
Dr. Arvind Singh: Talent or Attitude - what counts more in success?	18

NANO alumni in the field

Lilian A. Krug: Cruising along the Algarvian Coast	19
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NANO Profile - Q&A: Dr. B Meenakumari

Research communications by NF-POGO alumni

Evgeniya Klimchuk	23
Houssein Smeti	24
Irene D Alabia	25
Dr. Shovonlal Roy	26

Meeting Announcements



Have any nice photos to share? E-mail us your sea-scapes, underwater photos or photos of field work and we'll include them in NANO News!

Cover: The NTM Creoula - Portugal Navy
Photo kindly provided by Ana Lucas

The NF-POGO Centre of Excellence at the Alfred Wegener Institute

Karen Wiltshire, Vikki Cheung, Trevor Platt, Gerry Plumley, Shubha Sathyendranath and Sophie Seeyave

After four very successful years at the Bermuda Institute of Oceanography (BIO), the NF-POGO Centre of Excellence in Observational Oceanography (CofE-AWI) will be hosted at the Alfred Wegener Institute (AWI), Germany, starting with the first student intake in December 2013. The Phase 2 CofE is led by Drs. Karen Wiltshire as project director and Gerry Plumley as project coordinator.

The mission of the NF-POGO CofE-AWI is to provide world class education and training courses in the field of observational oceanography using the expertise and infrastructure of AWI as well as the existing expertise of POGO and other international experts. The CofE-AWI will also solidify the already effective networks between trainees and professors of previous NF-POGO training programs and the new scholars who will be trained in Germany. The CofE-AWI will offer an annual Regional Training Program in a Developing Country and will test a cloud-based teaching facility.

It is expected that 10 scholars from 10 (developed and developing) countries will be enrolled in the CofE-AWI for 10 months each year. The CofE-AWI Programme is expected to run for three years with the possibility of extension.

AWI and Scientific Excellence: AWI conducts research in the mid latitude oceans and the Arctic and Antarctic. It runs the highly successful Helmholtz Association research program "PACES" on change in polar, marine and coastal systems. AWI:

- is home to experts in ocean observation, paleo experts, climate experts, marine biologists and geologists etc.
- prides itself with an excellent networking of disciplines to answer the burning questions related to, for example, climate change and ocean sustainability.
- runs numerous expert research platforms (e.g. The Antarctic Neumeyer Station), two observing aircrafts (DC3s) with airborne observatories, large ocean and ice breaking vessels (e.g. R.V. *Polarstern*) and specialized shelf sea research vessels.
- fosters polar and marine science all over the world and is highly committed to international scientific collaborations including POGO.
- is home to the renowned marine time series "Helgoland Roads" started in 1873 where daily sampling provides information on chemical and physical parameters as well as phytoplankton and zooplankton to species level.

Description of the CofE-AWI: AWI has three major research and teaching campuses, the main campus in Bremerhaven, the Biological Institute of Helgoland (BAH)

located on the Island of Helgoland and the UNESCO reserve Wadden Sea Island of Sylt. CofE-AWI Scholars are expected to spend five months at BAH studying and conducting research on open ocean topics and five months on Sylt with a focus on ocean-shelf ecosystems. Scholars are also expected to work on the main campus (Bremerhaven) as well as on other campuses, laboratories, museums and other scientific venues throughout Germany and Europe. Salient points about the CofE-AWI training programme include:

- Basic courses in oceanography at BAH and core courses in ocean-shelf ecosystems at Sylt;
- Question-based learning exercises (QBLE) will combine problem solving and team building learning experiences based on real-world questions (see QBLE box below);
- Core courses in scientific presentations, writing, statistics, ethics, the philosophy of science, and development of grant writing and project management skills;
- Shipboard training on the R.V. *Heincke*, R.V. *Uthörn* and R.V. *Mya* as well as several smaller vessels;

• Independent research projects, conducted in part on Helgoland and in part on Sylt.

The CofE-AWI builds on the long-term contributions of the Nippon Foundation to Marine Science:

The Nippon Foundation, through its long-term partnership with POGO, is committed to enhancing ocean observations worldwide for the benefit

of society. To date, over 250 young scientists have been trained through NF-POGO programmes, and this number will continue to grow throughout the next phase of the CofE. AWI is excited to be working with the Nippon Foundation and POGO and will adopt the spirit of previous NF-POGO endeavours, with an emphasis on networking and building strong relationships among scholars.

Long teaching tradition With its coastal stations of the Biological Station of Helgoland (BAH) the AWI has amassed over a hundred years of capacity building experience. Currently the AWI-BAH stations provide the training facilities for 28,000 "stays" per annum. The AWI runs the graduate school POLMAR which provide specialist training for ocean and polar scientists. AWI maintains close links to the National Universities of Germany especially the JACOBS University in Bremen which specializes in International Teaching. Links to the SMART Marine Education Program in the Republic of Ireland is an example of a new collaboration effort.



Read more about the new CofE at AWI by clicking on the logo or accessing <http://www.awi.de/index.php?id=6777>

QBLE – Get Involved with the CofE-AWI and Submit a Question

Wiltshire and Plumley

One of the new additions to the CofE-AWI pedagogy is the inclusion of “question-based learning exercises” (QBLE). For instance, Prof. Wiltshire has successfully used a simple question, such as, “will changes in ocean surface temperature resulting from climate change impact phytoplankton population structure?” The physical oceanographic cohort of Scholars would likely focus on impacts of temperature on winds and currents and the associated impacts on plankton suspension and dispersal. Scholars with an interest in chemistry might focus on questions related to changes in nutrients caused by changes in upwelling intensity or on questions related to changes in the chemical stability of organic pollutants. Scholars with an interest in remote sensing might work on algorithms to identify different functional groups of phytoplankton. Biologists and/or biogeochemists would have a wide range of possible topics ranging from the molecular to the ecosystem.

At its core, the QBLE is a problem-solving exercise. It strengthens participants to think individually, but also as part of a team. QBLE strengthens Scholar research in the real world, where a group of scientists, either on shipboard or at a small local research station, conduct independent research around a single question. It is expected that the CofE Scholars will tackle two to four QBLE each year.

NANO Alumni and Friends are herewith challenged to help. Please provide a QBLE example question and briefly outline several research questions that are part of the answer, be sure to include research questions for biologists, chemists, physical and RS oceanographers, etc.

AWI will provide T-shirts to the lucky winners. Submit entries to gerald.plumley@awi.de. The decision of the judge (or judges), whoever (s)he (or they) are, is final. Results will be announced in the NANO Wiki, as well as emails sent to winners.



From left to right: Dr. Vikki Cheung (POGO), Ms Keiko Shinozaki (NF), Mr Kentaro Ogiue (Chief Manager of Maritime Affairs, NF), Prof. Dr. Karin Lochte (Director AWI), Prof Trevor Platt (Executive Director, POGO), Dr. Shubha Sathyedranath (Assistant Director, POGO), Prof. Dr. Maarten Boersma (Stationmanager BAH), Prof. Dr. Karen Wiltshire (Director BAH, Vice director AWI), Dr. Matthias Strasser (Executive Director Erlebniszentrum Naturgewalten Sylt), Dr. Ragnhild Asmus (Stationmanager, Sylt), Dr. Harald Asmus (Sylt). Photo: Courtesy of AWI.

*NF-POGO CofE in Retrospect: Where it began***Dr. Andreas Andersson**

Assistant Professor, Geosciences Research Division, Scripps Institution of Oceanography, UC San Diego

Pogonians in Paradise During my 4.5 years at the Bermuda Institute of Ocean Sciences (BIOS), the Nippon Foundation POGO CofE was certainly one of the most memorable highlights of my time there. The format of the CofE program conformed very much to the format of a reality television show: 1) engage a global search for 10 young, promising scholars from 10 different countries, many with different cultures and religions; 2) send the scholars to a tropical paradise in the middle of the Atlantic most famous for its pink beaches and as a vacation spot for the rich and famous; 3) put the scholars through gruesome training programs, exams and challenges for 10 months, which at times occurred under conditions of limited sleep, seasickness, and hunger; and 4) send the scholars back out into the world to make a difference in the way we observe and understand our oceans. As any reality television show, the CofE at BIOS had it all, action, adventure, excitement, joy, drama, tragedy, and love. The only exception from such a show was that by the end of the program, 10 winners returned to their home country rather than only one, not with a million dollar check in their pockets, but with a priceless experience, friends for life, and as new members of an exclusive group of scientists referred to as *Pogonians*!

My role in the CofE program was to teach a module on ocean acidification and climate change, and also mentor individual students as they undertook independent research projects. I had the pleasure to mentor 8 scholars from Nigeria, Ghana, Philippines, China, Venezuela, Brazil, Ecuador, and Argentina. I believe the scholars learnt a great deal from our interactions, but I am most certain that I learnt as much (if not more!) as they did by being exposed to such diversity of cultures and personalities. One of the great rewards has been to see how many of these individuals have continued on to Ph.D programs in various parts of the world or returning to their home country to apply their newly gained knowledge and skills within academia or governmental agencies.

As part of the ocean acidification module I was teaching, the scholars were tasked to design, plan, and execute a process study over a diurnal cycle in a near shore environment in Bermuda. The first two times, the scholars focused on a mangrove environment and the third time on two coral reef environments, taking advantage of ocean acidification observing platforms funded by NSF and NOAA. The mangrove studies were great successes, but the coral reef study happened to coincide with a major swell and all but one of the scholars got severely seasick. The only mandatory components of these studies were to characterize temporal and spatial variability in seawater carbonate chemistry at each site. The scholars were then free to come up with any other additional parameters and processes to be measured. To this day, I am amazed by the enthusiasm and level of innovation the scholars demonstrated. In the end, they were able to take advantage of each persons expertise and carrying out a truly interdisciplinary oceanographic study of a near shore environment integrating physics, chemistry, geology and biology. Given limited access to oceanographic instruments, the scholars even constructed their own tools to characterize different processes including drifters and a current meter named the “Olgameter” after its innovator Olga Shatova.

To me, the success of these collaborative, interdisciplinary process studies with individuals of different expertise, culture, religion, and life perspectives was a glimpse into the future of the way humans can and have to work together to solve the global environmental challenges affecting our oceans. The training, sharing of knowledge, and capacity building of developing countries is a cornerstone to accomplish this. Perhaps the POGO CofE reality television is not so far fetched and would be one way to reach out to a broad global audience about the importance of the oceans? It would certainly be more educational than *Jersey Shore*.

NF-POGO CofE in Retrospect: Where it began

Dr. Tony Knap

Former BIOS and NF-POGO CofE Director
Director Geochemical and Environmental Research Group
and Professor of Oceanography, James R Whatley Endowed
Chair of Geosciences, Texas A&M University

Being involved with the NF-POGO Center of Excellence at BIOS was one of the most rewarding and satisfying periods of my career. First of all, being awarded the Center at BIOS took a great amount of hard work and Gerry Plumley, BIOS Faculty and I worked very hard to write what we would consider to be a good proposal. Our vision started with the acquisition of the R/V Atlantic Explorer when we decided to build a classroom on the vessel to enhance the teaching of students. Also, BIOS was a member of POGO for many years and BIOS itself had a history of building training programs for developing nations. The original target was to train 10 students from 10 countries for 10 months per year for 10 years. We were fortunate to be able to train 40 students during the time I was at BIOS and we were always impressed with the quality of applications and the dedication of the students when they arrived. The BIOS Faculty and those Faculty from other places worked tirelessly to provide a first rate program and to them I am particularly thankful. Due to the size of BIOS and the way we organized the living arrangements each intake became a Family and NANO has kept that going into the future. I always remember Houssein Smeti from Tunisia who said, "The ocean is the fluid that joins us all together". I can't tell you how true that is and how that personified the CofE and now NANO. I wish you continued good fortune in maintaining the Network and I am also pleased that the CofE continues at AWI providing a new source of NANONITES!

Kaitlin Baird

Science in Education Coordinator, Bermuda Institute of Ocean Sciences

NF-POGO CofE was a program that had an amazing amount of spirit. I have never seen in my life 10 students with all very (sometimes starkly!) different cultures become such close friends, classmates and later become colleagues. It was a joy to work with many of these students and watch them grow from their first day to leaving as a confident collective. I believe this program provided something that few can, fostering the networking capacity of the world of oceanography through these very exceptional young people. They brought to BIOS the spirit, dedication, culture and lots of laughter. I hope that the CofE continues to grow and continues to foster such a great international web to help better understand our oceans.

Tiffany Wardman

Media Relations, Bermuda Institute of Ocean Sciences

Having the NF-POGO students at BIOS was a wonderful experience, not just for the faculty and staff who taught and mentored them, but also for the Fall semester students, visiting groups and local community who were able to share in their multi-cultural perspectives. The NF-POGO students were true ambassadors to their home countries, always willing to share stories, answer questions, and even cook national dishes! BIOS and Bermuda both benefitted immensely from having these students living and studying here.

Dr. Kristen Buck

Assistant Scientist, Bermuda Institute of Ocean Sciences (BIOS)

Teaching the course modules in General Oceanography and Chemical Oceanography to the CofE students was a highlight of my tenure at the Bermuda Institute of Ocean Sciences (BIOS). The students brought a fantastic range of experience and culture not only to my classroom, but also to BIOS as a whole. I learned a great deal from these students, particularly in the first few years as I adjusted to the nuances of teaching international students- who, for example, may have learned the periodic table in Latin instead of English! I have thoroughly enjoyed getting to know each of the cohorts of CofE students at BIOS, and I wish them and future CofE students all the best as they continue their career paths in oceanography.

NF-POGO CofE in Retrospect: Where it began

Dr. Kentaro Suzuki

NF-POGO CofE Alumnus (2009–10)

Environmental Science Research Laboratory, Central Research Institute of Electric Power Industry, Japan

Wikipedia: <http://www.nf-pogo-alumni.org/~Kentaro+Suzuki>

CofE Past and Present

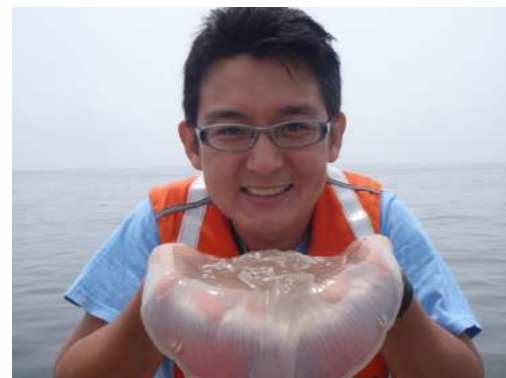
I joined the second year CofE programme at BIOS when I was in the first year of my PhD course. I had studied biogeochemical interactions between land and rivers, especially about particulate organic matter dynamics and filter feeding organisms, for my bachelor and master theses. I was hoping to expand my research field to the estuaries and ocean. Thus the CofE programme really was very attractive for me, and so I applied.

During the ten months at BIOS we had broad-ranging oceanographic lectures in physical, chemical and biological oceanography; we also conducted independent research projects. Everything during the programme was fruitful, but there were two special highlights for me. The first one was the biogeochemical oceanographic module taught by Dr. Andreas Andersson. In the course of this module we had to conduct a one week study at Mangrove Bay, located just around the corner from BIOS and I was chosen as a project leader. It was a great honor but a tough task: it was my first experience of leading the project, and team members were from ten countries with different cultures. Regardless and thanks to everyone's cooperation, we finished research planning, conducted field observations, analyzed samples and wrote a one hundred-page long report in one week. From that experience, I learned a lot about how to be a strong leader.

CofE programme can be very useful in providing young scientists with the skills sought after by employers. I hope this programme will last many years and keep providing excellent human resources to the oceanographic field.

The other highlight was a few months long independent research project on a chosen research topic. I conducted research on salp blooms in the Sargasso Sea supervised by Dr. Rob Condon. My research interest was the relationship with particulate organic matter dynamics. Therefore, I chose salps, which are gelatinous zooplankton feeding on great amount of phytoplankton. I found that the intensity of the salp spring blooms varied greatly between years and that salps consumed an estimated 20 % of primary production during their huge blooms. Moreover, results of the correlation analysis between salp biomass and chlorophyll a of each phytoplankton taxon suggested that the size of phytoplankton was important for salp production.

Presently, I am working at the Environmental Science Research Laboratory, Central Research Institute of Electric Power Industry in Japan as a jellyfish research scientist. Jellyfish are a kind of gelatinous zooplankton and can damage cooling water intakes of Japanese coastal electric power plants. In order to solve the jellyfish problems at power plants, the institution required a scientist with a broad knowledge in oceanography and expertise in jellyfish research. My experience at BIOS matched their needs perfectly, and I was hired to help work on the project. Therefore, I would like to emphasize that the CofE programme can be very useful in providing young scientists with the skills sought after by employers, a great advantage for their application. I've encouraged Japanese students to join the programme by informing them about the programme and helping them to get work permits. Thus I assisted another Japanese applicant, Yuna Zayasu to enter in the fourth year. I hope this programme will last many years and will keep providing excellent human resources to the oceanographic research field around the world.



A handsome man with a moon jellyfish *Aurelia aurita* s.l.



Aggregation of moon jellyfish *Aurelia aurita* s.l. on Japanese coast

NF-POGO CofE in Prospect: Where we are now

Pogonians Year 1 (2008–2009)

Compiled by Sebastian Krieger

Oceanographic Institute of the University of São Paulo, Brazil

*Check the alumni wikispaces by clicking on their names

Houssem Smeti (Tunisia): Houssem is finishing his PhD in oceanography at the Mediterranean Institute of Oceanography, in Marseille, France. His research is funded by the IRD (Institut de recherche pour le développement) and the Tunisian Ministry of Higher Education. His research focuses on the seasonal and spatial variability of zooplankton off New Caledonia, in the Coral Sea, and off Bermuda, in the Sargasso Sea. He uses different zooplankton sampling techniques (tow nets, mono- and multi-frequency acoustic profilers) and other in situ measurements as well as satellite altimetry data to study the zooplankton response to the biogeochemical conditions. He expects to finish his PhD by mid 2014. Besides his PhD research, Houssem also mentors high school students from Noumea, New Caledonia, introducing them to oceanography. He is also involved in the NANO Africa Regional Research Project, Nearshore Hydrodynamics Group and hosted the Workshop in Tunisia in 2013. He also attended the inaugural NANO Meeting in 2010. Last May he and Selma got engaged.



Lailah Gifty Akita (Ghana): Lailah is a third year PhD graduate student at the Institute for Geosciences of the Friedrich Schiller University in Jena, Germany. In her research, she wants to understand the relationships between past organisms and the environment in which they lived. In practice, she is concerned with reconstruction of past aquatic ecosystems in southern Tibet using microfossils such as ostracods. She has been involved in the NANO Africa regional project on chemical pollution, and attended the Workshop in Senegal in 2012, as well as the inaugural NANO Meeting in 2010.

Nimit Kumar (India): Nimit is a research scientist at the Earth System Sciences Organisation - Indian National Centre for Ocean Information Services (ESSO-INCOIS) in Hyderabad, India. He is in the middle of his PhD submission formalities. His thesis is on chlorophyll remote sensing and fish catch analysis in the north-east Arabian Sea. He is also part of the NOAA-MoES collaboration team. At INCOIS his activities include the use of ocean colour for the Potential Fishing Zones

(PFZ) advisory mission and, more recently, has started using remotely sensed sea surface height data. He is also responsible for the satellite telemetry of tuna in the Indian Ocean. In 2011, he established the Mahiru Foundation, whose main objectives are to promote science education and research as a career in India. For the future, he plans to develop a near real-time (NRT) eddy detection system and later to develop a basic species-specific ecological model, specifically for tuna.



The first group of the Centre of Excellence with Dr. Maureen Conte (instructor of the Moored Observatories course) and Mr Jim Wicker (marine technician on the R/V Atlantic Explorer). Photo by Houssem Smeti

René Ayala Campos (Venezuela): René has finished his master studies at the University Simon Bolivar. He is currently sales manager for nuclear medicine and radiotherapy at SURADI – Suministros Radi, in Venezuela.

Sebastian Krieger (Brazil): Sebastian is at the final steps of his PhD at the Oceanographic Institute of the University of São Paulo, Brazil. His thesis focuses on the evolution of mesoscale eddies and Rossby waves in the global oceans and the biological response to both features. He uses remotely

sensed sea surface height, chlorophyll-a and hydrographic profiles and applies wavelet analysis techniques to identify and then track these features. He is also becoming gradually more interested in numerical modelling with application to hydrodynamics, bio-optics and population ecology. He has been a teaching assistant for undergraduate students and has also taught short courses on numerical modelling with applications to water quality and on data analysis using open source software. He has also been involved with public outreach, giving short lectures on ocean dynamics and guiding ecological tours for high school students. He attended NANO Meetings in 2010 and 2011.

Dr. Samina Kidawi (Pakistan): Samina works as a Research Officer at the National Institute of Oceanography (NIO), Pakistan, and has been and still is, involved in research mostly related to fisheries. Samina is part of an ongoing (since 2009) national program on fishery resource appraisal that took her aboard the RV Dr. Fridtjof Nansen (2010) on a demersal survey. In connection with this national program is a creek survey program (River Indus delta) involving both field and

laboratory work. In 2012, she was in China for the IMBER CB workshop and a bilateral workshop, afterwards at the INO Conference (Lebanon) where she was selected as one of two best oral presentations. To end the year 2012 was her graduation from her MBA in Human Resource Management. This year (2013), highlights a series of 'firsts'. She has accepted her first intern (and giving him a tough time!) in her lab, and had her first chance to be External Examiner in a PhD defense.

Tiago Queiroz (South Africa): Tiago is an Assistant Lecturer/Researcher at the University Agostinho Neto, working on processes within the Angola-Benguela Frontal Zone, and the Ocean Tracking Network (ONT) Southern Angola array. These are implemented through two projects under the ANG-SA JOINT. Alongside this, he is currently a PhD candidate at the University of Cape Town with a thesis on, "Ocean Atmosphere Interaction in the Tropical Southeast Atlantic and its relation to the Angola/Benguela upwelling system". He has recently participated in the meeting for NANO Africa Regional Project, as part of the Nearshore Hydrodynamics-Erosion group in 2013.

Joseph Dominic Palermo (Philippines): Joseph is a Senior Research Associate at the Marine Science Institute, University of the Philippines. He is working on the detection, mitigation technology and Early Warning System for Philippine Harmful Algal Bloom (HABTech), and an Operational predictive system for HAB (HAB-OPS), two projects under the umbrella of the Harmful Algal Bloom Program of the Philippines. He has been involved in the NANO South-East Asia project on HAB monitoring and remote sensing. (Check Joseph's recent publications in his [profile](#))

Akinnigbagbe Akintoye Edward (Nigeria): Toye is working for the Nigerian Institute for Oceanography and Marine Research (Victoria Island Lagos, Nigeria), as a Senior Research officer. While still connected to the institute, just recently he started getting himself settled in Zheijang University, China to work on his PhD. He has been involved in the NANO Africa regional projects on chemical pollution and coastal erosion, and attended the Workshops in Senegal in 2012. Check Akinnigbabe's recent publications in his [profile](#))

Catia Matias (Portugal): Catia is currently based in Portugal, taking a brief pause from oceanography. Her words, "I became a bacterial girl :) I'm getting together a micro lab in a food company".

Pogonians Year 2 (2009–2010)

Compiled by Bennet Atsu Foli

Department of Marine and Fisheries Sciences, University of Ghana, Legon-Accra, Ghana

*Check the alumni wikispaces by clicking on their names

We made it too. It was a wonderful experience, and being a part of the second year of "POGOnians" has been a great privilege. Ten strange strangers in a strange land of the mysterious 'triangle' experienced a different atmosphere; physically, socially, and academically, and there was nothing that seemed impossible in our path. Neither language barrier, nor cultural differences, nor differences in professional experience could disunify or obstruct us. We went, we saw, we conquered, and have never been the same. Today, we occupy very significant niches in different parts of the ocean world and are still developing our talents, exploring and extending our tentacles like the giant octopus reaching out for its prey. Yes, knowledge is our prey and we pray we play it well to the highest level attainable, just like all other "POGOnian" may desire. On this note I wish to present to you an update on the second batch of the ten NF-POGO ocean scholars of our time.



Centre of Excellence Alumni 2009–2010 with Dr. Murray Brown (instructor of the Ocean Data Management course). Photo provided by Nilanthi C Priyadarshani

Gustavo Fuentes Hernandez (Venezuela): His area of expertise is Chemical Oceanography. Gustavo is currently in the final year of his Master of Science in Oceanography programme at the Pontificia Universidad Catolica de Valparaiso, in Chile. His study is on gas hydrates and its advantages as a replacement of fossil fuels in order to face the global warming and climate change issue. Other fields of interest include Geological and Physical Oceanography. Gustavo enjoys exploring the wild and traveling around the World.

Lilian Anne Krug (Brazil): Lica is a first year PhD student at the University of Algarve, Portugal where she is studying phytoplankton variability and its relation to the environment in the SW Iberia. She started having some experience as teaching assistant and is also one of the NANO organizers since 2010, participating at 2010, 2011 and 2012 NANO Meetings. Her areas of interests are oceanographic data management, spatial

and temporal series analysis of ocean-atmosphere interaction, climate variability and their impacts on ocean primary productivity, and marine and coastal ecosystems. She enjoys traveling and scuba diving, trying to do both as much as she can.

Kirill Kivva (Russia): Kirill is also currently attending the SOLAS Summer School in China and is pursuing extramural PhD studies in mesoscale biogeochemical structure of the Bering Sea at the Oceanology Department of Geographical Faculty, Lomonosov Moscow State University, in Russia. He also works for the Russian Federal Research Institute for Fisheries and Oceanography as postgraduate researcher. Kirill's main hobbies include sailing, photography and traveling.

Olga Shatova (Ukraine): Olga is in the second year of her PhD studies in Marine Science at the University of Otago, New Zealand. As a part-time position, Olga teaches at the New Zealand Marine Studies Centre. She is mentoring school students in small research projects and finds it very refreshing and enjoyable. She is also working with Lica as a NANO organizer, and attended NANO Meetings in 2010, 2011 and 2012. Her interests include traveling, sport orienteering, volunteering, squash, drawing and playing guitar.

Dr. Kentaro Suzuki (Japan): Kentaro is a Research Scientist at the Environmental Science Research Laboratory, Central Research Institute of Electric Power Industry in Japan. His main area of interest has been the ecology of jelly fish, and he is currently conducting research on the mechanism of coastal jellyfish bloom which damages coastal power plants. Kentaro attended NANO meetings in 2010 and 2011. He loves to go fishing and preparing sashimi with his catch. Kentaro is married and with a daughter, Yura.

Dr. Hui Zhao (China): Hui is an Associate Professor and teaches at the Guangdong Ocean University, located in Zhanjiang City of Guangdong Province, south of China. He currently has funding from the National Natural Science Foundation of China for his study. Hui is married and became a father in 2011. His areas of interest include remote sensing and the study of coccolithophores.

Tin Hoang Cong (Vietnam): Tin is in his second year of his PhD studies and also serves as a part-time Teaching Assistant at the Curtin University of Technology, Perth, Australia. He is currently studying the seasonality and ecology of Sargassum seaweed with both field observations and laboratory experimentations. His main interests are marine ecology, habitat mapping and earth observations. Tin has been involved in the NANO South-East Asia regional project on HAB monitoring and remote sensing. He attended NANO Meetings in 2010, 2011 and 2012. Tin is married to a beautiful wife who is also a researcher in natural resource management.

Kathleen Silvano (Philippines): Mimoy, as she is popularly called, is a Research Scientist at the University of Algarve, in Portugal. She is working with Lica Krug on the PhytoClima project, which aims at finding out if phytoplankton can be good indicators of climate change within the South-west Iberia coast. She is also one of the regional coordinators for the NANO Wiki, and attended NANO Meetings in 2010 and 2011. Her fields of interests are biological oceanography, remote sensing, marine ecology and environmental studies. Among other things, fun perks of the job she enjoys are traveling, diving and gadget 'geeking'.

Nilanthi Champica Priyadarshani (Sri Lanka): Priyadarshani is currently working as a Research Officer at the National Institute of Oceanography and Marine Sciences, NARA, Sri Lanka. Her basic research areas are Chemical and Biological Oceanography. Priya is a member of the harmful algal blooms (HABs) monitoring group in Indian Ocean, funded by NF-POGO NANO and doing research on BAR Reef ecosystem in Sri Lankan waters. She is also ready to start her PhD in "Monsoonal effects on nutrient and plankton variability around Sri Lanka". She is married to a handsome research diver in the same institution and has a beautiful daughter.

Bennet Atsu Foli (Ghana): Bennet is currently on contract as a Teaching Assistant at the Department of Marine and Fisheries Sciences, University of Ghana. He carries out small projects in water quality assessment, heavy metal contamination and phytoplankton identification and ecology. Bennet plans to start his PhD soon. His research areas include phytoplankton and algal ecology, remote sensing, and water quality and heavy metal studies. He also has interest in the application of stable isotopes in the study of pollution issues and algal blooms. Bennet has been involved in the NANO Africa regional project on chemical pollution monitoring, and attended the Workshop in Senegal in 2012.

Photo kindly provided by Ana Castanheira



Pogonians Year 3 (2010–2011)

Compiled by Evgeniya Klimchuk¹ and Lazare Akpetou²

¹Lomonosov Moscow State University

²Centre de Recherches Océanologiques, Abidjan

*Check the alumni wikispaces by clicking on their names

Evgeniya Klimchuk (Russia): Jane is finishing her PhD thesis on “Interannual variability of Sverdrup transport in the North Atlantic” at Lomonosov Moscow State University. She is also working at the State Research Center “Planeta” as an engineer to monitor the Black and Azov Seas upper layer conditions using satellite data. In August 2013 Jane participated at the expedition in Valday area, Russia for a project on differentiation of forest types through satellite images thematic processing.



Gayatri Dudeja (India): Gayatri is completing her second year of PhD study at the National Oceanography Centre, Southampton. Her research topic is “Detecting and attributing climate change signal in satellite records of ocean productivity”, mainly working on the “Optimal Fingerprinting” methodology. She has participated in PAP (a time series station off the West Coast of UK in the North Atlantic) cruise in June, 2013. Personal highlight is still single and wants to enjoy it as long as it lasts.

Fatih Sert (Turkey): Fatih is currently a PhD student at “Boğaziçi University, Institute of Environmental Sciences”. His PhD project is not defined yet. Fatih has applied for a job in TÜBİTAK (NSF for Turkey) and is waiting for a positive reply.

Maziar Khosravi (Iran): Maziar is a PhD student at the Iranian National Institute for Oceanography and Atmospheric Science (INIOAS). He also has been working with the Iranian National Institute for Oceanography since being back from Bermuda. He is participating in PG-GOOS cruises and working on eddies in the Persian Gulf as part of his PhD thesis using both observational and modeling aspects.

Fernanda Giannini (Brazil): Caju is pursuing her PhD at the Oceanography Institute of Universidade de São Paulo, Brazil. Her research fields are physiology and ecology of phytoplankton and remote sensing. The main topic is phytoplankton physiology associated to primary production and estimation of photochemical parameters from variable fluorescence, objecting the improvement of P.P. models estimates derived from chlorophyll-fluorescence in oligotrophic regions through parameterizations according to the community structure. Fernanda attended NANO Meeting 2012 in Brazil. (Check Fernanda’s recent publications in her [profile](#))



Third year of the Centre of Excellence with Dr. Andreas Andersson after successful accomplishment of the course on Ocean Acidification. Photo provided by Maria Fernanda Giannini.

Dr. Rafael Boada Rasse (Venezuela): Rafael has completed his PhD studies and is working at the Venezuelan Institute for Scientific Research (IVIC). He is currently working at the same institute as a postdoctoral researcher.

Fabricio Guaman-Guevara (Ecuador): Fabricio is currently an Academic Advisor and Professor at Universidad Técnica de Ambato (Ecuador). He is working in the Integrated projects Programme and running research activities and teaching at SNNA, a Government Agency.

Pham Thi Phuong Thao (Vietnam): Pham intends to work in Ho Chi Minh city next month. Her major is shoreline change (using remote sensing/GIS/modeling). (Check Pham’s recent publications in her [profile](#))

Dr. Lazare Akpetou (Cote d’Ivoire): Lazare has finished his PhD and is teaching General Chemistry at the Université Jean Lorougnon GUÉDE of Daloa, Cote d’Ivoire. He is running research projects for monitoring phytoplankton phenology using remote sensing data in the Gulf of Guinea in collaboration with PML. Lazare won the award of the best paper presentation at the 12th conference of African Association of Remote Sensing of the Environment last November in Morocco. He has been involved in the NANO-Africa regional project on chemical pollution monitoring, and attended NANO Meeting in 2011 and the Workshop in Senegal in 2012. His family is doing great and the cocoa plantation as well.

Yosra Khammeri (Tunisia): Yosra worked with NANO on the establishment of the North Africa Regional project and is engaged to be married next November.

Pogonians Year 4 (2011–2012)

Compiled by Priscila Lange

University of Oxford, U.K.

***Check the alumni wikispaces by clicking on their names**

Anna Rumyantseva (Russia): Anna is in her 2nd year as PhD student at the National Oceanography Centre, Southampton, University of Southampton, UK, where she works with biochemical data from autonomous underwater gliders deployed in the North Atlantic Ocean.



Dr. Arvind Singh (India): Arvind joined the Gothenburg University (Sweden) in June 2012 as a post-doctoral fellow after completion of CofE. He worked on harmful algal blooms till April 2013 and recently, joined GEOMAR, Kiel, Germany, to pursue his postdoctoral fellowship. He is interested in the marine nitrogen cycle, using stable isotope tracers to estimate nitrogen fixation rates in the North Atlantic Ocean. He is also studying nitrogen fixation dynamics in the future climate change scenario by experimentally simulating the environmental parameters in KOSMOS (Kiel Off-Shore Mesocosms for Ocean Simulations) in some parts of the world ocean.

Dr. Chunli Liu (China): After Bermuda, Chunli continued her work in Shandong University. After she came back to China from Bermuda, she was busy with teaching, which took most of her work time, while undertook several new courses. She did not have time to do much research work but is trying to change this situation and hopefully, she will put more attention on her research project next year. Chunli has a daughter that is going to the kindergarten since this September.

Dr. Elisee Toualy (Ivory Coast): Elisee defended his PhD thesis 6 months after the training at BIOS. He got a job in the Lab of Physics of Atmosphere and Fluid Mechanics in the University Felix Houphouët Boigny of Cote d'Ivoire and is giving lectures on Ocean Circulation and Geophysical Fluid Dynamics. He attended NANO Meeting 2012, the NANO Africa Regional Research Project, Nearshore Hydrodynamics-Erosion Group, and hosted the Workshop in Tunisia in 2013.

Gerry Salamena (Indonesia): Gerry just finished a research in atmospheric-oceanic boundary in his local area using what he have done in Bermuda. The manuscript entitled 'Heat transfer on atmospheric-oceanic boundary in the outer Ambon Bay of Indonesia' is in press for publication. Next year he is going to James Cook University (Australia) to obtain his MSc in Physical Oceanography via Australia Awards Scholarship. This process is running and he is currently in Bali for its Pre-Departure Training which consists of English Academic Purpose training, Cross Culture training and visa processing.

Dr. Mara Braverman (Argentina): Since Mara went back to Argentina from the NF-POGO training programme, she has been applying for jobs and postdoc positions in Argentina and abroad, which she hopes happens very soon. Meanwhile, she is writing reports and papers from her PhD thesis and tutoring classes from home.

Monika Orchowska (Poland): Monika is about to finish her PhD about biodiversity of encrusting organisms along the salinity gradient in the Baltic Sea. She performed her work at the Institute of Oceanology Polish Academy of Sciences in Sopot. Recently, an article she wrote with Nick Bates during our training in BIOS was released in Biogeosciences. In the coming year she hopes to publish three papers related to her PhD, which are under advanced preparation.

Ousmane Diankha (Senegal): Ousmane is an oceanographer at the Management of Marine Protected Areas Community - Ministry of Environment and Sustainable Development in Senegal. He is working on his PhD as well. He hosted the Senegal NANO Workshop in 2012. (Check Ousmane's recent publications in his [profile](#))



Fourth year of the Centre of Excellence with Prof Trevor Platt and Dr. Shubha Sathyendranath. Photo provided by Priscila

Priscila Lange (Brazil): After Bermuda, Priscila participated in the AMT cruise with the PML team, as part of the POGO Visiting Fellowship for Onboard Training on the Atlantic Meridional Transect. She investigated size-fractionated primary production in the oceans. In 2013, she was awarded a fellowship by the National Institute of Science and Technology (Brazil), with the goal of compiling information regarding phytoplankton community structure in a coastal environment off the Antarctic Peninsula. This September, Priscila is starting a PhD in Earth Sciences at the University of Oxford to investigate global distribution of picophytoplankton functional types, advised by Dr. Heather Bouman, Dr. Mikhail Zubkov and Dr. Shubha Sathyendranath.

Yuna Zayasu (Japan): Yuna is currently a PhD candidate at Kyoto University, Japan writing her dissertation on co-speciation between massive corals and gall crabs, finishing next March.

Research Station Margarita (EDIMAR) La Salle Foundation of Natural Sciences

Wikipedia: <http://www.nf-pogo-alumni.org/~Jaime+Rojas-Marquez>

I work at the Carbon Retention in A Colored Ocean (CARIACO) time series station located in the Cariaco basin (10° 30' N; 64° 40' W) off the coast of Venezuela. CARIACO is part of the Antares network (<http://www.antares.ws>). I am also part of the NANO community since I participated in the NF-POGO course on "Phytoplankton Community Structure: from the Molecular to the Global Scale" in Arraial do Cabo (Brazil) in 2009. My main work in CARIACO is related to the sampling during the monthly cruises. I am responsible for samples collection for H₂S, Primary Production, Alkalinity, Oxygen, Chlorophyll, Plankton, Particulate Organic Carbon (POC), Dissolved Organic Carbon (DOC), and Total Organic Carbon (TOC), Salinity, and other parameters. I collaborate with Dr. Yrene Astor (PI of the time series) in the logistical organization of the field work.

Last April I started to work for NANO network as a regional coordinator of the Latin American Regional Project. We are currently developing the second phase of the project, while maintaining the commitment of six countries involved in the first phase (Argentina, Brazil, Colombia, Mexico, Peru, and Venezuela).

The main objective is to continue the project which started last year: use phytoplankton pigments to complement the observations carried out in the Antares stations involving NANO alumni. New goal has been also set for this year: to carry out a workshop to discuss several issues regarding the implementation of pigment studies at our time series stations.

Originally the aim was to organize a workshop in a center having High Performance Liquid Chromatography (HPLC) facilities and experts in the subject. However, due to several issues with reliability of HPLC equipment, enquiries we will have a 'dry workshop' that will be devoted to the discussions

of previous results, outlining a publication that might result from the analysis. We are also planning to have a thorough discussion about how to better understand the problems and improve this type of analysis in Latin America.

The main objectives of the workshop are:

- Offer a brief introduction to the HPLC technique for the analysis of phytoplankton pigments. Principles and comparison of methods. Applications in oceanography, pigment indices, CHEMTAX, remote sensing of phytoplankton functional types.
- Discuss and interpret the results of the 2012 NANO Regional Project for Latin America; including, whenever possible, a comparison of pigment results obtained at each center and those provided by NASA.
- Discuss a first outline of a manuscript/report using this pigment information in conjunction with satellite data. This manuscript will be a concrete output of the Latin American NANO Project, where the NANO Alumni and young Antares participants will be co-authors; and the senior scientists NANO Friends will generously guide them.
- Evaluate the technical and budgetary challenges of each Antares station to conduct HPLC pigment analysis locally that meets NASA quality standards.
- Design a strategic plan to ensure that

pigment HPLC analyses are systematically carried out at all stations.

The workshop will also enhance the interaction among the participants of the project, and start discussing future work.

We continue collecting samples using the same protocols in each one of the 6 stations (Figure 1). Table 1 shows the dates of samples already collected and those programmed for the rest of the year. The gaps in the sampling are caused by obstacles frequently faced in the development of time series cruises in some countries in Latin America (e.g., in Argentina due to logistical and budget restrictions).

There is also a commitment for each participating station to incorporate the pigment data processed by NASA, including the corresponding metadata, in the SeaBASS database (<http://seabass.gsfc.nasa.gov>). This storage system run by NASA publishes worldwide oceanographic data. The inclusion of the results reported by each of the stations into SeaBASS will therefore be an important outcome for our project. This work is being done with the helpful advice of Laura Lorenzoni (participant in the CARIACO time series) who has experience in successfully uploading data



Antares stations	Dates for pigment sampling
EPEA (Argentina)	2 Jul, 8 Aug
Ubatuba (Brazil)	10 Jan, 27 Feb, 27 Mar, 10 Apr, 9 May
CARIACO (Venezuela)	5 Mar, 13 Apr, 9 May, 11 June, 11 Jul, 13 Aug, 17 Sep, 15 Oct, 12 Nov, 10 Dec
Ensenada (Mexico)	14 May, 13 Aug, 17 Sep, 15 Oct, 12 Nov
IMARPE (Peru)	20 Feb, 19 Apr, 25 June, 25/26 Sep, 25/26 Oct, 27/28 Nov
Cartagena (Colombia)	7 Feb, 7 May, 20 June, 29 Jul, 28 Aug, 24 Sep, 28 Oct, 26 Nov, 19 Dec

Table 1 - Sampling dates scheduled at the participating Antares stations.



Figure 1 - Location of the Antares stations, and Research Vessels used in LA NANO 2013. R.V. Capitán Cánepa (EPEA), R.V. Gines (CARIACO), R.V. Calhypso (Ensenada), R.V. Veliger II (Ubatuba), R.V. BIC Olaya (IMARPE), R.V. DIMAR Tesoro (Cartagena).

into SeaBASS.

Other activities that are on course involve continuous updates updating of the wikipage for the LA NANO project (<http://www.nf-pogo-alumni.org/Latin+American+Regional+Project>), and updating of the Antares webpage. I am currently running a survey to keep track of the activities in which the Latin American NANO alumni are involved. It will be soon uploaded on the NANO website.

Finally, I would like to express my gratitude for this opportunity offered to me by NANO. It allows to enhance my work in the field of oceanography in my country integrating it with similar work carried out by other alumni in Latin America. Especially, I am grateful to Dr. Vivian Lutz for trusting in my ability to coordinate this project and Guillermina Ruiz for her unconditional support. We also thank all the participants of the ANTARES stations since they form the core of the project.

Gerry Plumley (CofE coordinator) and Housseem Smeti (alumnus, Tunisia) at the 1st Workshop of NANO Africa Coastal Erosion Group. Photo by Tiago Queiroz.



PhD student, Mediterranean Institute of Oceanography, France

Wikipedia: <http://www.nf-pogo-alumni.org/~Houssem+Smeti>

The NANO Africa Nearshore Hydrodynamics-Erosion working group (or NH-E) is a recently organized sub-group of the larger NANO Africa Regional Pollution and Erosion Group. The NH-E group held its Kickoff Workshop at the École Nationale des Ingénieurs de Tunis, University of Tunis-El Manar, from 3 – 5 June 2013. The workshop focused on coastal erosion as influenced by ocean hydrodynamics, with an emphasis on the impacts of wind-driven waves. Prior to the workshop, NANO members from Angola, the Ivory Coast, Nigeria, and Tunisia selected study sites in their home countries and collected and analyzed met-ocean data from these sites for input into the Mike21-SW wind-driven wave model. NANO members from Angola, the Ivory Coast and Tunisia attended the workshop along with a former POGO Visiting Professor, Dr. Vladimir Koutitonsky and workshop leader from Canada, and a senior NANO Representative from the USA, Dr. Gerry Plumley.

The meeting objectives included: 1) an opportunity for the NANO Scholars to meet each other, as many had not met previously; 2) present the rationale for selection of study sites; 3) discuss the met-ocean data from each selected study site; 4) review and analyze the Mike21-SW wave simulation results

from each site; and 5) make plans and initial drafts for the proposal that would provide funds to support NH-E research in Africa in 2013 – 2014 and possibly, beyond.

Overall, the meeting was very successful. All meeting objectives were met. NANO members presented details of their selected study sites and their preliminary data analyses of variables such as wind speed and direction, bathymetry, and beach profiles. The presentations were interspersed with numerous short discussions and/or “mini-lectures” that emphasized either theoretical or applied aspects of the research. During one of these group discussions, a detailed list of protocols was mutually agreed upon that each country would use to analyze their respective time series met-ocean data sets. The practical session of the workshop included a demonstration of Mike21-SW, a spectral wind-wave model that is used to access wave climates in coastal and nearshore areas. An example of the

significant height of 1.5 m and a period of 11 s at the offshore boundary. More details on the wave simulations for all sites are provided in the workshop report. The strength of Mike21 was readily visible, but equally important was the realization that modeled results were limited in scope and reliability. This is mainly due to the very small size and temporal range of preliminary met-ocean data collected to date.

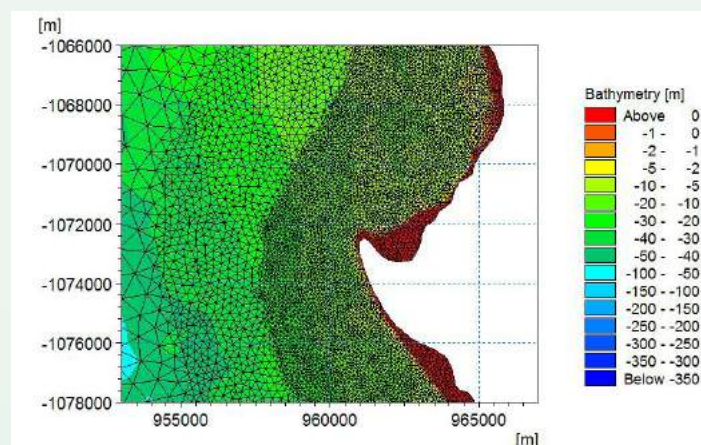


Figure 1 - Zoom of the Mike21-SW model's bathymetry and mesh around Cabo Ledo, Angola.

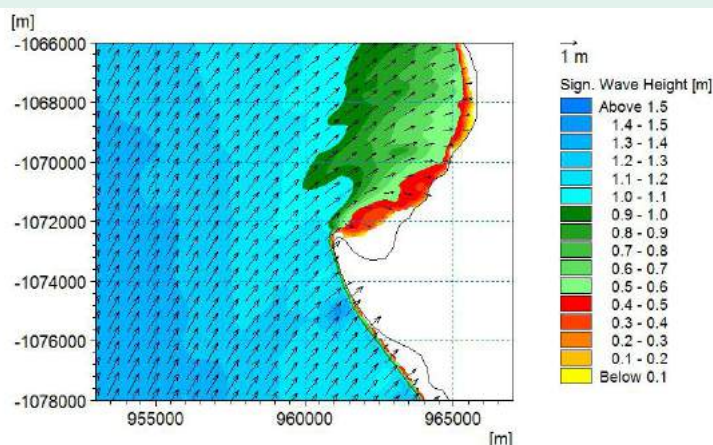


Figure 2 - Zoom of the significant height distribution around Cabo Ledo, Angola for incoming offshore waves from SSW with a significant height of 1.5 m and a period of 11 s.

model's bathymetry developed for the Angola site, namely Cabo Ledo, is shown in Figure 1. The significant wave height distribution computed by MIKE21-SW around the Cape is shown in Figure 2, for incoming offshore waves from SSW with a

Most of the last day of the workshop was spent organizing the workshop report and creating a rough draft of the proposal for submission to NANO to request funding to support future research on nearshore erosion. Remarkably, it was obvious to all that the proposal for future research had ‘self-assembled’ by the last day of the workshop because the preliminary modeling work was so informative and because there was such a clear need for continued study of nearshore erosion in the face of increased global climate uncertainty. The workshop adjourned with assignments made and accepted for completing the workshop report and proposal for future funding.

"The NANO Africa Nearshore Hydrodynamics-Erosion working group workshop in Tunisia was an extremely productive event. The workshop was well organized and executed, including assignment of "homework" before the meeting, which proved to be a key reason the workshop was so successful. The lectures were short and to the point, generally focused on very specific issues. The preliminary results demonstrated that the wave simulation model was an extremely powerful tool. The draft proposal for continued research was completed in a remarkably short period of time owing to the strong leadership skills of the workshop hosts and visiting leader. The group members worked extremely well together as an organized team. It was, in my eyes, a clear picture of what NANO can be in the future. A group of scientists from multiple countries working together to achieve a common goal - creating a network of skilled scientist to study coastal erosion (and other hydrodynamic questions) in the region."

Dr. Gerry Plumley



Participants to the first workshop of NANO Africa Nearshore Hydrodynamics-Erosion group in front of the National School of Engineers at Tunis (ENIT). From left to right: Vladimir Koutitonsky (group supervisor), Mahmoud Mousa (meeting host, ENIT-Tunisia), Ted Edard Wango (alumnus, Ivory Coast), Gerry Plumley (CofE coordinator), Tiago Queiroz (alumnus, Angola), Elysee Toualy (alumnus, Ivory Coast), Abdelfattah Atoui (alumnus, Tunisia), Selma Ben Haj Slema (NANO observer, ENIT-Tunisia) and Houssem Smeti (alumnus, Tunisia). Photo by Tiago Queiroz.



NANO CALENDAR 2014



Dear alumni and friends,

It's time to begin planning our annual, community calendar. We'd like to feature photos you've taken with a marine theme. It can be a sampling in the ocean, stunning scenery view, sunset, day at the beach, an organism...

Submitted photographs should include the photographer's name and photo location

Photos must be submitted in high resolution (at least 300 dpi)

Deadline for submission: November 15, 2013.

Email photos or enquiries to lilian.krug@nf-pogo-alumni.org



Future of Science in Developing Countries

Nimit Kumar

Indian National Center for Ocean Information Services

Science. Scientists. Scientific organization. The first things that start shaping in the back of your mind right now would be about various institutions and laboratories, spread across your country, being run by central/federal government, using tax payer's money, under various ministries and so on. I am from India (which is 'still' a developing country) and science research is mainly accomplished by allocating funds as part of the setup mentioned above within five-year plans. India, and I believe many other developing countries, faced a situation called 'brain-drain' in '70s and '80s where the country's intellect drains to developed countries secondarily due to money but primarily due to bias-free growth opportunities available there.

Come late '90s and new millennium, things have changed. The governments wanted to show efficiency of their literacy programs, and higher education is also in demand due to social tougher survival otherwise. This means more and more post-graduates around and relatively many more doctorates too. Being a graduate (college) is more common than what in recent decades was, a matriculation (10th class)! However, people still crave for their kids to 'become' a doctor or an engineer. And being not as heftily paid, scientific research is not considered to be a highly preferred career in major part of a now, one billion plus population. However, science graduates also suffer limitation of opportunities in the present setup and ultimately divert to management courses, again for earlier mentioned social survival. I will come back to this soon.

Look on the other side. All the population projections released by United Nations post-2000s, are assuring us that by the year 2050, Africa and Asia will comprise of more than three quarters of the total world population. In fact Asia, which is majorly contributing to the world population as of now, will be replaced by Africa. Africa in general and especially central African countries are showing highest fertility rate. Add 7–8% contribution in population from Latin America to African-Asian sum of 79% and you can understand how most of the human resource of ours will be located in developing countries. Here it is worth noting that the same projections also indicate that the age groups of 15–24 & 25–50 will have a major (15–20% & 40–46%, respectively) segment of the population. This means that most of the human resource will not only be teeming in developing countries but that they will have a specific workhorse potential age-segment in their respective societies. Psycho-socially, if not managed properly, this is the same age that has maximum vulnerability to get wasted behind various addictions and social frustrations or even – just in cubicles!

I could understand much of the problem but had no idea what could be a possible solution. This was due to the deep-buried beliefs one has being a developing country's citizen, that scientific research can only be possible in government-established organizations or sometimes, in high-profile corporations such as pharmaceutical. Of late, I happen to understand other mechanisms in developing countries. There have been alternative approaches in which many renowned organiza-

tions are not directly dependent on or controlled by, their governments. Yes, I am talking about the yet untapped potential of non-government sector in developing countries. Imagine how many benefits such a mechanism can offer. Funding a person or an organization for a project would be a much more affordable option than establishing an organization yourself. Government setup is always about big projects with big money, but what about the tasks which are to be accomplished with a meager budget? Non-government organizations can fill this gap between non-availability of data and non-viability of micro-projects at mammoth government organizations.

On the other hand, this can be beneficial to government machinery also. Let me explain how. Nowadays it is a popular joke among college students that 'because I am not experienced, I do not get a job – and vice versa.' Jokes apart this is a vicious cycle indeed. It is often not practical for government organizations to call up all the applicants for an interview as ratio of received applications may reach up to 100s for each position advertised! Dilemma continues when you know the risk of missing out talents just because they are 'freshers'.

Non-government organizations, with their limited nature of funding, can prove to be real game-changers in this scenario by offering opportunities to students who have recently completed their studies. The students gain hands-on experience with research methodologies in the real world, out of the books. While organizations can accomplish their work done with limited resources, thus proving their importance in comparison to government organizations. government organizations, in turn, get the benefit of receiving more talented and seasoned researchers in their entry-level openings. And most important among all these is, scientific research and education gets prime focus as a career. Fresh graduates get more opportunities to prove their research potential and get it coined into their CVs. This will help science-enthusiasts avoid getting succumbed in to 'call-center job culture' just for the sake of survival in their early career time.

The role of non-governmental organizations with scientific research work-profile isn't limited to that of a job creator. On-line education is a term that is being heard across the room nowadays. We are yet to have an enriched array of highly-innovative, 3D-rendered and cutting-edge, multimedia-based interactive online education material. It is as huge a task as it was to create the very first encyclopedia. And leaping technology assures us vast fields are going to be there to plough, at least in the near future. Then comes the plethora of short-term certificate courses which students can take up during the summer holidays while being in college. Organizations which are active with scientific research can also provide better opportunities for students to take up their dissertation work or Master's thesis. If this sounds familiar to you, I would like to remind you that, we are talking about all these in a



developing country work-environment, presently almost non-existent.

There are some precautions also, however. Awareness towards these ideas including legality to operate remains the biggest challenge. Even in India, there are provisions that a non-government organization can get recognition of SIRO (Scientific & Industrial Research Organization) but this is known to only a very limited number of people. Another problem is the general reputation of NGOs. Often politicians and corporations are seen establishing and using social-themed 'trusts' for 'money-laundering'. Budding up of educational and research theme organizations can definitely open windows of fresh air. Collaboration among the organizations will remain a key-factor to survive and flourish together.

Nimit's wikipedia: <http://www.nf-pogo-alumni.org/~Nimit+J>

Photo by alumnus Lilian Krug



When NANO ponders...

Talent or Attitude - what counts more in success?

Arvind Singh

GEOMAR Helmholtz Zentrum für Ozeanforschung

All of us are endowed with talent in some field or the other. All that matters is what we do with this talent. Talent versus attitude has long been debated in different contexts. In the context of performing successful research, can we tell what counts more: talent or attitude?

Recently a Physics Today article discussed the relative importance of 'real' talent, ability, hard work, and consistency¹. Using a set of mathematical equations, the article alluded that 'real' talent is all about hard work in which ability virtually counts for nothing. Can we also mathematically resolve the talent versus attitude debate by answering questions like - will having talent (not to be confused with 'real' talent that evolves with time¹) alone enough for being successful? Can talent alone solve all or at least some of our research problems? Or is it the right attitude that matters the most? A simple mathematical equation can describe a mantra for being successful

$$\text{Success (S)} = [\text{Talent (T)} + \text{Attitude (A)}] \times \text{Hard work (H)}$$

God-gifted talent may not evolve significantly after teen age, so talent can be considered a constant term in the above equation. Attitude does evolve with time: people's perception changes while they gain experience. To define consistency in success, we can describe time evolution of success:

$$dS/dt = (T + A) \times dH/dt + H \times dA/dt$$

Since attitude evolves with time, while talent is just a multiplier in one term, clearly suggesting that in order to be successful throughout the life, attitude is more important than talent. Attitude and hard work can even compensate for tal-

ent. Talent can open the door of research (for getting you a PhD position), but certainly cannot take you through the excellence in research. Thinking to the same effect, a famous cricket commentator once said "there should be no problem that you encounter in an examination for the first time. It meant you had to work so hard that you had, conceivably, attempted and vanquished every situation that could find its way into an exam paper"².



We often judge talent wrong. We need to have a proper attitude to judge talent. For example, in research, you need to find out whether you are good in theory or in experiment. Further, researchers must have attitude and passion to place their work at cutting-edge. Action defines priorities: being active on social media may not necessarily affect your work; but your acts over there reflect your interests and priorities. Enjoy each little moment of your life, enjoy what you do. You should have a passion to perform what you choose; you need to love what you do. The love should be real love, not an "I love chocolates" sort of love.

Now we know that attitude counts more in achieving success than talent in any field. Everyone is born with some talent but then why the world is full of underachievers? We often complain about our high-school classmates that they didn't get to where they should, perhaps because their attitude did not allow them to choose the right path. If an experiment requires

your relentless overnight presence, then it is your attitude that will ask you to stay and perform the experiment overnight, talent might think otherwise. In research, outcomes of our interactions with advisors, collaborators and journal editors depend on our attitude.

Let me complete this discussion by giving you a few examples from the German and the Indian history. Albert Einstein and Adolf Hitler were born at almost the similar time and in the similar environment. Not many of you would disagree that if Einstein was a genius then Hitler was also quite talented. But what they did with their talent is history and known to everyone. So they were grown up having same talent in similar culture; place, environment and almost everything was the same - but their attitude towards life made all the difference. We find one of them in all the science books worldwide and his theoretical concepts are still being proved; however, while Einstein is still celebrated for his genius, Hitler is painfully remembered for his crimes against humanity. In another example, in an Indian epic Mahabharata, Arjuna and Duryodhana were brothers and fought against each other. Both were talented. Duryadhodhana's troops had more talented warriors

than Arjuna's. Still Duryadhodhana lost the battle because he had evils deeds, while Arjuna fought for pride. Because of differences in their attitudes, Arjuna is worshiped along with lord Krishna today while Duryaodhana is not even considered to epitome of heroic.

Some would remember a famous quote: "Two men looked through prison bars, one saw the mud, the other saw the stars". Attitude is what makes most of the difference. One should keep one's vision high, be ready to pull the socks and work hard, then even dearth of talent cannot stop anybody from being successful.

Arvind's wikipedia: <http://www.nf-pogo-alumni.org/~Arvind+Singh>

References:

1. Singh, A., Real talent is all about hard work, Physics Today (2013), <http://scitation.aip.org/content/aip/magazine/physicstoday/news/10.1063/PT.4.2532>
2. Bhogle, H., What is talent in sport, Cricinfo (2011), <http://www.espnricinfo.com/magazine/content/story/519265.html>

NANO ALUMNI IN THE FIELD

Cruising along the Algarvian Coast: My experience on a sailboat designated for science Lilian Anne Krug

Wikipage : <http://www.nf-pogo-alumni.org/~Lilian+Krug>

In 2005 the Portuguese Government established the Task Group for the Extension of the Continental Shelf (EMEPC, in Portuguese). This is a mission of preparing and substantiating a proposal for expansion of the Portuguese continental shelf beyond the 200 nautical miles, submitted to the United Na-

tions' Commission on the Limits of the Continental Shelf (CLCS) in 2009. While awaiting the evaluation of CLCS, EMEPC has been characterizing the geological and hydrographic features and surveying biodiversity through scuba diving on the Portuguese continental shelf and islands. All information collected since

In order to provide more space for science the crew is reduced, which means the scientists must assist with the daily routine on the ship.

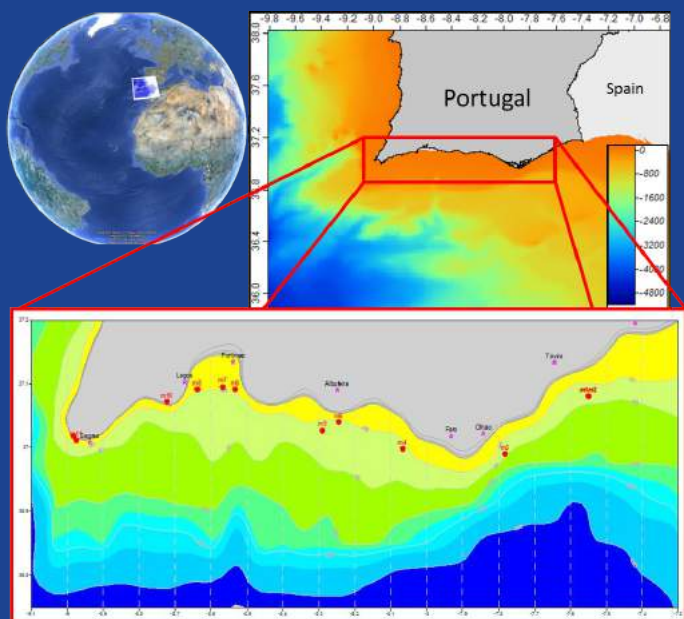


Figure 1 – Area surveyed during the cruise. Red points show my stations.

2005 onwards is being added to M@rBis, their Geographical Information System for Marine Biodiversity.

In the summer of 2013, the M@rBis/EMEPC cruise covered the southern Algarvian Coast, from Tavira to Sagres onboard the Navio de Treino de Mar (NTM – Sea Training Ship) Creoula. Creoula is a Portuguese Navy sailing ship 67.4 m in length and with a capacity of 90 including both crew and scientists.

This year, besides their own sampling, EMEPC opened space onboard for other projects with interest in the study area. My laboratory at the University of Algarve – Marine and Environmental Microbiology, together with the Ecology and Restoration of Estuarine and Coastal Habitats (ECOREACH) lab participated in the cruise with the project 'Study of Plankton in the Algarvian Coast'. The project involved sampling for abundance, biomass and taxonomic composition of phytoplankton and zooplankton, as well as collecting physical data, all synchronous with the passage of the sensor MODIS over the region. While I was in charge of the sampling for phytoplankton and physical measurements, I had the company of students from the ECOREACH lab who



The NTM Creoula. Photo by the Portuguese Navy

who were sampling for zooplankton, Nadia Ferreira participated with me during the first leg and Małgośka Elenir replaced her for the second leg.

The routine on board was very fun and easy-going; however, the start of a new day was always a little bit terrifying for us. Exactly at 7 am, we had the most evil alarm clock one can have. The second mate whistled a few times on the PA system followed by a loud and clear yell '*Atenção guarnição e instruendos. Alvorada, alvorada*' (Attention crew and scientists. Sunrise, sunrise). I still have bad dreams about it! After breakfast, 3 teams of divers took turns going to specific locations and conducting video transects, photo registers and bringing on board some samples of different species. As for our project, we went out on a semi-rigid boat everyday around 12pm to 2pm, which was perfect because it was lunchtime for the diving teams (freeing the Selvagem Grande, semi-rigid we used for sampling). As I mentioned above, scientists were also responsible for assisting the ship's crew. Separated groups were tasked to help in chores like fixing the sails, preparing and serving food, cleaning the common areas, washing the deck and polishing the 'yellows', all the metallic golden parts of the *capitan's* bridge.

My personal routine on board, aside from helping with the chores, started around 10 am to programme and calibrate the CTD and label the material to store the samples. By lunchtime we would go out on the Selvagem Grande to collect samples, return to the ship, then after cleaning the equipment the

filtration for fluorometry and HPLC samples would start. Filters then were stored in the -80oC freezer to be analyzed back in the laboratory for fluorometry and shipped to an HPLC analysis laboratory. I also separated samples for nutrient analysis and for phytoplankton identification through microscopy. After all onboard processing of samples and cleaning my space, I ended my work around 5 pm. Since Creoula is not a re-

search vessel per se, facilities were not too adapted. We had an improvised wet lab on the main deck and to filter my samples avoiding sunlight, I designed a particular dark room in a corner in the meal room with a black plastic bag covering part of my 'lab'.

Lots of learning, fun and entertaining was provided at nighttime. Most of the nights we had seminars about the campaign and the participant projects, but on other nights we had concerts starring Creoula second mate on the acoustic guitar and some of the crew as singers.

In total I spent 20 days on board and was fascinated with the amazing species that live in the Algarve. As a foreigner having lived only two years here in Portugal, I had the desire to know better

the marine environment in this amazingly rich coastal system. During the cruise I had this opportunity, and much more. I exchanged information with my colleagues and crew on board and acquire lots of experience professionally and personally.

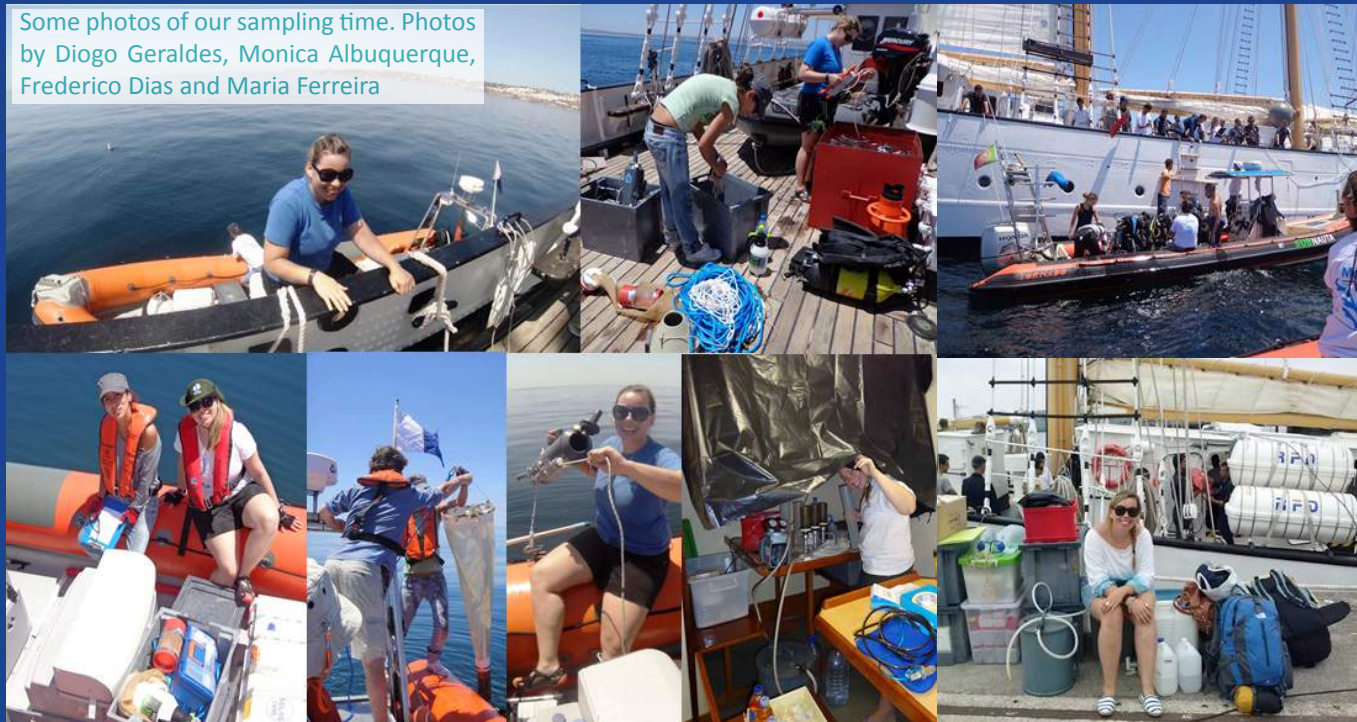


Daily chores for the scientists included cleaning of the deck, assisting in the kitchen and polishing the metals at the bridge. Photos by Paulo Maria and Rui Silva.

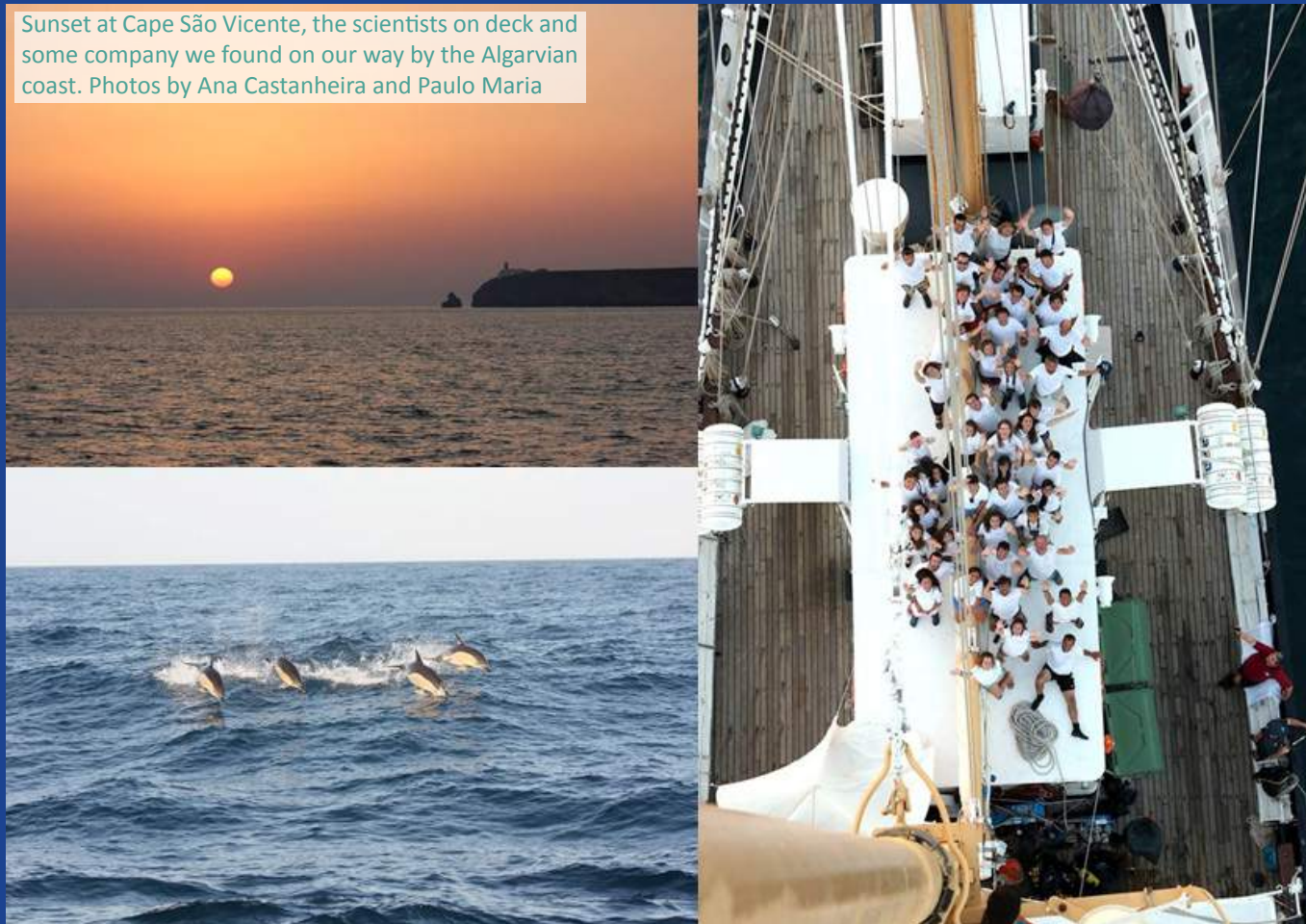


Concerts and seminar presentations were our entertaining during the nights onboard. We were also very lucky to be at sea for the event of the supermoon in June. Photos by Paulo Maria, Ana Lucas and Rui Silva.

Some photos of our sampling time. Photos by Diogo Geraldès, Monica Albuquerque, Frederico Dias and Maria Ferreira



Sunset at Cape São Vicente, the scientists on deck and some company we found on our way by the Algarvian coast. Photos by Ana Castanheira and Paulo Maria



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NANO Profile - Q&A

B. Meenakumari

Director of Central Institute of Fisheries Technology, Cochin, India

Wikipedia: <http://www.nf-pogo-alumni.org/~M.+Bharathiamma+Kunnuthara>

Deputy Director General of Indian Council of Agricultural Research, Dr. Meenakumari received the award Women and Technological Innovation National Award by the Bharatiya Stree Shakthi in 2007 and from the Academy of Science, Engineering and Technology for outstanding contributions to inland and marine fisheries sectors (2009) among many other. She has attended NF-POGO Visiting Professorship course in 2004/2005 in Kochi, India.



NN What is your educational background and how long have you been working in ocean science?

BM I have a post graduation (M.Sc) in Marine Biology, M.Phil in Aquatic Biology and Fisheries and Ph.D in Ecobiology.

NN What are your favourite aspects and the most challenging parts of your job? Are there any particular challenges in Indian Fisheries that you have to deal with/would like to work on?

BM The most challenging part in my job was undertaking fishing cruises. Mostly in medium class fishing vessels, without much basic amenities and in larger ocean going vessels, where the cruise duration was minimum 21 days.

NN You attended the very first NF-POGO Visiting Professorship course in 2004/2005 in Kochi, India. Could you recall your brightest memory from that training? How has your career been impacted by the training?

BM My memory goes back to shuttling between my office which was also in Cochin and to the course conducted about 12 km away, doing the best effort to do justice to both. I had the opportunity to interact with many youngsters, many experienced persons thus making my knowledge in ocean sciences, particularly chlorophyll estimation - the nectar of the sea – wider making it more meaningful.

NN From your experience, what advice would you give to a young scientist starting in this field?

BM There is nothing that you cannot achieve with 'dedicated effort and hard work'.

NN Your work on fisheries and women in the fishing industry in India is well known and has been recognised by several awards.

How did you become interested in this subject?

Could you please describe your typical work day?

BM After my posting to the Central Institute of Fisheries Technology, Cochin as Scientist through an All India Competitive Examination (ARS), I was working in the field of fishing technology, closely with fisheries, fishermen and fishing craft and gear. When some of my experiments in the laboratory were successful and was transferred to the end users (fishermen), I was really satisfied and got interested in doing many more useful work for them.

NN You were present at the NANO inaugural meeting in London, 2010. Since then, the network has grown and started new challenges like the joint research projects carried out by our alumni. As an alumnus and a senior scientist, what are your thoughts on such initiatives? How would you describe NANO progress in these two years of the network? Do you have any suggestions to help steer its future?

BM In my opinion, NANO inaugural meeting in London was a turning point to bring forth collaborative programmes within the country and also among countries. Many countries are just in the infancy with regard to ocean colour monitoring. If we attempt to know more of oceans which is the greatest treasure we have, there should be meaningful collaboration and also co-operation between institutes. Senior scientists can mentor the budding scientists in this regard and also act as a mediator in extending cooperation between them. NANO is doing a great job by bringing many such scientists and programmes together under one umbrella. We will start reaping the fruits soon but there are miles to go ahead with our recent initiatives.

NANO can take up joint workshops, support collaborative researches and have interaction and joint meetings with senior professors which will help in policy making also.

Evgeniya Klimchuk

Department of Oceanography, Geographical Faculty, Lomonosov Moscow State University, Russia.

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Sverdrup transport estimates in the North Atlantic

The study of ocean influence on climate are important parts of modern oceanographic research. Among those mechanisms are water mass and heat transport in meridional and zonal direction caused by both an inhomogeneity of a wind field and thermohaline factors. The result of this can be seen at smoothing the thermal contrasts between latitudes, at long-period variations of ocean-atmosphere fluxes and deep water masses formation. Attempts to estimate the water mass transport values in an upper horizontal ocean layer were made by many scientists e.g. S. Hellermann and M. Rosenstein (1980), S. Godfrey (1991), D. Mayer et al. (1990) and S. Josey et al. (2000). All of them used the known Sverdrup relation [1] based on the wind stress data taken from different sources (e.g. *in situ*, ship meteorological reports and satellite measurements).

The aim of this project is to revise the monthly and yearly mean meridional mass transport (Sverdrup transport) estimates in the subtropical and subpolar North Atlantic regions, and also to analyze the quasi-latitudinal barotropic transport in the eastern direction and find a correlation between those values and the North Atlantic Oscillation.

Monthly values of Sverdrup transport in North Atlantic were estimated based on a continuous (1980–2005 yr) monthly wind stress dataset NOC v1.1 (Southampton, UK) with a spatial resolution $1 \times 1^\circ$ (see [2] for more details about method and discussion). Following the project goals monthly quasi-latitudinal barotropic transport values (or simply zonal Sverdrup transport, analogous to baroclinic transport index estimated by Curry and McCartney, 2001 [3]) were calculated as a summation of absolute maximum Sverdrup transport values for subtropical and subpolar gyres. As Sverdrup transport ‘flows’ in the southern direction in subtropical gyre and in the north – in subpolar gyre, hence for the *mass balance* conservation between gyres (at the boundary) there should be a quasi-latitudinal flow in the east direction (to the European continent). Seasonal variability of zonal Sverdrup transport is characterized by maximum values in winter and minimum in late summer (July – September), second minimum is found in May. Moreover in winter season zonal transport values are 2.5 times higher than in the summer-autumn period. Figure 1 indicates an interannual zonal Sverdrup transport variability. The net change in transport between extremes is ~ 20 Sv ($1 \text{ Sverdrup} = 1 \times 10^6 \text{ m}^3 \text{ s}^{-1}$). Mean annual zonal Sverdrup transport value is 48.3 Sv. For the 26-year period zonal Sverdrup transport values display a positive linear trend of 9 Sv, which counts for 18.5% of

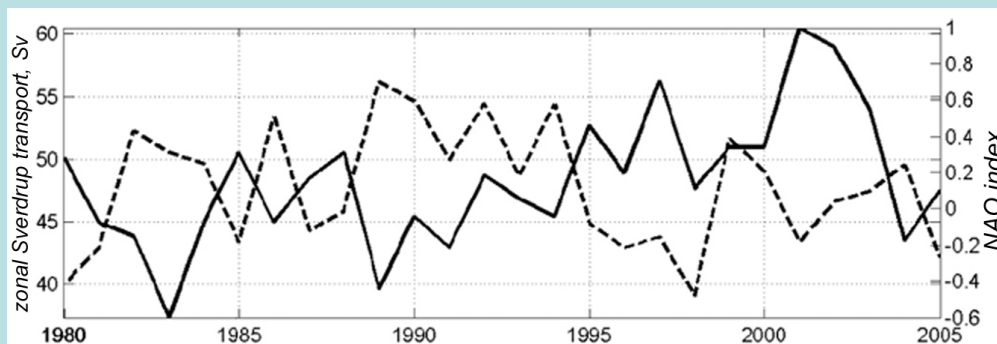


Figure 1 - Interannual variability for the zonal Sverdrup transport and NAO index (dashed).

the mean annual value. The minimum zonal Sverdrup transport value (37.3 Sv) was in 1983 and the maximum (60.5 Sv) was in 2001. Besides, zonal Sverdrup transport is characterized by an interannual variability with a period close to 5–7 years, for which maximum values can be found in 1980, 1987, 1997, 2001.

To compare zonal Sverdrup transport which represents the barotropic water transport in the upper

ocean layer in mid latitudes, with a similar index for the intensity of the zonal transport in the atmosphere – North Atlantic Oscillation index (NAO index), a correlation analysis was performed. To get the significant correlation coefficients only winter month values were taken with the linear trend excluded, because in winter time both processes are most intensive. The correlation analysis between average annual values of zonal transport and NAO index indicated a significant inverse correlation $r = -0.6$ ($p < 0.05$) with a zero time lag, which confirmed the J. Bjerknes (1964) compensation theory suggesting that transports in the ocean and atmosphere covaries in an out-of-phase manner in the North Atlantic region. Positive correlation coefficients ($r \geq 0.45$) were obtained with a NAO index leading for 4–5 years. Moreover, both values match with the different time periodicity: from 1–2 years in 1980–1995 to an antiphase in 2001–2005. A reason for that can be found in weak influence of NAO index to the wind field at the western coast in subtropical latitudes. From the model studies it is also known that ocean circulation in subpolar regions does not obey the simply Sverdrup dynamics and most likely combines several modes of variability.

Conducted analysis of zonal Sverdrup transport may be used for the further investigation of the seasonal and interannual variability of the integrated zonal transport in North Atlantic. Obtained results, which confirm the antiphase changes of zonal transports in the atmosphere and in mid latitudes in the North Atlantic, force us to seek mechanisms of mutual adjustment of atmospheric pressure fields and barotropic ocean response. Invaluable help in identifying such processes could provide joint models of the atmosphere and the ocean.

References

1. Sverdrup H.U. Wind-driven currents in the barotropic ocean with application to the equatorial currents of the Eastern Pacific. – Proc. Nat. Acad. Sci, USA, 1947, vol.11, pp. 318–326.
2. Klimchuk E. Spatiotemporal variability of meridional mass transport in the North Atlantic. – Russian meteorology and hydrology, 2013, vol.38, Issue 2, pp.106–112.
3. Curry R. G., McCartney M. Ocean Gyre Circulation Changes Associated with the North Atlantic Oscillation. – J. Phys. Oceanogr., 2001, vol.31, pp.3374–3400.

Research communications - NF-POGO Alumni

Housseem Smeti

PhD student in Oceanography, Mediterranean Institute of Oceanography, France

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I am finishing a PhD in Oceanography at the Mediterranean Institute of Oceanography (Marseille, France) funded by the IRD (Institute of Research for the Development) and the Ministry of Higher Education (Tunisia). I am planning to defend my thesis in the second half of 2014. For my PhD project I use different zooplankton sampling techniques (net, mono- and multi-frequency acoustics) to study temporal and spatial variability of zooplankton off New Caledonia in the Coral Sea (southwestern Pacific) and off Bermuda in the Sargasso Sea (northwestern Atlantic). I also use data from in situ measurements and satellite altimetry to track oceanic eddies and biogeochemical conditions in order to study zooplankton response to their passage.

In both study regions, Bermuda and New Caledonia, the use of acoustic sampling allowed to obtain very high resolution time-series (sampling interval < 1 hour) of acoustic backscatter data that are used as a proxy for zooplankton abundance and can be converted into equivalent biomass after a calibration with concurrent zooplankton biomass from net tow. Using a combination of net and acoustic sampling enabled me to study variability of zooplankton biomass in relation to different physical events occurring at different temporal scales (from hours to months), including periodic (diel, lunar and seasonal cycles) or episodic (eddies) events that cannot be resolved with monthly or biweekly net sampling (Jiang et al., 2007). Figure 1 shows the evolution of acoustic backscatter intensity (proxy for zooplankton abundance) from an ADCP deployed on the Bermuda Test-bed Mooring (Dickey et al., 2001). From

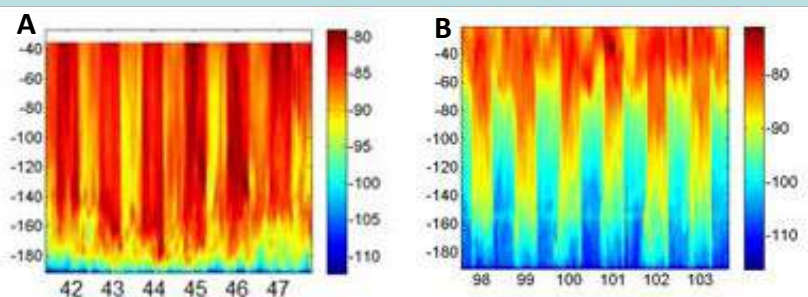


Figure 1 - Contours of acoustic backscatter intensity from ADCP (mono-frequency acoustic sampling) indicating the evolution of zooplankton abundance and vertical migration as a cyclonic eddy passed over the sampling site (near the Bermuda Atlantic Time series Study-BATS site). A) when a cyclonic eddy was located near the zooplankton sampling site and B) after the passage of the eddy. In panels a and b; x-axis is Julian days (mid-night), y-axis is depth [m] and contours are acoustic backscatter intensity from ADCP (colorbar in decibels, [dB]).

Figures 1 and 2 we can see clearly that the presence of a cyclonic eddy (Figure 2) caused zooplankton abundance to increase along with a deepening of the high abundance signal, also patterns of diel vertical migration were altered (Figure 1. panel A). The pattern of zooplankton diel vertical migration went back to a normal state after the eddy passage (Fig1. panel b) with migratory zooplankton reaching surface water during the night (high backscatter intensity in the sampled water column during night-time) and descending to deeper layers during the day (low backscatter during day-time below ~ -60m) leaving the non-migratory zooplankton at the surface to make up the backscattered acoustic signal in the upper ~60m. Similar acoustic method is used to investigate zooplankton variability off New Caledonia in the Coral Sea.

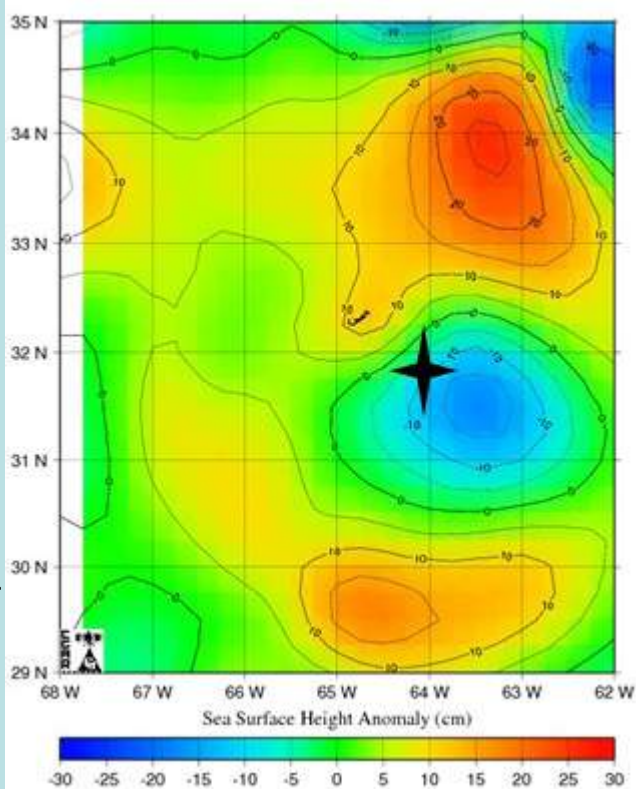


Figure 2 - Map of sea level anomaly (SLA) showing the presence of a cyclonic eddy (blue contour) near the study site (black star) on February 15, 2007 (Julian day 46). SLA data obtained from: http://eddy.colorado.edu/ccar/data_viewer/index

References

Dickey, T., Zedler, S., Yu, X., Doney, S.C., Frye, D., Jannasch, H., Manov, D., Sigurdson, D., McNeil, J.D., Dobeck, L., Gilboy, T., Bravo, C., Siegel, D.A., Nelson, N., 2001. Physical and biogeochemical variability from hours to years at the Bermuda Testbed Mooring site: June 1994–March 1998. *Deep-Sea Research II* 48, 2105–2140.

Jiang, S., T. Dickey, D. Steinberg and L.P. Madin, 2007, Temporal variability of zooplankton biomass from ADCP backscatter time series data at the Bermuda Test bed Mooring Site, *Deep Sea Res. I*, 54, 608–636.

In order to share this work with a larger public and get younger minds involved, I participate in mentoring high school students (from Nouméa, New Caledonia) by introducing them to marine sciences through mini-projects, reports writing and guided tours around the laboratories of the oceanography department on the IRD campus. It was a nice experience at first and it became a great one when Lisa (see picture), a student that I mentored, said on the last day of the training and I quote that “she will be very happy to do my job in the future” (one more marine scientist!).

Click [here](#) to a PDF on mentoring program at IRD Nouméa, New Caledonia. November 2012 (High school student)



Lisa, high school student from Nouméa, with and ADCP (Acoustic Doppler Current Profiler) at the geophysical and oceanographic operation laboratory. ADCPs are used to measure currents speed and direction, waves height and period and acoustic backscatter (proxy for zooplankton abundance)

Research communications - NF-POGO Alumni

Irene D. Alabia

Graduate School of Fisheries Sciences, Hokkaido University, Hakodate Japan.

Wikipedia: <http://www.nf-pogo-alumni.org/~Irene+Alabia>

I did my Masters in Marine Science at the Marine Science Institute, University of the Philippines-Diliman and worked on upwelling and gyral circulation off the archipelagic seas in the region. Throughout my stay at the institute, I had opportunities to be a part of research projects on tropical harmful algal blooms and joined oceanographic cruises that stirred my interests in marine ecosystem dynamics. In the course of my research, I have had opportunities to attend trainings on basics and applications of satellite oceanography and in-water observing platforms, among which, was the 2011 NF-POGO regional training in Nha Trang, Vietnam.



This and the other learning venues that came along the way, encouraged me to extend my research field towards fisheries oceanography, aimed at understanding the salient ecological implications of bio-physical processes and inherent variability across spatio-temporal scales to pelagic fishery resources.

Presently, I am in my second year of the PhD program on satellite and fisheries oceanography at Hokkaido University under the supervision of Dr. Sei-Ichi Saitoh, who was one of the invited speakers during the 2011 Vietnam NF-POGO training. My PhD work is primarily focused on the internationally-exploited cephalopod species and their potential habitat distribution across the western and central North Pacific. I began working on this research as part of the multi-institutionally implemented project on Research on Climate Change Adaptation (RECCA) funded by the Japan's Ministry of Education, Culture, Sports and Science Technology (MEXT). As part of my PhD work, I am working on the development of species habitat suitability models constructed from pertinent satellite and numerical model-derived environmental descriptors to elucidate the squid's spatial habitat distribution and its associated temporal changes. Interestingly, the squids' short life-span allow them to respond to drastic environmental signals; hence, making them potential biological indicators. While I am still some time short of finishing my PhD course, I hope that the insights from this work will be useful for understanding fishery responses to environmental fluctuations and, in turn, form the scientific basis in the development of informed management decisions leaning towards sustainable fishery and optimal societal benefits.

Research communications - NF-POGO Alumni

Dr. Shovonlal Roy

Lecturer, Department of Geography and Environmental Science, University of Reading, UK

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Goodbye Plymouth...Hello Reading

Exactly a decade ago, in 2003, just after completing my MSc exams, I was almost in a state of mind to give up my academic career, and started looking for a comfortable job beyond academics. It was the month of August in 2003 when I reinstated my thoughts to proceed a bit further in academics, by accepting a PhD studentship offered by the Indian Statistical Institute. A decade later, this year, in 2013, I was offered a faculty position, a Lectureship at the University of Reading, U. K., which I accepted in the month of August. It feels tremendous to think that even in my short research career so far, I had opportunities to interact with several established researchers, and work at different places and institutes renowned internationally. A good example is the Plymouth Marine Laboratory, the place where I was working most recently for about five months. Back in 2003, probably I didn't even think that with a degree in Mathematics from India, I would ever be working in a marine laboratory located on the other side of the world! Of course, stories similar to this experienced by many in our generation further re-assure that today's science is truly global, and undoubtedly inter-disciplinary.

The choice that eventually led me to the research field of marine science and remote sensing was to do a PhD in Mathematical



Shovonlal in front of Plymouth Marine Laboratory building (left) and Miller building at University of Reading (right).

Biology – an interdisciplinary and increasingly expanding field that combines two distinct fields of study, namely, Mathematics and Biology. I started working on modeling marine ecological interactions, in particular, the detailed dynamics of predator-prey relationship between zooplankton and phytoplankton. While working on this, I was gradually interested in ocean colour and remote sensing. The inspiration came mainly from a three-month long NF-POGO Visiting Professorship program that took place at the National Institute of Oceanography at Kochi, India, under the leadership of Professor Trevor Platt and Dr. Shubha Sathyendranath. It was an excellent program led by the super-excellent scientists that opened to me, and to many other participants, a truly global window of scientific world, in particular, in the field of ocean science and remote sensing.

During the recent years, I had a chance to work with various researchers on different aspects of ecological interaction. However, remote sensing and marine science, in a sense, has become my favourite choice. Recently in PML, I was working with the remote-sensing group on a grand project known as the Ocean-Colour Climate Change Initiative (CCI) led by Dr. Shubha Sathyendranath. Here I had an opportunity to work closely with experienced scientists such as Shubha, Trevor, Mike Grant and Steve Groom, along with several other researchers. Working under tight schedule, exposure to large scientific community, regular and effective communication of the works undertaken, are some of the key learning skills that I can attribute to my involvement at PML. There I was working mainly on ocean colour data from OCM-2, and was investigating the best solution for the along-track striping in OCM-2 radiance data, so that these data could be used for global validation and included in CCI along with data from other ocean-colour sensors. We made a good progress in that direction during my short stay at PML. I am looking forward to continuing collaborative works with PML, and also with scientists from the Indian Space Research Organization (in particular Mini Raman, also a member of NANO).

Developing algorithms for phytoplankton functional types is among my recent research interests. I have been working on developing such algorithms for phytoplankton size and size classes from remote sensing. At the University of Reading, I hope to further build on these works, and in particular, looking forward to work with high-resolution spatio-temporal ocean-colour data, which are being produced, for example, by the CCI project at PML. I am also interested in ecological modeling applicable to oceanic ecosystems and utilization of ocean colour data for understanding ecological dynamics. However, I am generally interested in and open to any interdisciplinary research in the fields of ecology and marine science.

Finally, I should mention that it's always a great pleasure to be a part of NANO, an outstanding network created by visionary scientists, which is expanding its branches globally, bringing more and more young scientists under a common umbrella, and nourishing and supporting them to contribute to the global outreach of marine science. Undoubtedly, it would be our duty to respect this great vision, build up a sustainable research network, and work together utilizing the knowledge and opportunities that it brings, towards solving numerous issues that ecosystems and human societies are facing today.



Meeting announcements



NF-POGO Regional CofE training: Detection of HABs in Southeast Asia by Remote Sensing: University of the Philippines Feb 24 – Mar 15 2014



The newest NF-POGO Regional CofE training will be open to 15 – 20 participants from developing countries within SE Asia area. This program will provide the students with fundamental interdisciplinary knowledge on HAB dynamics, give them the capability to assess HAB sites using satellite remote sensing technology, design standardized monitoring protocols, provide initial skills and tools to begin to develop integrated HAB models, and help them to develop early-warning systems for HABs.

Review of applications starts
15 Nov 2013

Contact: habsea2014@gmail.com
<https://sites.google.com/site/habseatraining/>

46th International Liege Colloquium University of Liege, Belgium 5 – 9 May 2014

With the theme Low Oxygen Environments In Marine, Estuarine And Fresh Waters, the 46th Liege colloquium will investigate new developments and insights related to the critical problem of ocean deoxygenation, low oxygen zones in marine and fresh-water systems

Deadline
24 Jan 2014

Contact: oceanphys@ulg.ac.be
<http://modb.oce.ulg.ac.be/colloquium/>

3rd Asia-Pacific Coral Reef Symposium Howard Resort Hotel, Kenting National Park, Taiwan 23 – 27 June 2014

These series of symposium provided a forum for scientists, educators, managers, environmentalists and relevant local stakeholders from key organizations in the Asia-Pacific region to share their knowledge and experiences on all aspects of coral reef biology, ecology, management, and conservation. The symposium also serves as the founding congress of the Asia-Pacific Coral Reef Society.

Deadline
15 Jan 2014

Contact: apcrs2014@nmmba.gov.tw
<http://www.apcrs2014.com/>

3rd International Marine Conservation Congress Glasgow, Scotland, UK 14 – 19 August 2014

The overall theme of the congress is Making Marine Science Matter. For marine conservation to be effective, marine conservation science must matter to stakeholders, policy makers, and practitioners. Sustainable fisheries and aquaculture, Marine renewable and non-renewable energy, Climate, ocean acidification, and the changing oceans, Effective conservation planning are among the topics the congress will be organized around.

Deadline
15 Nov 2013

Contact: soester@gmu.edu
<http://www.conbio.org/mini-sites/imcc-2014>

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For more news in Ocean Sciences visit <http://www.nf-pogo-alumni.org/Ocean+news>

Have any opportunity you would like to announce here? Contact lilian.krug@nf-pogo-alumni.org

Partnership for Observation of the Global Oceans (POGO)

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