

Issue 3 | Spring 2009

SOES News

Welcome to SOES News - the School of Ocean and Earth Science (SOES) magazine for current and prospective students, alumni and friends. We look forward to sharing exciting updates on our world-renowned scientists, features on cutting-edge research, profiles on talented alumni, and fun stories on our students. Enjoy!

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**National Oceanography
Centre, Southampton**

UNIVERSITY OF SOUTHAMPTON AND
NATURAL ENVIRONMENT RESEARCH COUNCIL

Google Launches Ocean Project With Help From NOCS

Scientists at NOCS have been helping Google develop its new Ocean in Google Earth project.

The oceans cover two thirds of our planet yet we know little about the underwater world. Google Ocean will help add to our global understanding of a world that is remote and largely undiscovered, but that could offer answers to some of the biggest issues facing humanity, such as the ocean's role in regulating global climate change.

NOCS will provide blogs and film from ocean researchers working around the world in addition to supplying data, images, footage and information about the oceans for the 'Ocean' layer.

Professor Ed Hill, Director of NOCS, said: "We are excited about our collaboration with Google's Ocean project. We hope that people can easily gain access to the work of our scientists operating in these remote locations and that it will increase awareness of the issues facing the marine environment. The oceans are a fantastic way to communicate science. They have an endless ability to inspire not only researchers but people of all ages."



Some 400 million people now can access this research as it takes place.

Explore the ocean now in Google Earth 5.0.

Front page photo: Southampton undergraduates on geology field trip, West Cornwall, Easter 1958.

Student Success in Prague at the Petroleum Competition

SOES students were awarded the bronze medal for their presentation and defence at the 2009 American Association of Petroleum Geologists (AAPG) Imperial Barrel Award in Prague (27-29 March).

The AAPG Imperial Barrel Award (IBA) is an annual hydrocarbon basin/prospect evaluation competition for Masters level students. University teams analyse a data set for a period of 6 – 8 weeks before the European competition.

The team of three geologists (Fred Hughes, James Nowecki, Chris Weller) and two geophysicists (Ilya Ostanin and Ben Proudman) gave a 30-minute presentation on the petroleum prospects of an area in the Barents Sea, and then answered

questions from a jury of senior oil industry explorationists. The team was awarded 3rd place behind winner Moscow State University, and second place Imperial College, and came ahead of eight other teams from leading universities from around Europe. This was an excellent result, especially as this was the first time that a team from the University of Southampton entered the competition.

The teams were advised by Professors Jon Bull and John Marshall, and also received expert advice from external consultant John Brooks, whose input was invaluable. The competition was a great learning experience for the students and enabled them to develop industrial contacts, as well as to build camaraderie amongst their peers.



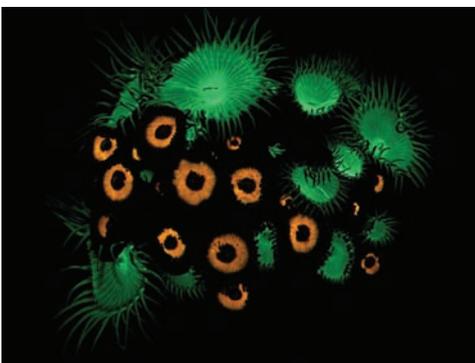
Members of the Winning Team in Prague: (from left to right) Ben Proudman, Fred Hughes, Ilya Ostanin and James Nowecki. Photo: Chris Weller (5th member)

Pigments from Marine Creatures May Help in Biomedical Research

Photo: Jörg Wiedenmann



The red fluorescent protein eqFP611 contributes to the colour of the tentacles of the sea anemone *Entacmaea quadricolor*.



Green and orange fluorescence of polyps of two different zoanthid species.

A study published in the scientific journal *PLoS ONE* highlights how a novel red fluorescent protein created from a sea anemone pigment has led to cell biological discovery.

The research team is led by Dr Jörg Wiedenmann in SOES.

Many pigments of colourful coral reef animals belong to the family of fluorescent proteins. These proteins glow when they are stimulated with light of certain wavelengths. Fluorescent proteins are powerful, specific marker tools for cell biological and biomedical research. The impact of the fluorescent protein technology is considered so high that the 2008 Nobel Prize in Chemistry was recently awarded to scientists that discovered and further developed the first green fluorescent protein from the jellyfish *Aequorea victoria*.

Red fluorescent proteins are of particular interest as they offer several beneficial optical properties compared to green fluorescent markers. For instance, their glow can be excited with low-energy light which is highly desirable for the application of the marker proteins in living cells. Consequently, a steady demand exists for red fluorescent proteins with new characteristics.

Dr Wiedenmann and his colleagues have created one such variant called 'mRuby' with particularly useful properties for biomedical research.

"The unique spectral properties make mRuby the marker of choice for a multitude of cell biological applications," say the researchers; "Moreover, the use of mRuby has allowed novel insights in the biology of organelles responsible for severe human diseases."

Welcome Back! SOES Alumni Reunite for School's 10th Anniversary

On Saturday 14th March, SOES welcomed over 120 guests to its first alumni reunion for all graduates.

Alumni from the early classes of Geology (1954) and Oceanography (1964) to the recent class of 2008, as well as current and retired academic staff, gathered at the National Oceanography Centre to help SOES celebrate its 10th Anniversary.

"I thought the day was a great success! It was fantastic seeing some old faces and reminiscing with lecturers. I look forward to future invites," said Matthew Lambe, (Geology 1994).

Geology has been taught at Southampton since 1862, and Oceanography since 1964. Through the years, the departments of Geology and Oceanography evolved and in 1998 they merged to become SOES, one of the UK's strongest Schools for ocean and Earth Science.

"The merger of two small University departments in 1998 and the integration with the wider NOCS community has created a diverse and exciting School like no other," said Dr Rachel Mills (Oceanography with Chemistry, 1988, Academic staff 1993 to present). "There are world experts in a huge range of subjects within a quick stroll from my office."

The reunion followed the NOCS annual open house, "Ocean and Earth Day" during which alumni joined 2000 members of the public to tour the Centre and to enjoy a range of interactive exhibits. Most alumni studied at the University's Highfield campus during their degree programme, so the visit to NOCS was an eye-opening experience.

"I much appreciated our visit to the NOCS Open Day and Alumni Reunion, which included a tour of the Research Vessel *Callista*. We found the Open Day exciting and informative" said Margaret (Christal) Western, a 1959 Geology Alumna.

The SOES' presence within the NOCS environment means that students enjoy an unparalleled academic experience including access to cutting-edge technology and internationally renowned scientists. Many alumni remember the early days of the departments when geology and oceanography were just beginning.

"By today's standards, our fieldwork at the time was primitive," said Geoff Chapman, 1965 MSc Oceanography. "As the first Oceanography class, we were starting from scratch." Fellow Oceanography classmate Dave Blackburn added. "I was delighted to be selected to be part of such an interesting and unusual course at Southampton, then in its fledgling days in Oceanography."

Margaret Western's experience was similar. "I learnt from text-books and wrote lab reports and of course did no computer-assisted work. A lot of the geology seemed to be learning to identify rocks, minerals, crystals and fossils and to know where they were found, and all this without the benefit of any overarching understanding that now comes from the widely accepted theory of plate tectonics."



Margaret Western

"After more than half a century, I realise that the more that one learns, the more there still is to learn."





Photos from the Alumni Reunion and pictures submitted by SOES graduates.



Fieldwork remains one of the fondest memories of University for many. Graduates sent in photos and memorabilia to share at the event. “I am glad that some of the work and photos that I had saved from fifty years ago were displayed at the reunion,” said Miss Western who has generously donated these materials to the School for display outside the NOCS library.

Professor Jane Francis at Leeds University, and a 1978 Geology alumna reminisced about her fieldwork memories. “My happiest days were during my PhD fieldwork on the Dorset Coast. I return every year now and take my own undergraduate students.”

2005 MGeol graduate Rob Cooper added “The second year and third years included a lot of fieldwork to build our confidence and skills: an Easter trip to Spain, a week in Anglesey and a month on the Caribbean island of Montserrat. For me, one of the most enjoyable things about the course and NOCS is how friendly it always was, I imagine largely as a result of all the field trips.”

As we strengthen the University of Southampton alumni community and in particular our connection with SOES graduates, we look forward to hosting more reunions and events in the future. We also look forward to continuing to showcase the important work of our scientists and graduates.

Thank you to all of the alumni who attended—we look forward to seeing you again.

£1.3 million Awarded to NOCS to Explore Ancient Antarctic Lake

The National Oceanography Centre, Southampton is receiving £1.3 million to develop a probe to explore a massive lake deep beneath Antarctica's ice sheet.

Buried under 3 km of ice, Lake Ellsworth is an ancient lake that has been isolated for hundreds of thousands of years and that could contain unique forms of life.

In such an extreme environment the mere presence of life in itself would be a major scientific discovery, but there are strong reasons to expect that such micro-organisms would possess special or unique adaptations to this unusual and potentially hostile environment.

The Natural Environment Research Council has awarded £6 million to a consortium of multidisciplinary researchers from ten UK universities, NOCS and the British Antarctic Survey. Dr Matt Mowlem, head of sensor technology at NOCS and a University of Southampton graduate, will lead a team in the design and construction of the probe. "We will make measurements of the lake's physics, chemistry and life forms with sensors, by collecting water samples and by gathering images," said Mowlem.

Consortium leader Professor Martin Siegert from the University of Edinburgh said: "Our team will be the first to explore this ancient lake. It is a dark, cold environment that has been sealed from the outside environment and is likely to contain unique forms of life."



School of Ocean and Earth Science Receives Industrial Support for Fieldwork

The multinational mining company Rio Tinto, is donating £30,000 to support fieldwork in SOES.

The gift will be matched 100% through the government's new matched giving scheme.

SOES provides rigorous and comprehensive fieldwork opportunities for all students. As a result, SOES geology graduates have been lauded by industry and external examiners for being among the best trained and independent in the UK.

"Fieldwork is an essential part of any geologist's training and is perhaps the most rewarding and enjoyable part of the University degree programme," said Professor Andrew Roberts, Head of School. "Over the past decade, SOES has developed a record of graduates entering the mineral exploration industry that is second to none across Europe."

The gift from Rio Tinto will fund three years of the Independent Mapping Course and will allow SOES to innovate beyond what traditional funding sources can provide. The gift will fund state-of-the-art field equipment designed to provide students with industry simulated fieldwork conditions, as well as providing financial assistance to participating students.

The gift builds on Rio Tinto's long relationship with SOES and their confidence in the quality of Southampton's programme. "Over the last fifteen years SOES has provided a stream of highly skilled and talented graduates that have joined Rio Tinto Exploration and are now the leaders of our programmes Worldwide," said Chris Welton, Exploration Executive at Rio Tinto and a University of Southampton Geology graduate. "The success rate of Southampton graduates is unprecedented in our global graduate recruitment programme and so Rio Tinto has chosen to cement its already strong relationship with this support of the field programmes at SOES."

Fieldwork in Bermuda

Fieldwork is a seminal experience for many SOES students and is often the most enjoyable part of the degree programme.

This March, students and staff from SOES and the University of North Carolina Wilmington (UNCW) travelled to Bermuda for a joint tropical marine ecology field course at the Bermuda Institute of Ocean Science (BIOS). The trip is generously supported by the Gillings Family Foundation which helped to establish the NOCS-UNCW Exchange Programme in 2007.

“Working at BIOS is, for many of our students, the first time they experience a working research institute other than NOCS. The facilities at BIOS and the opportunity to talk informally with staff opens students’ eyes to new career possibilities that they may not have considered before,” said Dr Antony Jensen of SOES.

The Bermuda field course is unique within the degree programme because of the emphasis placed on ‘in water’ surveying techniques. Students are in the water with snorkelling gear and are hands-on with the habitat that

they are surveying. Students gain new insight into the area where they are working as well as developing field skills that they can use later in their career.

“Partnering with UNCW has also demonstrated a healthy exchange of scientific ideas within the combined student group. It is hoped that the potential of MSc or PhD study at either University will become just as likely because of the contact and friendships made during the field course,” said Jensen.



SOES and UNCW students on the Bermuda field course.
Photo: Antony Jensen

Double Your Impact - The Annual Fund

Thanks to the new government matched giving scheme, the University of Southampton can double the value of donations to the Annual Fund through 2011.

Your gift to SOES will now have twice the impact.

Please consider supporting SOES with an annual gift.

SOES students benefit from studying in a world-class environment. Their studies require demanding fieldwork courses, specialist equipment and access to first-rate facilities. Annual Gifts help to enrich the student experience, enhance our facilities and ensure quality programmes for current and future students.

We appreciate the support of our current donors and encourage those who are considering making a gift, to contact us at annualfund@soton.ac.uk or call Tel: +44 (0)23 8059 4460.

THANK YOU



Photo: Antony Jensen

Dinner with Archbishop Desmond Tutu



Christian Ihwiwhu meeting Mr. Tutu

Nobel Prize winner Archbishop Emeritus Desmond Tutu visited the University of Southampton in February to promote the Tutu Foundation, which works with existing grass roots projects to help build bridges among different religions and ethnicities, especially among the younger generations. SOES student Christian Ihwiwhu (MRes in Marine Geology and Geophysics) had the opportunity to attend the dinner and to meet Tutu.

Archbishop Desmond Tutu is one of my role models as well as Nelson Mandela, so I was honoured to have the opportunity to meet Mr Tutu at a recent dinner at the University of Southampton.

In Nigeria where I am from, I have experienced first-hand what it is to be abused, oppressed and neglected. Tutu is famous for his non-violent resistance to the apartheid, believing forgiveness and cooperation to be the road to peace. Mr Tutu spoke about “man’s inhumanity against man” and encouraged us all to find our own way to fight oppression and to be a role model for others.

I come from a large family and I am a mentor to people in my home-town in Nigeria. I would like my actions to encourage others to stand up for themselves, and in particular would like to inspire others to pursue an education. Working on my masters’ degree at SOES

is indeed a remarkable experience. In my search for a grad school I wanted to be sure of academic excellence, hands-on research experience and an excellent staff-student rapport and SOES has proven to be the place.

My educational experience has truly inspired me. I have built new skills, developed a strong network of friends and my career/interest has been recharged. I am currently on a fully-funded scholarship with ExxonMobil and would like to return to Africa after my studies to work with the oil industry and to continue to be a mentor to others.

When I was having my picture taken with Mr Tutu, he asked me what I was studying. When I told him I am a Masters student in Marine Geology, he said “Oh, so you want to explore the ocean.” After hearing Mr Tutu speak, I am inspired to do that and much more.

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