



Wellington harbor and Tararua Ranges
(from <http://scenery-wallpapers.com>)

Change at the SCOR Secretariat

Lora Carter, who worked at the SCOR Secretariat at the University of Delaware for 4.5 years, has moved on to an administrative position in one of the local school districts. Elizabeth Gross, former SCOR Executive Director (1980-2000), will help with Lora's duties until a replacement is found.

SCOR Working Groups

The call for proposals for new SCOR working groups is open until 15 May. The call can be found at http://scor-int.org/2013EC/Call_for_Proposals.pdf. Working groups can be proposed by anyone with good ideas on cutting-edge ocean science topics.

WG 139 on Organic Ligands: A Key Control on Trace Metal Biogeochemistry in the Ocean—WG 139 met on 16 February in New Orleans, Louisiana, USA, in conjunction with the annual meeting of the Association for the Sciences of Limnology and Oceanography. Fourteen Full and Associate members attended the meeting. The group is making progress on establishing a database of ligand data, with the help of the GEOTRACES Data Manager and others. The group discussed the results of an intercalibration exercise that is estimating metal ligand parameters from a simulated titration dataset. Participants in this exercise will develop recommendations to improve techniques. Group members will also participate in an intercalibration of samples to be collected next year. The group has established a Web site at <http://neon.otago.ac.nz/research/scor/index.html>.

WG 140 on Biogeochemical Exchange Processes at the Sea-Ice Interface—WG 140 met for the first time on 16 March in Ventura, California, USA in conjunction with

the Gordon Research Conference on Polar Marine Sciences. The group has formed three task groups:

- **TG1 on Methodologies and Intercomparisons:** This task group is preparing a review paper.
- **TG2 on Data:** This task group will produce new data inventories and datasets by collation of existing data, and will provide recommendations for standardized protocols and databases.
- **TG3 on Modeling:** This task group will develop recommendations from modelers to observationalists about the type of data they need most. The group will conduct an Intercomparison of 1D models and publish a review of its findings. Finally, it will determine how sea-ice data can be applied in regional models, with links to global and regional climate modeling.

The work of this group was already mentioned in two peer-reviewed publications.

News from the SCOR Committee on Capacity Building

Five SCOR Visiting Scholars will serve in various locations in 2013: Lisa Beal to South Africa, Jacob Larsen to Namibia, Alice Newton to Morocco, and Pauline Ross and Geoff Millward to Thailand. (SCOR normally sends out three Visiting Scholars each year, but two of the 2013 Scholars were deferred from previous years.)

Lisa Beal taught a Basic Dynamical Oceanography course for two weeks at the University of Cape Town in South Africa. The course featured two hours of lecture in the mornings, and two hours of practical problem solving and student presentations in the afternoons. The

course was part of the Honours program, which accepts only students who obtained a 1st in their undergraduate General Oceanography degree. Ten students took the class for credit and another three or four PhD students audited the class.



Jacob Larsen was sent as a SCOR Visiting Scholar to Namibia in April, to teach a course on identification of harmful algal bloom species. The course was of such great interest that the Benguela Current Commission decided to co-sponsor the activity and the course was offered as an IOC certificate course. The course involved students and scientists from the University of Namibia and the Namibian National Marine Information and Research Centre.

Alice Newton will travel to Morocco next month to work at the Universite Mohammed V-Agdal in Rabat. Prof. Newton will lecture to Master's degree students and participate in a field trip, will provide a conference about the Bologna process for faculty members at the university, will serve as a member of a Master's degree examination panel, and will work with local scientists on a paper on the Maghrebian coastal lagoons.

Pauline Ross will serve as a SCOR Visiting Scholar in Thailand in late June-early July. She will conduct a workshop at the Prince of Songkla University on experimental design, analysis and communication, emphasizing climate change and marine environments. Dr. Ross will spend additional time after the workshop working with students and staff at the university.

Geoff Millward served in Thailand from 21 January to 5 February. He worked with colleagues in the Marine Resources and Environmental Sciences Sections at Walailak University in southern Thailand to identify and plan joint research initiatives on chemical contamination of coastal areas, and also met with government officials regarding Thai participation in SCOR.

Ocean Carbon Activities

The International Ocean Carbon Coordination Project (IOCCP; with IOC) continues to assist the international community of ocean carbon and carbon-related biogeochemistry scientists to coordinate observations,

data archiving and analysis, and inter-comparisons. IOCCP activities range across all aspects of ocean carbon observations, from the surface ocean into the ocean interior, time-series and underway measurements, and ocean acidification. The IOCCP-related Surface Ocean CO₂ Atlas (SOCAT) group is nearing completion of the second version of the SOCAT dataset, which will be 50% larger than the first version. IOCCP is also co-sponsoring the production of the second version of the Global Ocean Data Analysis Product (GLODAP). IOCCP co-sponsored "A Global Intercomparability in a Changing Ocean: An International Time-Series Methods Workshop" in November 2012 in Bermuda. The workshop focused specifically on the methods employed by each time series, with the aim of enhancing data comparability among sites. IOCCP is working closely with the Global Ocean Observing System (GOOS) Steering Committee to develop a strategy for implementation of the Framework for Ocean Observing (FOO). IOCCP will lead the development of the biogeochemical "essential ocean variables" for GOOS - FOO.

Large-Scale Ocean Research Projects

GEOHAB (with IOC)—The Global Ecology and Oceanography of Harmful Algal Blooms (GEOHAB) project will hold its final open science meeting on 24-26 April. The purpose of the meeting will be to assess the successes achieved by GEOHAB since its first open science meeting in 1998, and to articulate the important work that will remain after the GEOHAB project ends at the end of 2013.

GEOTRACES—The GEOTRACES project sponsored a workshop on international particulate intercalibration for GEOTRACES in Honolulu, Hawaii, USA on 24-25 March. One outcome of the meeting is that the group is organizing an international intercalibration effort for total digests of trace elements in suspended marine particulates, based on samples collected in the Mediterranean Sea on an upcoming Dutch GEOTRACES cruise. The Indian GEOTRACES program is at sea now for studies in the Bay of Bengal and the Indian Ocean.

IMBER (with IGBP)—The Integrated Marine Biogeochemistry and Ecosystem Research (IMBER) project held its third IMBIZO open science meeting in Goa, India on 28-31 January, with a focus on '*The future of marine biogeochemistry, ecosystems and societies - Multi-dimensional approaches to the challenges of global change in continental margins and open ocean systems.*' IMBIZO III brought together about 120 researchers from 29 countries and from the natural and social sciences to address three overarching questions through three concurrent workshops:

1. How do biogeochemistry and ecosystems interact in response to natural or human-induced forcing in continental margins and how can such

knowledge forge better management of the margins?

2. How may current understanding of deep ocean processes translate to better assessment and stewardship of fundamental ecological services that deep oceans provide?
3. How can natural and social scientists optimize their cooperation to achieve usable and integrated knowledge and understanding to support policy making and form viable feedback loops between natural systems and human society?

Joint plenary and poster sessions provided venues for exchange of ideas and information among the three workshops. Syntheses of the ideas and concepts presented and new scientific discoveries reported at the meeting will be published in special issues of peer-reviewed journals.

As with previous IMBIZOs, the IMBER Data Management Committee organised an IMBER '**Data management training course and workshop**' the day before the start of IMBIZO III. This one-day workshop introduced to about 50 participants, including local students and scientists, good data management practices highlighting specific recommendations included in the IMBER Data Management Cookbook. The objectives of this workshop were to enhance awareness of the need to establish data management procedures early in the research process, to highlight the advantages arising when such procedures are followed, and to provide real-world examples of these data management procedures as implemented in IMBER research projects. An additional goal was to cover recommendations specific to management of social science data, and to identify any gaps that might exist in the data management needs of IMBER research projects. A revision/addendum is now under consideration for the Cookbook in order to take into account new types of data, from -omics to social sciences in the field of marine research.

SOLAS (with IGBP, WCRP, and iCACGP)—The Surface Ocean – Lower Atmosphere Study (SOLAS) continues to implement its mid-term strategy components. SOLAS scientists recently published an article about its mid-term strategy:

Law, C.S., E. Brevière, G. de Leeuw, V. Garçon, C. Guieu, D.J. Kieber, S. Konradowitz, A. Paulmier, P.K. Quinn, E.S. Saltzman, J. Stefels, and R. von Glasow. 2013. Evolving research directions in Surface Ocean – Lower Atmosphere (SOLAS) science. *Environmental Chemistry* 10:1-16.

One of these components relates to eastern boundary current systems and SOLAS led a workshop on 26-27 November 2012 in Lima Peru on "Air-Sea Gas Fluxes at

Eastern Boundary Upwelling and Oxygen Minimum Zone (OMZ) Systems."

Publications

SCOR co-sponsored two Fast-Track Initiatives with IGBP, both of which have recent publications related to their work.

Moore, C.M., M.M. Mills, K.R. Arrigo, I. Berman-Frank, L. Bopp, P.W. Boyd, E.D. Galbraith, R.J. Geider, C. Guieu, S.L. Jaccard, T.D. Jickells, J. La Roche, T.M. Lenton, N.M. Mahowald, E. Marañón, I. Marinov, J. K. Moore, T. Nakatsuka, A. Oschlies, M.A. Saito, T.F. Thingstad, A. Tsuda, and O. Ulloa. 2013. Processes and patterns of oceanic nutrient limitation. *Nature Geoscience* doi:10.1038/ngeo1765

von Glasow, R. et al. 2013. Megacities and Large Urban Agglomerations in the Coastal Zone: Interactions Between Atmosphere, Land, and Marine Ecosystems", *AMBIO* 42:13–28 DOI 10.1007/s13280-012-0343-9.

SCOR WG 131 published a paper in *Oceanography* magazine to announce the availability of its database from iron enrichment experiments in the ocean:

Boyd, P.W., D.C.E. Bakker, and C. Chandler. 2012. A new database to explore the findings from large-scale ocean iron enrichment experiments. *Oceanography* 25(4):64–71 <http://dx.doi.org/10.5670/oceanog.2012.104>.

One of the products from the Third Symposium on The Ocean in a High-CO₂ World is a special issue of the open-access journal *Biogeosciences*. The submission period has just closed and more than 30 papers were submitted. The first paper has been published online and others will be added at http://www.biogeosciences.net/special_issue129.html as they complete the review process.

Although SCOR/IAPSO WG 127 on Thermodynamics and Equation of State of Seawater has been disbanded, two additional papers have been published, based on the group's work

McDougall, T.J., D.R. Jackett, F.J. Millero, R. Pawlowicz, and P.M. Barker. 2012. A global algorithm for estimating Absolute Salinity. *Ocean Science* 8:1123-1134

Pawlowicz, R., and R. Feistel. 2012. Limnological Applications of the Thermodynamic Equation of Seawater 2010 (TEOS-10), *Limnology and Oceanography:Methods* 10:853-867.

Data Publication Project

The project on data publication being conducted by SCOR, IODE, and the MBLWHOI Library has recently published a "Cookbook" on setting up data publication systems: <http://www.iode.org/mg64>. It is hoped that this document will provide a guide for data centers and libraries to become involved in data publication.

ICSU Grant

SCOR, the Scientific Committee on Antarctic Research (SCAR), and the IMBER project have been awarded funds from the annual International Council for Science (ICSU) grants program. The project is entitled "Identifying Ecosystem Essential Ocean Variables for measuring changes in marine ecosystems." The Southern Ocean Observing System (SOOS) will be providing staffing support for the activity. The project arose because of the SOOS project's need to identify biological and ecological variables for the Southern Ocean. At the same time, GOOS is embarking on a similar exercise for the global ocean, so there is an opportunity for joint activity that will meet the goals of both SOOS and GOOS.

News from National SCOR Committees

In the United Kingdom, scientists from the Marine Biological Association (MBA), Plymouth Marine Laboratory (PML), the Sir Alister Hardy Foundation for Ocean Science (SAHFOS) and the University of Plymouth (UoP) met on 26 March to celebrate Plymouth's contributions to SCOR. This was a half-day meeting to learn about SCOR and to advise others on what SCOR does. Peter Burkill (UoP) outlined the functions of SCOR. This was followed by presentations on the SCOR large-scale programmes. Tom Bell (PML) spoke about SOLAS, Carol Turley (PML) described recent developments in IMBER, while Stefano Ciavatta (PML) discussed what is new in GEOHAB. After a short break, those involved in various SCOR working groups spoke about their experiences. Declan Schroeder (MBA) described how viruses shape our world (WG 126); Phil Culverhouse (UoP) spoke on advances in automatic visual plankton identification (WG 130); Abigail McQuatters-Gollop (SAHFOS) outlined patterns of phytoplankton dynamics in coastal ecosystems (WG 137); Michael Cunliffe (MBA) related the work to be done in sea surface microlayers (WG 141 approved in 2012). Nick Owens (SAHFOS) summarised the role the UK has played in SCOR since its inception in 1957. The closing session focussed on other aspects of SCOR, including Geoff Millward (UoP) work on capacity building and Maeve Lohan (UoP) involvement in GEOTRACES. Delegates continued discussions over a convivial buffet luncheon. The meeting was hosted by Stephen de Mora, CEO of PML. The meeting was attended by 50 scientists, who agreed it had been most worthwhile event. Contributed by Peter Burkill

SCOR Annual Meetings

2013—The 2013 SCOR Executive Committee meeting will be held on 25-28 November in Wellington, New Zealand at the headquarters of the Royal Society of New Zealand. The meeting will feature one day of presentations from the New Zealand oceanography community about its research activities. Information will be available at the meeting Web site at <http://scor-int.org/2013EC/2013EC.htm>.

2014—SCOR will hold its 2014 General Meeting in Bremen, Germany.

2015—SCOR will hold its 2015 Executive Committee Meeting in Goa, India.

2016—SCOR will hold its 2016 General Meeting in Sopot, Poland.

For additional information about SCOR activities, please see the SCOR Web site: <http://www.scor-int.org>. To reach Secretariat staff, please send an email to Ed Urban (Ed.Urban@scor-int.org).

Acronyms:

CACGP	Commission on Atmospheric Chemistry and Global Pollution
FOO	Framework for Ocean Observing
GEOHAB	Global Ecology and Oceanography of Harmful Algal Blooms project
GLODAP	Global Ocean Data Analysis Product
GOOS	Global Ocean Observing System
iCACGP	International Commission on Atmospheric Chemistry and Global Pollution
IAPSO	International Association for the Physical Sciences of the Oceans
ICSU	International Council for Science
IGBP	International Geosphere-Biosphere Programme
IMBER	Integrated Marine Biogeochemistry and Ecosystem Research project (co-sponsored by SCOR and IGBP)
IOC	Intergovernmental Oceanographic Commission
IOCCP	International Ocean Carbon Coordination Project
IODE	International Oceanographic Data and Information Exchange (IOC/UNESCO)
MBA	Marine Biological Association (UK)
PML	Plymouth Marine Laboratory
SAHFOS	Sir Alister Hardy Foundation for Ocean Science
SCAR	Scientific Committee on Antarctic Research
SCOR	Scientific Committee on Oceanic Research
SOCAT	Surface Ocean CO ₂ Atlas
SOLAS	Surface Ocean – Lower Atmosphere Study (Co-sponsored by SCOR, IGBP, WCRP, and CACGP)
SOOS	Southern Ocean Observing System
UoP	University of Plymouth
WCRP	World Climate Research Programme
WG	working group