

1.0 OPENING

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1.1 Opening Remarks and Administrative Arrangements

Fennel, Urban

1.1.1 Memorials for Scientists Involved With SCOR

Tuesday, October 19, 2010

Obituary Notice:

Pearn Peter Niiler, a distinguished emeritus professor of physical oceanography at Scripps Institution of Oceanography, UC San Diego, died of a heart attack in San Diego, Calif., on Oct. 15, 2010. He was one of the world's leading authorities on ocean circulation.

For the past 40 years, Niiler's work has helped shape how scientists study the ocean. His early understanding of the linkage between ocean circulation and the world's climate served as a catalyst for improved global ocean observations. He conceived and designed the Global Drifter Program, which in 2005 became the first fully completed component of the Global Ocean Observing System. At the time of his death, Niiler was deploying drifters in front of tropical storms and typhoons to further the knowledge of the interaction of the ocean with these deadly weather systems.

"Peter had the rare gift of inspiring people around him and to bring out the positive part of their character. He was enthusiastic, tenacious and was driven by a genuine interest in understanding the dynamics of the ocean. He was an exceptionally skilled engineer and was able to spin-up amazingly fruitful oceanographic experiments. He was uncommonly generous with his ingenious insights and ideas and guided his colleagues to investigate new creative ways of solving scientific problems. I feel privileged and fortunate to have worked with him for all these years," said Luca Centurioni, a Scripps physical oceanographer.

"Peter could always be counted on to bring vision, creativity, and scientific depth to studies of the coupling of the atmosphere and ocean and to provide innovation in measurements of the upper ocean," said Theresa Paluszkiwicz, of the U.S. Office of Naval Research. "He brought tremendous enthusiasm and joy to tackling new problems, and to designing ever-more daring experiments. His generous spirit in communicating his understanding of ocean dynamics touched many across the globe." Niiler spent decades designing ocean instruments for directly measuring ocean circulation and using them in increasingly comprehensive observations to learn the ocean's dynamics. Motivated by a growing interest in the role that ocean-atmosphere interactions have in shaping climate, Niiler became a world expert in the upper "mixed layer" of the ocean that interacts most directly with the atmosphere.

When Niiler arrived at Scripps in 1982, surface temperature readings and circulation patterns were a mystery in large parts of the world, especially in the Southern Ocean. Niiler's vision was that such information gaps could only be filled with a completely new global ocean observing

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system.

"A large part of the world simply could not be sampled," he said in a 2005 interview, "because most of the world's ships don't go there. We needed a new way."

To do this, Niiler and his colleagues met in Boulder, Colo. in 1982 to design new ocean instruments. This led to the creation of the Global Drifter Program, which maintains 1,250 drifting buoys throughout the world's oceans. To date, more than 350 scientific papers have relied on data from these drifters. Atmospheric pressure data from the drifters are an important element for accurate weather forecasts and are used by meteorological agencies worldwide.

"He wanted to replace the fanciful sketches drawn in the texts of the day with quantitative measurements," said research oceanographer Russ Davis, a longtime colleague of Niiler's at Scripps. "Peter constantly encouraged collaborators and students to go beyond the day's scientific trend to see the whole picture and understand from the fundamentals."

Niiler's deployment of sophisticated technologies confirmed a 60-year-old ocean circulation theory known as the Sverdrup balance. Niiler predicted the existence of the "Great North Pacific Garbage Patch," a massive zone of floating debris. He detected the presence of an even larger debris accumulation site in the southern Pacific Ocean and was involved in preliminary planning for a research expedition there at the time of his death.

"Peter's entrepreneurial skills were also a cornerstone of his scientific achievements and those of his collaborators," said oceanographer Ken Melville, also a colleague of Niiler's at Scripps. "Without Peter's development of national and international collaborators, his nurturing of the small companies that mass produced the equipment he used, and his lobbying of and advice to U.S. government and international agencies, the global programs he dreamt of and planned would not have come to fruition. This legacy will continue to contribute to our developing observations and understanding of the ocean and its coupling to the atmosphere."

In the Gulf of Mexico, Niiler's ocean current measurements formed a baseline to understand the regional circulation. His data was used recently to better understand the fate of the oil spilled from the Deepwater Horizon rig. Niiler also served as an advisor to a federal panel investigating the impact of the oil spill.

"Peter was a pioneer in our modern understanding of global ocean circulation," said Lee-Leung Fu, a senior research scientist at Jet Propulsion Laboratory, Pasadena, Calif. "In my mind, Peter's work in collaboration with Nikolai Maximenko and Jim McWilliams based on his drifter observations adjusted by satellite altimetry has provided definitive and detailed knowledge of the global ocean surface dynamic topography, a cornerstone of the achievement in modern

oceanography. I always admired Peter's deep insight in ocean dynamics and ingenuity in observational development and analysis. Peter had been a constant source of mine for stimulating interactions and inspiring advices since the beginning of my career."

Peter's son Eric Niiler, a science writer and radio journalist, described his father's other interests. Peter Niiler had a passion for architecture and designed numerous homes and several buildings. He played a leading role in creating the distinctive design of the W.M. Keck Foundation Center for Ocean Atmosphere Research, in which his office was housed. He was a painter, a gourmet chef, and an aficionado of wine and travel.

"He was a real Renaissance man of the kind that you don't see anymore," said Eric Niiler.

Davis recalled Niiler's passionate patronage of the arts and his love of basketball. Born in Tartu, Estonia in 1937, Niiler moved with his family to western Pennsylvania at the age of 12. He studied engineering and earned a bachelor's of science degree from Lehigh University and a Ph.D. from Brown University. After completing a Fulbright fellowship at Cambridge University and postdoctoral fellowship at Harvard, Niiler joined Nova University in 1966. There he studied the Florida Current and the Gulf Stream in a small laboratory aboard a houseboat. He did so at the urging of Henry Stommel, a pioneer in the study of ocean circulation. He moved to Oregon State University in 1974 and joined the Scripps Institution of Oceanography as a professor in 1982.

Niiler was named a Fellow of the American Geophysical Union in 1986. He was a Distinguished visiting Scientist at the Jet Propulsion Laboratory from 1979 to present and was a NATO Visiting Science Fellow in 1980, a Woodrow Wilson Fellow in 1961 and a Fulbright Scholar in 1960.

Niiler was a member of WG 8 on Calibration of Drifting Buoys and a member of the TOGA panel of the Committee on Climate Changes and the Oceans (CCCO).

Professor Johann Lutjeharms

We are sad to announce that Professor Johan Lutjeharms, one of Southern Africa's leading marine scientists and foremost authority on the Agulhas Current, died on Wednesday, 8 June 2011, after a 10-year battle with cancer. He died during the last hour of World Oceans Day at the age of 67.

Tributes to this remarkable researcher have been coming to the University of Cape Town from all over the world. He is remembered and honoured for his extraordinary academic passion, his prodigious contributions to peer-reviewed scientific literature, the scores of international awards and other honours he received, as well as for the support he provided to young researchers and students. He served as a visiting academic in many universities around the world, thus building the

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international reputation of African marine science and the oceans around this continent. Since 1998 he was an “A” rated researcher of the South African National Research Foundation, identifying him as an internationally recognised leader in his field.

On 27 April this year President Jacob Zuma presented Professor Lutjeharms with South Africa’s highest honour, the Order of Mapungubwe (Silver), for his “excellent contribution to and achievements in oceanographic science”. This award is made to South Africans who have “accomplished excellence and exceptional achievement to the benefit of South Africa and beyond” – an excellent summary of Professor Lutjeharms’ career.

In 2008, the National Science and Technology Forum honoured Professor Lutjeharms with its Individual Over a Lifetime award. He also received multiple honours from UCT. In 1992 the university awarded him the DSc degree, its most prestigious degree. He also received the Faculty of Science Research Award. This university has three main forms of recognition for its academic staff: Fellowship, the Distinguished Teachers Award and its Book Prize/Meritorious Publication Award. Professor Lutjeharms was one of only three academics who received all three.

Internationally he served on working groups of the Scientific Committee for Oceanic Research (SCOR), the International Union of Conservation of Nature and Natural Resources, and the International Association for the Physical Sciences of the Ocean. He was one of South Africa’s designated representatives to SCOR. He was a member of the South African National Committee for Oceanographic Research and various other national working groups on environmental sciences. He was also the Expert Consultant in oceanography for the *Woordeboek van die Afrikaanse Taal*.

Professor Lutjeharms completed his undergraduate studies in physics. In 1971 received his MSc (*cum laude*) in oceanography at the University of Cape Town. He was awarded the Harry Crossley Bursary, the Fisheries Development Corporation postgraduate overseas bursary and the CSIR overseas bursary to study for a PhD at the University of Washington, where he graduated in 1977. He then joined the National Research Institute for Oceanology of the South African CSIR, where he held the position of Chief Specialist Researcher. He was appointed to the Chair of Ocean Climatology at UCT in 1990. In 1993 he became the founding Director of UCT’s Centre for Marine Studies.

Professor Lutjeharms’ main field of investigation was in establishing, quantifying and understanding the large-scale circulation patterns of the oceans adjacent to southern Africa and their influence on weather and climate. To this end he maintained an active research team and supervised numerous postgraduate research projects. He participated personally in 17 research cruises and was responsible for a further 48 projects undertaken on such cruises.

Professor Lutjeharms was the most published author in the *South African Journal of Science* during its 104-year history. He produced eight books, 32 contributions to books, 177 papers in peer-reviewed international journals, 117 reviews and popular articles, 46 research and technical reports

and 14 contract reports. His articles in prestigious journals included two in *Science* and five in *Nature*. He was the author of the authoritative and much acclaimed book *The Agulhas Current*, published by Springer in 2006. According to the Institute of Scientific Information, his papers have been cited more than 5,400 times in the scientific literature to date.

He was a Council member and Vice-President of the Royal Society of South Africa, a member of the Faculty Council for Science in the *Suid-Afrikaanse Akademie vir Wetenskap en Kuns*, and a member of the Academy of Science of South Africa. He was on the Council of the South African Society for Atmospheric Sciences since its inception and in 2006 was made an Honorary Member.

Lutjeharms was a member of SCOR/WCRP/IAPSO WG 136 on Climatic Importance of the Greater Agulhas System, and a participant in SCOR capacity building activities.

1.2 Approval of the Agenda (see Tab 0)

Fennel

The agenda can be rearranged at the meeting to accommodate the schedules of presenters and to add items to it.

1.3 Report of the SCOR President

Fennel

The SCOR President will present a report at the meeting that describes his activities on behalf of SCOR since the 2010 SCOR General Meeting in Toulouse.

1.4 Report of SCOR Executive Director

Urban

I noted last year that it had been a good year for publications from SCOR activities and the same is true this year (see list in Tab 8). I am especially pleased that more of our publications are appearing in open-access sources. We would like to avoid the high costs to users of our publications, such as for one SCOR WG product from 2001 (see <http://www.wiley.com/WileyCDA/WileyTitle/productCd-0471490687.html>). SCOR finances are still stable, although we have to be very careful to make sure we keep our overall spending within budget. We have begun a staff transition, with Elizabeth Gross retiring from her regular SCOR duties by the end of 2012.

Finances—The dues from all 35 nations that participate in SCOR are used to fund the management of SCOR, the Secretariat, an annual meeting of the Executive Committee, representation at the meetings of other organizations, and some working groups and joint meetings with our partner organizations. Most of the funding for SCOR projects is provided through grants from agencies and foundations, and co-funding of some SCOR projects by other organizations.

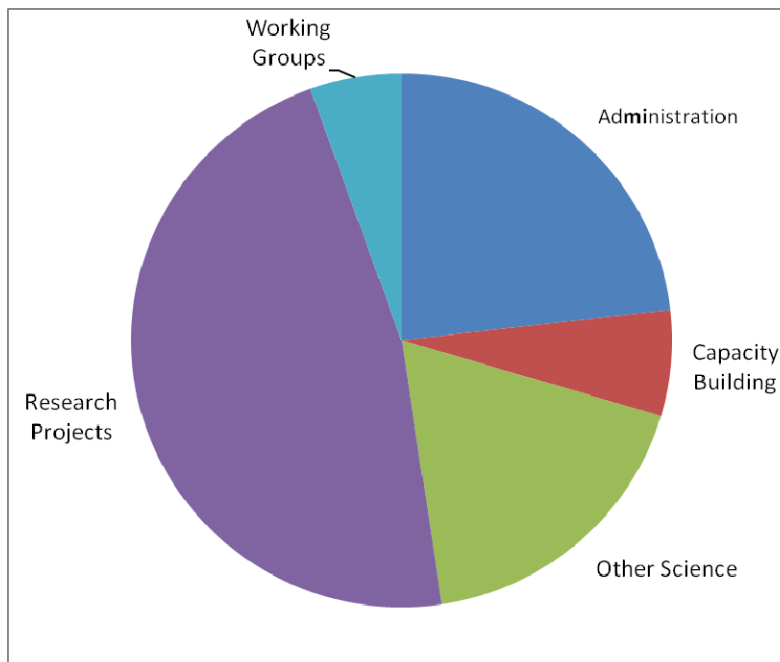
Special funding is provided for our research projects from agencies and institutions in the United States, France, the United Kingdom, Germany, India, Japan, and Spain, and from co-sponsorship by

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our international partners: the International Geosphere–Biosphere Program (IGBP), the Intergovernmental Oceanographic Commission, and the World Climate Research Programme. We appreciate this support, without which we could not maintain international project offices and scientific steering committees that carry out the important work of international ocean research planning and coordination. We need more national partners for these activities, as most of our projects do not have enough funding to carry out all the activities they have planned in a timely manner.

Funding for SCOR working groups comes from SCOR dues, funding from the U.S. National Science Foundation, partner organizations that co-sponsor the groups (current examples include the International Association for the Physical Sciences of the Ocean, the Land-Ocean Interactions in the Coastal Zone project, the InterRidge Project, and IGBP). In the past few years, a new national partner has emerged in the funding of working groups: Chinese institutions have co-funded two SCOR working groups. We would like to see other national committees stimulate national and/or institutional commitments in SCOR working groups.

It is possible to get some insight into the priorities of an organization and its sponsors by looking at how it spends its funds. The pie chart below gives the breakdown for SCOR’s 2010 expenses. Some obvious features of this chart are that SCOR spends a large percentage of its funds on the research projects it sponsors; all of this funding comes from grants to SCOR. Working groups, other science activities, and capacity building also receive significant support from SCOR. A bit less than 25% of spending is for administration, the expenses of operating the SCOR Secretariat and conducting the annual SCOR meeting.



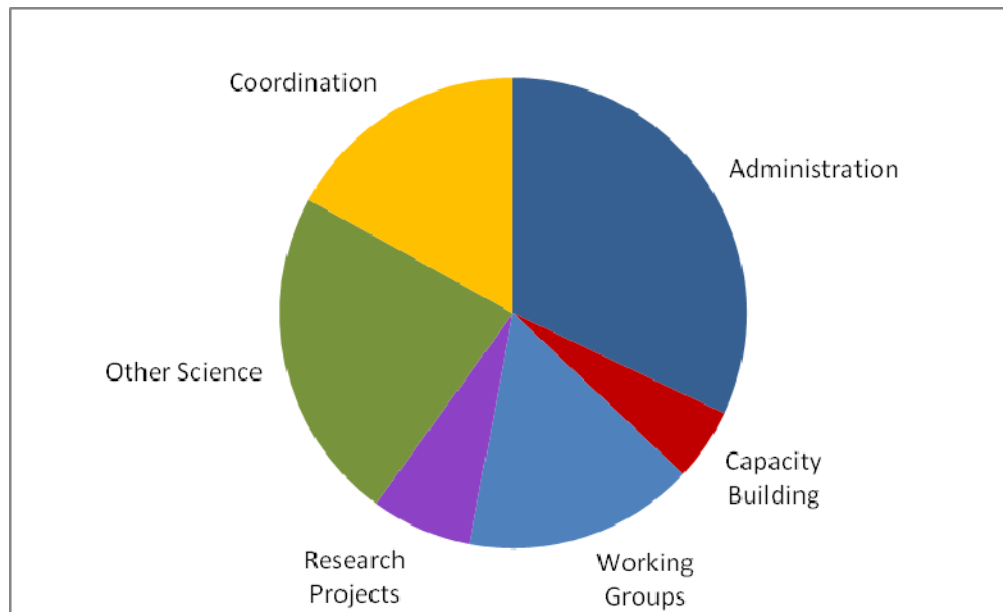
How can SCOR keep its finances in good shape?

1. Maintain high scientific quality of all of SCOR's activities. SCOR's reputation internationally is built on high-quality work on important issues. Maintaining our good reputation is our first priority.
2. Focus finances, and volunteer and staff efforts, on activities in which SCOR has strengths and avoid spending our limited resources on activities that are not SCOR strengths. At the same time, we need to continue to be responsive to new scientific priorities identified by the international ocean science community.
3. Diversify SCOR's income, particularly new national funding for SCOR activities. We do our best to spend these funds provided by SCOR nations carefully, have the minimum Secretariat staff needed, and utilize volunteer effort much more than do many other international organizations. Still, conduct of our large-scale research projects, working groups, capacity building, and other activities, depend on national contributions beyond dues.
4. The continued scientific achievements and financial health of SCOR depend on continued strong participation by national SCOR committees. Participation of national committees in international SCOR activities contributes significantly to SCOR's effectiveness and its visibility in the nations that participate in SCOR. SCOR needs the assistance of national SCOR committees to develop more funding from national funding agencies for specific activities.

I have spent considerable time over the past several years developing new quarterly financial reports for the SCOR Executive Committee and written procedure documents for the SCOR Secretariat. These activities have been stimulated primarily by new requirements from the U.S. government for non-profit organizations, but they will benefit SCOR in the long term by increasing involvement of the SCOR Executive Committee in SCOR finances between annual meetings, making SCOR procedures more transparent, and making the eventual transition to the next Executive Director easier.

Another view of an organization's priorities can be obtained by viewing how time is spent at its annual meetings. The following pie chart shows the breakdown for the 2010 SCOR meeting, which is typical for an annual SCOR meeting. The most striking feature is that "Coordination" is a major portion of the time. This accounts for the parts of the meetings in which our partner organizations share with SCOR meeting participants about their current activities that are most relevant to SCOR. We see cooperation with other organizations as an important way to leverage our small budget in areas where we share interests with other organizations. SCOR is unusual in offering such a large percentage of its meeting time to its partners; we do this because our partnerships are very important to SCOR.

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Administration is an important portion of the time spent at the annual meeting, as the meetings offer the chance for national SCOR committees to have input to how SCOR operates, how we use national contributions, etc. We devote a significant amount of time to working groups in our annual meetings, particularly for evaluating working group proposals and selecting new groups, because SCOR working groups keep SCOR on the cutting edge of ocean science. It may be surprising that research projects are allocated such a small percentage of the time in annual meetings, but this results because the projects have their own management structures (scientific steering committees and international project offices) and their role in the annual meetings is primarily to keep SCOR member nations updated about the progress of the projects. We avoid micromanaging the research projects, but we do maintain adequate oversight of the projects to ensure that SCOR funds are used well.

Membership—We have had contact with people in several countries about their potential membership in SCOR, but there are no pending membership requests. We encourage countries participating in SCOR to increase their membership levels over time.

Publications—The SCOR Web site is the major vehicle for providing up-to-date information about SCOR to the international ocean science community and I make changes to the site several times each week, as I receive new information. The site is checked for “dead links” monthly. As mentioned earlier, SCOR activities yielded a many publications in the primary literature and other venues this year, as noted in Tab 8.

Meetings—Between the 2010 and 2011 SCOR annual meetings, five SCOR working groups met (WGs 132, 134, 136, 137, 138). The Scientific Steering Committees of GEOHAB,

GEOTRACES, GLOBEC, IMBER, and SOLAS also met.

Outreach to Scientists From Developing Nations and Capacity-Building Activities—SCOR is known in the global ocean science community for its capacity-building activities, beginning with the International Indian Ocean Expedition in the early 1960s. Most of these activities are funded from U.S. sources, with a small amount of funding from SCOR dues also contributing. The SCOR Committee on Capacity Building has hosted two meetings in the past year of other international organizations to discuss how we can bring together complementary activities to promote capacity building in ocean sciences worldwide. More details about SCOR's capacity building activities are given in Tab 5.

SCOR promotes the improvement of scientific capacity in developing countries and countries with economies in transition by ensuring that every SCOR working group and other activity includes scientists from such countries. In my opinion, this is SCOR's most significant approach to capacity building. In 2006, SCOR approved a SCOR Committee on Capacity Building, which draws together the set of individual capacity-building activities of SCOR into a coherent program. The membership of the committee was modified recently to create a stronger link between the committee and the SCOR Executive Committee.

Service to International Ocean Research Projects—SCOR helps individual projects in many different ways, including providing funds from the National Science Foundation and other sources, providing travel support for developing country scientists and scientists from countries with economies in transition to special events of the projects, providing IPO-type support at the beginning of projects, providing access to the Conference Manager software for management of open science meetings, and leasing the GoToMeeting system for the projects.

Partnerships With Other Organizations—Maintaining existing partnerships and developing new ones depends on SCOR having the ability to commit funding to joint activities and to send representatives to partners' meetings. We have strong partnerships with IAPSO, IGBP, IOC, PICES, POGO, and SCAR. This year, I represented SCOR at the IGBP-SC meeting in the United States, and Wolfgang Fennel and I represented SCOR at the IOC General Assembly.

Staffing—Lora Carter, our Financial Assistant, has continued her work on reimbursements and general administrative support (this encompasses more activities than I can list here!). She is assuming greater responsibilities as time passes and her hours have been increased. Elizabeth Gross continues to handle many different financial aspects of SCOR, including working with our auditor on the annual audit and reimbursements from sponsoring agencies and organizations, and managing our use of the Conference Manager software that we lease. Liz has requested that she finally be able to retire from SCOR duties, so Lora and I are taking on new responsibilities as Liz winds down her work between now and the 2012 SCOR General Meeting. Liz will still be available to SCOR projects and others to help with meeting logistics.

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I continue to manage all SCOR Secretariat activities and oversee the finances of SCOR activities, work on new project development/serve as a partial Executive Officer for one project (GEOHAB), pursue new funding for SCOR activities, represent SCOR at various meetings, help edit various publications. and work on the SCOR Web site and publications. I was particularly active this year on our data publication activity with IOC's International Oceanographic Data and Information Exchange (IODE), preparations for the 2012 Symposium on The Ocean in a High-CO₂ World and the International Quiet Ocean Experiment (IQOE) Open Science Meeting, and preparation of the Southern Ocean Observing System Initial Science and Implementation Strategy. I co-authored two documents that will be published this year:

- Boyd, I., G. Frisk , E. Urban, P. Tyack, J. Ausubel, S. Seeyave, D. Cato, B. Southall, M. Weise, R. Andrew, T. Akamatsu, R. Dekeling, C. Erbe, D. Farmer, R. Gentry, T. Gross , A. Hawkins , F. Li , K. Metcalf, J.H. Miller, D. Moretti, C. Rodrigo, and T. Shinke. 2011. An International Quiet Ocean Experiment. *Oceanography* 24(2):174–181, doi:10.5670/oceanog.2011.37.
- Rintoul, S.R., M.D. Sparrow, M.P. Meredith, V. Wadley, K. Speer, E. Hofmann, C. Summerhayes, E. Urban, and R. Bellerby (eds.). 2011. *The Southern Ocean Observing System: Initial Science and Implementation Strategy*. Scientific Committee on Antarctic Research and Scientific Committee on Oceanic Research.

1.5 Appointment of an *ad hoc* Finance Committee

Fennel

The Executive Committee will appoint the 2011 Ad Hoc SCOR Finance Committee before the meeting, so the committee members can receive and review SCOR financial information in advance. Participation on the Finance Committee is limited to Nominated Members who are attending the meeting, but who are not members of the SCOR Executive Committee. This ensures that a group independent from the Executive Committee and SCOR Secretariat staff can make recommendations to the Executive Committee about SCOR finances.

1.6 2012 Elections for SCOR Officers

Sundby

The election process new SCOR officers will begin after the 2011 Executive Committee meeting. The offices that will be open for nominations include SCOR President and all three Vice-Presidents. All three Vice Presidents are eligible for re-election.

The schedule for the election process follows.

Procedures for the Nomination and Election of SCOR Officers

1. A call for nominations from national committees and affiliated organizations must be issued more than 6 months before the General Meeting (by **22 April 2012**). Nominations

should include a suggestion of the position for which the candidate is being proposed, and a brief *curriculum vitae*. Candidates proposed must be Nominated Members of SCOR (see Constitution 8a). National committees may propose candidates from their own or any other member country.

2. A Nominating Committee of three SCOR members will be appointed by the Executive Committee meeting prior to each General Meeting at which an election will take place. The Nominating Committee will normally include the Past-President as its Chairperson. The role of the Nominating Committee is to provide an Executive Committee for SCOR that is balanced in terms of disciplinary, geographic, and gender distribution.
3. Nominations will not be accepted later than 4 months before the General Meeting (by **22 June 2012**), except as provided for in clause 4.
4. Between 2 and 4 months before the General Meeting (**22 June to 22 August 2012**), the Nominating Committee, after scrutinizing the nominations received, may seek additional nominations for specific positions through direct consultations with national committees and/or affiliated organizations. This process may be needed in order to maintain the appropriate disciplinary, geographic, and gender balance on the Executive Committee.
5. The Nominating Committee will prepare a final slate of candidates, one per position, and will confirm that the members of this slate are willing to serve.
6. Two months before the General Meeting (**22 August 2012**), the Nominating Committee will announce its proposed slate and send it, along with all nominations received, to all voting members of SCOR as defined in Clause 21 of the SCOR Constitution (Nominated Members and Representative Members of Affiliated Organizations). Nominations received as a result of action taken under clause 4 will be identified.
7. Clause 22 of the SCOR Constitution states that when elections are held "only one Nominated Member from each Committee for Oceanic Research shall have a vote. One Representative Member from each Affiliated Organization may also vote."
8. No further nominations will be allowed after the Nominations Committee has announced its slate of candidates.
9. If three or more national committees do not agree with the proposed slate of the Nominations Committee, they may request that a formal election be held and that all nominations received be included on the ballot. Notice of a request must be received not less than 2 weeks before the start of the General Meeting (**8 October 2012**) and the election will be held on the last day of the General Meeting.
10. If no vote is requested, the slate proposed by the Nominating Committee will be declared elected at the end of the General Meeting.

This procedure has been approved by the 24th General Meeting of SCOR (Amsterdam 1998) and may only be modified by a majority decision taken at a General Meeting. The word "gender" was added to items 2 and 4 at the 2008 General Meeting.