

DRAFT

**Report of the Ninth Meeting of the
IAI Scientific Advisory Committee**

*Santiago, Chile
April 14-16, 1998*

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Report of the Ninth Meeting of the Scientific Advisory Committee
April 14-16, 1998 Santiago, Chile

This report is not a chronological record. For completeness, greater clarity, and readability, the IAI Directorate grouped discussions of an agenda item together under the first occurrence of the topic.

1. Agenda

Ninth Meeting of the Scientific Advisory Committee
April 14-15, 1998 Santiago, Chile

April 14, 1998: Morning Session

- 8:30am Opening: Welcome and charge to the Committee
John Stewart, SAC Chair, and Humberto Fuenzalida, Host
- 08:35am Introduction of SAC Members and Participants
Discussion and Approval of the SAC IX Agenda
Discussion and Approval of the SAC VIII Meeting Report
Discussion and Final Approval of the Revised IAI Science Agenda
John Stewart
- 09:00am Opportunities for collaboration between the International Geosphere Biosphere Program (IGBP) and IAI
Will Steffen
Discussion
- 10:00am Coffee Break
- 10:15am Update on Initial Science Program Round III awards
Report on the status of the Initial Science Program Rounds I and II
Update on CRN program
Brad Wilcox, Scientific Officer and Marcella Ohira, Project Officer
Discussion
- 11:15 am Workshops during the past 6 months
- El Niño Workshops, *Armando Rabuffetti, Director*
- Ozone Workshop, *Brad Wilcox*
- 11:30 am Future Workshops
- Industrial Transformation Workshop, *Armando Rabuffetti*
- AMS 1999, *Brad Wilcox*
- Discussion and recommendations
- 11:45am Report on the recommendations of the Communications Task Force
Diana Liverman and Armando Rabuffetti
Discussion
- 12:15pm Lunch

April 14, 1998: Afternoon Session

- 1:15pm Training and Education Activities
Armando Rabuffetti
Discussion
- 1:45pm Update on the Development of New Funding Mechanisms
Armando Rabuffetti
Discussion
- 2:15pm The need for IAI to support smaller projects
Fernando Ortega
Discussion
- 2:45pm Coffee Break
- 3:00pm IAI Science- Where must we go from here?
Jane Lubchenco paper in Science – “A New Social Contract for Science”
development of integrated programs merging social and natural sciences
Discussion lead by *John Stewart*
- 5:30pm Adjourn

April 15, 1998: Morning Session

- 8:30am Scientific forum “Science and Society” or “Climate Variability” focus (June 3rd,
1998, Washington, D.C., USA)
Paul Filmer
Discussion
- 9:00 am Presentation of the Chilean Conicyt
Mauricio Sarrazin, Conicyt President
- 10:00am Coffee Break
- 10:15am Discussion on IAI-IGBP interactions and opportunities
Will Steffen and John Stewart
- 11:15am SAC Elections
John Stewart
- 12:15am Future SAC Meetings: Dates and Sites
John Stewart
- 12:30pm Adjourn and lunch

2. Opening

John Stewart, chair of the SAC, and Humberto Fuenzalida from the University of Chile welcomed all SAC members and additional participants to the ninth meeting of the IAI Scientific Advisory Committee. Humberto Fuenzalida expressed his pleasure to host the ninth meeting of the SAC in Santiago, Chile.

3. Introduction of Participants

SAC members present included Rubén Lara, John Stewart, Fernando Ortega, Carlos Scoppa., Humberto Fuenzalida and Ronald Woodman. Also present were Will Steffen, Executive Director from the International Geosphere Biosphere Programme (IGBP), Paul Filmer from the U.S. National Science Foundation (NSF), and Armando Rabuffetti, Brad Wilcox and Marcella Ohira from the IAI Directorate.

John Stewart introduced and welcomed the new member of the SAC, Ronald Woodman from the Instituto Geofísico del Perú.

The SAC chair conveyed to the participants the unavailability of Luiz Bevilacqua, Otis Brown, and Ernesto Medina, who were unable to attend the meeting. In addition, the SAC was later informed that Diana Liverman, who was planning to attend the meeting, had problems with her connection flights, which hindered her from attending the meeting.

The SAC chair also welcomed Will Steffen, Executive Director from IGBP and thanked Dr. Steffen for his participation in the meeting.

4. Discussion and Approval of the SAC IX Agenda

The SAC approved the agenda of the ninth meeting of the SAC with one modification: in the discussion of the SAC election on April 15th, the SAC will also discuss and recommend to the IAI Directorate a list of institutions, which could become affiliated institutions. The 10th member of the SAC would then be elected from one of IAI's affiliated institutions.

5. Discussion and Approval of the SAC VIII Meeting Report and the Revised IAI Science Agenda

The SAC members agreed to review the report of the eighth meeting of the SAC on April 14th, and give their comments to the SAC chair by the end of the meeting.

On April 15th the SAC approved the report of the eighth meeting of the SAC with one modification: changes in the definition of theme III of the revised IAI Science Agenda. The wording of the theme III should read:

Changes in the Composition of the Atmosphere, Oceans and Fresh Waters

- High Latitude Processes (Ozone);
- Biogeochemical Cycles;
- Comparative Studies of Regional Air and Water Pollution.

The focus of this theme is on documenting and understanding processes that modify the chemical composition of the atmosphere, inland waters and oceans in a manner that affects productivity and human welfare. Under this theme topics related to the following would be appropriate: (1) changes in ozone and UV radiation, (2) enhancements of forcings due to radiation through emissions of greenhouse gases and aerosols, and (3) air and water pollution.

In an effort to more clearly communicate scientific priorities and to include issues of emerging importance in the global change sciences, the IAI Scientific Advisory Committee revised the IAI Science Agenda. A reorganized Science Agenda was then developed which integrates the 7

themes of the original Science Agenda into a new framework of 4 themes and it also incorporates new issues of increasing importance. The IAI Revised Science Agenda approved by the SAC at its ninth meeting is as follows:

I. UNDERSTANDING CLIMATE VARIABILITY IN THE AMERICAS

- *ENSO and Interannual Climate Variability;*
- *Ocean-Land-Atmosphere Interactions;*
- *Hydrology (Water Resources).*

The focus of this theme is on the documentation of climate variability in the Americas and its links to changes in natural systems and societal impacts. The goals are first to understand the ocean-land-atmosphere interactions and the key processes that cause climatic variability on timescales of seasons to decades (e.g. ENSO, land falling hurricanes, and drought frequency). Secondly, to assess the impacts of these climatic factors on key socioeconomic sectors (e.g. water management, energy availability, agricultural production, fisheries, public health, etc.).

II. COMPARATIVE STUDIES OF ECOSYSTEMS, BIODIVERSITY, LAND USE AND WATER RESOURCES IN THE AMERICAS

- *Tropical Ecosystems and Biogeochemical Cycles;*
- *Biodiversity;*
- *Comparative Studies of Oceanic, Coastal and Estuarine Processes;*
- *Comparative Studies of Terrestrial Ecosystems;*
- *Changes in Land Use, Land Cover, and in Hydrology and Water Resources.*

Climate and land-use changes are interrelated processes that affect the functioning of natural ecosystems and the quality of resources available for human use. The IAI encourages comparative analyses of natural and anthropogenic systems, from the tropics to temperate and cold latitudes, including terrestrial, coastal and oceanic environments, in order to investigate relationships and interactions at regional and global levels, as well as understanding the consequences of global change on these systems. .

III. CHANGES IN THE COMPOSITION OF THE ATMOSPHERE, OCEANS AND FRESH WATERS

- *High Latitude Processes (Ozone);*
- *Biogeochemical Cycles;*
- *Comparative Studies of Regional Air and Water Pollution.*

The focus of this theme is on documenting and understanding processes that modify the chemical composition of the atmosphere, inland waters and oceans in a manner that affects productivity and human welfare. Under this theme topics related to the following would be appropriate: (1) changes in ozone and UV radiation, (2) enhancements of forcings due to radiation through emissions of greenhouse gases and aerosols, and (3) air and water pollution.

IV. INTEGRATED ASSESSMENT, HUMAN DIMENSIONS AND APPLICATIONS

This IAI theme focuses on projects, which integrate across the natural science themes and include a human dimensions component and/or focuses on the application of research to policy. The intent is to (1) advance our understanding related to the human causes and consequences of global change in the Americas (e.g. anthropogenic land-use change and climate impacts); (2) to stimulate the development of applications that enable decision makers to effectively use scientific results. (e.g. ENSO forecast applications, water management, biodiversity conservation and health effects); and (3) to develop integrated models of interactions between environmental change and social systems that can be used to evaluate the state of knowledge or to assist in policy development (agroecosystems, urban environments, energy models).

6. Opportunities for Collaboration Between IGBP and IAI

Will Steffen provided an overview of IGBP activities with special emphasis on how IAI and IGBP could effectively interact in the future. Dr. Steffen has just begun a three-year term as the Executive Director of IGBP. During his tenure, a major thrust of the organization will be to synthesize what has been learned about global change processes since the initiation of IGBP in 1986. He also wants the organization to take more of a regional approach rather than the global approach that was taken in the past. This is one reason that he is so enthusiastic about working closer with IAI. Another change taking place within the IGBP organization is the explicit recognition that humans are an integral and important part of global change processes.

Much of the discussion focused on how IGBP and IAI could work closer in the future. Suggestions forthcoming from these discussions include (1) closer collaboration on ENSO and climate variability issues particularly as related to agriculture. Dr. Steffen urged the IAI Directorate to contact Dr. Peter Gregory, who is leading the IGBP effort on this front; (2) actively promote joint activities between research networks of IAI and IGBP; (3) We are now collaborating on a joint proposal to the GEF for funding of global change impact centers, one of which would be in Buenos Aires, and (4) the idea of promoting a joint workshop between IAI and IGBP was discussed.

7. Current Status of IAI Scientific Programs

I. Update on the Initial Science Program Round III Awards: Brad Wilcox and Marcella Ohira reported on the approval and implementation of the projects under the ISP III program. Sixteen projects were approved by the IAI Executive Council (EC) at its last meeting (November, 1998, Panama City, Panama) following the recommendations of the SAC and panel review. The IAI Directorate was then in charge of renegotiating the approved project budgets and proposed an average reduction of 10% per project to be able to fund all sixteen projects, given the financial resources available for the ISP III. The re-negotiation and budget reductions were on a case by case basis taking into account each project needs and the panel, SAC and EC recommendations for each proposal.

Of the sixteen projects, nine have already completed the process of budget negotiation and have submitted to the IAI Directorate a revised budget and additional necessary paperwork. The remaining seven projects approved are still in the process of submitting the necessary budget revisions and documentation.

The IAI Directorate then elaborated the IAI ISP III Policy Guidelines for the Administration of Research Grants (IAI/ID.2/1998), which was approved by the EC working group on financial and administrative issues. This document has been sent to the Principal Investigators of the projects, which have concluded the process of budget negotiation, and we expect to transfer the financial resources for the initiation of the project activities in the next few weeks for some of the projects. The IAI is negotiating with each PI individually about the transfer of the resources and administration of the project, given some peculiarities and difficulties each PI face due to institutional and national regulations that make it difficult to administer the IAI projects in the region.

Below is a list of the sixteen projects approved with the revised budgets:

Number	Title	Theme	Countries	Principal Investigator	Approved Budget
11	Training and education in the context of the LBA experiment	T&E TEBC OLAIA	Brazil Peru Venezuela	Carlos Nobre	\$100K
18	Effects of species and functional diversity on ecosystem function: A comparison between arctic tundra and a temperate grassland/shrubland system	BIO TTE	Argentina USA Venezuela	Sandra Myrna Diaz	116K
19	The impact of accelerated sea level rise on nutrient cycling and productivity in karst and deltaic ecosystems in the Gulf of Mexico and Caribbean Area: Ecological and Socioeconomic Implications	TEBC OCE	USA Mexico Venezuela	John Day	116K
22	Benefits of incorporating ENSO forecasts into reservoir operation and hydroelectric power distribution procedures	ENSO	USA Panama Costa Rica Colombia	Peter Waylen	116K
29	UNAM/NCAR tutorial on regional weather and climate modeling for South America	T&E ENSO	USA Mexico Costa Rica	Thomas Warner	27K
30	Applications of multiple lead-time predictions in the region of Central America and the Caribbean	ENSO T&E	USA Mexico Costa Rica	Henry Diaz	81K
32	Variations in spatial and temporal precipitation patterns in the trade convergence region	ENSO	Panama, USA Cuba, Mexico Ecuador, Costa Rica Colombia	Maria Donoso	103K
51	Global change effects on biogeochemical and hydrological determinants of structure and function in Serrado ecosystems	TEBC	Brazil USA Argentina	Augusto Cesar Franco	116,200
76	Relationships between the Antarctic vortex dynamics, chemistry, ozone depletion and southern midlatitude stratosphere and upper troposphere	HLP	Argentina Uruguay USA	Pablo Canziani	117K
77	A regional assessment of landuse impact on ecosystem function and structure in temperate areas of North and South America	TTE OLAIA	Argentina USA Uruguay Brazil	José Paruelo	116,200
82	Spawning habitat of small pelagic fish in relation to ENSO and global change	ENSO OCE	USA Mexico Peru Chile	David Checkley	117K
89	An international study on the health effects of ENSO in the Americas	ENSO	Brazil USA Argentina	Ulisses Confalonieri	87,300
130	Earth system science and global change education workshops: building IAI capacity with a science and education network	T&E	USA Brazil Mexico Argentina	Donald Johnson	117K
132*	Comparative assessments of agriculture uses of ENSO-based climate forecasts in Argentina, Mexico and Costa Rica	ENSO	USA Argentina Canada Mexico Costa Rica	Jim Jones	117K
134	Natural and anthropogenic controls on the hydrology and biogeochemistry of meso-scale andean amazon river catchments: integrating Andean systems into basinwide investigations	TEBC	Peru Colombia Brazil Ecuador Bolivia	Carlos Llerena	117K
41	Estimation of ENSO effects on sugar cane yields in several Latin American countries	ENSO	Cuba Brazil Venezuela	Angel Utset Suástegui	35 K

II. Report on the Status of the Initial Science Program Rounds I and II: Brad Wilcox reported on the scientific progress of programs supported under ISP I and II. Factors such as number of students, participation in scientific meetings, and publications were analyzed. Using these criteria it was agreed that on the whole the ISP program has been very productive from a scientific standpoint.

The SAC emphasized the importance of IAI keeping good records of those supported research groups, which do not submit project reports. IAI should make it very clear not to allow for additional funding for those groups. It is useful to get the scientific reports and publications resulting from IAI supported programs for the institution's publicity and dissemination of scientific achievements.

In addition, it was recommended that IAI investigate how many groups were able to leverage resources given IAI's contribution and funding.

III. Collaborative Research Networks (CRN) Program Review: In preparation for the evaluation of the CRN pre-proposals, which immediately followed the SAC meeting, Brad Wilcox briefed the SAC on the status of the CRN program. In all 70 pre-proposals have been received, 23 of which were from start-up teams. Specific instructions were given as to how proposals were to be reviewed and evaluated.

8. Workshops In the Past Six Months and Collaboration with Other Institutions

I. El Niño Workshops: Armando Rabuffetti reported on the development of three recent regional ENSO workshops, which were held and co-sponsored with NOAA/Office of Global Programs, The World Meteorological Organization (WMO) and the International Research Institute for Climate Prediction (IRI).

A series of three workshops were held, which included a climate outlook forum, a workshop to design regional pilot applications projects, and a conference on the 1997-98 El Niño and its impacts and potential applications of climate forecast information. These 3-day meetings were held from October 1997 to January 1998 for the following regions: Pacific South America (Lima, Peru); southeast South America (Montevideo, Uruguay); and northeast South America (Fortaleza, Brazil). In addition, climate outlook meetings are planned for May 1998: 1) the Mesoamericas; and 2) the Caribbean. During the climate outlook meetings held from October 1997-January 1998, climate scientists from regional universities and institutes, national meteorological services, IRI, WMO, NOAA and IAI worked to formulate a consensus regional precipitation forecast for a given time period. These same participants then joined applications researchers and representatives of the community of potential users of the consensus climate forecast information to develop regional pilot applications projects tailored for climate-sensitive sectors (e.g. health, agriculture, fisheries, disaster management, water resources). On the third day of these meetings, participants from the climate outlook meetings and the applications workshops provided information regarding current and projected conditions and plans to utilize the climate forecast information in climate-sensitive sectors in an experimental mode to representatives of government, industry, media, and the general public.

For each climate outlook meeting, the participants issued a statement explaining the methodology used to formulate the forecast and then provided the forecast itself. The experts provided probability distributions to indicate the likelihood of below-, near-, and above-normal rainfall for each sub-region. Users of these forecasts were strongly advised to contact participating institutions and other climate information sources for interpretation of the Outlook

and for additional guidance. Please find below highlights of the consensus regional precipitation forecasts for Pacific South America, southeast South America, and northeast South America (please see the following web site for the full statements and accompanying maps: <http://iri.ucsd.edu/forecast/sup/>).

According to the Director, the main outputs of these meetings were the networking development opportunities. The workshop allowed scientists and users of climate forecasts in the region to come together and discuss in a regional meeting the climate prediction, forecast, and opportunities for forecast application in important socioeconomic sectors in the countries highly impacted by El Niño and climate variability. Unfortunately, the IAI does not have additional resources to further support these activities.

Will Steffen suggested the possibility for IAI exploring potential collaboration with institutions in Asia and Africa. He informed the IAI that a number of agencies in Australia and Japan have increased their funding resources for ENSO related activities.

The SAC endorsed the IAI initiatives in support of ENSO workshops and strongly encouraged the IAI to continue fostering collaboration between natural (climatologists and meteorologists) and social scientists and the users community. It remains important to make sure that the users community questions are well formulated and comprehensively answered by the science community.

II. Ozone Workshop: A workshop "Understanding Ozone and UV-B Radiation: Past Accomplishments and Future Opportunities" organized under the auspices of the Inter American Institute for Global Change Research (IAI) was held in Buenos Aires, Argentina from March 9-11, 1998. This meeting was designed to bring together scientists from across the Americas to discuss the state of knowledge of measurements of stratospheric and upper tropospheric ozone and the surface flux of ultraviolet radiation over Latin America. A major emphasis of the meeting was to understand the contributions of both ground- and space-based measurements to the study of ozone and UV radiation over Latin America, as well as to better coordinate existing activities. Additionally, meeting organizers hoped to stimulate more ground-based measurements in Latin America. There has historically been little ground-based information on ozone and UV radiation over South America. These ground-based measurements are urgently needed to complement satellite-based collection programs. The workshop was organized by IAI in conjunction with the U.S. National Aeronautics and Space Administration (NASA) with the support of the Secretary of Science and Technology of Argentina. It involved some 130 scientists coming from Argentina, Brazil, Chile, Cuba, Peru, and Uruguay, as well as the U.S., Canada, France, and Switzerland. The meeting included invited presentations from 22 scientists and some 30-poster presentations. The invited presentations were designed to describe both the state-of-our-knowledge related to ozone and UV sciences, as well as to stimulate discussion on what the most pressing needs are in these areas, especially as related to Latin America. The workshop was an important opportunity for exchanging information and forging new collaborative relationships. Workshop participants were optimistic that the momentum generated by the meeting could and indeed must be continued to address the important science and societal issues related to ozone depletion.

III. VAMOS - IAI Collaboration: Dr. Carlos Mechoso from VAMOS has made an offer to help the SAC develop a science plan as related to climate variability. VAMOS (Variability of American Monsoon Systems) is a program with CLIVAR, most interested in better understanding climate variability in the Americas. There is considerable overlap between the interest of IAI and VAMOS and it make good sense to collaborate.

Regarding the IAI-VAMOS collaboration, the SAC recommended that the IAI continue to discuss with representatives from the VAMOS program the opportunities for collaboration. Nevertheless, the IAI must keep in mind its research priorities and make no commitments at this time.

9. Future Workshops

I. Industrial Transformation (IT) Workshop: Armando Rabuffetti reported on the planning and development of a joint IAI-International Human Dimensions Programme (IHDP) workshop on Industrial Transformation. The initial idea of such a workshop started when Diana Liverman and Marcella Ohira attended the 1997 Human Dimensions Open Meeting (June 1997, Laxenburg, Austria) and held preliminary conversations with Dr. Pier Vellinga, chair of the IHDP Industrial Transformation Committee. The IAI then identified a need to further develop this theme, as it is directly related to the changes occurring in the global environment.

The members of the steering committee are:

1. José Goldemberg (Chair) – University of São Paulo
2. Pier Vellinga – IHDP and Institute for Environmental Studies/Amsterdam
3. Peter Mulder – IHDP and Institute for Environmental Studies/Amsterdam
4. Paul Filmer – U.S. NSF
5. Mauricio Tolmasquin – IHDP/Brazil and the Federal University of Rio de Janeiro
6. Armando Rabuffetti – IAI
7. Marcella Ohira – IAI

Workshop goals: the workshop should address both regional and global research questions about the industrial transformation theme to further draw up a global agenda with regional components. Also, the priority areas for research and further work in IT sectors of major importance for Latin America, for example: energy, biotechnology, agribusiness, industrial technology and production processes, etc.

Paul Filmer suggested that IAI include in the workshop agenda the issue of restricting academic use of data and intellectual property rights. How is it related to IT? It seems that the trend now is that all data under copyright law is shifting to contracts, a whole different set of obligation, which will have major impacts for users in the region.

This meeting has been tentatively scheduled for September 14-18, 1998 at the IAI Directorate in São José dos Campos, Brazil. The financial resources and sponsorship for this meeting will most likely come from a number of organizations: IAI, NSF, IHDP, IHDP/Brazil, Institute for Environmental Studies/Amsterdam.

The SAC considered this theme to be of high priority for the IAI and strongly supported the IAI participation in the planning of an Industrial Transformation workshop in the region together with the International Human Dimensions Program (IHDP). One member of the SAC should attend this workshop.

IIAMS 1999: Brad Wilcox presented progress to date on preparations for the IAI science symposium that will be held at the Annual Meeting of the American Society of Meteorology to be held in Dallas in 1999. A full or half-day will be devoted to IAI science at this meeting.

10. Report on the Recommendations of the Communications Task Force

Armando Rabuffetti reported on the advancements of the Communications Task Force. The second meeting of the Communications Task Force was held from March 31-April 1, 1998, in Miami, USA and had the following participation: the EC representative of Cuba (Barbara Garea) as chair, the IAI Director (Armando Rabuffetti) or the IAI Financial Officer (Chris Hill) as alternate, and one representative from each of the following: IAI Newsletter (Carlos Ereño), Scientific Advisory Committee (Diana Liverman), Financial and Administrative Policy Working Group (Vanessa Richardson), the Data Policy and Data Information System (Paul Filmer) Task Force and IAI/GEF Project (Eduardo Banús).

The Director then provided the SAC with an updated on the various communications and dissemination mechanisms that the IAI has accomplished and improved:

Annual Report: the first IAI Annual Report 1996-1997 was recently published. All SAC members received a copy of the report. The IAI asked the SAC for their comments and suggestions for future reports.

Newsletter: the IAI newsletter has been the main mechanism of dissemination of information and publicity. The task force agreed that the newsletter should now change in content and presentation, and contain more scientific articles, including articles from other newsletters, reports from PIs and from workshops. The task force appointed an editorial board, composed of two SAC members, the IAI Director, the Newsletter Editor and an outside scientist. The appointment for the board members would be for one year, and the duties would be to plan the structure of the newsletter, decide on the thematic content of each issue and technical, scientific and institutional reports. The SAC decided that Diana Liverman and Fernando Ortega would represent the SAC in the IAI Newsletter editorial board.

Homepage: The current IAI homepage has been hosted by NSF. The task force agreed that IAI should develop and maintain its own homepage at the Directorate. Brad Wilcox was then charged responsible for the initial development of the IAI homepage at the Directorate. There will also be a Data and Information Systems manager, who will take care of the homepage day to day operations. The IAI has investigated price estimates to develop and set it up. Once it is set up, the IAI will also re-address the hard copies of the newsletter and its distribution. The SAC suggested that the IAI homepage include direct links to other scientific homepages and information about scientific core programs in other organizations and regions.

Brochure: The IAI Directorate plans to have a draft brochure produced as soon as possible. The SAC urged the IAI to publish a short informational brochure.

IAI Agreement (basic documents): The Director informed that published copies of the Agreement that Established the IAI and the Declaration of Montevideo were produced in all four IAI official languages (English, French, Spanish and Portuguese) with in-kind contributions from the Brazilian Instituto Nacional de Pesquisas Espaciais (INPE). These documents will be distributed to all members of the IAI EC, CoP, and SAC.

View-graphs: The IAI has prepared a set of view-graphs to be distributed to all members of the IAI EC, CoP, and SAC. This information should soon be available on the IAI homepage.

11. Training and Education Activities

Summer Training Program: Armando Rabuffetti presented to the SAC a briefing on the IAI Summer Training School at the University of Miami:

1. A group composed of Otis Brown, Luiz Bevilacqua, Rubén Lara, Armando Rabuffetti and Guillermo Podesta met in Miami (October 9, 1997) to discuss various aspects to be considered in preparing a proposal to be presented to funding agencies.
2. The recommendations from this meeting were presented at the eighth meeting of the SAC (October 10-12, 1997). The SAC endorsed the proposed ideas and suggested to the IAI to start this initiative in June of 1999 based on a 3-year plan program.
3. Next, a report was presented by the IAI Director to the IAI Executive Council (EC) at its sixth meeting in Panama (November 19-20, 1997). The EC requested the IAI Director to present at its next meeting an implementation strategy including a plan for funding the Summer Training School. The EC authorized the Director to proceed with further planning of the course.
4. In February of 1998, this initiative was discussed with Robert Corell and Paul Filmer and it was agreed that the University of Miami would present the proposal to the U.S. National Science Foundation (NSF) for funding.
5. On April 2, 1998, Otis Brown and Armando Rabuffetti met to advance on the definition of the principal characteristics of the program organization and implementation to be included in the proposal. They are now presented to the SAC for comments and suggestions, prior to be presented to the EC:
 - a) The University of Miami (RSMAS) will act as an agent for IAI to be able to set up its Summer Training School. The School will be organized on a 3-year program plan. The University of Miami will present, by no later than June 30, 1998, a proposal to NSF to fund the first 3-year program.
 - b) RSMAS and IAI will share the responsibility for the overall supervision, defining the topics of the courses, and most importantly ensuring that the courses respond to the overall IAI philosophy (interdisciplinary and multinational participation, as well as the exchange of ideas and development of personal relationships and institutional networks leading to future collaboration).

RSMAS and IAI will nominate a coordinator and a scientific leader as the 2 person-team, which will act on the overall supervision of the program. The coordinator (probably from the University of Miami) will deal with the organizational and logistical arrangements. The scientific leader (either from RSMAS or IAI) will be responsible for the definition of the science themes, the organization of potential lists of institutions and/or instructors, as well as the composition of the students' profile mixture needed to accomplish the training program goals. This coordination should be done in close coordination and advice from the SAC.
 - c) Once the topic for each year has been selected, the agenda and the details of each course would be "delegated" to or "subcontracted" by a team of instructors and/or institutions, which have the responsibility for the course contents, guest lectures, course material, etc. Although for the first year this might be done by RSMAS and IAI based on considerations of limited number of institutions on instructors, the idea is to proceed later on through announcements of opportunity to open possibilities for competition.
 - d) There is an urgent need for the SAC to advise on possible themes. Some potential themes discussed were:
 - Social sciences methods for natural scientists;
 - Strategies for sustainable coastal management development;
 - An evaluation (through case studies) of the socioeconomic impacts of past El Niño in the Americas, and the effectiveness of the predictive mitigation on alleviation mechanisms that were used.

- e) The announcement for the first course to be conducted in June-July 1999 should be posted by the fall of 1997.

The SAC endorsed the IAI efforts in the planning of the IAI Summer Training Program and suggested the following themes as potential thematic areas for the first summer training course:

- Natural and Social scientists interactions, for example to bring in users' groups into discussion with climatologists to apply and use ENSO forecasts into the decision making process of important productive sectors, such as agriculture, fisheries, water resources management and health;
- How we go from GCM broad scale to regional and local climate scenarios; Applications of remotely sensed data to ocean-land interactions (e.g. fertility of oceans and colors from optical oceanography).

Fellowships offered by Brazil: The announcement of opportunity for 20 fellowships to conduct graduate (PhD) and post-doctoral work in global change themes related to IAI Science Agenda at Brazilian Universities and others related Scientific institutions (INPE) was made through the IAI Newsletter issue # 16. We have received calls of scientists from Peru, Argentina, Costa Rica, Brazil, USA and Uruguay requesting additional information to submit their letter of intent.

Post-doctoral Positions at UNAM: Since there were no candidates for the 2 post-doctoral positions offered by UNAM to IAI scientists upon the first announcement (October 1997), we decided, in agreement with Dr. Fernando Garcia (UNAM), to make a second announcement (IAI Newsletter # 16) with deadline on April 30, 1998.

It is our purpose to evaluate the efficiency of the mechanisms we have been using so far for the announcement of training and education opportunities. It seems that we must go to multiple mechanisms of information, like it has been the case for ISP III and CRN announcements.

Course on Human Dimensions of Global Change: As a first action to be conducted under the agreement signed between IAI and the Anthropological Center for Training and Research on Global Change (ACT) of Indiana University, 2 scientists from IAI Latin American countries will receive support to participate in the 3-week summer course to be conducted at ACT from May 8 to June 5, 1998. Through the letter IAIDIR 19/98 (February 18), the EC/CoP representatives have been kindly requested to distribute this information in their countries and to nominate candidates no later than March 6. The selection of candidates is actually being processed at ACT under the responsibility of Dr. Emilio Moran, ACT Director.

12. Update on the Development of New Funding Mechanisms

Joint Funding and Resource Agreements (JFRA): The IAI Director informed the SAC about the Joint Funding and Resource Agreements, which were proposed to assist regional collaboration and to formalize and document funding discussions. The EC and the CoP strongly endorsed the strategy for the IAI to develop "Joint Funding and Resource Agreements" with national and/or international organizations and agencies, as well as with non-governmental organizations. The purposes of these agreement are: 1) to document the substance and areas of common interests; 2) to identify cost sharing mechanisms to fund research activities; 3) to document committed resources in addition to monetary contributions.

A permanent effort is made at the IAI Directorate to follow on the possible JFRAs to be signed with funding agencies, institutions and/or organizations of IAI member countries:

- a) The Agency for Science and Technology Development of Argentina is ready to sign an agreement to co-fund research activities in global change where there is the participation of

scientists from Argentinean institutions. A very useful meeting was held in Buenos Aires on February 5, 1998, between the President of the Agency: Dr. Mario Mariscotti, the IAI representative: Carlos Ereño, and the IAI Director.

- b) EOLs (letters of exchange), through which both partners commit themselves to work together towards the design and implementation of mechanisms to strength scientific collaboration, are ready to be signed with: Agency of Science and Technology, Cuba; and CONICYT, Venezuela.
- c) On April 15, 1998 a meeting has been scheduled between the President of CONICYT, Chile (Dr. Sarrazin), and the IAI Director to advance on the implementation of the MOU already signed in 1997.
- d) As previously mentioned, the MOU between IAI and the ACT of Indiana University has led to joint funding of some training activities.

The SAC strongly endorsed the development of these agreements as an important mechanism to potentially increase the institute's budget to support scientific activities.

13. The Need for IAI to Support Smaller Projects

Fernando Ortega conveyed to the SAC his concern of small country's participation in IAI's scientific activities. He presented the fact that most scientists and institutions in IAI funded research projects are from large countries in the region. He suggested that IAI fund small projects, for example: there are many kinds of research that can be done by small teams or even by individual researchers, research work that can be done with the scarce recourses available in most Latin American countries. Very often these small projects can not begin, improve or finish because they need a small amount of financial aid to support partially the salary of workers, to pay for laboratory services, data sets, or to by computer hard and software.

For example, some small activities that could be funded by the IAI are:

- Study of the historical data on climate, public health, agricultural production, and land use, in relation to global change.
- Financial aid to date palinological, limnological or tree ring records.
- Case studies on global change impact on land use and water availability.
- Economical aspects of the implication of long-term changes of the agricultural production as a response to climate variation, land deterioration, urbanization, increase of fertilizer and oil prices.

Those projects could be funded with no more than US\$10,000. This kind of financial aid would encourage many scientific workers mostly from the small countries of the Americas, and could be helpful to attract to the IAI Lesser Antilles and Central America countries.

The SAC is sympathetic to Fernando Ortega's proposal to support smaller projects to increase the participation of the small countries in IAI's activities. Nevertheless, the SAC acknowledged the potential constraints in supporting these activities due to the lack of financial resources and the difficulties associated with the management of such funding opportunities. The IAI Director will give some additional thoughts about this theme and present some suggestions to address this issue.

14. IAI Science – Where do we go from here

There was some time set aside for discussion of future IAI science needs based upon recommendations recently made by Jane Lubchenco, past president of the American Association

for the Advancement of Science. It was generally agreed that IAI must make more efforts to develop projects that do a better job of integrating human dimensions. There was no consensus on how this can be most affectivity be achieved.

15. Presentation of the Chilean Conicyt

Dr. Mauricio Sarrazin, President of the Comisión Nacional de Investigación Científica y Tecnológica (CONICYT), gave an excellent presentation on the institutional and scientific development of the commission, information on its current activities, as well as relevant data comparing Chile's support to academic and science research activities and areas of priorities with other countries in the Americas and the world.

The SAC thanked Dr. Mauricio Sarrazin for the interesting presentation about the CONICYT and wished CONICYT to continue participating in the IAI's activities.

16. Scientific Forum

Paul Filmer informed the SAC that a Science Forum will be held on June 3rd, 1998 in Washington, DC, between the meetins of the IAI Executive Council (June 1-2, 1998) and the Conference of the Parties (June 4-5, 1998).

The SAC made some recommendations to Paul Filmer in the planning of the upcoming IAI Science Forum:

Potential Speakers on the four themes of the IAI Science Agenda:

- I. Understanding Climate Variability in the Americas:
Speakers: Rita Colwell (USA) and Roberto Mechoso (USA) links to WCRP and use of the IAI network
- II. Comparative Studies of Ecosystems, Land-Use and Water Resources in the Americas:
Speakers: Billy Turner III (LUCC, USA), Osvaldo Sala (Biodiversity, Argentina) or Sandra Diaz (Argentina)
Renato Quinonez (Chile), Danelli (Chile), Lluch Belda (Mexico), Hunter (USA) or Rothschild (USA) on oceans and fisheries
- III. Changes in the Composition of the Atmosphere, Oceans and Fresh Waters:
Speakers: Roberto Sanchez (Mexico) or Diana Liverman (USA) or Carlos Nobre (Brazil) or Pablo Canziani (Ozone, Argentina)
- IV. Integrated Assessment, Human Dimensions and Applications:
Speakers: Costa Rica/GEF and Jim Tackle (USA) on Training and Education

The SAC also suggested that Armando Rabuffetti, the IAI Director, and/or Robert Corell, IAI Executive Council Chair, chair the meeting. In addition, Ruben Lara offered to help Paul Filmer in the planning of the forum.

17. SAC Elections

The IAI Director informed the SAC that elections for three SAC members will be held at the upcoming meeting of the IAI EC and CoP. The nominees for the SAC vacancies are to be made by the SAC and not by the parties for this coming election.

The SAC Chair informed the committee that the three members, whose mandate is up are: Otis Brown, Luiz Bevilacqua and Humberto Fuenzalida. The first two are willing to continue in the SAC if re-elected. The SAC then recommended the following list of scientists as potential candidates for the upcoming SAC elections

- Comparative Studies of Ecosystems, Land-Use and Water Resources in the Americas and Changes in the Composition of the Atmosphere, Oceans and Fresh Waters:
Oceans: Otis Brown (USA), Renato Quinones (Chile), Alberto Piola (Argentina), Jose Mulbert (Brazil)
- Integrated Assessment, Human Dimensions and Applications:
Economics: John Robinson (Canada), Robert Evenson (USA), Alejandro Nadal (Mexico)
Integrated Assessment, Training and Education and Links to Policy: Luiz Bevilacqua (Brazil) and José Goldemberg (Brazil).

The SAC acknowledged that the ideal areas of expertise of the new SAC members would be: 1 person in oceans, 1 in integrated assessment and training and education, and 1 in human dimensions and economics. Those recommendations are made based on the current composition of the SAC and the expertises that are lacking in the committee.

18. Future Meetings and Sites

The SAC tentatively scheduled the tenth meeting of the SAC to be held either in Miami, USA or Lima, Peru (kind offer by Ronal Woodman) from November 16-17, 1998. The SAC left it up to the IAI Directorate to decide the meeting site due to considerations of costs and facilities associated with the planning of the meeting and the CRN panel review. The CRN Panel review was also tentatively scheduled from November 13-14, 1998 in Miami, USA. The following members of the SAC are willing to participate in the CRN panel review: Ruben Lara, Carlos Scoppa, Fernando Ortega and John Stewart. The IAI Directorate will inform the members of the SAC who were absent in this meeting and ask about their availability during those dates and their willingness to attend the CRN panel review.

19. Adjourn

On behalf of the SAC and the IAI the SAC chair and the IAI Director thanked all SAC members for their participation in the meeting and in the revision of the CRN pre-proposals, and expressed their most sincere thanks to Humberto Fuenzalida from the University of Chile and Sandra Acugna from Comisión Nacional de Investigación Científica y Tecnológica (CONICYT) for hosting the meeting, as well as Brad Wilcox and Marcella Ohira from the IAI Directorate for making all the arrangements for the meeting.

The SAC chair then adjourned the ninth meeting of the SAC.

Ninth Meeting of the IAI Scientific Advisory Committee
April 14-16, 1998 Santiago, Chile

Action List: April 14, 1998

1. The SAC approved the agenda of the ninth meeting of the SAC with one modification: in the discussion of the SAC election on April 15th, the SAC will also discuss and recommend to the IAI Directorate a list of institutions, which could become affiliated institutions. The 10th member of the SAC would then be elected from one of IAI's affiliated institutions.
2. The SAC chair proposed to the committee to approve the report of the eighth meeting of the SAC on April 15th, so that all members could have some time to read the report overnight before approving it.
3. The SAC endorsed the IAI initiatives in support of ENSO workshops and strongly encouraged the IAI to continue fostering collaboration between natural (climatologists and meteorologists) and social scientists and the users community. It remains important to make sure that the users community questions are well formulated and comprehensively answered by the science community.
4. The SAC also supported the IAI participation in the planning of an Industrial Transformation workshop in the region together with the International Human Dimensions Program (IHDP). One member of the SAC should attend this workshop, which has been tentatively scheduled for September 14-16, 1998 in Sao Jose dos Campos, Brazil.
5. Regarding the IAI-VAMOS collaboration, the SAC recommended that the IAI continue to discuss with representatives from the VAMOS program the opportunities for collaboration. Nevertheless, the IAI must keep in mind its research priorities and make no commitments at this time.
6. Diana Liverman and Fernando Ortega will represent the SAC in the IAI Newsletter editorial board.
7. The SAC endorsed the IAI efforts in the planning of the IAI Summer Training Program and suggested the following themes as potential thematic areas for the first summer training course:
 - Natural and Social scientists interactions, for example to bring in users' groups into discussion with climatologists to apply and use ENSO forecasts into the decision making process of important productive sectors, such as agriculture, fisheries, water resources management and health;
 - How we go from GCM broad scale to regional and local climate scenarios;
 - Applications of remotely sensed data to ocean-land interactions (e.g. fertility of oceans and colours from optical oceanography).
8. The SAC is sympathetic to Fernando Ortega's proposal to support smaller projects to increase the participation of the small countries in IAI's activities. Nevertheless, the SAC acknowledged the potential constraints in supporting these activities due to the lack of financial resources and the difficulties associated with the management of such funding opportunities. The SAC Chair suggested that the SAC re-address this issue and further discuss it on April 15th.

Ninth Meeting of the IAI Scientific Advisory Committee
April 14-16, 1998 Santiago, Chile

Action List: April 15th, 1998

1. The SAC approved the report of the eighth meeting of the SAC with one modification: changes in the definition of theme III of the revised IAI Science Agenda. The wording of the theme III should read:

Changes in the Composition of the Atmosphere, Oceans and Fresh Waters

- High Latitude Processes (Ozone);
- Biogeochemical Cycles;
- Comparative Studies of Regional Air and Water Pollution.

The focus of this theme is on documenting and understanding processes that modify the chemical composition of the atmosphere, inland waters and oceans in a manner that affects productivity and human welfare. Under this theme topics related to the following would be appropriate: (1) changes in ozone and UV radiation, (2) enhancements of forcings due to radiation through emissions of greenhouse gases and aerosols, and (3) air and water pollution.

2. The Action List of the first day of the ninth meeting of the SAC (April 14th, 1998) was approved.
3. The SAC made some recommendations to Paul Filmer in the planning of the upcoming IAI Science Forum, which will be held on June 3rd, 1998 in Washington, DC between the meetings of the IAI Executive Council (June 1-2, 1998) and the Conference of the Parties (June 4-5, 1998). Suggestions for potential speakers were the following:

Potential Speakers on the four themes of the IAI Science Agenda:

- I. Understanding Climate Variability in the Americas:
Speakers: Rita Colwell (USA) and Roberto Mechoso (USA) links to WCRP and use of the IAI network
- II. Comparative Studies of Ecosystems, Land-Use and Water Resources in the Americas:
Speakers: Billy Turner III (LUCC, USA), Osvaldo Sala (Biodiversity, Argentina) or Sandra Diaz (Argentina)
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- IV. Integrated Assessment, Human Dimensions and Applications:
Speakers: Costa Rica/GEF and Jim Tackle (USA) on Training and Education

The SAC also suggested that Armando Rabuffetti, the IAI Director, and/or Robert Corell, IAI Executive Council Chair, chair the meeting. In addition, Ruben Lara offered to help Paul Filmer in the planning of the forum.

4. Regarding opportunities for collaboration between IAI and IGBP, Will Steffen suggested the following activities, which were endorsed by the SAC and the IAI Directorate:
 - closer collaboration on ENSO and climate variability issues particularly as related to agriculture. Dr. Steffen urged the IAI Directorate to contact Dr. Peter Gregory, who is leading the IGBP effort on this front.
 - actively promote joint activities between research networks of IAI and IGBP.
 - Continue collaborating on a joint proposal to the GEF for funding of global change impact centers, one of which would be in Buenos Aires
5. The SAC tentatively scheduled the tenth meeting of the SAC to be held either in Miami, USA or Lima, Peru (offer by Ronal Woodman) from November 16-17, 1998. The SAC left it up to the IAI Directorate to decide the meeting site due to considerations of costs and facilities associated with the planning of the meeting and the CRN panel review. The CRN Panel review was also tentatively scheduled from November 13-14, 1998 in Miami, USA. The following members of the SAC are willing to participate in the CRN panel review: Ruben Lara, Carlos Scoppa, Fernando Ortega and John Stewart. The IAI Directorate will inform the members of the SAC who were absent in this meeting about their availability during those dates and their willingness to attend the CRN panel review.
6. The SAC Chair informed the committee that the 3 members, whose mandate is up, Otis Brown, Luiz Bevilacqua and Humberto Fuenzalida. The first two are willing to continue in the SAC if re-elected. The SAC then recommended the following list of scientists as potential candidates for the upcoming SAC elections
 - Comparative Studies of Ecosystems, Land-Use and Water Resources in the Americas and Changes in the Composition of the Atmosphere, Oceans and Fresh Waters:
Oceans: Otis Brown (USA), Renato Quinones (Chile), Alberto Piola (Argentina), Jose Mulbert (Brazil)
 - Integrated Assessment, Human Dimensions and Applications:
Economics: John Robenson (Canada), Robert Evenson (USA), Alejandro Nadal (Mexico)
Integrated Assessment, Training and Education and Links to Policy: Luiz Bevilacqua (Brazil) and Jose Goldemberg (Brazil).

The SAC acknowledged that the ideal areas of expertise of the new SAC members would be: 1 person in oceans, 1 in integrated assessment and training and education, and 1 in human dimensions and economics. Those recommendations are made based on the current composition of the SAC and the expertises that are lacking in the committee.