# Introduction

Dear Friends,

It is an honor to reflect on the accomplishments of the IAI, in both its scientific and institutional development, during this past year—and to share with you the challenges ahead as the Institute now embraces the full implementation of its scientific research programs.

Undoubtedly one of the most important accomplishments of the IAI is the progress made in the development of its Science Agenda. The majority of the projects composing the Initial Science Program (ISP) (listed in our previous annual reports) are still under development; but the very large number of publications that appeared in refereed journals during 1998-1999 is a definite indication of the scientific productivity emerging in the region through IAI-supported activities. Furthermore, some ISP projects are already providing relevant information to policy- and decision-makers in important socioeconomic sectors such as agriculture, fisheries, water resources, and health. (A more complete description of ISP results is given in another section of this report.)

It was during 1998-1999 that the IAI began scientific and administrative implementation of its largest science program, the Collaborative Research Network (CRN). Over the next 5 years, under the CRN program, the IAI will be supporting 14 integrated multinational and multidisciplinary teams that will be addressing a wide range of research questions related to global environmental change in the Americas. The topics to be explored include climate variability, land-use change, biodiversity, disaster management, human health, ozone, and ultraviolet radiation. Work will be conducted both in the oceans and on land across the Americas. Continued collaboration between countries and institutions, along with joint participation of natural and social scientists, will be significantly enhanced through this program (see the *CRN* section of this report for more details).

In addition, because participation in IAI programs and activities has been uneven among the member countries, a new program called "Program to Expand Scientific Capacity in the Americas" (PESCA)—was approved by the Executive Council in 1998. Specifically designed to encourage the participation of scientists from regions that have been underrepresented so far, this program will be implemented during the year 2000.

The central node of the IAI Data and Information Service (DIS), located in the IAI Directorate (Brazil), was installed during 1999. Pilot local nodes will be installed in the next months in two member countries (Costa Rica and Uruguay).

To date, the U.S. National Science Foundation has been the major funding agency of the Institute. Efforts to enlarge the IAI's funding base, which will enable its programs and projects to be even more effective, have continued. The IAI Directorate's principal strategy has been to establish joint funding and resource agreements with national science and technology agencies of member countries. For example, the Institute recently signed a co-funding agreement with the Argentinean Agency for Science and Technology, whereby up to 75% of the budget required by the Argentinean investigators participating in the IAI's CRN program will be provided by that Agency.

The IAI believes that collaborative work with other national, regional, and international organizations involved in global-change research is the most efficient way to utilize the intellectual and monetary resources of the region; and the Institute is fully committed to increasing such collaboration. In 1998, the IAI worked together with the U.S. National Oceanic and Atmospheric Administration (NOAA), the U.S. Office for Foreign Disaster Assistance (OFDA), the World Meteorological Organization (WMO), the International Research Institute for Climate Prediction (IRI), and various national organizations of member countries, in the planning of pilot climate information systems for policy- and decision-makers in Latin America and the Caribbean. In 1999, the IAI signed an agreement with the World Climate Research Programme (WCRP) to jointly identify and implement research focusing on climate variability and climate change. In that same year, the IAI signed a Memorandum of Understanding with Yale University's Economic Growth Center to study the impact of climate change on economics and on the quality of life of people throughout the Americas.

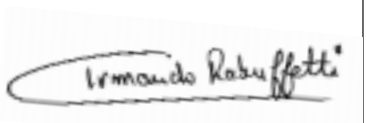
Furthermore, in mid 1999, the IAI's regional project, "Cooperative Activities to Support Global Change Research in IAI Countries," which was funded by the Global Environmental Facility (GEF) Program and administered by the World Meteorological Organization (WMO) and the United Nations Development Programme (UNDP), was successfully completed. This project was designed as the first step in the development of an interconnected system of research networks to study global change. Each of the 16 participating countries received basic computational equipment and software, along with training courses and fellowships (see the *Training and Education* section of this report for more details).

This brief description of the ongoing activities and accomplishments of the IAI shows clearly that the Institute is successfully pursuing its challenging mandate of building scientific capacity, supporting high-quality research, and promoting dissemination of the most recent finding and technologies. For the Institute's future, two imperatives present themselves: (1) The IAI must continue to periodically launch research opportunities that will enable new scientists to become part of the Institute's activities; and (2) The governments of member nations and the scientific community should continue to assist the IAI to gain the funding necessary for advancing its institutional development.

Finally, we acknowledge with gratitude the work of the country representatives who make up the Conference of the Parties; the Executive Council in supporting the IAI's institutional development; and our Scientific Advisory Committee, who ensure the continued strong scientific orientation of the IAI.

Sincerely,

Carlos Ereño
Chair of the IAI Executive Council




Armando Rabuffetti
IAI Director

# Building Scientific Capacity in the Americas

*by*
*Dr. Gordon McBean, Assistant Deputy Minister,*
*Atmospheric Environment Service-Environment Canada*

Global environmental changes are taking place on all scales, locally to globally, over seasons to centuries, and may alter the capacity of the Earth to sustain life. If governments are to develop policies to mitigate and adapt to these changes, they need to be able to understand (1) how national socioeconomic activities and ecosystems are being, and will be, affected; and (2) the role their nation plays in global problems. Gaining such an understanding will require that the causes or underlying mechanisms of the changes be clarified, which in turn will require information from a wide range of scientific disciplines, including the social sciences. Hence, to develop a full range of policy considerations that address global change issues, all governments need scientific capacity.

*Results of IAI projects to date have demonstrated that high-quality science and capacity building can work together, with very broad benefits.*

The IAI was established to enable governments and scientists of the Americas to work together and states as its mission, *"to develop the capacity to understand the integrated impact of present and future global changes on regional and continental environments in the Americas and to promote collaborative research and informed action at all levels."*

Capacity must be developed not only in terms of infrastructure but also in terms of intellectual achievement, and the IAI is contributing to both. Backed by a grant from the Global Environmental Facility (GEF) and support from member countries, the IAI developed a scientific-capacity-building project, "Cooperative Activities to Support Global Change Research in IAI Countries." This project, executed by the World Meteorological Organization (WMO), established a uniform data processing capability and worked towards a common data-exchange system and other standardized methodologies, together with basic training for staff. In the future, the IAI could become a vehicle for collaborative efforts between various countries and the United Nations Organization (UNO), the World Bank, and others on infrastructure capacity issues.

The main focus of the IAI in capacity building has been to further intellectual achievement. This effort is based on several important criteria. First and foremost is the recognition that the IAI can, and should, strongly link capacity building with its Science Agenda. While high-quality science is clearly essential, its value can be multiplied via a team approach: scientists from several countries can learn and benefit from each other as the work is carried out. Therefore, the IAI Executive Council has added a "team criterion" to the process by which science projects are selected for IAI funding: the participation of institutions from at least three member countries is a requisite. Next, to ensure the quality of the work, projects meeting the team criterion are subjected to review against high standards of scientific excellence. Finally, the Executive Council gives a high priority to projects that are devoted to or include a strong training and education component.

Several projects aimed specifically at capacity building have been supported through the Initial Science Program (ISP). Reviews from participants and members of the IAI have been very positive. The same criteria will continue to be the basis for

selection and funding of future projects under the Collaborative Research Network (CRN) program. These projects are enabling governments to make valuable progress in furthering our understanding of global change. Results of IAI projects to date have demonstrated that high-quality science and capacity building can work together, with very broad benefits.

Although the IAI has already contributed substantially to scientific development in the Americas, it has also recognized the need for a specific initiative that would extend its reach to scientists (particularly young scientists) from countries that have not benefited, or have benefited little, from the other initiatives. To meet this need, the IAI launched the Program to Expand Scientific Capacity in the Americas (PESCA).

As an important part of its capacity-building effort, the IAI has joined with partners beyond its member states, including the International Geosphere-Biosphere Programme (IGBP), the Global Change System for Analysis, Research, and Training (START), the World Climate Research Programme (WCRP), the International Human Dimensions Programme (IHDP), the Asia-Pacific Network for Global Change Research (APN), and the United Nations Organization (UNO) specialized agencies such as the World Meteorological Organization (WMO), the United Nations Environmental Programme (UNEP), the United Nations Development Programme (UNDP), and others. Such partnering can bring many mutual benefits—far more, in the long term, than can be realized by agencies and countries focused only on limited self-interests. Recognition of the greater importance of the common good is a primary IAI objective.

On a personal note, I have found my participation in the IAI to be particularly rewarding owing to the Institute's ability to involve in a positive way all member states. Because of their common interest in furthering the collective understanding of global change and their realization that informed governments are most likely to be responsive, IAI members have pulled together and looked for innovative ways to address these critical issues. Members recognize that gaining a scientific understanding of global change issues is a massive undertaking that will extend over decades. No one country or even group of countries has the resources, particularly the human resources, for such an undertaking. The IAI has established itself as the credible vehicle for mobilizing the necessary resources in the Americas. As we look ahead, the model of capacity building linked with excellent scientific programs holds great promise and has proved itself already to a significant degree. Its continued development should be supported by countries and international agencies alike.

# The IAI Initial Science Program: Accomplishments, Advances, and Achievements

The Initial Science Program (ISP) of the IAI was introduced in 1996 and will continue until the year 2001. This program was designed to launch the IAI's Science Agenda by supporting scientific activities in research, training and education, data information and collection, and computer modeling. It was also designed as a mechanism for creating IAI research networks in the region. The ISP provides 38 one-time grants of up to 3 years' duration, for a total IAI support level of nearly US$ 4 million. The program was organized in three rounds (ISPI, ISPII, and ISPIII,) which began in 1996, 1997, and 1998, respectively.

In order to meet the IAI's goal of fostering multinational collaboration in the region, ISP projects always involve the participation of institutions of at least two, and more commonly three or four, member countries. The program specifically supports high-quality scientific projects that will advance the broad IAI Science Agenda. Table 1 shows the distribution of ISP projects within the main themes of the Science Agenda, along with the level of financial support allocated to each.

Table 1: ***Distribution of ISP projects within the main themes of the IAI Science Agenda and financial support allocated to each***

| Science Theme | Number of Projects (*) | Financial Support (US$) |
|---|---|---|
| • *Understanding Climate Variability in the Americas* | | |
| - Paleoclimatology | 3 | 499,000 |
| - Current Conditions | 7 | 634,000 |
| • *Integrated Assessment, Human Dimensions and Applications* | | |
| - Agriculture | 7 | 548,000 |
| - Fisheries | 1 | 117,000 |
| - Hydrology | 1 | 117,000 |
| - Health | 1 | 87,000 |
| • *Comparative Studies of Ecosystems, Biodiversity, Land Use and Water Resources* | | |
| - Tropical Ecosystems | 2 | 217,000 |
| - Oceanic, Coastal and Estuarine Processes | 5 | 455,000 |
| - Temperate Terrestrial Ecosystems | 7 | 724,000 |
| • *Changes in the Composition of the Atmosphere, Oceans and Fresh Waters* | | |
| - High Latitude Processes | 2 | 232,000 |
| - Biogeochemical Cycles | 1 | 49,000 |
| - Air and Water Pollution | 1 | 26,000 |
| • *Cross-Cutting Theme:* Education | 1 | 117,000 |

(*) Many projects are related to more than one of the Science Agenda themes.

Although only a few of the 38 projects composing the program have been completed to date, there are already clear indications that the output of the program—in terms of capacity building, scientific productivity, and production of relevant information to policy- and decision-makers—is very efficient:

- At least 100 university students or young scientists at research institutions of IAI member countries have been actively involved in activities supported under the program. Most of the students are working at the Master's level, but an important number are supported at the undergraduate, Ph.D., and post-doctorate levels (Table 2).

Table 2: ***Number of students totally or partially supported by the IAI and their level of training (1996 to date)***

| Degree level | Number of students |
|---|---|
| Bachelor | 22 |
| Master | 59 |
| Doctor of Philosophy | 15 |
| Post-Doctorate | 4 |

- Since 1996, the ISP has partially or fully supported a total of 19 training workshops or short courses on various specific themes; in total, more than 400 scientists of the region participated in these workshops and courses.

- Publications—and particularly those in refereed literature—are generally considered a strong indicator of scientific productivity. To date, more than 50 journal articles that are linked to ISP research have been published or are in press (see the section *Publications* of this report). In addition, nearly 30 technical and/or extension articles have been produced and included in proceedings of various meetings; and some 130 oral presentations on IAI-related research have been given at 70 different scientific gatherings.

- The ISP has not been in existence long enough for the results to be widely used by policy- and decision-makers, but ISP research projects have already yielded information valuable for guiding management decisions in important socioeconomic sectors. An example is the important work done on optimization of crop management practices for different climatic scenarios (derived from climate prediction models) for the Southeastern USA and for the major cereal-growing areas of Argentina and Uruguay.

- Finally, because ISP projects are addressing research questions on issues of socioeconomic relevance to countries and regions of the Americas and have demonstrated scientific excellence and technical soundness (as judged by the peer reviewers), six ISP principal investigators have received complementary funds from national funding agencies for science and technology. Such funding, awarded to enable the original objectives of the research to be expanded or

*Soybean Planting Dates. J. B. Alberdi, Buenos Aires Province, Argentina. IAI project "Assessment of Agricultural Uses of ENSO-Based Climate Forecasts in Argentina, Mexico and Costa Rica" (ISP III-132) Photograph provided by Dr. James Jones and Dr. Graciela Magrin*

complementary research to be carried out, is one of the vehicles by which the IAI attains a major goal: that of promoting new research activities and enhancing funding for research critical to the interests of the region.

The considerable success that the ISP has already achieved, despite being in its early stages, suggests that the region (and the scientific and the policy- and decision-making communities in particular) can look forward to deriving enormous benefit from this investment.

*Campo de trigo en Culiacan—Humaya—Distrito Irrigación San Lorenzo donde se cosecha un promedio de 30,155 ha con un rendimiento promedio de 3.88 ton/ha. Proyecto IAI "Assessment of Agricultural Uses of ENSO-Based Climate Forecasts in Argentina, Mexico and Costa Rica" (ISP III-132) Cortesía del Dr. James Jones y de la Dra. Graciela Magrin*

*Wheat field at Culiacan—Humaya—San Lorenzo Irrigation district where it is harvested an average of 30,155.5 ha with yield average of 3.88 ton/ha. IAI project "Assessment of Agricultural Uses of ENSO-Based Climate Forecasts in Argentina, Mexico and Costa Rica" (ISP III-132) Photograph provided by Dr. James Jones and Dr. Graciela Magrin*

# The IAI Collaborative Research Network Program

The Collaborative Research Network (CRN) program is a new, 5-year initiative (1999-2003) of the IAI that will establish 14 global-change-research networks in the Americas. The program has been designed to enable investigation of a wide range of pressing topics in the area of global environmental change. The networks will be multinational and multidisciplinary in nature, each involving the participation of scientists from institutions of at least four IAI member countries and, in most cases, the participation of both natural and social scientists.

The expected benefits of the program include (1) an improved understanding of regional global-change phenomena; (2) the production of relevant information for policy- and decision-makers; (3) the expansion of scientific capacity in the region; and (4) increased multinational collaboration in addressing global-change issues.

*Each CRN project meets well-established standards of scientific excellence, and carries a very strong potential for building scientific capacity in the Americas*

The 14 networks involve the participation of over 150 scientists and nearly 100 institutions of 16 IAI member countries. The overall investment for the 5-year duration of the program is approximately US$ 11 million. The groundwork for this unique initiative was laid out in 1994, when IAI (through its Start-up Grant program) invested nearly US$ 2 million to support a series of global-change-research planning meetings and science-capacity-building efforts involving 37 groups of scientists across the Americas.

The CRN Program is designed not only to support research and capacity-building activities, but also to encourage synergistic efforts among governmental and non-governmental science organizations located throughout the Americas. Effectively addressing regional global-change issues requires an active scientific network that crosses national and regional boundaries. The resources of the CRN are intended to be used as a "glue," bringing together individuals and groups that have been working independently and allowing them to work as a team. To ensure the long-term sustainability of these teams, additional resources will be sought from national, regional, and international organizations, including the private sector.

## The 14 research networks that compose the CRN program are listed below.

## A continuación, se presenta un listado de las 14 redes de investigación que componen el programa CRN.

***Biogeochemical Cycles under Land Use Change in the Semiarid Americas***
*IAI award: US$ 818,000*

Tiessen, Holm (University of Saskatchewan-**CANADA**); Stewart, J. W. B. (University of Saskatchewan-**CANADA**); Estelrich, Daniel (Universidad Nacional de La Pampa-**ARGENTINA**); Salcedo, Ignacio H. (Universidade Federal de Pernambuco-**BRAZIL**); Sampaio, Everardo V. S. B. (Universidade Federal de Pernambuco-**BRAZIL**); Jimenez-Osornio, Juan J. (Universidad Autónoma de Yucatan-**MEXICO**); Cuevas, Elvira (Instituto Venezolano de Investigaciones Científicas-**VENEZUELA**)

***The Assessment of Present, Past, and Future Climate Variability in the Americas from Treeline Environments***
*IAI award: US$ 820,000*

Luckman, Brian H. (The University of Western Ontario-**CANADA**); Boninsegna, José A. (Dendrochronology Laboratory-**ARGENTINA**); Aravena, Juan Carlos (Universidad de Chile-**CHILE**); Bautista, Jaime Argollo (Universidad Mayor de San Andrés-**BOLIVIA**); Biondi, Franco (University of California-**USA**); Diaz, Henry F. (National Oceanic and Atmospheric Administration-**USA**); Hughes, Malcolm K. (The University of Arizona-**USA**); Jacoby, Gordon C. (Columbia University-**USA**); Lara, Antonio (Universidad Austral de Chile-**CHILE**); Roig, Fidel A. (Instituto Argentino de Nivología, Glaciología y Ciencias Ambientales -**ARGENTINA**); Smith, Dan (University of Victoria-**CANADA**); Stahle, David W. (University of Arkansas-**USA**); Villalba, Ricardo (Instituto Argentino de Nivología, Glaciología y Ciencias Ambientales -**ARGENTINA**); Thompson, Lonnie (Ohio State University-**USA**); Villanueva Diaz, José (Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias-**MEXICO**)

***Cattle Ranching, Land Use and Deforestation in Brazil, Peru, and Ecuador***
*IAI award: US$ 658,284*

Wood, Charles H. (University of Florida-**USA**); Tourrand, Jean François (Universidade Federal do Pará-**BRAZIL**); Bastos da Veiga, Jonas (Empresa Brasileira de Pesquisas Agropecuárias-**BRAZIL**); Olmedo, Jorge Grijalva (Instituto Nacional de Investigaciones Agropecuarias- **ECUADOR**); Berrocal, Milthon Muñoz (Universidad Nacional Agraria de La Selva-**PERU**); Coomes, Oliver (McGill University-**CANADA**); Sant'Ana de Menezes, Ronei (Grupo de Pesquisa e Extensão em Sistemas Agroflorestais do Acre-**BRAZIL**)

***The Role of Biodiversity and Climate in the Functioning of Ecosystems: A Comparative Study of Grasslands, Savannas, and Forests.***
*IAI award: US$ 819,826*

Sala, Osvaldo (Universidad de Buenos Aires-**ARGENTINA**); Oesterheld, Martin (Universidad de Buenos Aires-**ARGENTINA**); Armesto, Juan (Universidad de Chile-**CHILE**); Dirzo, Rodolfo (Universidad Nacional Autónoma de Mexico-**MEXICO**); Jackson, Robert (Duke University-**USA**); Altesor, Alice (Universidad de la Republica-**URUGUAY**); Baruch, Zdravko (Universidad Simón Bolivar-**VENEZUELA**); Aguiar, Martín (Universidad de Buenos Aires-**ARGENTINA**); Austin, Amy

(Universidad de Buenos Aires-**ARGENTINA**); Frank, Douglas A. (Syracuse University-**USA**); Paruelo, José (Universidad de Buenos Aires-**ARGENTINA**)

***Enhanced Ultraviolet-B Radiation in Natural Ecosystems as an Added Perturbation due to Ozone Depletion***
*IAI award: US$ 820,000*

Vernet, Maria (Scripps Institution of Oceanography-**USA**); Diaz, Susana (Centro Austral de Investigaciones Científicas-**ARGENTINA**); Zagarese, Horacio (Universidad del Comahue-**ARGENTINA**); Pedroni, Jorge (Universidad de la Patagonia-**ARGENTINA**); Tocho, Jorge (Universidad de la Patagonia-**ARGENTINA**); Paladini, Alejandro (Instituto de Genetica y Biotecnologia-**ARGENTINA**); Momo, Fernando (Universidad Nacional del Luján-**ARGENTINA**); Ferreyra, Gustavo (Instituto Antartico Argentino-**ARGENTINA**); Costa, Cesar (Universidade de Rio Grande-**BRAZIL**); Giansella, Sonia (Universidade de São Paulo-**BRAZIL**); Demers, Serge (Universite du Quebec-**CANADA**); DeMora, Stephen (Universite du Quebec-**CANADA**); Roy, Suzanne (Universite du Quebec-**CANADA**); Fuenzalida, Humberto (Universidad de Chile-**CHILE**), Cabrera, Sergio (Universidad de Chile-**CHILE**), Lovengreen, Charlotte (Universidad Austral de Chile-**CHILE**); Zamorano, Felix (Universidad de Magallanes-**CHILE**); Valderrama Vergara, Victor (Universidad de Magallanes-**CHILE**); Soto, Doris (Universidad Austral de Chile-**CHILE**); Koch, Eva (University of Maryland-**USA**); Van dan Belt, Marjan (Ecological Economics Research and Applications-**USA**); Morris, Donald (Lehigh University-**USA**); Hargreaves, Bruce (Lehigh University-**USA**); Armstrong, Roy (University of Puerto Rico-**USA**); Booth, Charles R. (Biospherical Instruments Incorporated-**USA**)

***ENSO Disaster Risk Management in Latin America: A Proposal for the Consolidation of a Regional Network for Comparative Research, Information, and Training from a Social Perspective***
*IAI award: US$ 808,920*

Franco, Eduardo (The Network for Social Studies on Disaster Prevention in Latin America: La Red-**PERU**); Herzer, Hilda (Centro de Estudios Sociales y Ambientales-**ARGENTINA**); Barbosa, Marx Prestes (Universidade Federal da Paraíba-**BRAZIL**); Velázquez, Andrés (Universidad del Valle-**COLOMBIA**); Lavell, Allan (Facultad Latinoamericana de Ciencias Sociales-**COSTA RICA**); Zevallos, Othón (Escuela Politécnica Nacional-**ECUADOR**); García Acosta, Virginia (Centro de Investigaciones y Estudios Superiores en Atropología Social-**MEXICO**); Oliver-Smith, Anthony (University of Florida-**USA**)

***Multi-Objective Study of Climate Variability for Impact Mitigation in the Trade Convergence Climate Complex Region***
*IAI award: US$ 809,600*

Cornejo, Pilar (Centro del Agua del Trópico Humedo para America Latina y el Caribe-**PANAMA**); Glantz, Michael (National Center for Atmospheric Research-**USA**); de Groot, Nicolas J. P. M. (Centro del Agua del Trópico Humedo para America Latina y el Caribe-**PANAMA**); Morgan, Luis A. (Centro del Agua del Trópico Humedo para America Latina y el Caribe -**PANAMA**); Kulshreshtha, Surenda N. University of Saskatchewan-**CANADA**); Cid Serrano, Luis (University of Concepción - **CHILE**); Sanchez, Jairo Eduardo (Instituto de Hidrología, Meteorología y Estudios Ambientales - **COLOMBIA**); Pabon C., José Daniel (Instituto de Hidrología, Meteorología y Estudios Ambientales - **COLOMBIA**); Montealegre B., José Edgar (Instituto de Hidrología, Meteorología y Estudios Ambientales - **COLOMBIA**); Alfaro, Eric J. (Universidad de Costa Rica - **COSTA RICA**); Calderón Velasquez, Jorge (Escuela Superior Politécnica del Litoral - **ECUADOR**); Santos, José Luis (Escuela Superior Politécnica del Litoral - **ECUADOR**); Ulloa, Edwin (Universidad Espiritu

Santo - **ECUADOR**); Collado, Jaime (Mexican Institute of Water Technology - **MEXICO**); Villalobos, Ángel (Mexican Institute of Water Technology - **MEXICO**); Velasco, Israel (Mexican Institute of Water Technology - **MEXICO**); Aldave Mátar, Roberto (Mexican Institute of Water Technology - **MEXICO**); González, Ricardo (Universidad Tecnológica de Panamá - **PANAMA**); Him, Carlos (Universidad de Panama - **PANAMA**); Lorlesse, Aristides (Instituto Nacional de Recursos Naturales Renovables - **PANAMA**); Franceschi, Paulina (Universidad Santa Maria la Antígua - **PANAMA**); Castro, Ligia (Instituto Conmemorativo Corgas - **PANAMA**); Leaman, Kevin (Rosenstiel School of Marine and Atmospheric Science - **USA**); Enfield, David (National Oceanic and Atmospheric Administration - **USA**); Donoso, Maria C. (Centro del Agua del Trópico Humedo para America Latina y el Caribe -**PANAMA**)

***Estudio Comparativo de los Efectos de Cambios Globales sobre la Vegetación de Dos Ecosistemas: Alta Montaña y Sabana Tropical***

Silva, Juan (Universidad de Los Andes-**VENEZUELA**); Cavelier, Jaime (Universidad de Los Andes-**COLOMBIA**); Klink, Carlos (Universidade de Brasília-**BRAZIL**); Gonzalez, Juan (Instituto Miguel Lillo-**ARGENTINA**);

***Andean Amazon Rivers Analysis and Monitoring (AARAM) Project***

McClain, Michael E. (Florida International University-**USA**); Llerena, Carlos A. (Universidad Nacional Agraria La Molina-**PERU**); Krusche, Alex Vladimir (Universidade de São Paulo-**BRAZIL**); Quintanilla Aguirre, Jorge (Universidad Mayor de San Andres-**BOLIVIA**); Ruiz, José Efrain (Universidad de Los Andes-**COLOMBIA**); Galárraga Sáncez, Remigio (Escuela Politécnica Nacional-**ECUADOR**)

***Diagnostics and Prediction of Climate Variability and Human Health Impacts in the Tropical Americas***

Confalonieri, Ulisses E. C. (Fundação Oswaldo Cruz-**BRAZIL**); Diaz, Henry F. (National Oceanic and Atmospheric Administration-**USA**); Aron, Joan L. (Science Communication Studies-**USA**); Poveda, German (Universidad Nacional de Colombia-**COLOMBIA**); Santos-Burgoa, Carlos (Instituto de Salud, Ambiente y Trabajo-**MEXICO**); Chen, Anthony (University of the West Indies-**JAMAICA**); Zimmerman, Robert H. (Science Communication Studies - **USA**); Pulwarty, Roger S. (University of Colorado - **USA**); Wiener, John D. (University of Colorado - **USA**); Rubio-Palis, Yasmin (Escuela de Malariología y Saneamiento Ambiental - **VENEZUELA**)

***Development of a Collaborative Research Network for the Study of Regional Climate Variability and Changes, their Prediction and Impact in the MERCOSUR Area***

Nuñez, Mario N. (Universidad de Buenos Aires-**ARGENTINA**); Barros, Vicente (Universidad de Buenos Aires-**ARGENTINA**); Berri, Guillermo (Universidad de Buenos Aires-**ARGENTINA**); Nicolini, Matilde (Consejo Nacional de Investigación Científica y Técnica-**ARGENTINA**); Vargas, Walter M. (Consejo Nacional de Investigación Científica y Técnica -**ARGENTINA**); Vera, Carolina S. (Consejo Nacional de Investigación Científica y Técnica -**ARGENTINA**); Ambrizzi, Tercio (Universidade

de São Paulo-**BRAZIL**); Grimm, Alice M. (Universidade Federal do Paraná-**BRAZIL**); Nobre, Carlos (Centro de Previsão de Tempo e Estudos Climáticos-**BRAZIL**); Marengo, José (Centro de Previsão de Tempo e Estudos Climáticos -**BRAZIL**); Cavalcanti, Iracema (Centro de Previsão de Tempo e Estudos Climáticos -**BRAZIL**); Dias, Maria Asunção Silva (Universidade de São Paulo-**BRAZIL**); Dias, Pedro Leite Silva (Universidade de São Paulo-**BRAZIL**); Grassi, Benjamin (Universidad Nacional de Asunción-**PARAGUAY**); Coronel, Genaro (Universidad Nacional de Asunción-**PARAGUAY**); Bidegain Dorelo, Mario (Universidad de la Republica-**URUGUAY**); Caffera, Ruben Mario (Universidad de la Republica-**URUGUAY**); Berbery, Ernesto H. (University of Maryland-**USA**); Diaz, Henry (National Oceanic and Atmospheric Administration-**USA**); Liebmann, Brant (National Oceanic and Atmospheric Administration-**USA**); Podestá, Guillermo P. (University of Miami-**USA**)

***South Atlantic Climate Changes (SACC): An International Consortium for the Study of Global and Climate Changes in the Western South Atlantic***
*IAI award: US$ 819,000*

Campos, Edmo José Dias (Universidade de São Paulo-**BRAZIL**); Piola, Alberto R. (Servicio de Hidrografía Naval-**ARGENTINA**); Labraga, Juan C. (Consejo Nacional de Investigación Científica y Técnica -**ARGENTINA**); Lorenzetti, João A. (Instituto Nacional de Pesquisas Espaciais-**BRAZIL**); Nobre, Paulo (Centro de Previsão de Tempo e Estudos Climáticos-**BRAZIL**); Martinez, Carlos M. (Universidad de la República-**URUGUAY**); Bleck, Rainer (University of Miami-**USA**); Matano, Ricardo P. (Oregon State University-**USA**)

***An Eastern Pacific Consortium for Research on Global Change in Coastal and Oceanic Regions***
*IAI award: US$ 820,000*

Baumgartner, Timothy R. (Centro de Investigación Científica y de Educación Superior de Ensenada-**MEXICO**); Mackas, David (Institute of Ocean Sciences-**CANADA**); Platt, Trevor (Bedford Institute of Oceanography-**CANADA**); Freeland, Howard (Institute of Ocean Sciences-**CANADA**); Atkinson, Larry (Old Dominion University-**USA**); Graham, Nick (Scripps Institution of Oceanography-**USA**); Strub, Ted (Oregon State University-**USA**); Pulwarty, Roger (University of Colorado-**USA**); Leon Coto, Sandra (Universidad Nacional de Costa Rica-**COSTA RICA**); Brenes Rodriguez, Carlos (Universidad Nacional de Costa Rica-**COSTA RICA**); Enriquez, Roberto (Pronatura Peninsula de Baja California-**MEXICO**); Lara Lara, José Ruben (Centro de Investigación Científica y de Educación Superior de Ensenada -**MEXICO**); Tarazona Barboza, Juan (Universidad Nacional Mayor de San Marcos-**PERU**); Daneri, Giovanni (Universidad del Mar-**CHILE**); Ulloa Q., Osvaldo (Universidad de Concepción-**CHILE**); Quiñonez, Renato (Universidad de Concepción-**CHILE**); Botero, Leonor (Instituto Colombiano para el Desarrollo de la Ciencia y la Tecnología-**COLOMBIA**); Gaibor, Nikita (Instituto Nacional de Pesca-**ECUADOR**); Cedeno, Ivan (Instituto Nacional de Pesca-**ECUADOR**)

***Climate Variability and its Impacts in the Mexican, Central American, and Caribbean Region***
*IAI award: US$ 293,300*

Magaña Rueda, Victor (Universidad Nacional Autónoma de Mexico-**MEXICO**); Mooers, Christopher N. K. (University of Miami-**USA**); Amador Astúa, Jorge (Universidad de Costa Rica-**COSTA RICA**); Zhang, Chidong (University of Miami-**USA**); Ambrizzi, Tercio (Universidade de São Paulo-**BRAZIL**)

Each of the projects has a regional focus, is highly interdisciplinary, and involves multinational collaboration. Besides meeting well-established standards of scientific excellence, each project carries a very strong potential for building scientific capacity in the Americas. Most of them explicitly link policy and science and will produce data relevant to the four major themes of the IAI's Science Agenda, as discussed below briefly.

### *Understanding Climate Variability in the Americas*

Seven of the CRN projects focus on either the science or the human dimensions of climate variability, both of which have strong implications for society. Collectively, the seven projects cover much of Central and South America. Three of them—those led by Victor Magaña (Mexico), Mario Nuñez (Argentina), and Pilar Cornejo (Panama)—are concerned specifically with the near-term climate variability of target regions within the Americas. A fourth project—that led by Edmo Campos (Brazil)—is exploring the linkage between surface temperature changes in the Atlantic and climate variability in the Americas, which is not well understood. The fifth project, under the leadership of Brian Luckman (Canada), is piecing together a 500-year picture of climate variability in the Americas on the basis of the tree-ring record. Finally, two projects—one coordinated by Eduardo Franco (Peru) and one by Ulisses Confalonieri (Brazil), which have strong human-dimension components—are examining in detail the implications of ENSO-related climate variability on disaster management and human health.

### *Comparative Studies of Ecosystems, Biodiversity, Land Use, and Water Resources in the Americas*

The CRN program also includes studies that compare global change phenomena in many diverse environments, both coastal and terrestrial. Timothy Baumgartner (Mexico), for example, is leading a project that employs several teams of scientists working to understand the implications of global change for the coastal resources of the Eastern Pacific. At the same time, four other studies, led by Juan Silva (Venezuela), Osvaldo Sala (Argentina), Michael McClain (USA), and Holm Tiessen (Canada), will be advancing our knowledge of various global changes in terrestrial ecosystems, including those brought about by changes in land use. Osvaldo Sala, for example, is examining explicit connections between ecosystem health and biodiversity. A project led by Charles Wood (USA) focuses on understanding the social factors behind modifications in land use and land cover, which are now recognized as major drivers of global change, especially in the Amazon.

Finally, Maria Vernet (USA) and collaborators are developing a research network for assessing the ecological impact of increased UV-B radiation to South American ecosystems.

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

Two projects also encompass issues relevant to this theme: Maria Vernet's project is studying the effects on ecosystems of changes in the ozone layer, and Michael McClain's project is investigating biogeochemical cycles in rivers in the Amazonian highlands, on the flanks of the Andes Mountains.

### *Integrated Assessment, Human Dimensions, and Applications*

The human-dimensions element is an essential component of global-change research. Most of the CRN projects explicitly include this component, but—as already mentioned—three of them are especially strong in this regard. Eduardo Franco is leading a team of social and natural scientists in an effort to improve the management of ENSO-related disasters in the South American countries; Ulisses Confalonieri's project is looking into the close linkages between human health and climate variability in impoverished communities in South America; and Charles Wood's project is attempting to better understand why people in the Amazon region make the land-use decisions that they do.

In summary, the CRN will be a major global-change-research program in the Americas. It is unique in that it focuses both on scientific excellence and on multinational collaboration and capacity building. We are confident that this 5-year program will not only advance the Science Agenda of the IAI and significantly strengthen scientific capacity in global change research in the Americas, but—perhaps even more important—it will lead to the production of information of great value to policy- and decision-makers.

# Training and Education

*Dr. Diana Liverman, member of the IAI Scientific Advisory Committee, in a training and education activity of the Institute*

*Dra. Diana Liverman, miembro del Comité Asesor Científico del IAI, en una actividad de entrenamiento y educación del Instituto*

A primary goal of the IAI is to augment scientific capacity in the Americas, as a means of better understanding the natural and social processes that drive large-scale environmental changes. Training and Education (T&E) is an obvious mechanism for doing this. In addition, T&E is crucial for developing effective networks of scientists and scientific institutions working collaboratively on global-change issues of regional importance.

The IAI Scientific Advisory Committee, concerned with the need for more scientists in the region, recommended that the IAI promote capacity building on various fronts—in particular, by supporting graduate students (Master and Ph.D. levels) and post-doctoral researchers and by providing short-term training in themes of the IAI Science Agenda.

Similarly, the IAI Executive Council established a T&E working group responsible for the development of a strategy, implementation plan, and activities for an IAI long-term Program of Training, Education, and Capacity Building across the Americas.

To date, the IAI has provided training and education opportunities to regional scientists through a variety of mechanisms, including scholarships, fellowships, training workshops, short courses, and educational materials.

Some examples of IAI initiatives in T&E since its inception are the following:

- The IAI, together with the National Center for Atmospheric Research (NCAR), the University Corporation for Atmospheric Research (UCAR), and the U.S. National Science Foundation (NSF), organized a 2-week Workshop on Climate Modeling (held from February 26 to March 8, 1996, at NCAR in Boulder, Colorado). Twenty participants from ten countries attended this training workshop, which was focused on three main themes: (1) the physical theory behind climate studies, (2)

the current state of numerical methods in modeling climate, and (3) the use of data, models, and visualization tools available at NCAR. A sub-theme, covered later in the workshop, was the current state of regional climate models and their relationship to global climate models. During the computer laboratory segment of the workshop, each participant had access to a Sun SPARC 10 workstation on which to complete exercises related to the lectures; they were also given instructions on downloading software from NCAR over the Internet for use on PC equipment at their home institutions. In addition, participants were offered some limited processing time on an NCAR supercomputer that could be used remotely once they returned to their home institutions. This experiment has allowed IAI and NCAR to assess the feasibility of running more extensive experiments on supercomputing facilities from remote locations.

- From 1995 to 1998, the IAI/GEF/WMO/UNDP's regional project, "Cooperative Activities to Support Global Change Research in IAI Countries," trained approximately 250 students from 130 institutions in Geographical Information System (GIS) techniques, with courses being offered in each of the project's member countries. In addition, 25 students from 14 countries were trained for 2 weeks in the use of METVIEW software; and 31 short-term fellowships (up to 6 months) were provided to students from 11 IAI member countries to study IAI Science Agenda themes in universities and/or research institutions in the region.

- The IAI signed a Memorandum of Understanding with the Anthropological Center for Training and Research on Global Environmental Change (ACT) of Indiana University, for scientific and technological cooperation in training and research on the human dimensions of global environmental change for the period 1998-2003. Through this Memorandum of Understanding, the IAI and the ACT jointly supported the participation of two Latin American scientists at the 1998 ACT/ Indiana University Summer Institute on Environmental Monitoring and Assessment Applications in the Americas (held at Indiana University, Bloomington, Indiana, from May 18 to June 5, 1998). The purpose of the Summer Institute was to share knowledge within the scholarly community about the human dimensions of global-change research and how such interdisciplinary research programs are conducted. Participants included researchers from several countries who are already established research scholars, as well as younger scholars just starting their research on these topics.

- With the support of the U.S. National Science Foundation, the IAI and the University of Miami joined forces to organize a Summer Institute on Interdisciplinary Science in the Americas for the period 1999-2001. The Summer Institute is a new component of the IAI's long-term T&E strategy and is specifically intended to strengthen communications and collaboration among natural and social scientists from the Americas.

- Through an institutional agreement with the Brazilian Conselho Nacional de Pesquisas (CNPq), the IAI has offered a total of 20 doctoral and/or post-doctoral fellowships as part of a post-graduate training program sponsored by the Brazilian government. The doctoral and/or post-doctoral programs or in-service training must be pursued at Brazilian universities and research centers and must be in the area of global change and its impacts on the environment.

- The Universidad Nacional Autónoma de México (UNAM), through the Center of Atmospheric Sciences, has offered the IAI two positions for post-doctoral researchers interested in one or both of the following global-change research areas: (1) El Niño-Southern Oscillation and Interannual Climate Variability; (2) Ocean/Land/Atmosphere Interactions in the Intertropical Americas. These research areas are of interest to UNAM and they are also part of the IAI's Science Agenda.

Because the training and education of future scientists is critical to the continued advance of global-change research in the Americas, the IAI will continue its commitment to building scientific capacity in the Americas, with T&E activities as a high priority.

# Summer Institute on Interdisciplinary Global-Change Science in the Americas

In 1998, the IAI and the University of Miami (UM), with the support of the U.S. National Science Foundation, collaborated to launch and organize a Summer Institute on Interdisciplinary Science in the Americas.

The IAI/UM Summer Institute is a new component of the IAI's long-term training and education strategy. The Institute's goals are to enhance communication between natural and social scientists and to develop an awareness of the need for (a) multidisciplinary, integrated approaches to complex global change issues, and (b) scientific input to the policy- and decision-making processes related to global change.

To achieve these goals, the Institute's activities will be focused on regionally important global change issues having societal relevance. A different topic or theme will be selected each year, which will serve as the central focus for the various instructional efforts (lectures, research projects, proposals). The theme will be approached from a multidisciplinary perspective, involving the participation of about twenty early- to mid-career scientists from IAI member countries. Most of the activities will center on the background, examples, or applications of the theme.

At the same time, because the participants will be coming from different disciplines and different countries, they will be expected to share their expertise with the rest of the group (instructors and other students).

The Scientific Advisory Committee of the IAI recommended that research be carried out in three major areas—atmospheric, oceanic, and terrestrial—and cover a broad spectrum of regionally relevant, global environmental-change issues. Therefore, proposed themes for the three Summer Institutes include (1) interactions between seasonal-to-interannual climate variability and human systems, (2) environmental and social implications of land-use and land-cover changes in the Americas, and (3) global-change issues related to sustainable development and management of coastal regions.

A website has been developed for the Summer Institute that includes general information about the Institute, its goals, criteria for eligibility, and instructions for application. The website address is http://www.rsmas.miami.edu/IAIUM

# Meetings

Each year the IAI supports a number of meetings—workshops, conferences, and seminars—designed to promote new multinational cooperation, develop scientific networks, exchange information, and build capacity in the Americas.

## *SCIENTIFIC/TECHNICAL MEETINGS*

- ***Second Southeastern South America Regional Climate Outlook Forum—Climate Forecast for Southeastern South America: Outlook for July 1998 - September 1998***, June 16-17, 1998, Foz do Iguaçu, Brazil. This forum was organized and co-sponsored by the Sistema Meteorológico do Paraná (SIMEPAR), Itaipu Binacional, and the International Research Institute for Climate Prediction (IRI).
- ***Planning Committee Meeting for the Pan-American Climate Information System (PACIS)***, August 24-26, 1998, San José, Costa Rica. Organizers were the U.S. Agency for International Development/ the U.S. Office of Foreign Disaster Assistance (USAID/OFDA), the U.S. National Oceanic and Atmospheric Administration/Office of Global Programs (NOAA/OGP), the World Meteorological Organization (WMO), the International Research Institute for Climate Prediction (IRI), the Pan-American Health Organization (PAHO), and the National Meteorological Institute of Costa Rica.
- ***Planning Meeting—The Impacts of Climate Change on Agriculture in Southern South America***, September, 29-30, 1998, São José dos Campos, Brazil. Co-sponsors included the Cooperative Program for Agricultural Research of the Southern Cone (PROCISUR), Yale University, and the University of São Paulo.
- ***Industrial Transformation Workshop in Latin America***, November 12-13, 1998, São José dos Campos, Brazil. Co-sponsors included the U.S. National Science Foundation, the Brazilian Academy of Sciences, the Industrial Transformation Project of the International Human Dimensions Programme (IHDP), and the Institute for Environmental Studies/Vrije Universiteit of the Netherlands.
- ***IAI Science Symposium—10th Symposium on Global Change Studies. American Meteorological Society (AMS), 79th American Meteorological Society Annual Meeting***, January 10-15, 1999, Dallas, Texas, USA.
- ***Scientific Committee Panel on Climate Variability and Predictability (CLIVAR)/ Variability of the American Monsoon System (VAMOS)***, March 15-18, 1999, Buenos Aires, Argentina. This panel was organized by the University of Buenos Aires and the Secretary of Science and Technology of Argentina.
- ***Seminar on the Impacts of the 1997-1998 El Niño/Southern Oscillation in the Southern South America Region—V Forum on Climate Prediction for Southern South America***, March 24-26, 1999, Mariano Roque Alonso, Paraguay. This seminar was organized by the Southern Cone Rural Association.
- ***Science Forum—Building Collaborative Global Change Research in the Americas***, June 16, 1999, Ottawa, Canada. This forum was organized by Environment Canada/government of Canada on behalf of the IAI.

*Sixth Meeting of the IAI Conference of the Parties (June 17-18, 1999, Ottawa, Canada)*

*Sexta Reunión de la Conferencia de las Partes del IAI (17-18 de junio, 1999, Otawa, Canadá)*

### *INSTITUTIONAL MEETINGS*

- Conference of the Parties:
  June 17-18, 1999, Ottawa, Canada

- Executive Council:
  November 23-24, 1998, Montevideo, Uruguay
  June 14-15, 1999, Ottawa, Canada

- Scientific Advisory Committee:
  October 26-28, 1998, Miami, Florida, USA
  April 19-20, 1999, Lima, Peru

*Dr. Otis Brown, miembro del Comité Asesor Científico del IAI y la Dra. Alice Grimm, investigadora del IAI, participando en una actividad de entrenamiento y educación del Instituto*

*Dr. Otis Brown, member of the IAI Scientific Advisory Committee, and Dr. Alice Grimm, IAI investigator, participating in a training and education activity of the Institute*

# Conference of the Parties, Executive Council, Scientific Advisory Committee, Directorate Staff, Project Staff, and Communications

# Conferencia de las Partes, Consejo Ejecutivo, Comité Asesor Científico, Personal de la Dirección Ejecutiva, Personal de Proyecto y Comunicaciones

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* Member countries of the Executive Council (EC) for the period 1998-2000
Países miembros del Consejo Ejecutivo (EC) durante el período 1998-2000

a Representative at EC until February, 1999
Representante ante el EC hasta febrero de 1999
b Representative at EC since March, 1999
Representante ante el EC desde marzo de 1999
c Representative at EC until October 1998
Representante ante el EC hasta octubre de 1998
d Representative at EC since November 1998
Representante ante el EC desde noviembre de 1998

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f The IAI/GEF/WMO Project finished its activities in March 1999
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# Publications*
# Publicaciones

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- Taller y Conferencia sobre El Niño 1997-1998: Impactos y Potenciales Aplicaciones de la Predicción Climática en el Sudeste de Sudamérica, Montevideo, Uruguay, Diciembre 1997. 43 pp. Diciembre 1998. Cecilia Ramos Mañé, editor.
- Report of the Industrial Transformation Workshop in Latin America, São José dos Campos, Brazil, November 12-13, 1998. 41 pp. February, 1999. Peter Mulder, editor. IAI.ID.8.1999.

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- Industrial Transformation Workshop in Latin America, Infosheet: IAI Information Document 7/1998.
- IAI Science Forum: Global Change in the Americas, Arlington, Virginia, USA, June 3, 1998. 53 pp.

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- Quarterly Publication, Issues # 18 (August 1998), # 19 (January-April 1999).

GRANTS ANNOUNCEMENT

- IAI Program to Expand Scientific Capacity in the Americas Program (PESCA), June 1999.

*Una parcela con remoción de pastos (en un ecosistema natural de la estepa patagónica), utilizada como tratamiento para manipular la diversidad botánica. Proyecto IAI "Global Change Effects on Biodiversity and Functioning: Manipulation of a Keystone Process" (ISP II-051) Cortesía del Dr. Osvaldo Sala*

*A plot of grass removal (in a natural ecosystem of the Patagonian steppe), used as treatment to manipulate plant diversity. IAI Project "Global Change Effects on Biodiversity and Functioning: Manipulation of a Keystone Process" (ISP II-051) Photograph provided by Dr. Osvaldo Sala*

# Financial Statement

## STATEMENT OF FINANCIAL POSITION

AS OF JUNE 30, 1999 AND 1998

| ***ASSETS*** | ***1999*** | ***1998*** |
|---|---|---|
| | ***US$*** | ***US$*** |
| CURRENT ASSETS : | | |
| Cash and equivalents | 781,507 | 564,199 |
| Accounts receivable ( less allowance for doubtful accounts ) | 45,976 | 35,372 |
| Collaborative Research Network | 26,977 | |
| Other current assets | 4,634 | 1,721 |
| **Total current assets** | **859,094** | **601,292** |
| FIXED ASSETS: | | |
| Computer equipment | 40,198 | 14,687 |
| Less Accumulated depreciation | ( 7,573) | ( 4,215) |
| **Fixed assets, net** | **32,625** | **10,472** |
| **TOTAL** | **891,719** | **611,764** |
| ***LIABILITIES AND NET ASSETS*** | | |
| CURRENT LIABILITIES | | |
| Accounts payable | 91,547 | 74,050 |
| Initial Science Program Round III - Scientific awards | 467,139 | 203,226 |
| Deferred revenue | 48,077 | 90,000 |
| Total current liabilities | 606,763 | 367,276 |
| NET ASSETS - Unrestricted | 284,956 | 244,488 |
| **TOTAL** | **891,719** | **611,764** |

## STATEMENT OF ACTIVITIES

FOR THE YEAR ENDED - JUNE 30, 1999 AND 1998

| | ***1999*** | ***1998*** |
|---|---|---|
| ***CHANGES IN UNRESTRICTED NET ASSETS:*** | ***US$*** | ***US$*** |
| REVENUES AND DONATIONS | | |
| Contributions from member nations | 735,857 | 755,123 |
| National Science Foundation awards | 1,020,000 | 600,000 |
| Donated services, utilities and use of fixed assets | 354,489 | 420,211 |
| Interest income | 14,348 | 18,253 |
| **Total revenues and donations** | **2,124,694** | **1,793,587** |
| EXPENSES : | | |
| Management and general expenses | 1,089,461 | 1,182,330 |
| Initial Science Program Round III | 994,765 | 600,000 |
| **Total expenses** | **2,084,226** | **1,782,330** |
| ***INCREASE IN NET ASSETS*** | **40,468** | **11,257** |
| **NET ASSETS, BEGINNING OF YEAR** | **244,488** | **233,231** |
| **NET ASSETS, END OF YEAR** | **284,956** | **244,488** |

| | ***1999*** | ***1998*** |
|---|---|---|
| ***SCHEDULE OF EXPENSES*** | ***US$*** | ***US$*** |
| Salaries and benefits ( international staff ) | 435,921 | 467,123 |
| Other staff salaries | 128,532 | 155,644 |
| Security | 65,572 | 79,404 |
| Telecommunications | 17,963 | 55,285 |
| Travel | 128,463 | 105,927 |
| Rental Charges | 69,085 | 83,657 |
| General Expenses | 98,968 | 90,181 |
| Other costs ( Newsletter, cost of meetings, etc ) | 144,957 | 145,109 |
| **TOTAL** | **1,089,461** | **1,182,330** |

This information is extracted from IAI's financial statements for the years ended June 30,1999 and 1998. IAI's financial statements were audited by Deloitte Touche Tohmatsu International, Campinas-SP-Brazil.

# Acronyms
## Siglas

| | |
|---|---|
| ACT | Anthropological Center for Training and Research on Global Environmental Change of Indiana University |
| ACT | Centro Antropológico para la Capacitación e Investigación del Cambio Ambiental Global de la Universidad de Indiana |
| AMS | American Meteorological Society |
| AMS | Sociedad Americana de Meteorología |
| APN | Asia Pacific Network for Global Change Research |
| APN | Red de Asia y el Pacífico para la Investigación del Cambio Global |
| AARAM | Andean Amazon Rivers Analysis and Moniroting |
| AARAM | Análisis y Monitoreo de los Rios de la Amazonía de los Andes |
| CLIVAR | Climate Variability and Predictability |
| CLIVAR | Variabilidad y Predicción del Clima |
| CNPq | National Research Council of Brazil |
| CNPq | Consejo Nacional de Investigación de Brasil |
| CNPq | Conselho Nacional de Pesquisa do Brasil |
| CoP | IAI Conference of the Parties |
| CoP | Conferencia de las Partes del IAI |
| CRN | Collaborative Research Network Program |
| CRN | Programa de Redes de Investigación Cooperativa |
| DIS | Data and Information Service |
| DIS | Servicio de Datos e Información |
| EC | IAI Executive Council |
| EC | Consejo Ejecutivo del IAI |
| ENSO | El Niño-Southern Oscillation |
| ENOS | El Niño-Oscilación Sur |
| GIS | Geographical Information System |
| SIG | Sistema de Información Geográfica |
| GEF | Global Environmental Facility |
| GEF | Fondo para el Medio Ambiente Mundial |
| IGBP | International Geosphere-Biosphere Programme |
| IGBP | Programa Internacional de la Geósfera y la Biósfera |
| IHDP | International Human Dimensions Programme |
| IHDP | Programa Internacional de las Dimensiones Humanas del Cambio Global |

| | |
|---|---|
| INPE | National Institute for Space Research, Brazil |
| INPE | Instituto Nacional de Investigaciones Espaciales, Brasil |
| INPE | Instituto Nacional de Pesquisas Espaciais, Brasil |
| IRI | International Research Institute for Climate Prediction |
| IRI | Instituto Internacional de Investigaciones sobre la Predicción del Clima |
| ISP | IAI Initial Science Program |
| ISP | Programa Científico Inicial del IAI |
| MERCOSUR | Common Market of the South |
| MERCOSUR | Mercado Común del Sur |
| METVIEW | Meteorological Software System |
| METVIEW | Sistema de Software Meteorológico |
| MoU | Memorandum of Understanding |
| MoU | Memorándum de Entendimiento |
| NCAR | National Center for Atmospheric Research |
| NCAR | Centro Nacional de Investigación Atmosférica |
| NOAA | U.S. National Oceanic and Atmospheric Administration |
| NOAA | Administración Nacional de los Océanos y la Atmósfera de los EE.UU. |
| NOAA/OGP | U.S. National Oceanic and Atmospheric Administration/Office of Global Programs |
| NOAA/OGP | Administración Nacional de los Océanos y la Atmósfera de los EE.UU./Oficina de Programas Globales |
| NSF | U.S. National Science Foundation |
| NSF | Fundación Nacional de Ciencias de los EE.UU. |
| OFDA | U.S. Office of Foreign Disaster Assistance |
| OFDA | Oficina de Preparación de Desastres y Manejo de Emergencias de los EE.UU. |
| PACIS | Pan-American Climate Information System |
| PACIS | Sistema Panamericano de Información del Clima |
| PAHO | Pan-American Health Organization |
| PAHO | Organización Panamericana de la Salud |
| PESCA | Program to Expand Scientific Capacity in the Americas |
| PESCA | Programa para Expandir Capacidad Científica en las Américas |
| PROCISUR | Cooperative Program for Agricultural Research of the Southern Cone |
| PROCISUR | Programa Cooperativo para la Investigación Agrícola del Cono Sur |

| | |
|---|---|
| SAC | IAI Scientific Advisory Committee |
| SAC | Comité Asesor Científico del IAI |
| SACC | South Atlantic Climate Changes |
| SACC | Cambios Climáticos del Atlántico Sur |
| SIMEPAR | Meteorological System of Paraná, Brazil |
| SIMEPAR | Sistema Meteorológico de Paraná, Brasil |
| SIMEPAR | Sistema Meteorológico do Paraná, Brasil |
| START | Global Change System for Analysis, Research, and Training |
| START | Sistema para el Análisis, Investigación y Entrenamiento en Cambio Global |
| T&E | Training and Education |
| T&E | Entrenamiento y Educación |
| UCAR | University Corporation for Atmospheric Research |
| UCAR | Corporación Universitaria para la Investigación Atmosférica |
| UM | University of Miami |
| UM | Universidad de Miami |
| UNAM | Autonomous University of Mexico |
| UNAM | Universidad Autónoma de México |
| UNO | United Nations Organization |
| ONU | Organización de las Naciones Unidas |
| UNDP | United Nations Development Programme |
| PNUD | Programa de las Naciones Unidas para el Desarrollo |
| UNEP | United Nations Environmental Programme |
| PNUMA | Programa de las Naciones Unidas para el Medio Ambiente |
| USAID | U.S. Agency for International Development |
| USAID | Agencia para el Desarrollo Internacional de los EE.UU. |
| UV-A | Ultra-Violet-A |
| UV-A | Ultravioleta-A |
| UV-B | Ultra-Violet-B |
| UV-B | Ultravioleta-B |
| VAMOS | Variability of the American Monsoon System |
| VAMOS | Variabilidad del Sistema de Monzones de las Américas |
| WCRP | World Climate Research Programme |
| WCRP | Programa Mundial de Investigación del Clima |
| WMO | World Meteorological Organization |
| OMM | Organización Meteorológica Mundial |