

Advancing Academe: A Multidimensional Investigation of Geography in the Americas

Final Report to National Science Foundation

December 6, 2007

PARTICIPANTS

1. What people have worked on your project?

Dr. Patricia Solís (AAG)

2. What other organizations have been involved as partners?

Association of American Geographers (Washington DC)

City of Knowledge, Panama City, Panama

3. Have you had other collaborators or contacts?

- Dr. Doug Richardson, Dr. Matthew Koepe, Dr. Ivan Cheung, AAG
- Dr. Rodrigo Tarté, Academic Director, City of Knowledge, Panama
- Noris Martinez (Panama) and Karim Thompson (Jamaica), AAG Interns
- Dr. Miguel Aguilar Robledo, Universidad Autónoma de San Luis Potosí, MX
- Santiago Borrero Mutis, Pan American Institute of Geography and History
- Anna Luiza Coelho Netto, Cidade Universitaria, Río de Janeiro, Brazil
- Dr. Hildegardo Cordova, Pontificia Universidad Católica del Perú
- Alfonso Blas Jiron García & Berta Adilia Mena García, Universidad Nacional Autónoma de Nicaragua, Managua
- Dr. Ana Maria Liberali, Centro Humboldt, Buenos Aires, Argentina
- Carlos Jorge Guilbe López, Universidad de Puerto Rico
- Dr. Ines Miyares, Hunter College, New York, USA, Conference of Latin Americanist Geographers, AAG Executive Committee, Diversity Task Force
- Dr. David Robinson, Syracuse University, New York, USA, Conference of Latin Americanist Geographers and the AAG Latin Americanist Specialty Group
- Anne-Marie Séguin, Institut national de la recherche scientifique, Montréal Quebec, Canada, Canadian Association of Geographers
- Dr. Janice Jones Monk, University of Arizona
- Dr. José Luís Palacio Prieto, Universidad Nacional Autónoma de México, Internacional Geographical Union

- Prof. João Francisco Abreu, Pontifica Universidade Catolica de Minas Gerais, Brazil
- Asociación Latinoamericana de Estudiantes de Geografía (ALEGO)
- Centro Panamericano de Estudios e Investigación Geográficas (CPEIG-Ecuador)
- Associação dos Geógrafos Brasileiros (AGB)

ACTIVITIES

This section will serve as your report to your program officer of your project's activities and findings. Please describe what you have done and what you have learned, broken down into four categories:

1. Describe the major research and education activities of the project.

[PURPOSE]

The AAMIGA project systematically investigated the dynamics of international research collaboration (IRC) through a multi-dimensional study of geography in the Americas. The aim is to better understand the nature of IRC within a particular context, looking through the window of an “interdisciplinary discipline”, geography, onto a region, the Americas. The project itself was conducted as an internationally collaborative research project, by the Association of American Geographers (AAG) in Washington, DC, with funding from the US National Science Foundation, and in conjunction with the City of Knowledge (CoK) in Panama. The results are already being used to suggest recommendations for improving mechanisms and quality of international research collaboration.

[STUDY DIMENSIONS OVERVIEW]

The study used a mixed quantitative and qualitative approach that took advantage of geographic tools through a regional spatial analysis. Data was collected on recent and ongoing international research collaborations among geographers of the Americas, including results from a survey in Spanish, Portuguese and English of 75 individuals from across the continent. Measures of collaborations also included tallies of joint research publications in 5 major geography journals from 2003 to present. Information of currently active NSF-funded projects was compiled, along with listings of both US and International Fulbright Scholars from 2000 to present. AAG Annual Meeting Abstracts from 2005-2007 revealed additional non-published collaborations, as did the AAG database of members and colleagues which showed where geographers earned international degrees. Departmental websites and online information from sister organizations such as the IGU, PAIGH, CLAG, and others was incorporated.

Additionally, insights from interviews, focus groups, and participant observation aided the interpretation of results.

2. Describe the major findings resulting from these activities.

[RESULTS FROM THE SPATIAL ANALYSIS]

Collaborations correspond generally to population distribution, which is not surprising given that centers of education and research require threshold population levels for establishment. However, this distribution is NOT random according to the statistic and test distributions in the spatial analysis (null hypothesis rejected). There are obviously more factors at play that may be described as similar to migration patterns, whereby relationships between and among people distributed in particular places have histories and trajectories. Migration is also affected by distance, with longer distances acting as a sort of “friction,” an idea that was tested for this research collaboration by design of a gravity potential model $[P(ij) = (p_i + p_j) / d_{ij} / \sum [(p_i + p_j) / d_{ij}]]$ as compared to observed data. Among the findings was that there are very strong Northern (US and Canada) biases in research collaboration. This is no surprise and may be due in great measure to the economic wealth of these countries, and in turn, the resources for investment broadly in the national research infrastructure. Nevertheless, as I note below, money is not the only factor.

US connections with Canada and Brazil are much stronger than simple model would predict; this may indicate the importance of an economy of scale issue at play given that these are population ranked respectively 1, 6, and 2.

US collaborations are actually fairly good with respect to Argentina, Peru and also Chile, Mexico, Ecuador and Colombia, probably due to strong geography there as well as population size; 5,7,9,3,10,4

US collaborations can be characterized as very poor with respect to the Caribbean, especially Guyana, Haiti, Trinidad, Venezuela, Belize, Dominican Republic because the model predicts that distance has an effect, which is apparently less important in reality.

Guatemala figures more strongly than predicted, but probably due to Canada connections than US ones. Venezuela stands out in the model because its size of population is number 8, but it has very poor indicators of collaboration and in fact is the only counties in the top 10 size without any registered collaboration with the US or Canada reported in the data collected; it's strongest ties are with Chile which underscores the importance of political perspectives and social contextual connections for research collaborations.

Among the strongest interregional collaborations (i.e.g NOT including the US or Canada) are (in order of strongest first):

Uruguay-Cuba

Bolivia-Belize

Mexico-Argentina
Guyana-Bolivia
Nicaragua-Guatemala

The northern bias in number of collaborations is furthermore reflected in a greater percentage of collaborations in which the US or Canada plays host to the projects.

826 geographers in the database were found to have earned degrees abroad, that is that they have studied in institutions of higher education in a country other than that of their birth. Given that the AAG's database of geographers with known higher education degrees in the hemisphere numbered 8,431 at the time of mining, the percentage of 'international' degrees is around 9.8%.

Destinations of institutions awarding degrees to this community is concentrated in the Northeastern US. The study also registered very strong Canada-California Connections. Destinations in Latin America were especially strong in countries where PhD programs are well known, in Chile, Brazil, and Colombia.

Collaborations in presentation at conferences (619 data points) showed again a northern bias of authorship and a southern bias for field sites, but particularly in Central America. The geographic pattern is broad and includes many rural areas, not just urban centers where educational institutions are located, indicating that many geographers from the US may not be engaged in research collaboration with other geographers, but simply working in remote field sites.

Information on joint research projects (179) registered the phenomon of regional level field sites (multi-country, or large areas such as with remote sensing studies). There was significant host participation from the Southern Cone and Mexico than other locations. The total number of 179 (current) projects represented more than \$32M in externally funded activity.

However, international research collaboration does not always require funding; more than 10 percent of projects surveyed had no formal funding, with twice as many reported by US respondents as those from other regions. The median project size ranged from \$1,000 t \$10,000, irrespective of location in North America (Canada-US) or Latin America. Large projects of \$100,000 or more were equally represented among geographers in the North compared to those in Latin America.

Joint-authorship in publications as a proxy indicator is a very poor measure of actual IRC. In the limited number of publications included in the data collection efforts, only 19 articles were found. This is a full degree of magnitude less than other indicators used in this study. In this sample, the northern bias was pronounced, especially considering who is listed as first author. However, there were some multilateral patterns (several countries) but some of these were due to

concentration of co-authored work in a special issue. Topics were evenly split between physical and cultural/human subfields of the discipline.

An online survey with 50 questions, using a trilingual instrument gathered 70 responses in order to provide a more detailed quantitative measure of sets of practices by geographers as well as integrate a qualitative description of actual collaborations . The breakdown of respondents follows:

Total	70	100.0%
US	34	48.6%
Other	36	51.4%
Bachelors	6	8.6%
Masters	15	21.4%
PhD	49	70.0%
Student	4	5.7%
Visiting	2	2.9%
Professor	44	62.9%
Chair	8	11.4%
Professional	7	10.0%
Other	5	7.1%
Male	49	70.0%
Female	21	30.0%

Those who strongly believed they had the skills to carry out IRC had participated in departmental professional development programs for finding external funding, preparing grant proposals, and interdisciplinary research. Only 2/3 who had participated in department sponsored activities directed toward international collaboration in general believed that they had the necessary skills to conduct IRC, indicating a shortfall of quality experiences at local levels. Responses indicate lack of offerings in

- Support for Faculty Foreign Language Training
- Department Level Funding for IRC
- Department Level Funding for international teaching

Support for continuing education outside home country

There exists an important relationship between individual practices and department level opportunities.

The AAMIGA Project found that individual geographers are more likely to:

- Receive funding for international collaborative research projects
- Receive funding for international conferences

- Offer international field courses
- Interact with international scholars or students

Receive honors or awards for international research collaboration

If their Departments:

- Host visiting scholars and/or students
- Develop collaborative research agendas with international institutions
- Participate in global or regional scale projects/networks
- Allow release time to develop international research projects

More geographers in Latin America do IRC if departments allow time off to develop international research projects.

A comparison of responses from Latin American geographers with previous results in survey of US Faculty (Ray & Solem 2005) revealed similar responses except lower agreement with the following two statements:

- *“I am aware of how geography is taught in different countries”*
- *“I stay abreast of research developments in geography in different countries through the literature, the Internet, or through communications with colleagues*

Among the qualitative results compiled by the project, the most important conclusions that can be drawn from interpretation are the following:

- Differing definitions exist for collaboration vs. cooperation vs. coordination (Mattessich 2001; Himmelman 1996; SSRIC 2000)
- Collaboration process and unfolding is experienced differentially
- Positionality (Monk et al 2003) also includes that ‘of place’(e.g. the same person in different places responds in different ways in accordance with the context of that place and their positionality within it)
- Context includes history of places, of relations between places
- IRC is partially dependent on function of personal will and institutional rewards with *scale dimensions* (i.e. motivations and opportunities vary at the departmental level vs. national or regional levels)
- Personal relationships matter a great deal
- Communication is critical, but not just language related
- Students are a major source of untapped energy
- Many Latin American geographers express a need for informal, individual opportunities that do not have to proceed through gatekeeping mechanism at departmental, university or national levels
- Many institutions have bilateral relations but multilateral facilitation is more rare

Other results and additional analysis is expected to be reported in a journal article to be published in the near future as a jointly authored article with a Panamanian colleague and/or others from the advisory board.

3. Describe the opportunities for training and development provided by your project.

In addition to the general opportunities arising from strengthening of infrastructure and facilitation of collaboration in conjunction with the project, specifically, the AAMIGA effort benefited from leveraging the work of two internships that were paid for by the AAG. These positions were filled by international / ethnic minority students who are young geographers: Noris Martinez (Panamanian, female) and Karim Thompson (Jamaican, male). Their contributions were substantive in nature.

4. Describe outreach activities your project has undertaken.

To facilitate international geographic collaborations in the Americas, the AAG has undertaken a significant set of integrated activity through the period of the AAMIGA project and beyond. These have included:

- 1) Organizing panels/ forums/ venues for explicitly discussing and facilitating international research collaboration; At the AAG Annual Meeting in Chicago occurred the first ever Spanish language session, with a follow-up panel that successfully took place at the AAG Annual Meeting in San Francisco; a third in the series is planned to address the intersection of international and interdisciplinary collaboration with special guests at the Boston (April 2008) meeting; AAG also developed special presentations, panels and sessions at the Race, Ethnicity, and Place III Conference in San Marcos, Texas in November 2006, at the AAG co-sponsored conference "Geography in the Americas" in La Serena, Chile in May 2007;. and at the Conference of Latin Americanists Conference in Colorado Springs, Colorado in June 2007; other conferences are in planning now
- 2) Expanding the AAG Guide to programs in North America to become the AAG Guide to programs in the Americas, the 2007 edition now with 25 complete listings outside of the US and Canada from 16 Latin American countries and a number of others referenced; the 2008 edition is expected to include institutions from 3 new countries in the region; AAG designed and implemented a new online system to submit information that was launched in English, Spanish and Portuguese
- 3) Assisting with the dissemination of hard copies of geography Journals to department libraries in need; especially through the online Journals exchange program that has had the result of taking extensive sets of retired geographers' collections of the Annals, PG, and the Journal of

Geography (dating about back to the 60s) to geography departments in universities in Merida, Mexico; Manau and Panama City, Panama. The AAG is actively pursuing external funding to support the expensive shipping costs, in conjunction with the AAG International Research and Scholarly Exchange Committee and the AAG Retired Geographers Affinity Group

- 4) Creating a new developing regions membership category that would provide the same benefits of AAG membership to individuals in lesser-income countries of the Americas at much reduced prices, to be launched in January of 2008
- 5) Improving relationships and linkages with broad (multidisciplinary) scientific unions that work in the region, including the Third World Academy of Sciences, UNESCO, and the International Council of Scientific Unions
- 6) Improving relationships and linkages with regional geographic organizations such as the Canadian Association of Geography (including joint programs at our respective annual meetings in 2007); the International Geographical Union (with which the AAG has for a long time had excellent close ties and support), the Conference of Latin Americanist Geographers (an organization with longstanding good relations also with the AAG's Latin Americanist Specialty Group), the Pan-American Institute for Geography and History (including signing a memorandum of understanding with the intention to strengthen collaborations)
- 7) Building AAG Staff capacity to undertake activities with respect to our growing international research collaborations, including now having several staff that speak Spanish, Portuguese, and French as well as other languages
- 8) Designing and developing broad-based external funding for regional projects, such as those under the My Community, Our Earth Partnership; the ongoing work with USAID and USGS in Panama, Honduras and Jamaica around geographic technologies for locally defined sustainable development projects; a USAID-USGS-ESRI-and NASA collaboration supporting biodiversity projects in 10 central American countries; USDA supported work in Puerto Rico and Peru, , the Online Center for Geographic Education's work in Chile and elsewhere, and others; Total of external funding for collaboration activities during the AAMIGA project period = \$322,665
- 9) Orienting existing association governance and mechanisms to better facilitate synergies around IRC, including the revamping of the

International Research and Exchange Committee that now is comprised of *ex officio* positions of Chairs of all of the AAG Regional Specialty Groups

- 10) Extending welcoming messages to international geographers, in part by continuing and improving the AAG International Reception, an event receiving attendees on the opening day of the AAG Annual Meeting; publication of greater numbers of materials in other languages, including careers information, website information, and plans for regular translations of abstracts of articles published in AAG journals; discussions of importance of international collaboration in columns in the AAG Newsletter by the AAG President, Executive Director, and staff

In addition, I was personally honored to receive the **Enlaces Award** from the Conference of Latin Americanist Geographers in May of 2007. This Award is given in recognition of contributions to improving relationships between geographers and geography departments throughout Latin America. Recipients will have demonstrated success and commitment towards this goal. Only three other geographers have received this distinction, all from Latin America. I was particular pleased to be the first female recipient.

PUBLICATIONS AND PRODUCTS

In this section, you will be asked to describe the tangible products coming out of your project. Specifically:

1. What have you published as a result of this work?
 - Journal publications

None yet, but plan to co-author with Latin American Colleague

- Books or other non-periodical, one-time publications

AAG Guide to Programs in the Americas new editions

AAMIGA Booklet : Geography in the Americas (dissemination of results (approx 300 copies to be disseminated to geography departments in the hemisphere, COSSA, ACE, AAAS, and other organizations. Published in French, English, Portuguese and Spanish) with additional copies to be distributed at the AAG Annual Meeting in Boston, April 2008 and/or other venues

2. What Web site or other Internet site have you created?

<http://geografwiki.wikidot.com/>

This is a collaborative space using wiki co-authoring web technology in multiple languages.

What other specific products (databases, physical collections, educational aids, software, instruments, or the like) have you developed?

- Guide submission online:
http://www.aag.org/guide/logon_ES.cfm
- GIS: Database of **2,676** records
- Unpublished (for reasons of protecting anonymity) notes on a Case Study of the State of Geography in Panama;
- An unpublished internal AAG Strategic Planning Document that indicates potential funding sources and including development of additional proposals to sustain select and generate new activities

CONTRIBUTIONS

Now we invite you to explain ways in which your work, your findings, and specific products of your project are significant. Describe the unique contributions, major accomplishments, innovations and successes of your project relative to :

1. the principal discipline(s) of the project;

The AAMIGA project formed part of and helped to catalyze a broader disciplinary effort around facilitation of and strengthening of international research collaboration, not only among geographers in the Americas, but also around the world. The activities described above represent actual accomplishments and innovations and are only the beginning of expected results.

Because the AAMIGA methodology also utilized accepted evaluation procedures based on Effectiveness Models (that combine a hybrid comprehensive-stakeholder standards per Vedung 2000), the determination of role professional societies do and should play built from the actual needs and ideas of the community of geographers. In short, this study of IRC actually used IRC to accomplish its research objectives, and the outreach activities facilitated IRC as the project unfolded.

The AAG now has long term programs that will continue beyond this project, most notably the AAG Guide publication and the new AAG Developing Regions Membership Category.

2. other disciplines of science or engineering;

The AAMIGA project effectively developed and tested a model for professional societies of any discipline to contribute toward IRC.

The fact that this study was conducted in the discipline of geography makes these results highly relevant to many other fields. A focus on a single discipline's experience with respect to IRC offers numerous advantages. Researchers have found that the extent of multinational collaboration is strongly field-specific (Glaenzel & De Lange 2002) and that the forms that IRC takes may differ with respect to the field that collaborators belong to (Melin 2000). A focus on disciplines provides insights into the structure and processes of IRC, particularly in light of sociological studies of academic "tribes" (Becher 1989; Whitley 1984). Yet while a disciplinary-based approach might underestimate actual work practices that often grapple with multiple fields and sectors, geography could prove to mitigate this for three main reasons. First, geography's practitioners have a long history of working with scholars in other fields, as an "interdisciplinary discipline" that is poised to continue to grow and contribute to society at large in coming years (Richardson & Solis 2004). This phenomenon includes collaboration within their home institutions: about 40 percent of departments in the US are double affiliations, e.g. Department of Geography and Anthropology or Department of Geography and Geology (AAG Guide, various years). The breadth of the discipline spans the spectrum of natural sciences, social sciences and humanities.

RECOMMENDATIONS ARISING FROM THE STUDY FOR DISCIPLINARY SOCIETIES AND INTERNATIONAL ORGANIZATIONS

- Recognize the Special Role that Professional Societies can play for facilitating IRC and for IRC program design
- Consult and Promote Best Practices, including those published by AAMIGA
- Facilitate Linkages, Communication, and effective networking
- Generate opportunities for individuals to participate independently
- Raise awareness and Build Capacity
- Co-sponsor forums for exchange, both digitally and in-person at conferences located in places other than the US when possible
- Organize Multilaterally and Synergistically

3. the development of human resources;

Professional societies that offer individual memberships can serve as an important mechanism for facilitating IRC and for integrating foreign scholars in a direct way into more complete international disciplinary communities, bypassing sometimes complicated bureaucracies at department, university or national levels.

4. the physical, institutional, or information resources that form the infrastructure for research and education; and

Because the disciplines are the intellectual home of faculty members, disciplinary professional associations can play a central role in any effort to understand and enhance the international dimensions of academic research. However, previous research on IRC has focused primarily on two sets of actors, the individual scholar and universities or groups of institutions. This study's inclusion of the influence that disciplinary professional societies wield or potentially could bear upon facilitating productive IRC helps paint a more complete picture of the reward structures that may motivate, support, or promote it. Associations are also often at the forefront of specific research initiatives that are timely and inherently global or international in nature (e.g. the AAG's Geographic Dimensions of Terrorism; Human Dimensions of Global Climate Change; responses to natural disasters, South Asian Tsunami and Hurricane Katrina). Association arenas are highly flexible and can often be more responsive with rewards or recognition that may motivate IRC than the bureaucratic university system, and as such, they can provide effective and relatively straightforward means of facilitating international research collaboration.

This project has demonstrated several ways in which infrastructure can be enhanced toward better IRC. (See also activities).

5. other aspects of public welfare beyond science and engineering, such as commercial technology, the economy, cost-efficient environmental protection, or solutions to social problems.

As producers of knowledge in a globalized society, scientists and scholars must reckon with a world where economies are increasingly connected, where country boundaries are ever-shifting, where communication technology enables information to traverse the globe with great speed, where workplaces are increasingly internationally distributed, and where cities and towns are growing in ethnic and racial diversity. These phenomena impact the activities of knowledge producing enterprises, a fact which has prompted research-oriented organizations such as universities, R&D business, and federal agencies to promote international research collaboration (IRC) as a means to build intellectual capacity and increase competitiveness.

Leaders in academe agree that IRC as a concept is a worthy goal. The ability to initiate and sustain IRC over time is both a means and an indicator of increased competitiveness as well as creating value through the development of social capital. Indeed, faculty members with some experience with international collaboration view the practice as professionally important for themselves and educationally significant for their students and they see themselves as more capable researchers. For these professors, internationalization promises new theoretical constructs, new ways of doing research, the use of foreign data to test hypotheses, and the emergence of a global perspective. ■