

INTER-AMERICAN INSTITUTE FOR GLOBAL CHANGE RESEARCH



December 2008

**Minutes of the 28th Meeting of the
IAI Scientific Advisory Committee**

Minutes - 28th Meeting of the IAI Scientific Advisory Committee (SAC)
Miami, Florida 5-7 November 2008

Invitees:

SAC members: Juan Valdés (Chair), Walter Baethgen (WB), Telma Castro (TC), Rana Fine (RF), Luis Mata (LM), Hal Mooney (HM), Carolina Vera (CV)

IAI Directorate: Holm Tiessen, Director, Gerhard Breulmann, Assistant Director Science Programs, Ione Anderson, Program Manager

IAI Strategic Planning Committee: Mike Brklacich

Regrets: Frank Muller-Karger, Maria Carmen Lemos, Ramon Pichs Madruga, Paul Filmer (US NSF)

IAI Project Representatives:

CRNII PIs: Arturo Sanchez (CRN2021), Sandra Diaz (CRN2015), Ricardo Berbara (CRN2014), Marcelo Carbido (CRN2005)

Others: Henry Diaz, ACCORD initiative

1. Welcome by the SAC Chair

The Chair welcomed participants to the 28th session of the SAC in Miami and thanked NOAA hosts Silvia Garzoli and Roberta Lusic for their assistance.

2. Introduction of new SAC members

The Chair welcomed new SAC members Frank Muller-Karger and Walter Baethgen. Frank Muller-Karger was unable to participate and introduced himself via skype. Both new members said they look forward to serving as members of the SAC and emphasized the importance of increasing the visibility of IAI.

3. Adoption of Agenda for 28th SAC meeting

The draft agenda for the 28th meeting was adopted.

4. Approval of Minutes from 27th SAC meeting

The minutes of the 27th SAC meeting were approved.

The Chair emphasized the importance of having support of SAC members regarding the SPC process.

5. IAI Directorate Update

Gerhard Breulmann updated members on the following Directorate activities:

- CRN II & SGP-HD are on track. Reports are available upon request from the Directorate (or from the PIs)
- *IDRC project*: progressing well, first report submitted and approved, but difficulties with the lack of Bolivian participation (**Action item**: Maria Carmen Lemos mentioned that she had some links and offered to send names to HT or GB).
- *McArthur project*: First report submitted and approved, A Scope synthesis workshop is planned for May 2009.
- *Data Policy*: Frank Muller-Karger inquired about the IAI's policy on sharing data and reports including progress reports. Juan will table this and get back to the committee.
- *IAI Visibility*:

1. Factsheets: The project factsheets resulting out of the PI meeting in Panama have been finalized. HM suggested that institutions and international programs could have links to the IAI factsheets on their home pages. **Action item**: HT said that a paragraph on outcomes of the projects would be good for the factsheets and asked PIs at the meeting to send a paragraph on outcomes to be included in their factsheets.
2. Publications: The Spanish version of the Scope book is at the final stage of completion. CRN061 (PI Edmo Campos) and CRN2076 (PI Alberto Piola) published a Special Issue “Synoptic characterization of the Southeastern South American Continental shelf: The NICOP/Plata Experiment”, Elsevier.
3. SBSTA-28: IAI participated at SBSTA-28 (May 2008) and held a joint side-event with APN. (Annex I). IAI also participated in a ‘research informal session’.

GB informed that the job titles of all IAI Officers have changed from “Officer” to “Assistant-Director”. A new IAI logo has been created and will be used from now.

MCL mentioned that the Strategic Advice for Science Change Program commissioned by the National Academy Science for the next administration for the next 100 days mentions IAI. **Action item**: JV to follow-up with MCL.

Possible participation at other International Events: HM suggested IAI (Directorate?) participation at the International Scientific Congress on Climate Change (10-12 March 2009, Copenhagen) as an opportunity to be represented at that meeting. HM and MCL will participate at that Congress and MCL said it would be a good opportunity for visibility. **Action by the Directorate**: HT mentioned that it will be important to discuss a strategy of regional concern for the Americas and that a document could be prepared for this Congress.

Welcome Note: Robert Atlas, Director Atlantic Oceanographic and Meteorological Laboratory, AOML.

6. **CRN2 PI presentations:**

The following CRNII PIs made presentations: Arturo Sanchez-Azofeifa (CRN2021), Marcelo Cabido (Co-PI, CRN2005, on behalf of principal investigator Guillermo Sarmiento), Ricardo Berbara (CRN2014) and Sandra Diaz (CRN2015). A report from the PIs discussions is included under item 9 of the minutes (below). The presentations are available at the IAI TWIKI site under SAC28

7. **NSF Update**

Paul Filmer gave his report (via skype) regarding the transition of government for the NSF. He had send to all past & present PIs a questionnaire asking about the importance of IAI and the ‘difference’ that IAI made/makes. So far he has received 22 responses of ‘mixed quality’.

8. **Report from SAC Committees goals and tasks, progress reports**

- CRN II, SGP-HD-SAC relationships, integrating science (*Carolina, Rana, Ramon, Telma*)

On behalf of the committee, Carolina Vera presented a detailed analysis of integration among current CRNII and SGP-HD projects. Her report was distributed to the SAC and is attached as Annex II. Members discussed whether there should be increased integration among projects, e.g. among the six SPG-HD projects. Several projects have integrated very well, while others did not integrate to such an extent. There was concern regarding overloading PIs and transaction costs.

9. Report from CRN2 PIs on their ‘internal discussion’ regarding collaboration and coordination between the projects

Arturo Sanchez-Azofeifa (PI, Tropi-dry, CRN2021) reported on the PI discussions held on day 2 of the SAC meeting:

1. Integration of networks on issues associated to sampling aimed to ecosystem functioning (Sandra Diaz): Tropi-dry will add to their sampling protocols in Brazil and Mexico additional leaf traits to evaluate ecosystem functions issues currently under work by the other networks. Tropi-dry will also work on the inverse modeling of hyperspectral remote sensing towards modeling of leaf traits based on hyperspectral/leaf level observations. Sandra Diaz’ network will help with protocols.

2. Optical phenology. The PIs consider optical phenology to be a key integrative topic across all networks currently funded by the IAI. They discussed the possibility to add additional observation sites (towers) in Argentina (Chaco and Paramo regions) that can be used as part of current comparative initiatives in Mexico and Brazil. Discussions with the IAI Secretariat will be aimed to see the possibility to fund a proto-Latin American Optical Phenology network that can serve as a potential jump-start of a Latin American phenology network (and potentially CRNIII).

10. Linkages IAI projects - International Programs

HM and HT presented arguments referring to their participation at IGFA and discussions held at IGFA regarding linkages between global and regional GEC programs.

11. CRNII-Science/Policy Proposal

MCL distributed a draft Call for Proposals for Science-Society Interactions (SGP-SS). The proposal was discussed and it was decided that MCL would reduce the original proposal to a 2-page RFP requesting a 5-page proposal. SAC members will be involved in the evaluation of the proposals. **Action item:** MCL to send a revised 2-page call for 5-page proposal to HT by email for the group to discuss.

12. CRN and SGP-HD Synthesis Event(s)/Activities in 2009-2010

It was recommended to ensure that CRNII produces policy-briefs before the program closes and the SAC encouraged the Directorate to hire a technical editor to create a summary for policy-makers from CRNII and SGP-HD scientific achievements.

13. Report Strategic Planning Committee, SPC

Mike Brklacich gave a presentation on the SPC, please refer to his report in Annex III.

14. SAC representation on Strategic Planning Committee

SAC representation on the SPC is to include the SAC Chair plus two other members who can best represent IAI Science (see summary from SAC 26 meeting). The SAC selected Walter Baethgen to replace Silvia Garzoli as a SAC member on the SPC. The other members are: JV, LM, RPM.

15. Walter Baethgen on Clyde Fraise SGP-HD project meeting in Passo Fundo

Walter gave a presentation of his participation in Clyde Fraise’s workshop.

16. Henry Diaz on the ‘Assessing Climate Change and Societal Impacts in the American Cordillera (ACCORD) initiative’

Henry gave a presentation on ACCORD and suggested that IAI take ownership of this initiative and consider supporting workshops on the topic and think about which parts of the proposal can be an initiate for funding. **Action item:** SAC will send comments on the ACCORD initiative.

17. Location and Dates for the next SAC meeting

Montevideo was tentatively selected for the next SAC meeting, during the week from 15 to 19 June. Juan will also explore member availability for the following week (22-25 June). WB contacted Maria Concepcion Donoso regarding the possibility to use UNESCO facilities for the meeting. There will be a March teleconference and Juan will consult with members for a date and mechanism to plan future meetings (e.g. doodle.com and also how it will be done). **Action item:** JV to check with SAC members on the possibility of having the meeting from 22-25 June. JV to consult with members on a date and mechanism for a teleconference meeting in March. The IAI Directorate will approach the project PIs concerning possible dates for the next PI meeting. If possible, the SAC meeting will be planned back-to-back with the PI meeting.

18. SAC recommendations to the IAI Directorate

The SAC desires to be more involved in IAI activities, such as:

- involvement in the evaluation of SGP-SS proposals
- involvement in the next round of CRNs at the pre-proposal level
- involvement in the selection of themes for IAI Training Institutes (eg Carolina’s suggestion for a March 2010 course to train people how to use information of current seasonal prediction data) and requested a list of all TIs (**Action item** for the Directorate)
- encouraged the Directorate to consider hiring a technical editor for the CRN II synthesis
- requested to receive a copy of the IAI Directorate Report to the COP (**Action item** for the Directorate).

19. Any other business

None

20. Reserved business

None

21. Adjourn

JV thanked Silvia Garzoli, Roberta Lusic and Ione Anderson and the meeting was adjourned at noon.

Action Items – SAC 28	
SAC	1. <i>Item#5:</i> (IDRC) MCL to send names of Bolivian contacts to HT or GB
	2. <i>Item#5:</i> JV to follow-up with MCL on the Strategic Advice for Science Change Program
	3. <i>Item#11:</i> MCL to send a revised 2-page call for 5-page proposal to HT
	4. <i>Item#15:</i> SAC to send comments on the ACCORD initiative
	5. <i>Item#17:</i> JV to check with SAC members on the possibility of having the meeting from 22-25 June.

	<ol style="list-style-type: none"> 6. <i>Item#17</i>: JV to consult with members on a date and mechanism for a teleconference meeting in March.
IAI Directorate	<ol style="list-style-type: none"> 1. <i>Item#5</i>: (Factsheets): Ask the 4 PIs for paragraphs on project outcomes for their factsheets 2. <i>Item#5</i>: Preparation of a document for the International Scientific Congress on Climate Change (10-12 March 2009, Copenhagen) 3. <i>Item#18</i>: send a list of all TIs to the SAC 4. <i>Item#18</i>: send a copy of the IAI Directorate Report to the SAC

Annex I

Building joint capacities in science and policy sectors for environmental decision making *SBSTA-28 IAI/APN side-event, Bonn, Germany 3 June 2008*

Global change calls for complex decisions and impact analyses that link interdisciplinary science, policy and civil society. The Inter-American Institute for Global Change Research (IAI) and the Asia-Pacific Network (APN) discussed joint capacity building for both science and policy sectors at a joint side-event held on 3 June 2008, at the twenty-eighth meeting of the Subsidiary Body for Scientific and Technological Advice (SBSTA) of the United Nations Framework Convention on Climate Change (UNFCCC).

Scientists and governmental delegates discussed how to foster a co-evolution of interdisciplinary science and interministerial communication towards the decision-making needed to effectively respond to Global Environmental Change. The following speakers explored during the two-hour side-event how IAI and APN promote capacity-building and collaborative research to inform and advise policy-makers:

- Brian Luckman (IAI CRN project on "Documenting, Understanding and Projecting Changes in the Hydrological Cycle in the American Cordillera" – topic: developing interdisciplinarity and science relevance).
- M. Mohsin Iqbal (APN Project "Climate Modelling in Water & Food Security: Communicating Integrated Research Findings to Decision- and Policy-Makers").
- Karen Tscherning (SENSOR) "Using IT based decision support tools as discussion support tools to develop the dialogue between research and policy making".
- Holger Meinke (Wagenigen University, The Netherlands) "Building science and Policy: Tools in climate risk management".
- Liana Bratasida (APN Country Delegate), "Influencing Climate Change Policy in the Rapidly Developing Country of Indonesia".
- Andrew Matthews (APN Country Delegate), Environmental Decision Making - Building capacity in science and policy - A view from "Down Under".
- Julia Martinez Fernandez, Mexico (IAI Country Delegate) "Building joint capacities in science and policy sectors for environmental decision making".
- Thelma Krug, Brazil (IAI Country Delegate) "Linking the climate convention to ministerial decision processes".

Key messages:

Brian Luckman, Principal Investigator (PI) of an IAI interdisciplinary Collaborative Research Network (CRN) project on "Documenting, understanding and projecting changes in the hydrological cycle in the America Cordillera", that involves institutions in 7 countries, highlighted the need for increased recognition that interdisciplinarity is not "soft" science. He stressed that interdisciplinary work takes time to develop and to understand the different approaches and perspectives and that it requires trust, respect and open mindedness. Luckman described how he integrates capacity-building in his group and trains young scientists in an interdisciplinary framework, promoting student exchanges and training. In conjunction with a project under IAI Small Grants Program for the Human Dimensions (SGP-HD), his research will identify and characterize the vulnerabilities of specific actors to climate variability and climate-induced problems; evaluate the policies and capacities of water governance institutions to reduce the actors vulnerabilities and to analyze the results of these

objectives relative to regional climate change scenarios and future hydrological settings. Luckman stressed that interdisciplinary research must tear down language barriers and work towards a common language among social and physical scientists. He identified as a solution the importance for scientists to first correctly define the problem and secondly, recognize the limits of the solutions/expertise they offer. Luckman recommended that: projects must concentrate on complementarities and what individuals bring to the project, not gaps in other areas and called for increased recognition within the disciplines that interdisciplinarity work is a significant contribution to academia.

Mohsin Iqbal reported on his APN project on “Climate Modelling in Water and Food Security: Communicating Integrated Research Findings to Decision and Policy-Makers” (GCISC) and how this project has played a key role in developing the capacities of climate change scientists in South Asian countries and how they can now contribute to the IPCC reports with respect to their own countries. Climate change scientists from Pakistan and Nepal have participated in many national and international consultations, dialogues and roundtable discussions organized by various NGOs on the current status of climate change research on impacts and adaptation, and for seeking inputs to projects related to climate change. GCISC scientists in Pakistan have also been invited to attend several meetings at the Ministry as resource persons. GCISC in Pakistan and in participating countries are the most sought after by government departments, media and society on country-specific climate change data and information. Iqbal added that this project has contributed to the increased awareness of policy makers who can now make more informed decisions regarding climate change.

Karen Tscherning from SENSOR talked about uses of their IT based decision support tools as discussion support tools to develop the dialogue between research and policy making. The system is being used in Europe to assess EU policies related to land use and rural development and is currently being tested in China and Latin America. Tscherning explained how SENSOR offers a platform for exchange among researchers and experts from government, economy and civil society from Europe, Latin America and Asia on experiences with sustainability issues and impact assessment on land use.

Holger Meinke from Wageningen University speaking on “Building science and Policy: Tools in climate risk management”, said that the 21st century is rapidly becoming the century of synthesis, creating new insights at the interface of disciplines (transdisciplinarity) and emphasized the need to become more transdisciplinary and problem oriented in our approaches to science and teaching. He added that adaptation has emerged as the biggest issue for a post-Kyoto and explained that the world requires skills in scenario development and impact quantification for all climate sensitive systems.

Liana Bratasida, APN country delegate, explained that the government of Indonesia has ongoing programs and actions to address current climate risks. She described some of measures such as hazard control measures, flood and drought management related to climate change application and risk and vulnerability assessments. She also explained their needs for adaptation to address future climate risks and described fostering a co-evolution of interdisciplinary science as one of their challenges and strategies. In that regard, she also highlighted the need to enhance cross sectoral governmental communication and coordination, citing, among other challenges, the need for improved education, information and public awareness as another. Bratasida described Indonesian government initiatives in various sectors under the National Planning Development Response to Climate Change (ecopassing agriculture, health, transportation, human settlements, public works among others). She added that APN’s *CAPaBLE* Program is successful in that it can contribute to the process of developing effective climate information system which meets the client needs and gets into the hands of appropriate users in a timely fashion, allowing them to use it for making appropriate decision.

Andrew Matthews, APN country delegate, mentioned current obstacles to enhanced communication between policy-makers and researchers in the Asia-Pacific region as: science-policy developments in science-policy interface mechanisms are weak or non-existent in some countries; lack of policy-

maker interest/awareness and/or commitment; research findings are of unsatisfactory quality; difficulty in mainstreaming cross-cutting global change issues across governmental sectors, including formulation of cross-sectoral policies. He emphasized the importance of defining research purpose and goals and obtaining a common understanding between the policy and scientific communities (in terms of language, acronyms, probability (risk), priorities, research versus political timeframes).

Julia Martinez Fernandez of the National Institute of Ecology (INE) in Mexico, explained that INE is a decentralized body of the Ministry of Environment and Natural Resources (SEMARNAT) and that its mission is to coordinate environmental research in order to provide data, ideas, proposals, and technical inputs for decision-making to support the environmental and natural resources management of Mexico. She added that climate change is a theme of highest importance and that Mexico has recently presented a national climate change strategy and started communications very early to promote exchange between researchers and policy-makers. She mentioned as a successful example, an invitation from insurance companies in Mexico to INE researchers, in an effort to involve not only hotel in coastal areas (Cancun) but all concerned parties to assess the risk and vulnerability of hurricanes to that area. She agreed that researchers are not as involved as they could in political processes and mentioned that INE only has a staff of 8 researchers which does not allow it to participate in many events.

Thelma Krug, secretary of the Brazilian National Secretariat for Climate Change at the Ministry of Environment, offered her views as both a researcher and policy maker and said that best way to breach the existing gap in communicating science to policy-makers would be to build a direct governmental link with researchers so that this communication channel would enhance communication between governmental units and researchers. She emphasized the need to engage a wide-range of stakeholders, from civil society to private sector and to build their capacity to contribute to discussions on climate change. She agreed on the difficulty to find a common language across disciplines.

Annex II

Some thoughts for the discussion about the SAC Committee on CRN II, SGP-HD – SAC relationships, integrating science

Carolina Vera

Background:

About the IAI Science Agenda:

The Science Agenda of IAI currently has four broadly defined research foci:

I - Understanding Climate Change and Variability in the Americas: focus in observing, documenting and predicting climate change and variability in the Americas and its links to changes in natural systems and societal impacts. Goals are to understand the role of the ocean-land-atmosphere interactions in climate, to determine the key processes that cause climatic variability, from seasonal to decadal time scales, and to apply the insight gained by these findings to improve weather and climate predictions.

II - Comparative Studies of Ecosystem, Biodiversity, Land Use and Cover, and Water Resources in the Americas: The IAI encourages comparative and integrated analyses of the effects of Global Environmental Change on natural and anthropogenic systems and processes among tropical, temperate and cold latitude systems. Sponsored work should increase our knowledge of the drivers and dynamics of variability, and the impacts of such variability on food security, biodiversity and the provision of ecological goods and services. Research is expected to include work in terrestrial, coastal and oceanic environments; and work that integrates across the land/sea interface will be encouraged.

III - Understanding Global Change Modulations of the Composition of the Atmosphere, Oceans and Fresh Waters: The focus of this theme is on observing, 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. A multidisciplinary approach to this research area is expected.

IV - Understanding the Human Dimensions and Policy Implications of Global Change, Climate Variability and Land Use: The focus of this theme is to research the dynamic interaction of global change, climate variability, land use and human beings – their health, welfare and activities which depend on the productivity, diversity and functioning of ecosystems. The emphasis of the research is on projects that address the complex interactions between natural and socio-economic systems through interdisciplinary approaches. The objective is to inform public policies that increase sustainability of natural systems and human welfare.

The IAI Science Agenda is quite broad encompassing very different scientific issues. This fact is good for an institution with the mission to encourage collaborative research and develop capacity of understanding the integrated impact of past, present and future global change on regional and continental environments in the Americas.

Therefore, projects resulting from a call of proposals based on this agenda, like those of CRN2, cover a wide range of scientific themes that not necessarily are easily of integrating. It is evident that science integration can be better achieved if a call of proposals is based on more specific scientific topics. Although such call might suffer of a lack of enough competitive proposals.

About CRN-II:

The Collaborative Research Network Program II (CRN) promotes research cooperation and exchange of information in an integrated way through interdisciplinary studies and international networks involving at least 4 countries in each project. The call of proposals for CRN II was based on the Science Agenda of IAI. Currently there are 13 projects funded under this program for 2006-2011. Besides that they can contribute to more than one scientific theme of the IAI Agenda, considering their main scientific focus they could be distributed as follows:

Theme 1: CRN-2047, CRN-2048, CRN-2050, CRN-2094

Theme 2: CRN-2005, CRN-2014, CRN-2015, CRN-2021, CRN-2031, CRN-2061

Theme 3: CRN-2017, CRN-2076

Theme 4: CRN-2060, partially some others CRN2

The meeting held last February 2008 in Panama gathering PIs not only from the CRN2 but also from the SGP-HD made important progresses in strengthening the interaction among different projects. Unfortunately the report of that meeting was not available by the time of preparing this document. So, notice that this document might have incomplete information.

From the available material it can be pointed out that the science integration and common synthesis among the CRN2 involved in the Theme 2 of the Agenda seems possible. In fact CRN-2014 (Soil biodiversity) already interacts with CRN-2021 (Tropical Dry Forest) and it seems that there are ways of cooperating with CRN-2005 (with landscape and ecosystems project), CRN-2031 (land use change) and CRN-2015 (functional biodiversity). Thus, integration and synthesis under theme 2 can be expanded and better defined under common scientific goals.

On the other hand, the integration seems somewhat limited among the projects involved in themes 1 and 3 as they concentrate on very different issues. Nevertheless, it seems that some level of integration is possible.

Theme 1 includes subjects as diverse as paleoclimate (CRN-2047, CRN-2048), tropical cyclones (CRN-2048), and impact of land use change on climate (CRN-2094). Nevertheless, the interaction between (CRN-2048) and CRN-2050 (paleoclimate of Hurricanes in the Caribbean) has started (they organized together a spring course on tropical cyclones, in March 2008) and can be expanded. In addition, it seems that there is some interaction within CRN-2050 and CRN-2021 (Tropical Dry Forest) involving remote sensing products. On the other hand, it seems that there is no interaction between the two projects focusing on paleoclimate yet, which it seems something easy to promote.

The collaboration between CRN-2031 (land use change, theme 2) and CRN-2094 (Regional hydroclimate theme 1) is well known as the last project was supported by IAI in order to complement and reinforce the climate change related investigations within the CRN2s.

Regarding theme 3, CRN-2017 is the only project dealing with emissions, megacities, and climate. Nevertheless, considering the project goals and that of CRN-2094, it seems that there are some scientific issues that can be integrated through both projects like the improvement of the numerical modeling complexity of weather and climate in Southern South America (which is part of Theme 1 goals).

CRN-2076 is the other project that contributes to theme 3 but regarding the biogeochemical processes at the coastal regions. Also it is the only project dealing with ocean physical processes. Nevertheless, it seems that there might be some points of interaction with CRN-2031 (land use change) regarding the understanding of the contribution of both land and ocean processes to carbon cycle at regional and global scales.

Regarding Theme 4, CRN-2060 (Adaptation studies and Risk reductions) is the only CRN2 that its goal directly contributes to this theme. In that sense, IAI launched the SGP-HD as it is explained below.

About SGP-HD:

6 projects were selected to be funded under this program. SGP-HD aims to promote human dimensions research focused on theme IV, Human Dimensions and Policy Implications, of the IAI Science Agenda and is built on the interdisciplinary networks created in CRN II. The program is expected to develop strong human dimensions research in conjunction with the projects under CRN II by integrating natural and social sciences.

SGP-HD#	Link with other IAI Project
3	CRN-2031 (Th2) CRN-2047 (Th1)
4	CRN-2047 (Th1)
5	CRN-2048 (Th1)
8	CRN-2021 (Th2)
9	CRN-2031 (Th2) CRN-2061 (Th2)
14	CRN-2031 (Th2)

Complementary, funds for additional components were provided to two CRN II projects: CRN2076 dealing with GEC and CC in the South Atlantic now includes a component on artisanal (=small scale or subsistence) fisheries. CRN2017 dealing with monitoring of urban air pollution now includes a component on health impacts of that pollution.

This initiative has been successful not only in reinforcing the research related with theme 4, but also in developing links with the projects more related with the other three science themes. In addition, the fact that some of the SGP-HD projects are linked to more than one CRN2 provides additional links between CRN2 than those described below that should actually happen.

It is noticeable that three SGP-HD projects (#3, #9, #14) are related with CRN-2031 (land use change) which in turn it is already linked with CRN-2094 and has some potential interaction with CRN-2076. This is an example of the network that can result of the current projects to which IAI should provide guidance for its integration and synthesis.

The possible interaction among the 6 SGP-HD which seems that has not happened yet, must be explored.

Discussion:

The previous brief (and probably incomplete) description of the current level of interaction among the CRN2 and SGP-HD projects shows that it is possible to make some level of science integration. The main limitation to such integration is obviously the fact that the scientific goals of the CRN2 projects are already established. Therefore, the challenge is to launch realistic strategies for integration.

Specifically:

- Science integration process should be implemented as an inherent component of the synthesis and legacy of CRN2 and SGP-HD projects.

- It seems that the integration process at this initial starting time should not be pursued under a single framework. On the other hand, it seems that it could be pursued at least at three different levels: regional, specific themes, cross-cutting themes.
- Integration has to some extent started already, based on the interaction of different projects under regional (e.g. La Plata Basin, the Caribbean region), or thematic (e.g. biodiversity related issues or paleoclimate investigations) targets.
- The way of integration that has been discussed but not explored yet, is through the implementation of a very few set of cross-cutting themes. Those themes might be determined by its societal relevance or, in scientific areas where progress is both needed and possible (e.g. modeling, remote sensing tools, etc.).
- In this context, it is important to keep in mind that considering how wide the IAI Science Agenda is, the relatively low number of projects currently addressing it, and the international, interdisciplinary features in which IAI projects are built, there are some CRN2 that are already integrating science knowledge and decision making (e.g. SACC, SAEMC, DIVERSUS, etc).
- The integration structure based on IAI project networks should be formalized under the determination of common goals, and deliverables, with associated timescales for achieving them, and milestones to map out and measure their progress.
- The SAC should provide guidance for the formalization and strengthening of the integration process. In that sense, the SAC committee should work in close collaboration with the IAI Directorate who is the one actually in direct contact with the project PIs. Integration process should be a dynamic two-way interaction process between SAC, IAI Directorate and projects.
- Integration Workshops can be a useful tool to start the process. They must to be focused and targeted to address any of the integration structures previously described.