ASIA-PACIFIC NETWORK FOR GLOBAL CHANGE RESEARCH

CAPaBLE Programme Final Report

Project Reference Number: CBA2015-05NSY-Seitzinger

International Geosphere-Biosphere Programme (IGBP) Landmark Synthesis Event

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GLOBAL IGBP CHANGE International Geosphere-Biosphere Programme

Project Reference Number: CBA2015-05NSY-Seitzinger

"International Geosphere-Biosphere Programme (IGBP) Landmark Synthesis Event"

Final Report submitted to APN

OVERVIEW OF PROJECT WORK AND OUTCOMES

Non-technical summary

In 2015 the International Geosphere-Biosphere Programme (IGBP) organised a series of activities at the fall scientific conference of the American Geophysical Union (AGU), held each year in San Francisco, USA. The aims were threefold: a) present and discuss the results of IGBP's final synthesis, and reflect on IGBP's science and policy legacy; b) hand over the baton of global-change research coordination to the new Future Earth initiative; and c) include young scientists in the transdisciplinary and crosscutting scientific sessions as well as a gathering to foster their entry into the international scientific community.

IGBP undertook a fund raising campaign to support the attendance of those from the IGBP community as well as those new to the IGBP community, namely aspiring young and early career scientists with links to the IGBP project from developing and developed countries. As up-and-coming scientists, their participation in the IGBP Landmark Synthesis Event was crucial to its success. The AGU conference is the largest annual gathering of scientists in the world, and a large number of IGBP scientists attend this conference. Through this grant, we facilitated the participation of young and early career scientists from the Asia-Pacific region. As attendees to IGBP events and activities, these young scientists had the opportunity to engage with the large Global Environmental Change community and scientific network present at this conference.

Keywords

Developing countries, young scientists, global environmental change

Objectives

The main objectives of the project were to

1. present and discuss the landmark synthesis of IGBP's three decades of work;
2. hand over the baton of global-change research coordination to Future Earth;
3. provide opportunities for collaboration and networking for young scientists from developing countries and with the newly emerging Future Earth community, in a forum within the larger AGU meeting, where Asia-Pacific Network (APN) grantees could present their work to their peers and the international scientific community.

Amount received and number years supported

The Grant awarded to this project was US$ 37,500 for Year 1.

Activity undertaken

We have used the APN grant to fund 11 young scientists from developing countries to attend the AGU Fall Meeting 2015 in San Francisco. AGU offered to fund 10 young scientists; however, because IGBP was able to contribute additional funds to support each scientist, this allowed us to fund one extra person. As a condition of their receiving funding each grantee was required to submit an abstract to AGU. All but one submitted abstracts to AGU, and all were invited to present posters; in some cases, grantees were invited to present multiple posters (details provided in the Annex 1a and 1b).

In addition to their poster presentations, we involved the APN grantees in a number of ways:

- Grantees were invited to apply to attend the IGBP/Future Earth young and early career scientists' workshop. Of the 11 grantees, 4 attended this two-day workshop, which took place at Stanford University in Palo Alto just before AGU. Further details in Annex 2.
- IGBP also used this opportunity to establish young developing-country scientists' interactions with the Global Environmental Change community and senior personnel from Future Earth. All APN grantees were invited to the IGBP celebration banquet (see Annex 3). The banquet brought together around 150 scientists and agency partners who shaped IGBP over the past three decades. Key personnel from Future Earth were also invited. In addition to this wonderful networking opportunity, the APN grantees had posters sessions at AGU, where they could meet peers and widen their scientific networks. The APN grantees were also invited to help staff the Future Earth/IGBP booth at AGU, which was a practical way to engage them and also widen their networks.
- All APN grantees were invited to attend the Bella Gaia performance, a live music and dance performance melded with images representing the Anthropocene. A post-performance panel discussion took place with representatives from IGBP, Future Earth, and AGU, which co-sponsored the event, and Bella Gaia's founder and others.
- IGBP worked with AGU to identify and offer support to the grantees throughout the meeting, for example, via the AGU International Buddy Programme and the International Reception. The International Buddy Programme connected first-time AGU attendees whose first language is not English with other experienced attendees who speak the same first language (http://fallmeeting.agu.org/2015/international-buddy-program/). The International Reception was a free event held on the first evening of AGU and aimed at providing support to international participants. IGBP also provided welcome packs to all the grantees with supplementary information on AGU, recommended sessions for them to attend, and details on the 100 IGBP co-sponsored sessions (see Annex 4).

Further support for the APN grantees came through network building with each other: they stayed at the same hotel, were all invited to the IGBP celebration banquet where they were introduced to each other, and were all invited to the Bella Gaia performance and seated together. The grantees that attended the pre-AGU workshop had an additional opportunity to network with their peers and senior Global Environmental Change scientists. These activities fostered international relationships and support among this cadre of young scientists from developing countries.

Results

A total of 11 young scientists sponsored by APN grants attended the 2015 AGU Fall Meeting. Of these, 10 submitted abstracts and presented posters at AGU. They and the larger AGU community participated in the IGBP Landmark Synthesis Event, which included 100 IGBP-co-sponsored sessions, IGBP/Future Earth young early career scientist workshop, IGBP celebration banquet, Bella Gaia multimedia performance, and mingling at the Future Earth/IGBP booth.

A number of scientific sessions were organised centrally by IGBP. Of particular note was the Great Debate session on the Anthropocene, which was live-streamed and remains online and open access. The IGBP celebration banquet celebrated the three decades' legacy of IGBP with the IGBP community past and present. The Bella Gaia performance and

follow-up scientific panel discussion drew an audience of approximately 1,000 people – scientists and the public alike.

Relevance to the APN Goals, Science Agenda and to Policy Processes

IGBP reported on its accomplishments in science and social policy aspects of Global Environmental Change at the AGU 2015 Fall Meeting. At the same time, IGBP introduced the next generation of young and early career scientists from APN member countries and elsewhere to the greater Global Environmental Change community, to support them in their careers and networking for future research. We hope they will bring home their experiences from this past AGU meeting and build on them.

Self-Evaluation

IGBP sent a questionnaire to APN grantees in advance of the AGU conference to ask how they will communicate what they have learned at the AGU meeting once they have returned home, in order to transmit their newly gained knowledge to their communities – local stakeholders, policymakers, and other scientists. Details of the responses have been provided in Annex 5. Further evaluation through questionnaires after the workshop also indicated that the participants valued the diversity of the group, as well as the intended goals of team work and building on co-design and other concepts.

Potential for Further Work

The IGBP came to a close at the end of 2015; Future Earth took up the baton, and the community hopes that the young scientists will continue to engage in their work under the auspices of this new global-change initiative.

Publications

IGBP co-sponsored AGU sessions on the 2015 Fall Meeting website:
https://agu.confex.com/agu/fm15/meetingapp.cgi/Index/CB_CoSection~IGBP:%20International%20Geosphere-Biosphere%20Programme

Open-access video of the key session "What's the Big Deal About the Anthropocene?":
https://vts.inxpo.com/scripts/Server.nxp?LASCmd=AI:4;F:QS!10100&ShowKey=27470 (register, then go to the "View channels" tab and select "Union")

The final issue of the magazine *Global Change* from IGBP:
http://www.igbp.net/publications/globalchangemagazine/globalchangemagazine/globalchangemagazineno84.html

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2. Hena Kamal, Abu (2015) Abstract for poster: "NH33C-1924: Vulnerability of Coastal Crop Land to Climate Change in the Northern Part of Bay of Bengal: Issues, Challenges and Future Prospects." https://agu.confex.com/agu/fm15/meetingapp.cgi/Paper/65933
3. Muangsong, Chotika, et al (2015) Abstract for poster: "**PP53C-2360:** A potential of multi-proxy approach for studying Thailand summer monsoon rainfall based on tree rings and

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6. Fahim, Ahmad Muhammad, et al (2015) Abstract for poster: "B43F-0621 Study Variability of Seasonal Soil Moisture in Ensemble of CMIP5 Models Over South Asia During 1950-2005"
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8. Gaire, Narayan Prasad, et al (2015) Abstract for poster: "PP51A-2252 Past Climatic Variations in Nepal Himalaya as Reconstructed using Ring-width Chronologies"
9. Sanyal, Prasanta; Subhadeep Rakshit (2015) Abstract for poster: "PP53B-2347 How Reliable is the Bulk δ13C value of Soil Organic Matter in Paleovegetational Reconstruction?" [co-author Sanyal on two other posters: PP53C-2362 Inter-species and Seasonal Variability in Mg / Ca in Larger Benthic Foraminifera: Implications for Paleo-proxy; PP13A-2252 Inverse relation between summer and winter monsoon strength during late Holocene: continental molecular isotopic record from the Indian subcontinent].
10. Kumar, Sarvan, et al (2015) Abstract for poster: "A21A-0080 High Black Carbon (BC) Concentrations along Indian National Highways" [also co-author on poster "A54E-06 The Asian Tropopause Aerosol layer through satellite and balloon-borne measurements combined with modelling approaches".

Acknowledgments

IGBP acknowledges the collaboration of the AGU in organizing and hosting the IGBP Landmark Synthesis Event at the 2015 Fall Meeting in San Francisco. IGBP thanks the Bella Gaia steering committee: Owen Gaffney (Future Earth, Stockholm), Kenji Williams (Bella Gaia producer), Lloyd Barde (Bella Gaia promoter), Ninad Bondre (IGBP former Senior Science Editor), AGU staff (namely, Dana Reme, Jill Treby, Zoe Williams, Joan Buhrman), and Karen Smyth (IGBP Acting Executive Director). IGBP also acknowledges the work of the early career workshop steering committee, comprised of Dennis Ojima (Colorado State University), Kirsti Ashworth (University of Michigan and Chair of iLEAPS Early Career Scientists' Network and Events), Margaret Krebs (Program Designer, Leopold Leadership Programme, Stanford University), Susanne Moser (Future Earth Science Committee; Woods Institute for the Environment at Stanford University, Cheikh Mbow (ICRAF World Agroforestry Centre, Future Earth Science Committee), and Ninad Bondre (formerly IGBP Senior Science Editor) and Karen Smyth (IGBP Acting Executive Director). IGBP also acknowledges Naomi Lubick for helping to write and edit this report. Future Earth was also a partner in programming for the APN grantees.

TECHNICAL REPORT

Preface

IGBP has played a pre-eminent role in fostering the understanding of global environmental change, facilitating international collaboration and building research capacity in the developing world. To mark its legacy and eventual transition to Future Earth, IGBP organised a series of activities, including transdisciplinary sessions at the AGU conference in December 2015 and a pre-conference young/early career scientists' workshop. A range of social and networking opportunities were also arranged to allow the APN scientists to fully engage in the IGBP landmark synthesis event, enable them to present their research, and engage with IGBP scientists from around the world and build collaborations.

Table of Contents

Photographs from the AGU event included in this report were taken by Pretty Instant. Photographs from the workshop at Stanford University courtesy of Ninad Bondre (former IGBP Senior Science Editor)

1. Introduction

In an editorial in *Science*, Johan Rockström of the Stockholm Resilience Centre paid tribute to IGBP's "three decades of remarkable advancements in Earth system science", marking its contributions to recent accomplishments such as the Paris climate discussions last year (*Science*, Jan 2016, DOI: 10.1126/science.aaf2138).

The IGBP celebrated 30 years of significant progress in Earth system science at the 2015 Fall Meeting of the AGU in San Francisco by organising a series of scientific activities under the umbrella of the IGBP landmark synthesis event. As part of this watershed moment, where IGBP handed over its mission to Future Earth, the organisations joined together to guide APN-funded young scientists from developing countries in their forays into the international scientific networks present at the AGU.

At the meeting, IGBP presented the results of its final synthesis through a range of different methods, including panel discussions, union sessions, IGBP-project-led sessions, posters, and also through the IGBP celebration banquet and the Bella Gaia performance. IGBP partnered with Future Earth, AGU and the Bella Gaia producer to co-host the music and dance production, Bella Gaia. This show was followed by a scientific discussion on the Anthropocene. Another very important aspect of the IGBP landmark synthesis event was the Future Earth/IGBP pre-AGU conference young and early career workshop. IGBP secured a booth at AGU which Future Earth was able to host with support from IGBP.

IGBP brought scientific material to AGU and made available information at the IGBP celebration banquet, at the Future Earth/IGBP booth and at the Bella Gaia public event. IGBP projects and the wider IGBP community worked closely with the IGBP Secretariat to stimulate the development of these activities during 2015.

IGBP was given a place on the AGU Program Committee. This helped to ensure that IGBP played a central role in planning the AGU Fall Meeting 2015. IGBP co-sponsored 100 science sessions at AGU, a number of which represented a more integrated and policy relevant approach, namely the 'What's the Big Deal About the Anthropocene?' and a 'More Bang for Your Buck. How Does Coordination Add Value to Sustainability Science?' sessions. IGBP provided funds to help a number of the panellists/speakers participate in these sessions, as they would not normally attend this type of conference.

The final programme was developed with the engagement of IGBP stakeholders and partners, such as AGU, Future Earth and others.

Future Earth was very much engaged in the IGBP landmark synthesis event, in particular in the development of the pre-AGU conference young/early career workshop in Palo Alto, at Stanford University, the Bella Gaia performance and the Future Earth/IGBP booth. The IGBP's celebration banquet, which celebrated IGBP's achievements, was an event that marked the official handover of the IGBP mission to Future Earth. IGBP also worked closely with Future Earth so that they were involved in our sessions and panel discussions. Future Earth arranged staffing at the Future Earth/IGBP booth, this allowed our scientific community to discuss programme and scientific matters with conference attendees.

For the purposes of this report, the project described here is how IGBP ensured the APN grantees (young scientists from developing countries) participated and engaged in AGU and the activities co-sponsored there by IGBP.

Figure 1 Gathering of IGBP scientists and partners spanning the three decades of IGBP at the celebration banquet, Marriott Marquis Hotel, 13 December 2015.

2. Project Methodology

IGBP implemented a number of measures to ensure that APN grantees participated fully and left the meeting having established collaborations.

During the selection process, IGBP worked with its projects to identify the most suitable developing-nation scientists to submit a paper to the projects session. IGBP project Executive Officers worked with their Scientific Steering Committees to identify aspiring young and early career scientists in their networks. Those identified were then asked to submit a paper abstract to IGBP. These were scored by IGBP and their projects and the top abstracts were selected to receive funding to travel to AGU. IGBP also asked projects to assist in the development of the scientists' papers, which helped connect grantees to the wider community.

In total, 11 scientists were selected for APN funding, and 10 submitted abstracts to AGU. Of these, all 10 abstracts were successful and the researchers were invited to present posters at the AGU 2015 Fall Meeting.

The 11 successful scientists had links to 4 of IGBP projects,

- 5 scientists had links to iLEAPS (Integrated Land Ecosystem-Atmosphere Processes Study, a core IGBP project now transferred to Future Earth);
- 1 scientist had links to the Land Ocean Interactions in the Coastal Zone project (LOICZ; a core IGBP project now transferred to Future Earth and renamed as Future Earth Coasts);
- 4 scientists had links to PAGES (Past Global Changes, a core IGBP project now transferred to Future Earth);
- 1 scientists had links to SOLAS (Surface Ocean–Lower Atmosphere Study, a core IGBP project now transferred to Future Earth).

Our advance planning helped ensure that IGBP and our funded scientists would be able to fully engage in AGU. IGBP began communications with AGU on the IGBP landmark synthesis event in 2013. AGU representatives were invited to participate in IGBP projects Executive Officers meeting in Washington in January 2014, where details of the IGBP landmark synthesis event were presented and discussed. In 2015, IGBP was given a place on the AGU Program Committee. This helped to ensure that IGBP played a central role in planning the AGU Fall Meeting 2015.

Practical measures were put in place to help support our young and early career scientists. As we were hosting a legacy event, we felt that engagement of young and early career scientists in AGU was of central importance and we recognised that developing country scientists in particular needed considerable financial and practical support.

Figure 2 APN grantees Sarvan Kumar, Kirpa Ram and Narayan Prasad Gaire

In terms of finance, IGBP began raising funding to help support young scientists in fiscal year 2014/2015. We were successful in securing funding from NASA and the European Space Agency (ESA), as well as from APN, for this purpose.

From a practical perspective, IGBP worked closely with AGU to identify ways of supporting young and early-career developing country scientists. Measures were put in place to help developing country scientists register for AGU and submit their abstracts without paying fees. Although for some the AGU registration fee was reduced or in some cases not applicable, for many the fee would be a substantial cost. Therefore, AGU set up special registration for each of our APN and other developing country grantees to allow them to bypass payments. AGU invoiced IGBP directly for the sum of money.

IGBP discussed ways of providing practical support to our young and early career scientists while at AGU in San Francisco. AGU suggested taking advantage of their International Buddy Program. The mentorship program held by the AGU (http://fallmeeting.agu.org/2015/international-buddy-program/) "connects first-time Fall Meeting attendees, whose first language is not English, with other experienced attendees who speak the same first language". We advertised this to our APN grantees and encouraged them to sign up to the program. We also encouraged them to attend the International Reception. The International Reception was a free event held on the first evening of AGU aimed at providing support to international participants.

IGBP also provided welcome packs to all the grantees with supplementary information on AGU, recommended sessions for them to attend as well as details of the 100 IGBP co-sponsored sessions, to help them optimise their time at the meeting.

To encourage connections among the APN grantees, all the IGBP young and early career scientists were located at the same hotels, to facilitate networking among the group. Furthermore, all young and early career scientists were invited to the IGBP celebration banquet where they were introduced to each other as well to members from IGBP's community. They were also all invited to the Bella Gaia performance and seated together. The grantees that attended the pre-AGU workshop had an additional opportunity to network with their peers and senior Global Environmental Change scientists. These activities fostered international relationships and support among this cadre of young scientists from developing countries.

IGBP also used this opportunity to establish young developing country scientists' interactions with the Global Environmental Change community and senior personnel from Future Earth. All APN grantees were invited to the IGBP celebration banquet. The IGBP celebration banquet brought together around 150 key scientists and agency partners who shaped IGBP over the past three decades. Key personnel from Future Earth were also invited. This was a wonderful networking opportunity for the APN grantees.

The APN grantees had other opportunities to network. As almost all APN grantees had posters sessions at AGU, this opened up further opportunities to network with peers and widen their scientific networks. The APN grantees were also invited to give short talks and help staff the Future Earth/IGBP booth at AGU, which was a practical way to engage them and also widen their networks.

Furthermore, to facilitate networking with internationally known scientists, APN grantees were also invited to help staff the Future Earth/IGBP booth at AGU; this exposed them to scientists and representatives from Future Earth.

The following section details key components of the IGBP Landmark Celebration at AGU.

2.1. The young and early career scientists' workshop

IGBP and Future Earth worked together to develop a young and early career scientists' workshop. This two-day workshop was held in Palo Alto, Calif., at Stanford University and took place directly before the AGU conference.

Those wishing to attend the workshop had to submit a short statement outlining their research interests and motivation for participating in the workshop. In total, 24 participants attended the workshop, of which 4 were APN grantees. IGBP funded a further 5 workshop participants from Africa and South America. The goal was to have a regionally diverse workshop. The APN young scientists stayed together at a bed and breakfast in Palo Alto and attended courses together throughout the workshop.

The young and early career scientists' workshop focused on principles and approaches that can be useful in providing guidance on implementing a co-design approach. The workshop was meant to engage the participants in Future Earth research and the scope of its programming.

The breakout sessions were also meant to develop collaborative skills so that young and early career scientists might learn to work "across boundaries of disciplines and society."

The successful applicants selected one of four breakout group topics in advance of the workshop: 1. Safeguard the terrestrial, freshwater and marine natural assets (led by Craig Starger, Research Liaison Officer at Future Earth, Research Scientist at School of Global Environmental Sustainability, Colorado State University); 2. Build healthy, resilient and productive cities (led by Ninad Bondre, IGBP, and Susanne Moser, Institute for the Study of Society and Environment at the National Center for Atmospheric Research); 3. Promote sustainable rural futures + NEXUS (led by Cheikh Mbow, Future Earth Science Committee and formerly of IGBP); and 4. Improve human health by understanding complex

environmental interactions (led by Kirsti Ashworth, University of Michigan). The participants participated in work groups and over the two days of the workshop, they developed a joint case study around the principles of transdisciplinarity, co-design and co-production.

The workshop approach focused largely on breakout group activities interspersed with short presentations from the workshop facilitators and open discussions. In addition, Natasha Udu-gama, Director of Community Partnerships for AGU's Thriving Earth Program, joined the workshop to provide insights to Thriving Earth Exchange (TEX).

TEX is driven by the real-world environmental challenges that local communities face within three areas: *natural hazards/disasters, natural resources, and climate change*. TEX builds collaborative relationships between scientists and non-scientists and helps them design and implement local solutions together.

Figure 3 Dennis Ojima (Colorado State University and Future Earth) lecturing at the workshop.

Dennis Ojima was responsible for overall coordination of this workshop on behalf of Future Earth. The workshop steering group comprised Ninad Bondre (IGBP), Karen Smyth (IGBP), Kirsti Ashworth (University of Michigan and Chair of iLEAPS Early Career Scientists' Network and Events), Margaret Krebs (Program Designer, Leopold Leadership Programme, Stanford University) and Susanne Moser (Future Earth Science Committee, Woods Institute for the Environment at Stanford University), with assistance from Cheikh Mbow (Future Earth Science Committee and formerly of IGBP).

Future Earth recently engaged workshop participants by inviting them to give feedback on and act as "ambassadors" for the Future Earth Open Network, an online digital platform meant to connect the global sustainability science research community (http://futureearth.org/future-earth-open-network) See Annex 6.

Figure 4 Participants at the pre-AGU workshop held at Stanford University in Palo Alto.

Figure 5 The workshop include breakout sessions to build team-work and communication skills, while reinforcing concepts of transdisciplinarity and co-production.

2.2 Bella Gaia performance

As a part of our shared goal to improve public understanding of and appreciation for science and its ability to improve human life and advance stewardship of the Earth and its resources, AGU, IGBP and Future Earth partnered to host a performance of the inspirational audiovisual experience, Bella Gaia, in San Francisco in conjunction with IGBP's Landmark Synthesis Event and AGU's Fall Meeting. Combining NASA satellite imagery of Earth, time lapse nature photography, and cultural heritage footage with stirring live performances of music and dance from around the world, the Bella Gaia performance was a celebration of the beauty and fragility of Earth and the important role science plays in improving our ability to be good stewards of those all-important resources.

The performance took place on 17 December 2015 at the Herbst Theater in San Francisco, and tickets were available to both the general public and members of AGU, IGBP and Future Earth. The performance was followed by an informative and interactive panel discussion that includes leading scientists representing our past achievements, current efforts and future needs.

Goals of Bella Gaia

- Educate the public about the beauty and importance of the Earth and the role science plays in enhancing our understanding of its function and fragility.
- Celebrate IGBP's legacy of building understanding and awareness about our planet, including its role in focusing our collective attention on the Anthropocene.
- Attract significant participation from the IGBP, Future Earth, AGU and local San Francisco communities in the performance and accompanying panel.

Stakeholders

- IGBP, AGU, Future Earth
- Other scientific societies and affiliated organizations
- Local community in San Francisco
- Media, both scientific and non-scientific

Performance

Bella Gaia is an audiovisual performance designed to show how humans and nature are connected, how art and science are connected, and the relationship between human civilization and our ecosystem through time and space.

On the evening of Thursday, December 17, after most of the scientific sessions had been held at the AGU Fall Meeting, IGBP and its partners invited the scientific community in attendance and the local Bay Area public to a performance of the group Bella Gaia at the Herbst Theater, a well-known San Francisco venue that was sold out for the event (the auditorium's capacity is 928 people).

The performance opened with a welcome from Pauline Dube, IGBP Officer from Botswana. Pauline set the context of event, and she acknowledged the work of IGBP over the past three decades and the development of the Anthropocene concept, the subject matter of the

performance. Kenji William, Bella Gaia's director, followed with a few brief remarks about the inspiration behind the performance. The 60-minute performance paired images of Earth from space with meditative music and dance (https://www.facebook.com/events/837861562993748/; https://vimeo.com/46343461).

An informative and engaging panel discussion was held after the performance as a way to turn the inspiration gained during the performance in to an interactive dialogue with the audience. The panel was comprised of

- Astronaut John Grunsfeld,
- Bella Gaia founder/director/composer Kenji Williams,
- AGU President Dr. Margaret Leinen,
- Prof. James P. M. Syvitski (Chair of IGBP), and
- Future Earth Hub Director Josh Tewksbury (Boulder, Colo.).

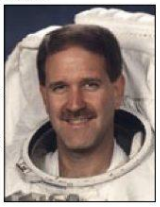
The 30-minute panel discussion was led by BBC award-winning journalist, Gaia Vince. She focused the discussion on areas such as scientific achievement, international collaboration, and future needs. The panellists reflected on the impact of the show. John Grunsfeld, who narrated part of the performance, spoke of his experiences aboard five space missions.

IGBP provided free tickets for the 20 young and early career developing country scientists funded to attend AGU, including the APN grantees.

Figure 6 The Bella Gaia poster to advertise the event.

Panel Members for Bella Gaia event December 17, 2015: The event will celebrate the achievements and legacy of the International Geosphere-Biosphere Program. The performance will be followed by a discussion panel featuring the world's leading Earth system scientists, moderated by the award-winning BBC writer and broadcaster Gaia Vince. Panelists will discuss the future of our planet in the Anthropocene and the future of research for global sustainability.

Gaia Vince, who will moderate this esteemed panel, is an award-winning writer and broadcaster specializing in science and the environment. She has been the front editor of the journal Nature Climate Change, the news editor of Nature and online editor of New Scientist. Her work has appears in newspapers and magazines in the UK, US and Australia, including The Guardian, Science, Scientific American and Australian Geographic. She has a column, Smart Planet, on BBC Online and devises and presents science programs for BBC radio. Her first book, *Adventures In The Anthropocene: A journey to the heart of the planet we made* won the Royal Society Winton prize for science books 2015. She blogs at WanderingGaia.com, tweets at @WanderingGaia, & lives in London.



John Grunsfeld, at 15, took his first National. Outdoor Leadership course, a Wind River Wilderness Course, validating his longing to climb mountains, explore the outdoors, experience nature firsthand and the importance of leadership skills in expeditions. In 1980, John graduated from MIT with a degree in physics, then a doctorate in astrophysics from the Univ. of Chicago. He also applied many of the same lessons to expeditions that he led around the world in his work as an experimental astrophysicist. In 1995, he realized his dream to explore the wilds of space as an astronaut aboard the Space Shuttle Endeavour on a 17-day astronomy mission, & again in 1997 aboard the Space Shuttle Atlantis visiting the Russian Mir Space Station. From 2002-09, he helped serviced the Hubble Telescope; Grunsfeld has logged over 58 days in space, including 8 space walks totaling 58 hrs. It's an honor to include him in the Bella Gaia panel discussion!

Kenji Williams is an immersive multi-media director and producer for various platforms from live theater to fulldome planetarium films. He is the founder, director, composer and violinist for **Bella Gaia**. Williams explores the nexus of art and science through collaborations as diverse as astronaut Koichi Wakata orbiting aboard the International Space Station, consciousness researcher Deepak Chopra, & top world music musicians. Combining his skills in film & music, Williams has earned international awards from the Canadian Society of Cinematographers to Sundance Film Festival, Best Soundtrack Composition at the Macau International Fulldome Film Festival, and media exposure from the BBC, NPR, PBS, ABC, and FOX. BELLA GAIA, involves collaborating with institutions such as NASA, The Smithsonian, and Denver Museum of Nature & Science, & has raised over half a million dollars in funding from NASA and other foundations. Kenji is recognized globally for pushing the boundaries of immersive experiences and pioneering the convergence of art and science. www.bellagaia.com

AGU President Dr. Margaret Leinen is the Director of Scripps Institution of Oceanography and Vice Chancellor for Marine Science of University of California at San Diego. The 111-year-old Scripps Institution is one of the largest oceanographic research institutes. Dr. Leinen is an ocean biogeochemist and paleoceanographer whose research includes study of ocean carbon cycling and the role of the oceans in climate. She is also the President of the American Geophysical Union, the largest geoscience society in the world, and has also served as the President of The Oceanography Society and Chair of the AAAS Section on Atmospheric and Hydrospheric Science. She served as Assistant Director for Geosciences, U.S. National Science Foundation (NSF) from 2000-2007. She has been the Vice Chair of the International Geosphere Biosphere Programme, Chair of the US Global Change Research Program and Vice Chair of the U.S. Climate Change Science Program.

Prof. James P M Syvitski is Chair of the **International Geosphere-Biosphere Programme (IGBP)**, Executive Director of the Community Surface Dynamics Modeling System (CSDMS), and a professor at the University of Colorado, Boulder. He received his Ph.D. in oceanography and geological sciences in 1978 at the University of British Columbia. Today he works at the forefront of computational geosciences as relevant to sediment transport, land-ocean interactions and Earth-surface dynamics, and has won numerous awards for his efforts. James has over 500 publications, including authorship or co-authorship of 65 peer-reviewed books, and has served in various editorial positions for many international journals. He is actively engaged with various Anthropocene working groups, one of which is tasked with determining whether the Anthropocene – the age of humans – warrants formal recognition as a geological epoch.

Josh Tewksbury is an ecologist, conservation biologist, and planetary health scientist with experience both in academia and in civil society. Before joining **Future Earth** as the Director of the Colorado Global Hub, Josh was the Maggie and Doug Walker Endowed Professor of Natural History at the Univ. of Washington, with appointments both in the Biology dept. and the College of the Environment, where his work focused on major global change issues, including the impacts of climate change on biodiversity, the potential of landscape connectivity to mitigate the impacts of climate change, and the impacts of species loss on ecosystem function. In addition to his decade + of academic work, which has been published in top journals, Josh also served as the founding director of the Luc Hoffmann Inst., a global research center based in Switzerland focused on the co-creation of multi-disciplinary research. As director, Josh launched over a dozen research projects, including work on the Food-Energy-Water nexus in South-East Asia, Development corridors in East Africa, global mapping of threats to biodiversity, and the development of regionally-appropriate low-carbon sustainability targets for urban areas.

***Bella Gaia** is presented by **Lloyd Barde Productions, AGU, IGBP** & **Future Earth**. info: 415.924.4848*

Figure 7 Bella Gaia post show panelists

2.3 IGBP celebration banquet

All APN grantees were invited to the IGBP celebration banquet. The IGBP celebration banquet brought together around 150 key scientists and agency partners responsible for shaping IGBP over the past three decades. The buffet-style setting allowed the participants to circulate easily and this was a good opportunity for APN grantees to meet each other as well as their affiliated IGBP projects and the wider IGBP community. The programme for the evening allowed the participants to learn about the evolution of IGBP over the past three decades, its significance to the development of Earth System Science and the transition to Future Earth. From the self-evaluation sheets, a number of APN grantees were familiar with IGBP projects, but not IGBP or Future Earth.

Personal reflections were made by those involved in IGBP over the years and also by representatives of Future Earth. One of which was by Dennis Ojima who expressed his admiration for the young and early career scientists that he had met at the young and early career scientists' workshop and challenged them to take forward the ambitions of Future Earth.

Figure 8 Representatives of the iLEAPS community with APN grantees at the IGBP celebration banquet

3. Results & Discussion

All the IGBP landmark synthesis event activities reflected the synthesis findings through a range of different approaches, including panel discussions, AGU Union sessions, IGBP-project-led sessions, posters, and the IGBP celebration banquet, the Bella Gaia performance, the Future Earth/IGBP young and early career scientists workshop as well as through information and discussions at the Future Earth/IGBP booth. Because the IGBP core projects identified the Asia-Pacific scientists whom they wished to participate in the IGBP landmark synthesis event, the scientists' research naturally contributed to the IGBP synthesis and they participated in at least one of the above activities.

IGBP supported a total of 20 young and early career scientists from developing countries to attend the AGU fall meeting and participated in the IGBP landmark synthesis events. Of these, 11 were funded via APN funding. IGBP raised funding to allow an additional 9 developing country scientists attend the IGBP landmark synthesis event from Africa and South America.

NO.	FIRST NAME	SURNAME	COUNTRY	FUNDING	WORKSHOP ATTENDANCE	PROJECT AFFILIATION
1	Yuning	XIE	China	APN	YES	iLEAPS
2	Damira	SHARSHENOVA	Kyrgzstan	APN	NO	iLEAPS
3	Ahmad Muhammad	FAHIM	Pakistan	APN	NO	iLEAPS
4	Chinmoy	SARKAR	India	APN	YES	iLEAPS
5	Abu	HENA	Malaysia	APN	NO	LOICZ
6	Chotika	MUANGSONG	Thailand	APN	NO	PAGES
7	Narayan Prasad	GAIRE	Nepal	APN	YES	PAGES
8	Prasanta	SANYAL	India	APN	NO	PAGES
9	Shilpi Ray	MUKHERJEE	India	APN	NO	PAGES
10	Sarvan	KUMAR	India	APN	NO	iLEAPS
11	Kirpa	RAM	India	APN	YES	SOLAS
12	Chipo	PLAXEDES MUBAYA	Zimbabwe	IGBP	YES	Officers
13	Ivonne	MONTES	Peru	IGBP	YES	SOLAS
14	Balgis	OSMAN-ELASHA	Ivory Coast	IGBP	NO	Officers
15	Noellie	YAO	Ivory Coast	IGBP	YES	GLP
16	Thierno	DOUMBIA	Senega	IGBP	YES	IGAC
17	Keita	SEKOU	Ivory Coast	IGBP	NO	IGAC
18	Julius	IBUKUN	Nigeria	IGBP	NO	LOICZ
19	N'dji dit Jacques Dembele	DIT JACQUES DEMBELE	Mali	IGBP	NO	PAGES
20	Pessiezoum	DIEUDONNE ADJOSSI	Togo	IGBP	YES	LOICZ

Table 1 Summary of IGBP funded young/early career developing country scientists

All but one recipient submitted a paper to one or more sessions as a condition of their grant. (At the time of the paper submission one participant was sick and unable to follow through with the submission.) The grantees had the experience of preparing an abstract for a high-level international meeting in collaboration with IGBP core projects scientists, and interactions with the international scientific community at a top-level scientific meeting. All those APN grantees who submitted a paper were invited to give a poster presentation at AGU. In general, very few abstracts are accepted as oral sessions at AGU, and poster sessions are the normal mode of communication for the majority of AGU attendees. This opportunity allowed the APN grantees to interact with peers interested in their subject matter and allowed them to build new contacts and networks.

APN scientists were invited to visit and staff the Future Earth booth. This opened up opportunities for scientific interactions with Future Earth scientist and the wider AGU participants.

The two-day workshop gave the participants training and time to think about related Global Environmental Change subjects, including marine protection, urban resilience, rural sustainability, and human and environmental health interactions. They also learned about co-design and co-production, the current modes of creating knowledge in international, multi-disciplinary research efforts. The participants also gained experience in working in teams as they developed case studies with their colleagues. Future Earth has already contacted the scientists' as part of their Future Earth Open initiative.

After the workshop, participants gave feedback that was overwhelmingly positive. Out of the 20 evaluation forms completed, 8 said that the workshop was excellent and 12 said that the workshop was good. All said they would recommend the workshop to colleagues. Among their assessments, they greatly appreciated the diversity of backgrounds and nationalities as well as the gender balance achieved by the organizers. They suggested incorporating communications tools from COMPASS, and perhaps using topics for breakout sessions with which the participants were more familiar or expert. Overall, however, they approved of the format and exercises and found they learned a lot to take home with them from the workshop.

The following are a range of quotes from some of the early career workshop participants:

'The workshop was challenging and motivating. I love that it was project orientated. You learn to co-produce by co-producing. Brilliant'

'The main strength is that people of different countries "young leader and researchers" are discussing global problems. The lesson learned will change the approach of research and take into account stakeholders perspectives'

'I think this workshop would make me approach research more broadly. It's something that may take time to implement, but is something I will begin sooner rather than later'

'I found some of the exercises too conceptual and less applied. I hope the next course would have concrete examples and not just concept'

In their responses to an IGBP questionnaire before the meeting, the 11 APN grantees expressed their plans for presenting scientific talks to their academic colleagues after returning home from AGU, organizing scientific collaborations and meetings at their own institutions, and encouraging students to publish and communicate their results. Some were also very interested in promoting communications via social media to heighten public awareness of the issues they study. They all looked forward to international collaborations, and to collaborating across disciplines, and hoped that the introductions made at AGU would lead them to this kind of transdisciplinary, multifaceted work at an international level

4. Conclusions

IGBP considers the Landmark Synthesis Event at the 2015 AGU Fall Meeting in San Francisco to have been a success and a suitable celebratory closure to its nearly 30 years of work in Global Environmental Change, on many levels, from enhancing multidisciplinary scientific research to informing social policy and clarifying such important issues as the Anthropocene. Our multiple projects and participation by scientists around the world was illustrated by the variety of research results presented at this last AGU meeting and in the scope of events hosted and co-organised by IGBP and its partners and colleagues, among them, Future Earth and AGU itself.

The presence of the APN grantees represented the next steps in Global Environmental Change research, and the hope that they will continue the work started by IGBP and its members. We hope that they have already begun their work at home, inspired by the AGU conference and what they learned there, and buoyed by their newly minted connections to the international scientific community.

5. Future Directions

For the future, we hope that the APN grantees will continue their work with ties to Future Earth and its new directions and efforts in carrying on the IGBP mission. We think the connections made at the AGU meeting and the Landmark Synthesis Event will serve both the young scientists from developing countries and the Future Earth community well in their upcoming efforts. We have high expectations, but unfortunately, because IGBP has now closed its doors, we will be unable to follow up to see what happens as a result of this project and the efforts made in service of these scientists and related organisations.

References

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2. Hena Kamal, Abu (2015) Abstract for poster: "NH33C-1924: Vulnerability of Coastal Crop Land to Climate Change in the Northern Part of Bay of Bengal: Issues, Challenges and Future Prospects." https://agu.confex.com/agu/fm15/meetingapp.cgi/Paper/65933
3. Muangsong, Chotika, et al (2015) Abstract for poster: "**PP53C-2360:** A potential of multi-proxy approach for studying Thailand summer monsoon rainfall based on tree rings and stalagmite from northwestern Thailand." https://agu.confex.com/agu/fm15/meetingapp.cgi/Paper/61793
4. Zhamangulova, Nurmira; Sharshenova, Damira (2015) Abstract for poster: "B31A-0517 Assessment of Local Biodiversity Loss in Uranium Mining-Tales And Its Projections On Global Scale"
5. Ram, K., et al (2015) Abstract for poster: "A41B-0058 Physicochemical Properties of Aerosols Over the Indo-Gangetic Plain, Northern India: Implications to Air-quality"
6. Fahim, Ahmad Muhammad, et al (2015) Abstract for poster: "B43F-0621 Study Variability of Seasonal Soil Moisture in Ensemble of CMIP5 Models Over South Asia During 1950-2005"
7. Shi, F., et al [Narayan Prasad Gaire] (2015) Abstract for poster: "PP51A-2283 A Multi-proxy Reconstruction of Spatial and Temporal Variations in Asian Summer Temperatures Over the Last Millennium"
8. Gaire, Narayan Prasad, et al (2015) Abstract for poster: "PP51A-2252 Past Climatic Variations in Nepal Himalaya as Reconstructed using Ring-width Chronologies"
9. Sanyal, Prasanta; Subhadeep Rakshit (2015) Abstract for poster: "PP53B-2347 How Reliable is the Bulk δ13C value of Soil Organic Matter in Paleovegetational Reconstruction?" [co-author Sanyal on two other posters: PP53C-2362 Inter-species and Seasonal Variability in Mg / Ca in Larger Benthic Foraminifera: Implications for Paleo-proxy; PP13A-2252 Inverse relation between summer and winter monsoon strength during late Holocene: continental molecular isotopic record from the Indian subcontinent].
10. Kumar, Sarvan, et al (2015) Abstract for poster: "A21A-0080 High Black Carbon (BC) Concentrations along Indian National Highways" [also co-author on poster "A54E-06 The Asian Tropopause Aerosol layer through satellite and balloon-borne measurements combined with modelling approaches".

Appendices

Annex 1 Successful Candidates
- Annex 1a CV's
- Annex 1b Abstract Submissions

Annex 2 Workshop Information
- Annex 2.1 Cover letter
- Annex 2.2 Agenda
- Annex 2.3 Logistics Early Career Scientists
- Annex 2.4 Participants Reg Form
- Annex 2.5 List of reading
- Annex 2.6 Participants List- Early Career Scientists Workshop
- Annex 2.7 Participants Evaluation Comments

Annex 3 IGBP Celebration banquet

Annex 4 Welcome Pack
- Annex 4.1 AGU general logistics
- Annex 4.2 Belle Gaia flier
- Annex 4.3 IGBP celebration banquet flier
- Annex 4.4 IGBP sessions at AGU fall meeting
- Annex 4.5 IGBP logistics document

Annex 5 Self Evaluation Questionnaire

Annex 6 Future Earth Outreach to Workshop Participants
- Annex 6.1 Future Earth email
- Annex 6.2 Future Earth questionnaire

Workshop evaluation

1) Rate the overall workshop (Circle one)

Excellent (Good) Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:
1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation
1 (2) 3 (4) 5
3) I will be able to apply the knowledge learnt
(1) 2 3 4 5
4) The training objectives for each topic were identified and followed
1 (2) 3 4 5
5) The content was organized and easy to follow
(1) 2 3 4 5
6) The material distributed were pertinent and useful
(1) 2 3 4 5
7) The trainers were knowledgeable
(1) 2 3 4 5
8) The quality of instruction was good
1 (2) 3 4 5
9) Participation and interaction were encouraged
(1) 2 3 4 5
10) Adequate time was provide for questions and discussion
(1) 2 3 4 5

11) What are the strengths of this workshop?

- Team building in a very short time
- Practise (a lot!)
- Diversity of participants

12) Would you recommend this course to your colleagues?

Yes!

13) What aspects of the training could be improved?

- Initial communication on the workshop objectives and expected outputs.
- More information on methods for dealing "on the ground" with stakeholders (conflicts ...)
- Examples of successful co-designed & co-produced projects.
- [redacted]

Workshop evaluation

1) Rate the overall workshop (Circle one)

Excellent (Good) Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:

1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation

1 (2) 3 4 5

3) I will be able to apply the knowledge learnt

1 (2) 3 4 5

4) The training objectives for each topic were identified and followed

(1) 2 3 4 5

5) The content was organized and easy to follow

1 (2) 3 4 5

6) The material distributed were pertinent and useful

1 2 (3) 4 5

7) The trainers were knowledgeable

(1) 2 3 4 5

8) The quality of instruction was good

1 (2) 3 4 5

9) Participation and interaction were encouraged

1 (2) 3 4 5

10) Adequate time was provide for questions and discussion

(1) 2 3 4 5

11) What are the strengths of this workshop?

This was a great and diverse group of people. I like how we were divided up based on shared research interests. The Communication training exercise were good, but I think inclusion of the Compass Message Box would improve/focus it for next time.

12) Would you recommend this course to your colleagues?

Yes

13) What aspects of the training could be improved?

It was somewhat of a constraint to design a detailed group project on a topic we didn't know in detail. However, I can't think of a better alternative to this either.

Workshop evaluation

1) Rate the overall workshop (Circle one)

Excellent Good Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:
1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation
1 2 3 4 5

3) I will be able to apply the knowledge learnt
1 2 3 4 5

4) The training objectives for each topic were identified and followed
1 2 3 4 5

5) The content was organized and easy to follow
1 2 3 4 5

6) The material distributed were pertinent and useful
1 2 3 4 5

7) The trainers were knowledgeable
1 2 3 4 5

8) The quality of instruction was good
1 2 3 4 5

9) Participation and interaction were encouraged
1 2 3 4 5

10) Adequate time was provide for questions and discussion
1 2 3 4 5

11) What are the strengths of this workshop?

to have people from diffent point of views

12) Would you recommend this course to your colleagues?

yes!

13) What aspects of the training could be improved?

maybe 1 an extra day to have the chance to mix topics

Workshop evaluation

1) Rate the overall workshop (Circle one)

Excellent (Good) Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:

1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation

(1) 2 3 4 5

3) I will be able to apply the knowledge learnt

(1) 2 3 4 5

4) The training objectives for each topic were identified and followed

1 (2) 3 4 5

5) The content was organized and easy to follow

1 (2) 3 4 5

6) The material distributed were pertinent and useful

(1) 2 3 4 5

7) The trainers were knowledgeable

(1) 2 3 4 5

8) The quality of instruction was good

(1) 2 3 4 5

9) Participation and interaction were encouraged

(1) 2 3 4 5

10) Adequate time was provide for questions and discussion

1 (2) 3 4 5

11) What are the strengths of this workshop?

Bringing together people from different field to create a broader vision for the future.

12) Would you recommend this course to your colleagues?

Yes.

13) What aspects of the training could be improved?

I think for a starting point, this workshop was really impressive.

Workshop evaluation

1) Rate the overall workshop (Circle one)

(Excellent) Good Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:

1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation

(1) 2 3 4 5

3) I will be able to apply the knowledge learnt

(1) 2 3 4 5

4) The training objectives for each topic were identified and followed

1 (2) 3 4 5

5) The content was organized and easy to follow

(1) 2 3 4 5

6) The material distributed were pertinent and useful

(1) 2 3 4 5

7) The trainers were knowledgeable

(1) 2 3 4 5

8) The quality of instruction was good

(1) 2 3 4 5

9) Participation and interaction were encouraged

(1) 2 3 4 5

10) Adequate time was provide for questions and discussion

1 (2) 3 4 5

11) What are the strengths of this workshop?

Focus on transdisciplinarity and the mixture of different disciplines.

12) Would you recommend this course to your colleagues?

Absolutely.

13) What aspects of the training could be improved?

I found some of the exercises too conceptual and less applied. I hope the next course would have concrete examples and not just concepts.

Workshop evaluation

1) Rate the overall workshop (Circle one)

Excellent (Good) Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:

1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation

1 (2) 3 4 5

3) I will be able to apply the knowledge learnt

(1) 2 3 4 5

4) The training objectives for each topic were identified and followed

1 2 (3) 4 5

5) The content was organized and easy to follow

1 (2) 3 4 5

6) The material distributed were pertinent and useful

1 2 (3) 4 5

7) The trainers were knowledgeable

1 (2) 3 4 5

8) The quality of instruction was good

1 (2) 3 4 5

9) Participation and interaction were encouraged

(1) 2 3 4 5

10) Adequate time was provide for questions and discussion

(1) 2 3 4 5

11) What are the strengths of this workshop?

Transdisciplinarity, gender balance, regional balance
Practical exercises

12) Would you recommend this course to your colleagues?

yes. And mostly in developing countries

13) What aspects of the training could be improved?

We need more time to do more exercises

Workshop evaluation

1) Rate the overall workshop (Circle one)

(Excellent) Good Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:
1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation
(1) 2 3 4 5

3) I will be able to apply the knowledge learnt
1 (2) 3 4 5

4) The training objectives for each topic were identified and followed
(1) 2 3 4 5

5) The content was organized and easy to follow
(1) 2 3 4 5

6) The material distributed were pertinent and useful
(1) 2 3 4 5

7) The trainers were knowledgeable
(1) 2 3 4 5

8) The quality of instruction was good
(1) 2 3 4 5

9) Participation and interaction were encouraged
1 (2) 3 4 5

10) Adequate time was provide for questions and discussion
1 (2) 3 4 5

11) What are the strengths of this workshop?

The practice of all concepts of co-design / co-production discussed

12) Would you recommend this course to your colleagues?

Yes. It brings a rich group of researchers from who one can learn from different perspectives

13) What aspects of the training could be improved?

Design activities (different from the main project) that allow to work with different people within the whole group. I did not have the chance to talk/discuss with some of them due to being 3/4 of workshop working in one group

Workshop evaluation

1) Rate the overall workshop (Circle one)
Excellent (Good) Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:
1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation
1 2 (3) 4 5
3) I will be able to apply the knowledge learnt
1 2 (3) 4 5
4) The training objectives for each topic were identified and followed
(1) 2 3 4 5
5) The content was organized and easy to follow
(1) 2 3 4 5
6) The material distributed were pertinent and useful
1 (2) 3 4 5
7) The trainers were knowledgeable
(1) 2 3 4 5
8) The quality of instruction was good
(1) 2 3 4 5
9) Participation and interaction were encouraged
(1) 2 3 4 5
10) Adequate time was provide for questions and discussion
(1) 2 3 4 5

11) What are the strengths of this workshop?

Very positive + knowledgable facilitator + speakers. Veg nice diversity of gender + nationality. & this is rare and WONDERFUL to see.

12) Would you recommend this course to your colleagues?

Yes if they are new to it.

13) What aspects of the training could be improved?

For me I was hoping for something more advanced but it was still fun.

Workshop evaluation

1) Rate the overall workshop (Circle one)

Excellent Good Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:
1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation

1 2 3 4 5

3) I will be able to apply the knowledge learnt

1 2 3 4 5

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1 2 3 4 5

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1 2 3 4 5

6) The material distributed were pertinent and useful

1 2 3 4 5

7) The trainers were knowledgeable

1 2 3 4 5

8) The quality of instruction was good

1 2 3 4 5

9) Participation and interaction were encouraged

1 2 3 4 5

10) Adequate time was provide for questions and discussion

1 2 3 4 5

11) What are the strengths of this workshop?

12) Would you recommend this course to your colleagues?

Yes I would

13) What aspects of the training could be improved?

Workshop evaluation

1) Rate the overall workshop (Circle one)

Excellent Good Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:
1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation

1 2 3 4 5

3) I will be able to apply the knowledge learnt

1 2 3 4 5

4) The training objectives for each topic were identified and followed

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5) The content was organized and easy to follow

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6) The material distributed were pertinent and useful

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8) The quality of instruction was good

1 2 3 4 5

9) Participation and interaction were encouraged

1 2 3 4 5

10) Adequate time was provide for questions and discussion

1 2 3 4 5

11) What are the strengths of this workshop?

12) Would you recommend this course to your colleagues?

YES

13) What aspects of the training could be improved?

Workshop evaluation

1) Rate the overall workshop (Circle one)

(Excellent) Good Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:

1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation

(1) 2 3 4 5

3) I will be able to apply the knowledge learnt

(1) 2 3 4 5

4) The training objectives for each topic were identified and followed

(1) 2 3 4 5

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7) The trainers were knowledgeable

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8) The quality of instruction was good

(1) 2 3 4 5

9) Participation and interaction were encouraged

(1) 2 3 4 5

10) Adequate time was provide for questions and discussion

(1) 2 3 4 5

11) What are the strengths of this workshop?

"co" is the every aspect i.e. teaching and learning is the major strength. In addition to engagement of the participants in the topics, fruitful discussions, good experts, etc. are other strengths.

12) Would you recommend this course to your colleagues?

Yes, I want to recommend this course to my colleagues

13) What aspects of the training could be improved?

The duration of the training can be increased so that many (Broader) group and Regional kind of projects can be finalized.

Workshop evaluation

1) Rate the overall workshop (Circle one)

Excellent (Good) Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:

1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

I think this workshop would make me approach research more broadly. It's something that may take time to implement, but is something I will begin sooner rather than later.

2) The training met my expectation

1 (2) 3 4 5

3) I will be able to apply the knowledge learnt

1 (2) 3 4 5

4) The training objectives for each topic were identified and followed

1 (2) 3 4 5

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6) The material distributed were pertinent and useful

(1) 2 3 4 5

7) The trainers were knowledgeable

(1) 2 3 4 5

8) The quality of instruction was good

(1) 2 3 4 5

9) Participation and interaction were encouraged

(1) 2 3 4 5

10) Adequate time was provide for questions and discussion

(1) 2 3 4 5

11) What are the strengths of this workshop?

The mix of 'lectures' and break out group activities. The openess of all people involved, and the opportunities to reflect and throw our own experiences into the mix. Loved the successful communication session.

12) Would you recommend this course to your colleagues?

Yes, and it would be nice to see a continuum, with past ECRs coming back to the next workshop as either facilitators or to discuss experiences since workshop.

13) What aspects of the training could be improved?

Day 1 was quite intense with jet lag. The complex after-lunch group work was toughest(!) but we got through it, but scheduling of this is worth considering.

Workshop evaluation

1) Rate the overall workshop (Circle one)

(Excellent) Good Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:

(1) – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation

(1) 2 3 4 5

3) I will be able to apply the knowledge learnt

(1) 2 3 4 5

4) The training objectives for each topic were identified and followed

(1) 2 3 4 5

5) The content was organized and easy to follow

(1) 2 3 4 5

6) The material distributed were pertinent and useful

(1) 2 3 4 5

7) The trainers were knowledgeable

(1) 2 3 4 5

8) The quality of instruction was good

(1) 2 3 4 5

9) Participation and interaction were encouraged

(1) 2 3 4 5

10) Adequate time was provide for questions and discussion

(1) 2 3 4 5

11) What are the strengths of this workshop?

(+) The main strength is that people of different countries "Young leaders and researcher" are discussing global problems. The lesson learned will change the approach of research and take info account stakeholders perspectives.

12) Would you recommend this course to your colleagues?

(*) I would recommend to my colleagues.

13) What aspects of the training could be improved?

(*) > More time and discussions.

Workshop evaluation

1) Rate the overall workshop (Circle one)

Excellent Good Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:

1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation
1 2 3 4 5

3) I will be able to apply the knowledge learnt
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4) The training objectives for each topic were identified and followed
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8) The quality of instruction was good
1 2 3 4 5

9) Participation and interaction were encouraged
1 2 3 4 5

10) Adequate time was provide for questions and discussion
1 2 3 4 5

11) What are the strengths of this workshop?

This workshop was challenging and motivating. I love that it was project oriented. You learn to coproduce by coproducing. Brilliant.

12) Would you recommend this course to your colleagues?

YES. I kept thinking about different people who would love this workshop and who I am going to mention it to.

13) What aspects of the training could be improved?

Oh man, I don't know. Maybe... the individual projects for each group coalesced typically around the expertise of one person in the group. Perhaps prestructured scenarios? They need to be broad though. ... I don't know

Workshop evaluation

1) Rate the overall workshop (Circle one)

Excellent Good Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:

1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
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2) The training met my expectation

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8) The quality of instruction was good

1 2 3 4 5

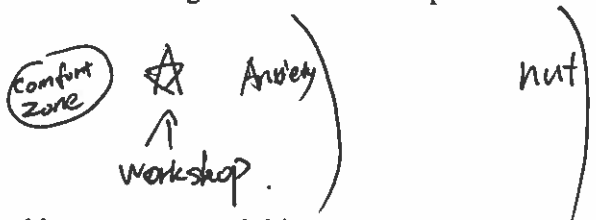
9) Participation and interaction were encouraged

1 2 3 4 5

10) Adequate time was provide for questions and discussion

1 2 3 4 5

11) What are the strengths of this workshop?



12) Would you recommend this course to your colleagues?

Definetely

13) What aspects of the training could be improved?

Will follow up by E-mail.

Workshop evaluation

1) Rate the overall workshop (Circle one)

Excellent (Good) Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:

1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation

1 2 (3) 4 5

3) I will be able to apply the knowledge learnt

1 (2) 3 4 5

4) The training objectives for each topic were identified and followed

1 (2) 3 4 5

5) The content was organized and easy to follow

(1) 2 3 4 5

6) The material distributed were pertinent and useful

1 (2) 3 4 5

7) The trainers were knowledgeable

1 (2) 3 4 5

8) The quality of instruction was good

(1) 2 3 4 5

9) Participation and interaction were encouraged

(1) 2 3 4 5

10) Adequate time was provide for questions and discussion

1 (2) 3 4 5

11) What are the strengths of this workshop?

12) Would you recommend this course to your colleagues?

Yes

13) What aspects of the training could be improved?

Exercises.

Workshop evaluation

1) Rate the overall workshop (Circle one)

Excellent (Good) Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:
1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation
1 2 3 (4) 5

3) I will be able to apply the knowledge learnt
1 2 (3) 4 5

4) The training objectives for each topic were identified and followed
1 2 (3) 4 5

5) The content was organized and easy to follow
1 2 (3) 4 5

6) The material distributed were pertinent and useful
1 2 (3) 4 5

7) The trainers were knowledgeable
1 (2) 3 4 5

8) The quality of instruction was good
1 (2) 3 4 5

9) Participation and interaction were encouraged
(1) 2 3 4 5

10) Adequate time was provide for questions and discussion
(1) 2 3 4 5

11) What are the strengths of this workshop?

Well-organized.
Diverse background of participants.

12) Would you recommend this course to your colleagues?

Yes.

13) What aspects of the training could be improved?

would be good to provide more details about the goals and structure of workshop in the initial call for application. More guidance on developing & implementing multidisciplinary research.

Workshop evaluation

1) Rate the overall workshop (Circle one)

Excellent (Good) Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:

1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation

1 2 3 (4) 5

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1 2 3 4 (5)

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1 2 3 4 (5)

5) The content was organized and easy to follow

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6) The material distributed were pertinent and useful

1 2 (3) 4 5

7) The trainers were knowledgeable

1 2 3 4 (5)

8) The quality of instruction was good

1 2 3 4 (5)

9) Participation and interaction were encouraged

1 2 3 (4) (5)

10) Adequate time was provide for questions and discussion

1 2 (3) 4 5

11) What are the strengths of this workshop?

Quality knowledge
good practice
fun atmosphere

12) Would you recommend this course to your colleagues?

yes

13) What aspects of the training could be improved?

I liked that groups were intended to be diverse however it may be good to make up groups upon arrival to ensure each group's makeup is diverse and effective.

Workshop evaluation

1) Rate the overall workshop (Circle one)

Excellent (Good) Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:

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2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation

1 (2) 3 4 5

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7) The trainers were knowledgeable

1 (2) 3 4 5

8) The quality of instruction was good

1 (2) 3 4 5

9) Participation and interaction were encouraged

1 (2) 3 4 5

10) Adequate time was provide for questions and discussion

1 (2) 3 4 5

11) What are the strengths of this workshop?

time is too short

12) Would you recommend this course to your colleagues?

Yes, I will do

13) What aspects of the training could be improved?

learning

Workshop evaluation

1) Rate the overall workshop (Circle one)
Excellent (Good) Average Poor Very Poor

Please rate questions 2 to 10 using the following scale:
1 – Agree strongly
2 – Agree
3 – Neutral
4 – Disagree
5 – Disagree strongly

2) The training met my expectation
1 2 3 (4) 5
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7) The trainers were knowledgeable
1 2 3 4 (5)
8) The quality of instruction was good
1 2 3 4 (5)
9) Participation and interaction were encouraged
1 2 3 4 (5)
10) Adequate time was provide for questions and discussion
1 2 (3) 4 5

11) What are the strengths of this workshop?
- A little more time would have been provided.
- The workshop, in future, may be of 3-4 days.
- The knowledgable resource persons
- Arrangement was very good.

12) Would you recommend this course to your colleagues?
YES

13) What aspects of the training could be improved?
- A session on writing a good journal paper would be good in future.
-

3 decades of IGBP

IGBP CELEBRATION BANQUET

Marriott Marquis Hotel
780 Mission Street
San Francisco, CA
Sunday, 13 December 2015

18.30 - 19.00	Drinks reception
19.00 - 19.30	Welcome and group photo
19.30 - 20.00	Buffet (Main Course)
20.00 - 20.30	Reflections from representatives from the IGBP community

The early years
Short insights into the challenges and achievements in the early years

Growth and evolution
Perspectives on the development of IGBP and how it evolved over time

Our lasting legacy
Insights into the role and impact of IGBP

20.30 - 21.00	Buffet (Dessert/Coffee)
21.00 - 21.30	Personal reflections from others in the room
21.30 - 21.45	Informal thanks and ceremonial handover to Future Earth

Please note: this event is by Invitation Only

GLOBAL CHANGE IGBP International Geosphere-Biosphere Programme

Science for a sustainable planet

The Marriott Marquis Hotel is centrally located between Union Square and the AGU venue, the Moscone Center. More information about the hotel can be found at the Marriott Marquis website.
www.marriott.com/hotels/travel/sfodt-san-francisco-marriott-marquis/

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