

Evaluation Report Biological Problems Using Binary Matrices Working Group Meeting 2: December 10-13, 2009

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Executive Summary

Brief Synopsis of Event

This report is an evaluation of a NIMBioS Working Group entitled "Biological Problems Using Binary Matrices," which held its second meeting at NIMBioS December 10-13, 2009. NIMBioS Working Groups are chosen to focus on major scientific questions at the interface between biology and mathematics. NIMBioS is particularly interested in questions that integrate diverse fields, require synthesis at multiple scales, and/or make use of or require development of new mathematical/computational approaches. NIMBioS Working Groups are relatively small (10-12 participants, with a maximum of 15), focus on a well-defined topic, and have well-defined goals and metrics of success. Working Groups will typically meet 2-3 times over a two-year period, with each meeting lasting 3-5 days; however, the number of participants, number of meetings, and duration of each meeting is flexible, depending on the needs and goals of the group.

The second meeting of the Binary Matrices group comprised 11 participants, including organizers Edward F. Connor (Department of Biology, San Francisco State University) and Joshua Ladau (Gladstone Institutes, GICD). Participants came from a variety of other institutions, including the United States Geological Survey, the Integrative Ecology Group (non-profit), and several universities in Argentina, New Zealand, and the United States (See Appendix A).

The first meeting of the Binary Matrices Working Group brought together ecologists, mathematicians, and statisticians to tackle the problems arising from the current null model testing of binary matrices. During the first meeting, the group explored the statistical issues surrounding the use of binary matrices in interpreting large-scale data, and sought to develop a mathematical solution to the questionable results of null model testing.

The second meeting began with presentations from the four subgroups (the analysis of food webs; pollination networks; incidence-based co-occurrence patterns; and abundance-based co-occurrence patterns) and discussions about the progress that had been made since the last meeting. Following the presentations, the subgroups worked to further their projects. Progress was made acquiring data sets for analysis, coding statistical methods, and discussing data-related matters and models. The next meeting for the group is scheduled for May 2010.

Evaluation Design

An electronic survey aligned to the following evaluation questions was designed by the NIMBioS Evaluation Coordinator with input from the NIMBioS Director and Deputy Director:

- 1. Were participants satisfied with the Working Group overall?
- 2. Did the meeting meet participant expectations?
- 3. Do participants feel the Working Group made adequate progress toward its stated goals?
- 4. Do participants feel they have a good understanding about the work being done by other subgroups within the group?
- 5. Do participants feel they gained a better understanding of t how the work of the various subgroups will tie together to reach the Working Group's goals?
- 6. What impact has the Working Group had on participants' research agendas?
- 7. Were participants satisfied with communication between group meetings?
- 8. Have participants produced any products/publications associated with the Working Group?

The final instrument was hosted online via the University of Tennessee's online survey host mrInterview. Links to the survey were sent to 8 Working Group participants on December 14, 2009 (organizers Edward Connor and Joshua Ladau, along with NIMBioS postdoctoral fellow Will Godsoe, were not included in the evaluation). Reminder emails were sent to non-responding participants on December 21, 2009, and January 4, 2010. By January 11, 2010, 7 participants had given their feedback, for a response rate of 88%.

An electronic demographics survey aligned to the reporting requirements of the National Science Foundation was designed by the NIMBioS Evaluation Coordinator with input from the NIMBioS Director. The final instrument was hosted online via the University of Tennessee's online survey host mrInterview. Links to the survey were sent to the three Working Group participants for whom NIMBioS did not have complete information on November 30, 2009. Reminder emails were sent to non-responding participants on December 7, 2009. By December 14, 2009, three participants had filled out the survey for a response rate of 100%. Demographic questions regarding gender, race, and ethnicity, and disability status were optional (disability status is not reported in this evaluation report). All demographic information is confidential, and results are reported only in the aggregate. When feasible, the evaluator filled in missing demographic data from other sources (e.g. address, institution, field of study). The evaluator did not assume race, ethnicity, or disability status for any participant who did not report this information.

Highlights of Results

- Overall satisfaction with the Working Group was high among survey respondents, all of whom indicated they either agreed or strongly agreed that the Working Group was very productive and met their expectations.
- All respondents thought the presenters were very knowledgeable about their topics, and 66% agreed that the presentations were useful.
- 84% of respondents agreed that participating in the meeting increased their understanding of the work being done in by other subgroups within the Working Group.
- 67% of respondents agreed that participating in the meeting increased their understanding of how everyone's work would come together to for the group's research paper(s).
- 71% of respondents agreed that the format of the Working Group was very effective for achieving its goals, and 86% agreed that the Working Group made adequate progress adequate progress toward developing the group's research paper(s).
- Four respondents said that participating in the working had influenced their research agendas, while one said he/she hoped it would after more progress was made on the projects.
- 86% of respondents said they left this meeting with a good idea of what their contribution will be at the next meeting.

Conclusions and Recommendations

Overall, the Working Group was successful in making progress toward its goals. Working Group respondents were satisfied with the meeting, indicating that it was a productive experience that met their expectations.

Most respondents agreed that participating in the Working Group meeting increased their understanding of the work being done in by others in the group, as well as how everyone's work would come together to achieve the goals of the group. All respondents indicated the most beneficial aspect of the Working Group was the small group discussions, where technical issues were resolved and details were worked out. Most respondents said they felt the expectations for the next Working Group meeting are clear, in the sense that they were leaving this meeting with a good idea of what they needed to accomplish before the next meeting.

Most respondents indicated they had used the Wiggio for communicating with their group in some way, with the most common form of communication being uploading files to the Wiggio for other group members to read. Only one respondent indicated that the Wiggio was "Very useful" for the purpose of communicating and/or collaborating with other members of the Working Group, while three indicated it was "Not very useful."

Four respondents said that participating in the Working Group had influenced their research agendas, while one said he/she hoped it would after more progress was made on the projects. Two participants noted that participating in the group had led to new interest in statistical methods. Another respondent indicated participating in the Working Group has caused him/her to pursue research on topics he/she had not previously considered.

The most common suggestion for improving the meeting format was to allow more time for discussions among subgroups. Respondents were happy with group communications overall, as few suggestions were offered for how organizers could better facilitate communication/collaboration among group members between meetings.

At the time of reporting the Binary Matrices Working Group has reported no publications or products to NIMBioS.

Based on analysis of participant response data, the recommendations to NIMBioS and/or Working Group organizers are as follows:

- Working Group organizers should continue to monitor group publications and products and encourage group members to report these to NIMBioS as they become available.
- Consider changing the format of the next Working Group to include more time for discussion among subgroups.
- Before the next meeting, monitor the progress of Working Group members regarding data analysis related to the project and encourage members to make progress on their assigned tasks.

Biological Problems Using Binary Matrices Working Group Evaluation Report

Background

The Biological Problems Using Binary Matrices Working Group (Binary Matrices Working Group) comprised 11participants, including organizers Edward F. Connor (Department of Biology, San Francisco State University) and Joshua Ladau (Gladstone Institutes, GICD). Participants came from a variety of other institutions, including the United States Geological Survey, the Integrative Ecology Group (nonprofit), and several universities in Argentina, New Zealand, and the United States (See Appendix A).

NIMBioS Working Groups are chosen to focus on major scientific questions at the interface between biology and mathematics. NIMBioS is particularly interested in questions that integrate diverse fields, require synthesis at multiple scales, and/or make use of or require development of new mathematical/computational approaches. NIMBioS Working Groups are relatively small (10-12 participants, with a maximum of 15), focus on a well-defined topic, and have well-defined goals and metrics of success. Working Groups will typically meet 2-3 times over a two-year period, with each meeting lasting 3-5 days; however, the number of participants, number of meetings, and duration of each meeting is flexible, depending on the needs and goals of the group.

The first meeting of the Binary Matrices Working Group brought together ecologists, mathematicians, and statisticians to tackle the problems arising from the current null model testing of binary matrices. During the first meeting, the group explored the statistical issues surrounding the use of binary matrices in interpreting large-scale data, and sought to develop a mathematical solution to the questionable results of null model testing.

The second meeting began with presentations from the four subgroups (the analysis of food webs; pollination networks; incidence-based co-occurrence patterns; and abundance-based co-occurrence patterns) and discussions about the progress that had been made since the last meeting. Following the presentations, the subgroups worked to further their projects. Progress was made acquiring data sets for analysis, coding statistical methods, and discussing data-related matters and models. The next meeting for the group is scheduled for May 2010.

Participant Demographics

Meeting participants included college/university administration (9%), college/university faculty (55%), government agents (9%), and postdoctoral researchers (27%). Primary fields of study for the 11 participants included biological/biomedical sciences and mathematics (Table 1).

Table 1. Participant fields of study and areas of concentration

Field of Study	Concentration	# Participants
Biological/Biomedical Sciences	Biometrics & Biostatistics	1
	Ecology	6
	Evolutionary Biology	1
	Mathematical Ecology	1
Mathematics	Statistics	2

Participants represented 11 different institutions across Argentina, New Zealand, Spain, and the United States. Within the U.S., seven states were represented. Of the 9 different colleges/universities, all were classified as comprehensive (having both undergraduate and graduate programs) schools.

The 11 males (one of whom self-identified as being of Hispanic/Latino ethnicity) mostly self-identified racially as white (Figures 1 & 2).

Figure 1. Racial composition of program participants (n=11)

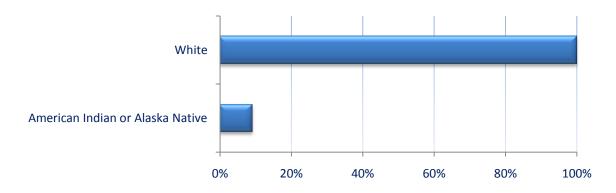
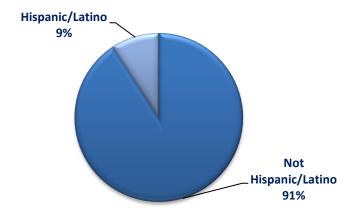


Figure 2. Ethnic composition of program participants (n=11)



Evaluation Design

Evaluation Questions

The evaluation of the Meeting was both formative and summative in nature, in that the data collected from participants was intended to both gain feedback from participants about the quality of the current Meeting and also to inform future meetings. The evaluation framework was guided by Kirkpatrick's Four Levels of Evaluation model for training and learning programs (Kirkpatrick, 1994¹). The evaluation questions were developed according to level one of the model, participants' reactions, in order to gather information about how participants felt about the content and format of the Meeting, as well as the accommodations provided by NIMBioS. Several questions constituted the foundation for the evaluation:

- 1. Were participants satisfied with the Working Group overall?
- 2. Did the meeting meet participant expectations?
- 3. Do participants feel the Working Group made adequate progress toward its stated goals?
- 4. Do participants feel they have a good understanding about the work being done by other subgroups within the group?
- 5. Do participants feel they gained a better understanding of t how the work of the various subgroups will tie together to reach the Working Group's goals?
- 6. What impact has the Working Group had on participants' research agendas?
- 7. Were participants satisfied with communication between group meetings?
- 8. Have participants produced any products/publications associated with the Working Group?

Evaluation Procedures

An electronic survey aligned to the following evaluation questions was designed by the NIMBioS Evaluation Coordinator with input from the NIMBioS Director and Deputy Director. The final instrument was hosted online via the University of Tennessee's online survey host mrInterview. Links to the survey were sent to 8 Working Group participants on December 14, 2009 (organizers Edward Connor and Joshua Ladau, along with NIMBioS postdoctoral fellow Will Godsoe, were not included in the evaluation). Reminder emails were sent to non-responding participants on December 21, 2009, and January 4, 2010. By January 11, 2010, 7 participants had given their feedback, for a response rate of 88%.

An electronic demographic survey aligned to the reporting requirements of the National Science Foundation was designed by the NIMBioS Evaluation Coordinator with input from the NIMBioS Director. The final instrument was hosted online via the University of Tennessee's online survey host mrInterview. Links to the survey were sent to the three Working Group participants for whom NIMBioS did not have complete information on November 30, 2009. Reminder emails were sent to non-responding participants on December 7, 2009. By December 14, 2009, three participants had filled out the survey for a response rate of 100%. Demographic questions regarding gender, race, and ethnicity, and

¹ From Kirkpatrick, D.L. (1994). Evaluating Training Programs: The Four Levels. San Francisco, CA: Berrett-Koehler.

disability status were optional (disability status is not reported in this evaluation report). All demographic information is confidential, and results are reported only in the aggregate. When feasible, the evaluator filled in missing demographic data from other sources (e.g. address, institution, field of study). The evaluator did not assume race, ethnicity, or disability status for any participant who did not report this information.

Data Analysis

Data from the electronic survey included both forced-response and supply-item questions. All data were downloaded from the online survey host into the statistical software package SPSS for analysis. Quantitative data were analyzed using SPSS, while qualitative data were analyzed in SPSS Text Analysis for Surveys. Qualitative responses were categorized by question and analyzed for trends.

Findings

Participant Satisfaction

Overall Satisfaction

Overall satisfaction with the Working Group was high among respondents, 100% of whom indicated they either agreed or strongly agreed that the Working Group was very productive and met their expectations. Some participant comments:

"The Working Group seems to be in a good position to produce some excellent work in the near future."

"So far, so good."

All respondents thought the presenters were very knowledgeable about their topics, and most agreed that the presentations were useful (Table 2).

Table 2. Satisfaction with various aspects of the Working Group

		Strongly				Strongly
	n	agree	Agree	Neutral	Disagree	disagree
I feel the Meeting was very productive.	7	33%	67%	0%	0%	0%
The Meeting met my expectations.	7	33%	67%	0%	0%	0%
The presenters were very						
knowledgeable about their topics.	7	83%	17%	0%	0%	0%
The presentations were useful.	7	33%	33%	33%	0%	0%
The group discussions were useful.	7	17%	67%	17%	0%	0%

Working Group Format and Content

Progress Toward Goals

Five of the seven respondents felt the format for the second meeting was effective for meeting its goals. One respondent who felt the format could have been more effective would have liked to have "spent more time in the individual groups and less time with Working Group wide discussions."

Six respondents agreed that adequate progress was made toward developing the group's research paper (one respondent did not answer this question); however, several respondents expressed that the group needed to transition from covering the philosophical aspects of the project to working on data analyses.

"This was a good meeting in that we sharpened the focus of the models. But in some cases we are still covering the same philosophical ground. Time now to get data sets up and running."

"Yes, we made modest progress. But we still have a long way to go, and I only hope something tangible will come out of the process."

Most respondents agreed that participating in the Working Group meeting increased their understanding of the work being done in by others in the group, as well as how everyone's work would come together to achieve the goals of the group (Table 3). The participants who disagreed with these statements did not give reasons why.

Table 3. Understanding of Working Group structure and function

As a result of participating in this Working Group, I have a better understanding of:	n	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
the work being accomplished by the other subgroups within the Working Group.	7	17%	67%	0%	17%	0%
how the work of the various subgroups will tie together for the Working Group's research paper(s)	7	17%	50%	17%	17%	0%

Most Useful Aspects

All respondents indicated the most beneficial aspect of the Working Group was the small group discussions, where technical issues were resolved and details were worked out:

"[T]he opportunity to resolve technical difficulties through direct interaction of subgroup members."

"[D]iscussions in small groups that would be difficult via email."

"Discussions with the small groups, opportunity to resolve technical issues and share information."

Clarity of Expectations

Most respondents said they felt the expectations for the next Working Group meeting are clear, in the sense that they were leaving this meeting with a good idea of what they needed to accomplish before the next meeting (Figure 3). One participant who said he/she felt the expectations were clear felt that a "better assignment of tasks this time" should get the group closer to producing a manuscript.





Communications

Each research group coordinated through NIMBioS is provided access to an online collaborative group site called "Wiggio." Wiggio's interface includes six basic tools:

- Calendar A fairly simple shared calendar that allows users to manage group events.
- Folder Users can upload most file types to Wiggio groups, where they can edit documents and spreadsheets within Wiggio and get automatic version-tracking. Group members also can download the file, change it and re-upload it.
- Meeting —Three types of meetings are available for users: in-person, conference call and chat rooms.
- Poll —Allows users to get a quick consensus from group members. Users ask questions, and get the responses back aggregated in a chart format.
- Messages Through Wiggio, users can send and receive text, email, and voice messages. Each group has its own email address. When anyone in the group sends mail to that address, it gets redistributed to everyone in the group, according to their delivery preference.
- Links Users can use the link tool to paste in links so that the group has a shared set of bookmarks, videos and/or resources.

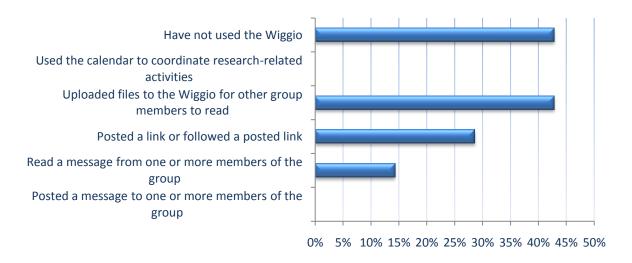
To evaluate its effectiveness, respondents were asked several questions about their use of the Wiggio as a communication tool, as well as their opinions of its usefulness. Five of the seven respondents

indicated they had used the Wiggio for communicating with their group in some way, with the most common form of communication being uploading files to the Wiggio for other group members to read (Figure 4). The two participants who did not use the Wiggio gave these reasons:

"Seems silly! Why not just send attachments by e-mail to everyone in the subgroup. That's easier and it keeps the communication flowing more naturally."

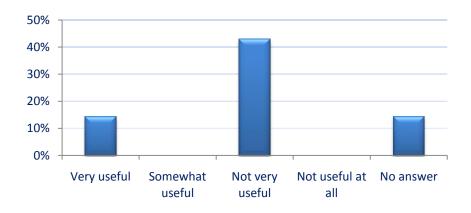
"It is slow and does not appear to be the most efficient means to interact with the other participants."

Figure 4. Wiggio use



Respondents who had used the Wiggio rated its usefulness. Only one respondent indicated that the Wiggio was "Very useful" for the purpose of communicating and/or collaborating with other members of the Working Group, while three indicated it was "Not very useful" (Figure 5). One respondent indicated he/she had "some trouble using it,", while another indicated he/she thought it was "extremely slow."

Figure 5. Usefulness of the Wiggio for communicating with research group members (n = 5)



Working Group Impact

Participant Research

Four respondents said that participating in the working had influenced their research agendas, while one said he/she hoped it would after more progress was made on the projects. Two participants noted that participating in the group had led to new/stronger interest in statistical methods:

"Exposed me to some new statistical ideas and allowed me to network and establish new collaborations with some excellent statisticians."

"I have incorporated some of the projects in my research agenda. I have developed a stronger interest for Bayesian statistics."

Another respondent indicated participating in the Working Group has caused him/her to pursue research on topic he/she had not previously considered, while another indicated it had increase the effort into "research related to the Working Group's goals."

Publications and Products

NIMBioS asks all Working Group participants to report any publications and/or other products resulting from their involvement in NIMBioS-related research activities. Participants may report their publications through evaluation surveys or via an online reporting system available on the NIMBioS website (http://www.nimbios.org/research/products). A link to the reporting system may be found on the NIMBioS homepage. Research participants may report their results at any time, however, email reminders are sent to all research participants four times a year (March, June, September, and December) to solicit any unreported products.

At the time of reporting the Binary Matrices Working Group has reported no publications or products to NIMBioS.

Suggestions for Future Working Group Meetings

Respondents were asked several questions soliciting ideas for improving Working Group meetings with regard to content, format, and communications. The most common suggestion for improving the meeting format was to allow more time for discussions among subgroups:

"I think that what was accomplished could be done with fewer days if more time was spent working within subgroups and less time with Working Group wide discussions. Or, at a minimum, by saving the Working Group wide discussions for the end of the process."

"Less time for whole group discussions."

Respondents were happy with group communications overall, as few suggestions were offered for how organizers could better facilitate communication/collaboration among group members between meetings. Two participants made comments, however, that they would like to see more data analyses completed before the next meeting:

"We've got to have analyses completed before the next meeting or there will be nothing new to discuss."

"Make sure data gets collated and analyzed before next time."

Conclusions and Recommendations

Overall, the Working Group was successful in making progress toward its goals. Working Group respondents were satisfied with the meeting, indicating that it was a productive experience that met their expectations.

Most respondents agreed that participating in the Working Group meeting increased their understanding of the work being done in by others in the group, as well as how everyone's work would come together to achieve the goals of the group. All respondents indicated the most beneficial aspect of the Working Group was the small group discussions, where technical issues were resolved and details were worked out. Most respondents said they felt the expectations for the next Working Group meeting are clear, in the sense that they were leaving this meeting with a good idea of what they needed to accomplish before the next meeting.

Most respondents indicated they had used the Wiggio for communicating with their group in some way, with the most common form of communication being uploading files to the Wiggio for other group members to read. Only one respondent indicated that the Wiggio was "Very useful" for the purpose of communicating and/or collaborating with other members of the Working Group, while three indicated it was "Not very useful."

Four respondents said that participating in the Working Group had influenced their research agendas, while one said he/she hoped it would after more progress was made on the projects. Two participants noted that participating in the group had led to new interest in statistical methods. Another respondent indicated participating in the Working Group has caused him/her to pursue research on topics he/she had not previously considered.

The most common suggestion for improving the meeting format was to allow more time for discussions among subgroups. Respondents were happy with group communications overall, as few suggestions were offered for how organizers could better facilitate communication/collaboration among group members between meetings.

At the time of reporting the Binary Matrices Working Group has reported no publications or products to NIMBioS.

Based on analysis of participant response data, the recommendations to NIMBioS and/or Working Group organizers are as follows:

- Working Group organizers should continue to monitor group publications and products and encourage group members to report these to NIMBioS as they become available.
- Consider changing the format of the next Working Group to include more time for discussion. among subgroups.

•	Before the next meeting, monitor the progress of Working Group members regarding data inalysis related to the project and encourage members to make progress on their assigned asks.							

Appendix A

List of Participants

Participants

Last name	First name	Institution
Allesina	Stefano	University of Chicago
Barker	Richard	University of Otago
**Connor	Edward	San Francisco State University
Dorazio	Robert	United States Geological Survey
[†] Godsoe	William	NIMBioS
Gotelli	Nicholas	University of Vermont
*Ladau	Joshua	University of California, San Francisco
Schwager	Steven	Cornell University
Simberloff	Dan	University of Tennessee, Knoxville
Stouffer	Dan	Integrative Ecology Group
Vazquez	Diego	Universidad Nacional de Cuyo

^{*} Organizer of Working Group

Participants who attended the first Working Group meeting, but not the second

Last name	First name	Institution
Kembel	Stephen	University of Oregon

[†]Not present at first Working Group meeting

Appendix B

Biological Problems Using Binary Matrices Working Group Survey, Meeting Two

Biological Problems Using Binary Matrices Working Group Survey Second Meeting

Thank you for taking a moment to complete this survey. Your responses will be used to help measure the progress of your Working Group, and to improve future Working Groups hosted by the National Institute for Mathematical and Biological Synthesis. Information you supply on the survey about your opinions of the Working Group will be confidential, and results will be reported only in the aggregate.

Please check the appropriate box to indicate your level of agreement with the following statements about the second Working Group meeting: (Strongly agree, Agree, Neutral, Disagree, Strongly disagree)

I feel the meeting was very productive.

The meeting met my expectations.

The presenters were very knowledgeable about their topics.

The presentations were useful.

The group discussions were useful.

How do you feel about the format of the Working Group?

This was a very effective format for achieving our goals

This was not a very effective format for achieving our goals

The Working Group format would have been more effective if:

Please check the appropriate box to indicate your level of agreement with the following statements. As a result of participating in this Working Group, I have a better understanding of: (Strongly agree, Agree, Neutral, Disagree, Strongly disagree)

the work being accomplished by the other subgroups within the Working Group how the work of the various subgroups will tie together for the group's research paper(s)?

Do you feel the Working Group made adequate progress, for its second meeting, toward developing its research paper(s)?

Yes

No

Comments:

Do you feel the expectations for the next Working Group meeting are clear (in the sense that you are leaving this meeting with a good idea of what you need to accomplish before the next meeting)?

Yes

No

Comments:

What aspect of this meeting of the Working Group did you feel was the most beneficial in advancing the group's research agenda? (e.g. discussions with the whole group/small groups, opportunity to resolve technical difficulties, or a particular activity)

What, if anything, would you change about the Working Group meeting?

How has participating in the Working Group influenced your research agenda thus far?

Communications

In what ways have you used the Wiggio for communicating/collaborating with other members of your Working Group?

Posted a message to one or more members of the group
Read a message from one or more members of the group
Used the calendar to coordinate research-related activities
Uploaded files to the Wiggio for other group members to read
Posted a link or followed a posted link
I have not used the Wiggio
Why did you not use the Wiggio?

How useful do you feel the Wiggio has been for the purpose of communicating and/or collaborating with other members of your Working Group?

Very useful Somewhat useful Not very useful Not useful at all

Please use this space for any comments you have about the Wiggio:

What, if anything, do you feel your Working Group organizers can do to better facilitate communication/collaboration among group members between meetings?

Please provide any additional comments about your overall experience with the Working Group:

Publications and Products

Follow this link to report your publications and/or products related to your Working Group activities (link provided)

Appendix C

Open-ended Survey Responses

Open-ended responses, by question and response category

Do you feel the Working Group made adequate progress, for its second meeting, toward developing its research papers? (n=2)

This was a good meeting in that we sharpened the focus of the models. But in some cases we are still covering the same philosophical ground. Time now to get data sets up and running.

Yes, we made modest progress. But we still have a long way to go, and I only hope something tangible will come out of the process.

How has participating in the Working Group influenced your research agenda thus far? (n=5)

Exposed me to some new statistical ideas and allowed me to network and establish new collaborations with some excellent statisticians.

I have incorporated some of the projects in my research agenda. I have developed a stronger interest for Bayesian statistics.

Have pursued topics previously not considered.

Not much yet. But hopefully it will after we make real progress in our projects.

It has increased the effort I put into research related to the Working Group's goals

Do you feel the expectations for the next Working Group meeting are clear (in the sense that you are leaving this meeting with a good idea of what you need to accomplish before the next meeting)? (n=2)

Yes, a better assignment of tasks this time should get us closer to what we need for a manuscript.

We'd better produce some papers...

What, if anything, would you change about the Working Group meeting? (n=6)

We've got to have analyses completed before the next meeting or there will be nothing new to discuss.

Less time for whole group discussions

I think that what was accomplished could be done with fewer days if more time was spent working within subgroups and less time with Working Group wide discussions. Or, at a minimum, by saving the Working Group wide discussions for the end of the process.

nothing

It'd be nice to start work at 8, which means breakfast should be ready by, say, 7:15. Possible?

I can't think of anything that should be changed.

The Working Group format would have been more effective if: (n=1)

we spent more time in the individual groups and less time with Working Group wide discussions.

Please provide any additional comments about your overall experience with the Working Group: (n=2)

The Working Group seems to be in a good position to produce some excellent work in the near future. So far, so good.

What aspect of this meeting of the Working Group did you feel was the most beneficial in advancing the group's research agenda? (e.g. discussions with the whole group/small groups, opportunity to resolve technical difficulties, or a particular activity) (n=6)

Small group discussion

Small group activities.

the opportunity to resolve technical difficulties through direct interaction of subgroup members discussions in small groups that would be difficult via email

Meeting in subgroups to discuss our projects.

Discussions with the small groups, opportunity to resolve technical issues and share information Small Groups

What, if anything, do you feel your Working Group organizers can do to better facilitate communication/collaboration among group members between meetings? (n=4)

Make sure data gets collated and analyzed before next time.

Subversions server for code & papers. Website for the group.

Not sure. I think they are doing a good job.

I don't have any suggestions about this.

Please use this space for any comments you have about the Wiggio: (n=2) It is extremely slow, which makes using it more of a problem than a solution. I have had some trouble using it. Journal articles and/or book chapters (include if work is published or in press): (n=0) Reports, white papers, and other non-refereed materials: (n=0) Presentations (indicate presenters, date, title, and venue): (n=0) Proposals submitted for follow-on research (indicate funding status, title, investigators, and sponsoring organization): (n=0) Publications and products continued: meeting or workshop? (n=0) Student training: (n=0) Data, software, and/or web sites: (n=0) Publicity in popular press: (n=0) Why did you not use the Wiggio? (n=2) Seems silly! Why not just send attachments by e-mail to everyone in the subgroup. That's easier and it keeps the communication flowing more naturally.

It is slow and does not appear to be the most efficient means to interact with the other participants.

Appendix D

Working Group Related Products

Journal articles and/or book chapters None reported Reports, white papers and other non-refereed materials None reported **Presentation s** None reported Proposals submitted for follow-on research None reported **Student training** None reported Data, software, and/or web sites None reported **Publicity in popular press** None reported **Conferences or meetings** None reported