AccessData Workshop
April 30-May 3, 2008

Evaluation Report
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Executive Summary

This report is intended to inform members of the AccessData Workshop Team for the planning of future workshops. The main points are listed below.

Schedule

- As in previous years, participants often had expertise in more than one of the five primary professional roles—curriculum development, data expertise, education, software tools, and scientific research. Education was the most commonly reported area of primary role at this workshop. Areas of other professional activities were well-distributed among all five roles. Overall, the balance appeared to be better than at previous workshops.
- As in previous years, participants regard their team breakout time as the most valuable aspect of the workshop. This is the first year that there was not a strong indication in the surveys that participants wanted more breakout time, so the current schedule appears to have worked well.
- Feedback on the talks was also quite positive this year; almost all participants thought the number of talks was just right. The Friday talk was particularly appreciated by attendees this year.
- Participants generally felt their groups were successful and well facilitated. The main problem that came out in feedback was the large size of one of the groups, which made discussions problematic.
- Respondents tended to think the workshop was very well balanced. Although not as strongly expressed as in previous workshops, attendees still wished for greater education emphasis throughout the workshop.
- The Demo Session and Share Fair format received the highest evaluation of any poster-session-type activity yet reviewed in this workshop series. The only common problematic issue raised was from those whose travel plans didn't allow them to attend.
- Five or six seems to be an optimal size for the teams. There were two comments from one seven-member team that seven was too many; the other seven-member team didn't seem to have that problem, however.
- Most Tool Time sessions were well received; a few suggestions for improving the effectiveness of Tool Time were offered.
- The Google Earth Tool Time was very well attended and also quite highly rated. NEO, ArcExplorer, and IDV were also rated fairly high for value.
- The GeoBrain Tool Time had significant problems. In addition to low retrospective ratings, there were a number of specific comments about the difficulties with that session. Perhaps more preparation would allow this to be a workable session in the future.
- As has been seen in years past, the final report-out is not highly rated. However, there weren't any comments complaining about it or suggesting improvements, so it's probably fine as it stands.

Data Use

- Most responses to the Data Use Survey were similar to responses in past years.
- Attendees successfully used data for many different learning goals, especially climate, understanding weather, interpreting satellite imagery, understanding the ocean, environmental science, and personal exploration and learning.
- Satellite imagery data and weather/climate observations were the most commonly used types of data, followed by sea surface temperature and topography data.
- Image, Google Earth, text/ASCII, and GIS were the most commonly used formats. Google Earth was a new category on the survey this year.
- NASA, NOAA, and USGS were the main data sources attendees had used. Within NOAA, NCDC and the National Weather Service were the most commonly used sources.
- About half of respondents reported that reformatting and subsetting data are significant obstacles to their data use; this was a new question this year. They cited needs for customizability, better documentation, availability of training, and standardized formats in particular.
- Participants reported that end-users most commonly performed visualization/imaging, graphing, statistics, and plotting/mapping procedures on the data.
- Almost all respondents had been unsuccessful using a dataset in the past. Respondents cited the primary barriers as being poor documentation, unusable file formats, and the inability to locate the data that was sought (discoverability).
- Preferred methods of instruction for learning about data use were examples, step-by-step instructions, online tutorials, and reference manual/documentation.

Workshop Logistics

- The location, facilities, and organization of the meeting were considered good to very good. The staff of the hotel received special complements from several attendees, as did the organizers of the event.
- The website, Wiki, and printed materials were all considered useful. There were a few more suggestions to improve the Wiki than in past years.
- The interviews with team members revealed a common suggestion that teams be given a completion timeline with deadlines for completing their chapter. It was thought this would encourage curriculum developers to regroup with the team at a specific time and coordinate the finalization of the product.

Recommendations

Workshop

- Continue the current format of the Demo Session and Share Fair; this format was more highly rated than any previous incarnation of this event. The only common difficulty with this format was from the folks who didn't arrive in time to attend. Stronger encouragement for people to arrive before 5pm on the first day might help.

- Continue Tool Time sessions in the current format, perhaps extending the time slot slightly. There seems to still be bandwidth problems associated with the Tool Time sessions. As in past years, coordinators should strongly encourage participants to have downloaded the tools beforehand.

- Pre-workshop activities appear to be very effective. Finalizing team members as early as possible allows as many as possible to become acquainted and begin work on their topics and tools before the workshop. Continue this year's effort to provide active support from AccessData team members; the pre-workshop telecons were regarded as very effective this year. Familiarity with the software tool used by the team seems to be especially important. Post-workshop activities should include a timeline and deadline for completion of the chapter.

- Having someone on each team who has been through the chapter development workshop before seems to be very helpful. Assigning experienced Curriculum Developers, facilitators, and note takers seems to be efficient and appreciated by the teams. Having several members of a team be from the same location enhances productivity.

- Consider having two Google Earth Tool Times. This session has been hugely popular for two years now. Given the common experience of participants in using Google Earth data, this seems especially important.

- Workshop leaders may want to work a little more closely with new Tool Time presenters to ensure the session's success. Complaints about GeoBrain were largely concerned with the presenters' lack of preparation.

- Networking remains one of the most highly valued aspects of the workshop. Any additional social or informal networking opportunities would probably be welcome.

- The current number and level of keynote talks seems well-received; it might be good if one of them could have more of an education/curriculum emphasis.

Data for Educational Use

- Data providers should consider three primary barriers to educational use of their data—poor documentation, unusable file formats, and discoverability problems.

- Google Earth and Image data are the most commonly used data formats. GIS files are also commonly used. In addition, many users process data through converting into ASCII or Excel files. Data managers may want to consider providing these data formats for their educational data users.

- To enhance educational use of their products, data providers and tool developers should consider providing examples, step-by-step instructions, online tutorials, and a reference manual.

Evaluation

- With the pre-workshop activities, all participants are probably aware of their work team before they arrive; asking for participants' teams on each of the daily surveys (instead of only the Final Survey) might help the real-time evaluation work done at the end of each day.

- On the Thursday Survey, there wasn't an open-ended comment option on the value of the Demo Session and Share Fair to non-presenters. Some of them commented in the presenter question space. It would be good to add a comment option for non-presenters on the survey.

- Response rates continue to improve, and the objection to the surveys is fairly low.

Introduction

This report provides information to AccessData Workshop organizers to help them understand the degree to which the meeting (as perceived and experienced by participants) met goals and to inform planning for future workshops. Presented below are a description of the conference; the methods by which the evaluation data were elicited, compiled, and analyzed; information on the participants who responded to the surveys; and a presentation of responses to survey items. The Appendices include the evaluation instruments and the workshop agenda.

The goals of the AccessData project are to

- Increase the availability of and accessibility to high-quality data-rich educational materials and
- Increase communication among professional roles to facilitate educator and student use of Earth science datasets.

The website for AccessData is http://serc.carleton.edu/usingdata/accessdata/index.html.

AccessData Workshops bring together a wide range of professionals who have a stake in promoting the use of scientific data in educational settings--Earth science data providers, data access and analysis tool experts, scientists, curriculum developers, and educators. To reach the project goals, all participants work together in the workshop process to explore and address issues regarding data use. Participants are chosen for their contributions of data, tools, or scientific and educational expertise needed for the development of a series of Earth Exploration Toolbook chapters.

The 2008 workshop was held at the Embassy Suites Hotel, 319 SW Pine Street, in Portland, Oregon. There were 55 participants, each assigned to one of 10 teams. Pre-assigned roles in the teams included a Group Facilitator, Curriculum Developer, and a Notes Facilitator. Assignment of these roles was intended to allow the teams to be as productive as possible during their time at the workshop.

In addition to the team sessions, there were two keynote presentations, two hands-on lab sessions (Tool Times), and an opening night Demo Session and Share Fair. The full agenda is provided in Appendix II.

Evaluation Procedures: Data Gathered and Analytical Methods

Data informing this report were collected through a series of four surveys (see Appendix I) and observations by the evaluator. The Data Use Survey gives the workshop team insight into the participants' current experience of using scientific data for educational goals. The Thursday and Friday Surveys were reviewed at the end of each day to check for real-time adjustments that might be necessary for the workshop. The Final Survey provides a summary overview of each participants' experience of the workshop. The following describes the format of each survey:

- Data Use Survey. Distributed with registration materials and collected during the first session. This survey included ten questions (eight multiple choice with open-ended option; one yes/no with a follow-up multiple choice with open-ended option; and one yes/no with open ended follow-up).
- Thursday Survey. Administered at the end of Thursday. This survey included eight questions (three multiple choice with open-ended option; one multiple choice; one Likert; two yes/no with open-ended follow-up; and one open-ended).
- Friday Survey. Administered at the end of Friday. Six questions (three multiple choice with open-ended option, one Likert, one multiple choice, and one open-ended).
- Final Survey. Seventeen questions (one multiple choice, three multiple choice with open-ended option, four open-ended, one Likert, and eight Likert with open-ended option).

Results from each survey are reviewed in this report, with the daily and Final Surveys combined in one section due to their overlapping topics. The results of Likert, multiple choice, and yes/no questions were processed in Excel and are presented in figures. Open-ended questions were categorized and coded for dominant themes and are summarized within the text of each section. Direct quotes are given as bullets, formatted in italics.

The evaluator was introduced to participants at the start of the workshop and the importance of the evaluation process was explained. Surveys were distributed to participants by the evaluator in scheduled sessions and time was allotted for participants to complete the surveys before leaving the session. This methodology is helpful in maximizing response rates.

Participant Data

Response rates to the four surveys by stated primary professional role are summarized in Figure 1.

Each team is ideally composed of at least one representative from each of the five professional roles (Curriculum Developer, Data Representative, Educator, Scientific Researcher, and Software Tool Specialist). However, the role designation assigned by the workshop facilitators is not always the primary role that participants list in the surveys.

Variations of the role responses among the different surveys may have been due to some participants filling out the one survey and not another; it may also have been due to people reconsidering their role over the course of the workshop or some folks leaving early on some days (since the Thursday, Friday, and Final Surveys were administered in the last session of the day).

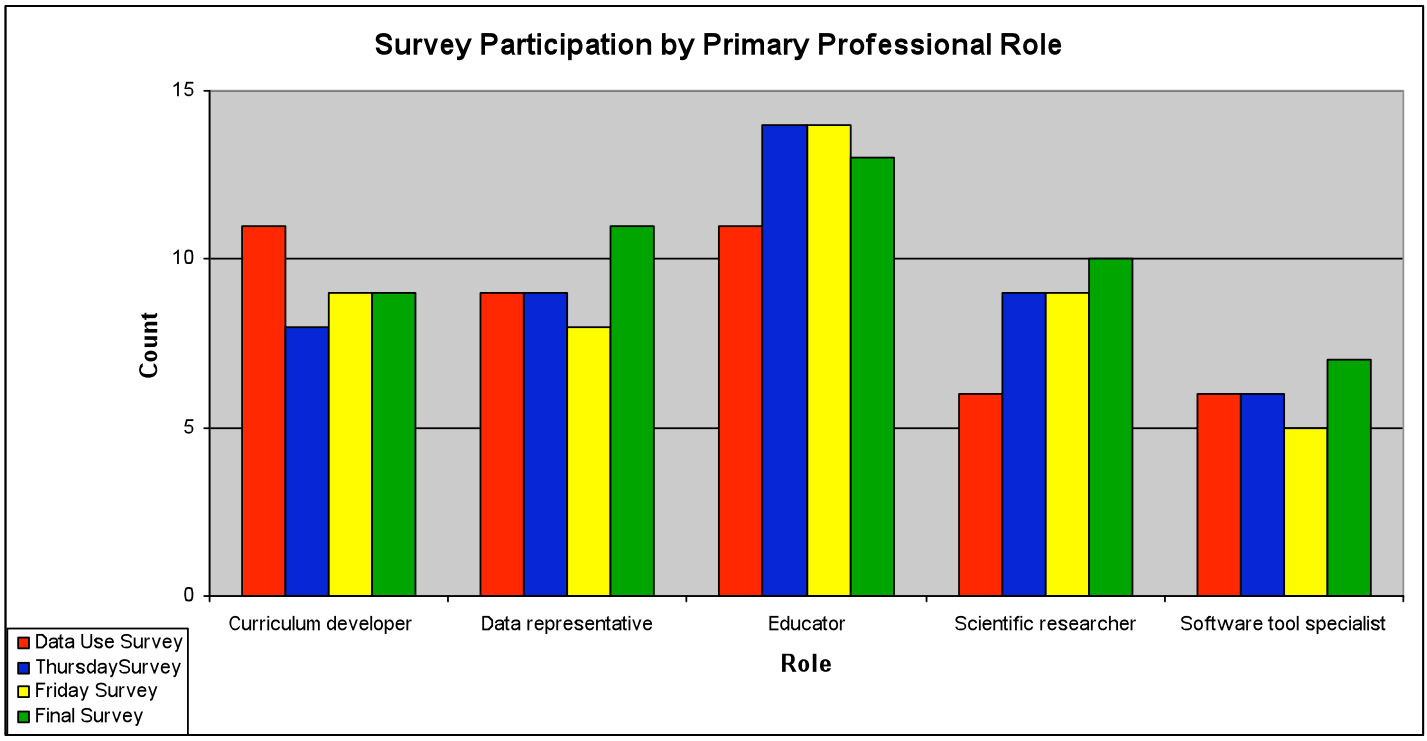

Figure 1. Number of respondents to each survey, grouped by professional role.

Many people have expertise in more than one professional area, so expecting survey respondents to select their primary role in the same way that workshop organizers had in mind may be unrealistic. However, due to this uncertainty over professional roles, broad disaggregation according to respondents' roles was not appropriate in the analysis.

Table 1 shows the response rates for each survey and each professional role, with the percent participation for each survey based on the total number of participants (55).

Response rates were sufficient to provide valuable data. All surveys were well responded to, with response rates ranging from 82% to 96% (Figure 2). The response rates are slightly better overall than for previous AccessData and DLESE Data Services Workshops.

Response rates to the Final Survey were very high. This indicates that very few people left the workshop early and almost all participants were willing to complete the survey even after already completing three others. Survey burnout does not seem to have impacted the response rates (although one participant did request one fewer surveys on their Final Survey).

Note that response rates for individual questions did vary since some people left some questions blank.

The slightly lower response rate for the Data Use Survey is probably due to it being handed out at registration--many people registered Wednesday evening; they received the survey at that time and were asked to turn it in the next morning. There were some latecomers who registered the next morning and didn't receive the survey until that time. The best response rates are generally found when a survey is handed out and collected in the same session. Due to the length of this survey, however, giving participants the evening to complete it might be worth the lower response rate. An incentive could also be used to turn it in on time.

Table 1. Comparative response rates by role and survey.

	Curriculum Developer	Data Representative	Educator	Scientific Researcher	Software Tool Specialist	Other	Total	Percent of total attendees (n=55)
Data Use Survey	11	9	11	6	6	2	**45**	**82%**
Thursday Survey	8	9	14	9	6	5	**51**	**93%**
Friday Survey	9	8	14	9	5	2	**47**	**85%**
Final Survey	9	11	13	10	7	3	**53**	**96%**
Average	**9**	**9**	**13**	**9**	**6**		**49**	**89%**

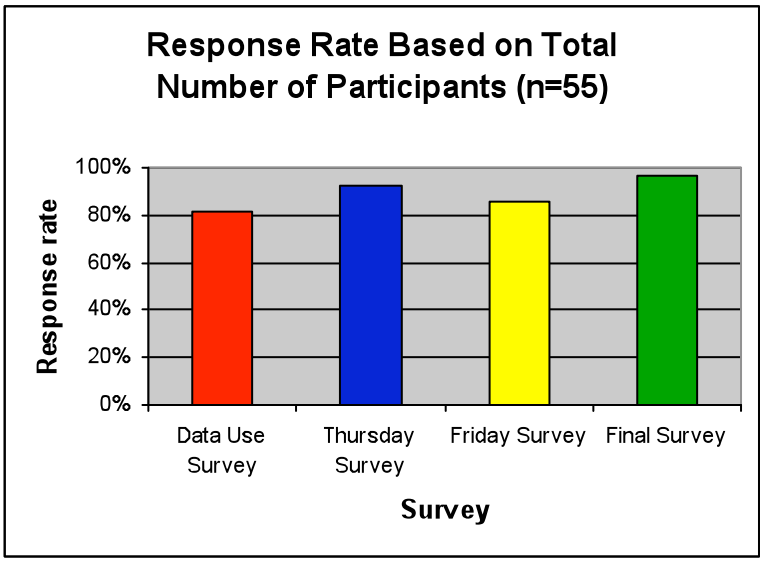

Figure 2. Percentage of attendees responding to each survey.

Professional Roles: Educator was Slightly Over-Reported and Software Tool Specialist, Under-Reported

There were two professional role questions in each survey. The first asked for their primary professional role at this workshop (Figure 3).

As in previous workshops, Educator was the most commonly reported primary professional role even though numbers of the five roles should have been approximately even. However, this over-reporting of Educator was less pronounced than in years past, which may have been due to clearer wording in the question for 2008. There seemed to be consistently fewer Software Tool Specialists than would be expected.

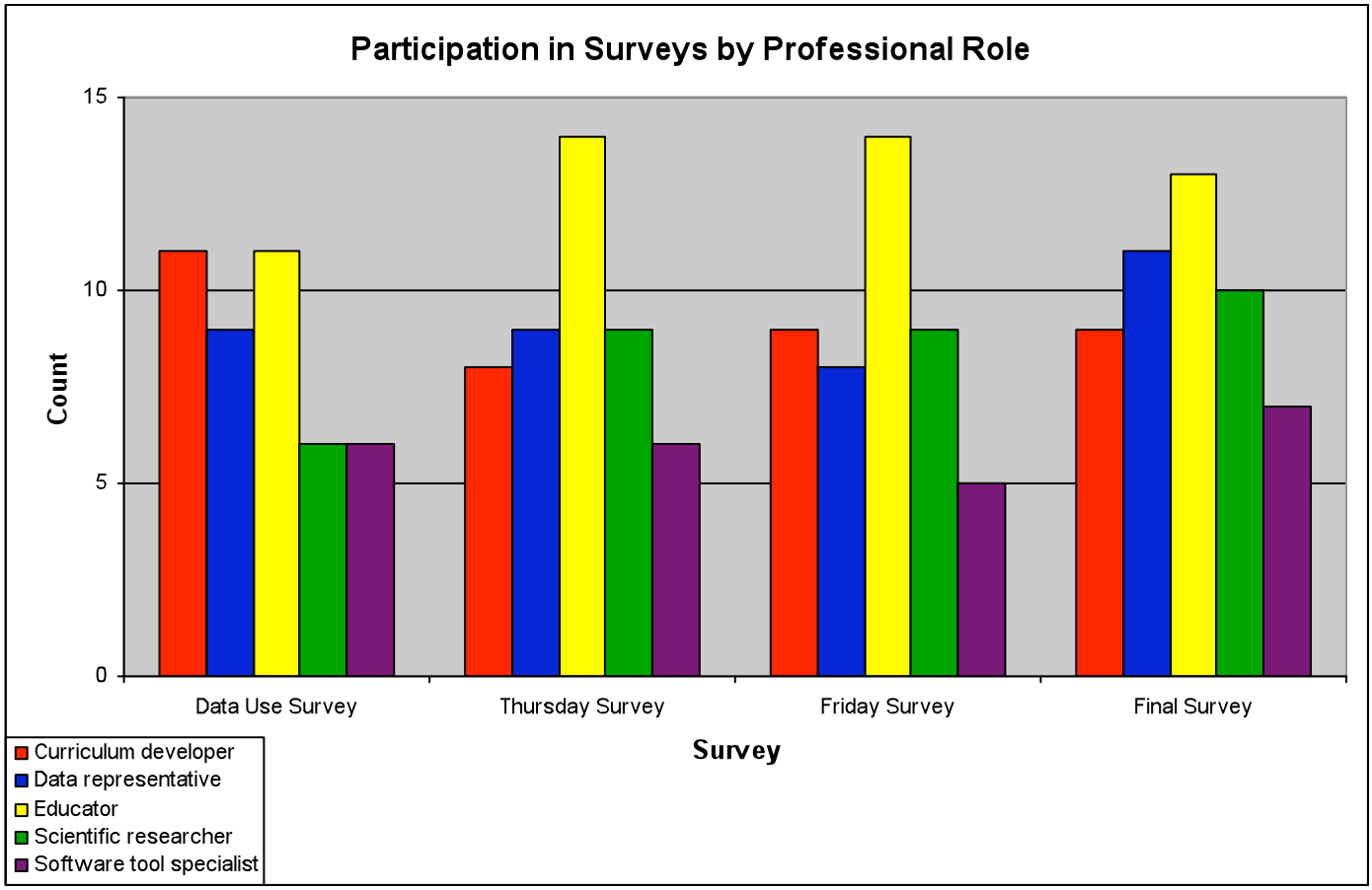

Figure 3. Primary professional roles by survey.

The second professional role question asked for other professional activities that respondents participate in. Results are displayed in Figure 4. **The results show a wide variety of professional activities by attendees.** Four of the five roles were listed by at least ten respondents on each survey; the exception was Data Representative. Fewer people selected Data Representative as a secondary activity than the other categories.

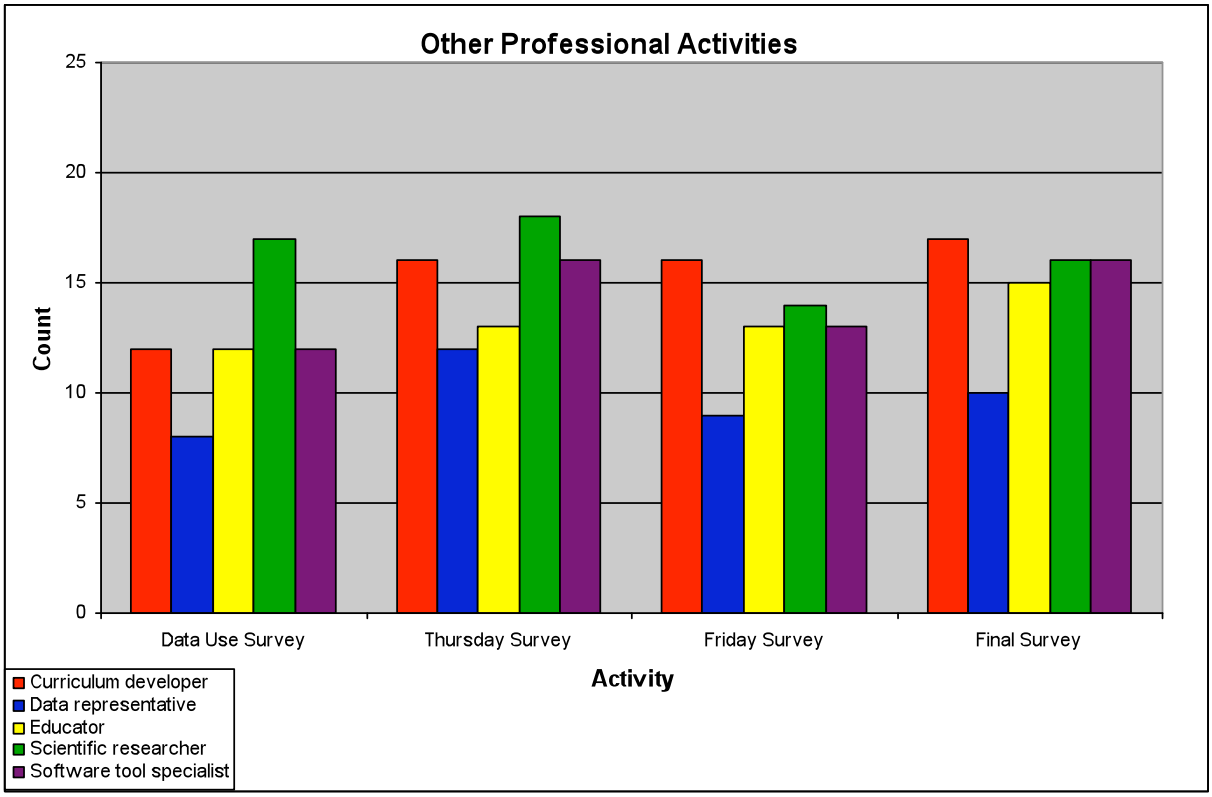

Figure 4. Other activities indicated by attendees.

Professional expertise was well distributed among the teams.

On the Final Survey, respondents were asked for their work team as well as their primary professional role and additional activity areas (as on previous surveys).

Primary Professional Role Distribution
Although responses are anonymous, it is possible to analyze the primary role responses to the Final Survey in a little more depth than the other surveys since the data may be disaggregated by team. **Five teams' respondents did not include at least one representative from each primary professional role, but in most cases someone else on that team listed the missing role(s) under Other Professional Activities (see below). This discrepancy is probably due to attendees' self-perception of their primary role being different from the workshop organizers' perception.**

Teams missing some primary roles were as follows:

- CREW—Lacked a Data Representative.
- NCDC—Lacked a Curriculum Developer and a Data Representative; they had two Educators and two Scientific Researchers. (Some members had both Curriculum Developer and Data Representative listed as other activities.)
- NEO—Lacked a Scientific Researcher and a Software Tool Specialist; they had three Data Representatives. (Some members had both Scientific Researcher and Software Tool Specialist listed as other activities.)
- NODC—Lacked a Scientific Researcher and a Software Tool Specialist; had two Data Representatives and three Educators. (Some members had Scientific Researcher listed as other activities.)
- UW-Madison—Lacked a Data Representative and a Software Tool Specialist; had two Educators and three Scientific Researchers. (Some members had Data Representative and Software Tool Specialist listed as other activities.)

Other Professional Activities
Although the results did not show that each team had exactly one respondent with each of the five primary professional roles, when all roles and activities were combined, most teams had expertise in each of the five areas. See Figure 5. **All teams had indications of expertise in each of the five areas except CREW and NODC.**

Every member of most teams completed the Final Survey.

There was one survey missing from NODC and one from GLOBE. Perhaps the missing NODC survey would have been from a Software Tool Specialist.

CREW did not have someone who listed Data Representative as either Primary Role or Other Activities. All CREW team members appear to have completed a Final Survey, so it is unknown which team member was considered the Data Representative by the workshop leaders.

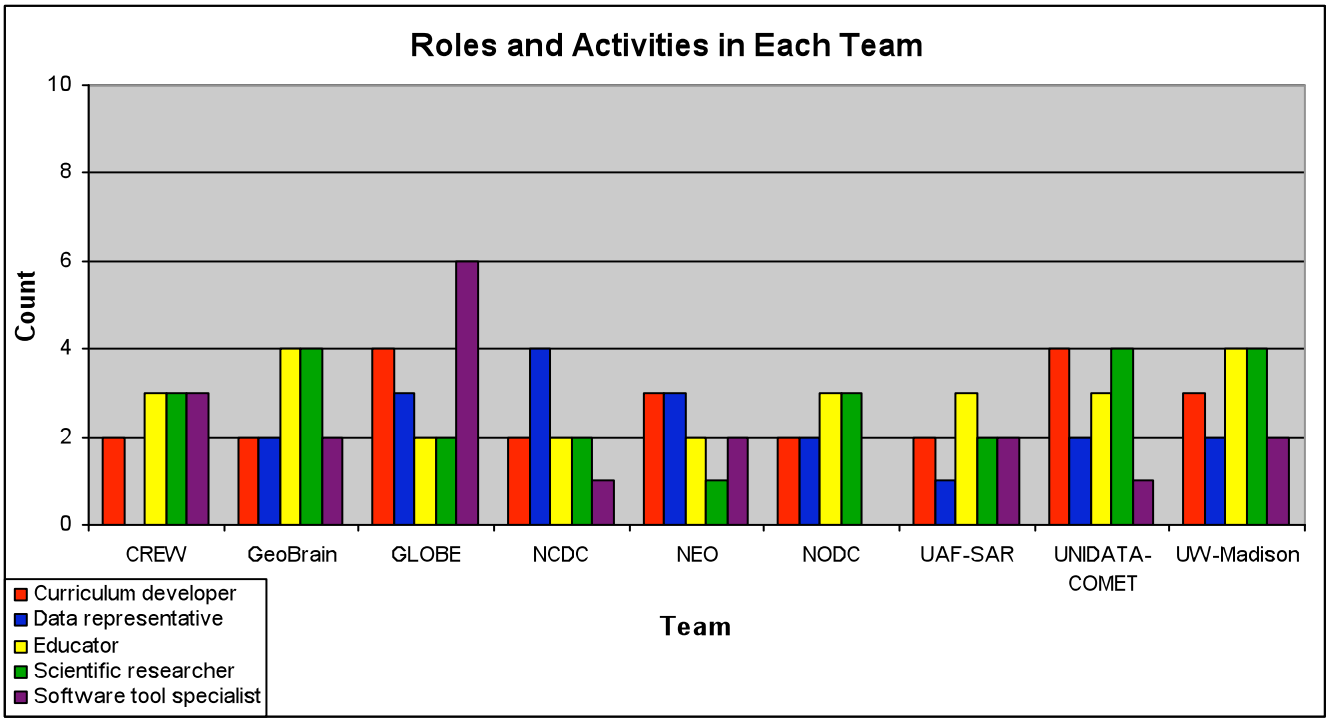

Figure 5. Distribution of professional roles and activities by team in the Final Survey.

Data Use Survey

There were 45 respondents to the Data Use Survey.

Questions 1 and 2 addressed the attendees' professional role and activities. The previous section of the report summarizes these findings over all four surveys.

Question 3 asked about learning goals with successful use of data in educational contexts. Respondents selected from ten learning goals and could pick more than one answer (see Figure 6). Respondents selected Climate and Understanding Weather the most often. There was more variability in the responses this year than in the responses to the same question in 2007. Interpreting Satellite Imagery, Understanding the Ocean, Environmental Science, and Personal Exploration and Learning were each selected over 15 times.

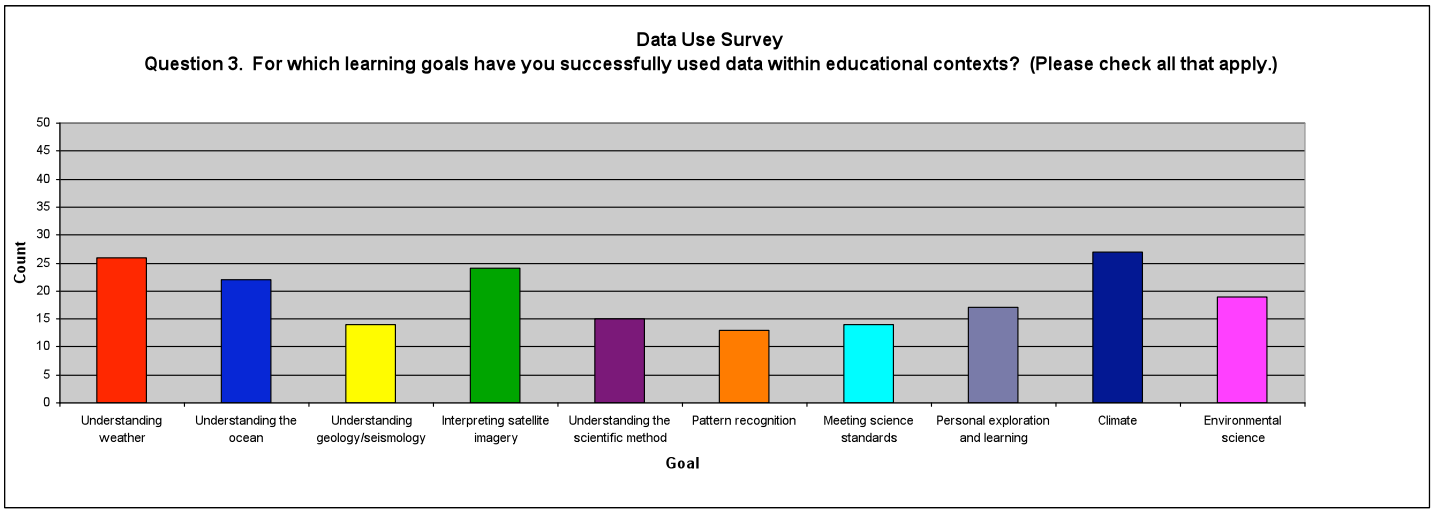

Figure 6. Learning goals that respondents have successfully used data for in educational contexts.

Other learning goals participants listed were the following:

- *I write a variety of materials that use image data/Image T etc.*
- *teaching computer skills such as GIS, image processing & excel.*
- *plate tectonics, volcanism, groundwater*
- *Extreme events (e.g. floods, hurricanes, severe storms)*

Satellite Imagery and Weather/Climate Observations were the data most commonly used successfully.

Question 4 asked what types of data respondents had used successfully; they could pick more than one category. The results are displayed in Figure 7.

The results are very similar to those from the 2006 and 2007 workshops. Satellite Imagery was selected 36 times, and Weather/Climate Observations was selected 31 times. Sea Surface Temperature was next at 29.

Slightly more categories were chosen per respondent this year than last (3.7 vs. 3.5). Proportionally, slightly more people in 2008 selected Satellite Imagery, Sea Surface Temperature, and Climate/Weather Model Simulation data than in 2007; fewer selected Census, Earthquake/Volcano, Topography, Tree Ring, and Weather/Climate Observation data.

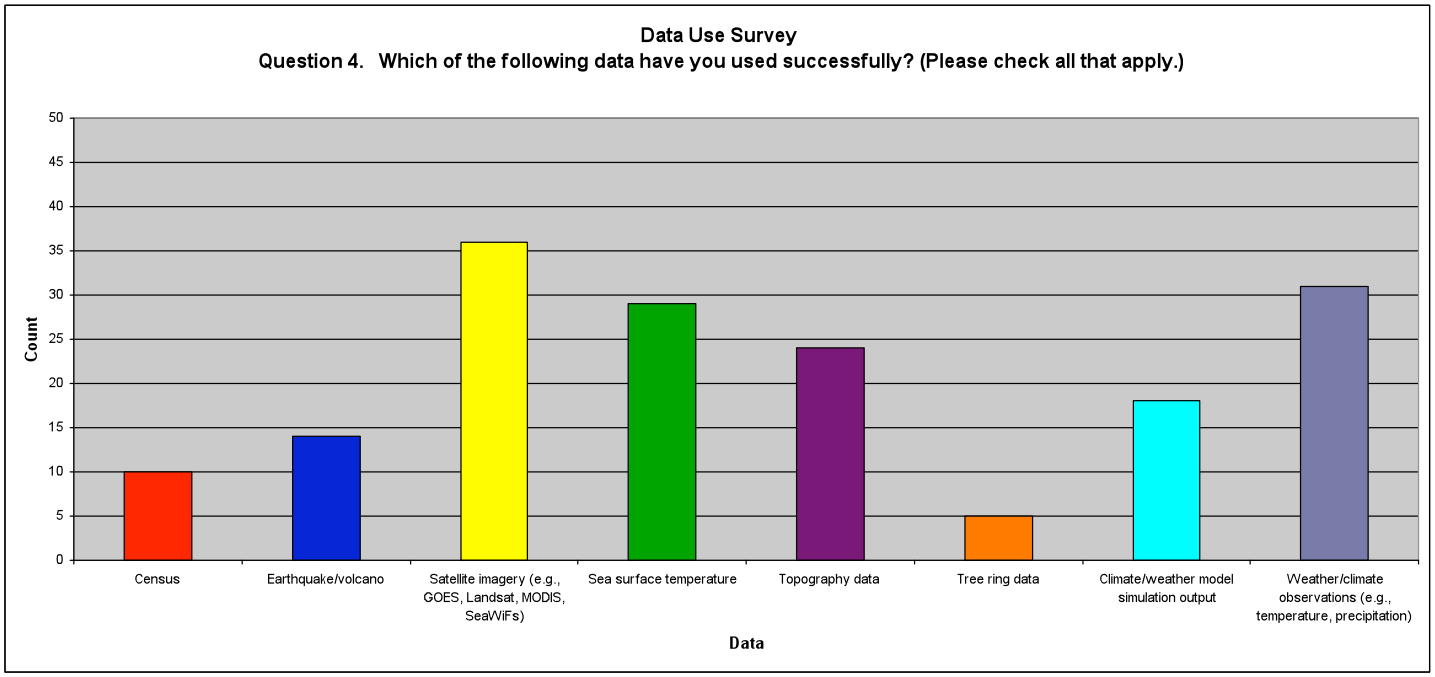

Figure 7. Specific data which have been used successfully by respondents.

Other data types mentioned by respondents included the following:

- *wetland Inventory, land-use*
- *GPS, GIS rector layers*
- *Aircraft Hyperspectral Imagery*
- *I used SST data that I have collected not large government data sets*
- *social vulnerability*
- *physical profile, chemical*
- *ocean bouy, river gaging stations*

Question 5 asked participants what data formats they had used successfully; they could select multiple formats. Figure 8 shows the responses.

Image, Google Earth, Text/ASCII, and GIS were the most commonly selected data formats. This was similar to the 2007 data. Google Earth was a new category this year, and with 33 selections it was second in rank. Fewer respondents selected Image, Text/ASCII, GIS, HDF-EDS, and GeoTIFF than in 2007, and slightly more selected NetCDF.

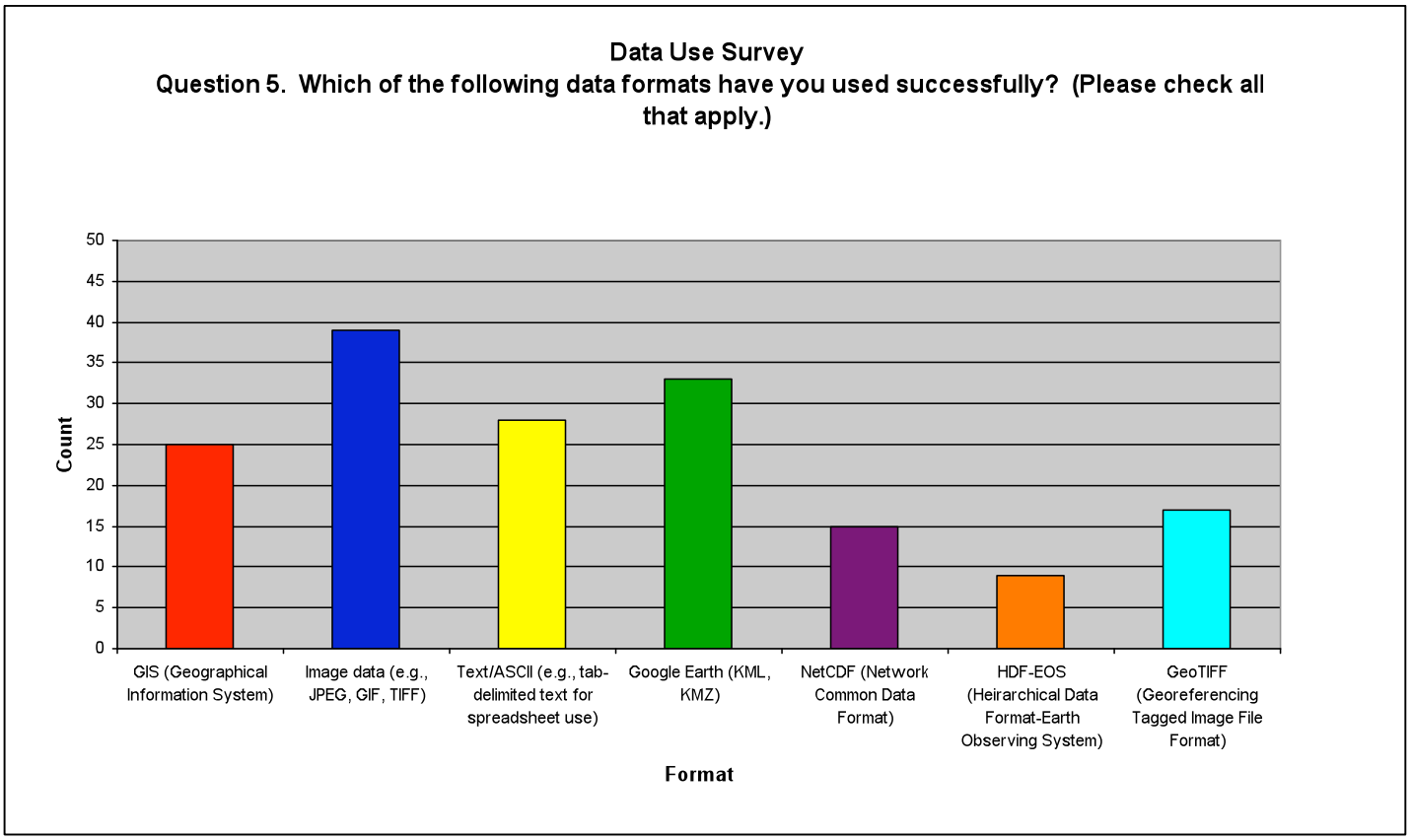

Figure 8. Data formats successfully used.

Other formats listed by respondents included the following:

- *Terascan*
- *CEOS*
- *earthquake PDF's other various CSV + Tab Delim data, DEM's*
- *GRIB & Many "home-grown" government formats*

When disaggregated by role, educators and curriculum developers were the roles that most often reported using Google Earth, image data, and GIS formats successfully. These two roles reported less usage of NetCDF and HDF-EOS than the other roles. Curriculum Developers, however, reported more use of text/ASCII data and GeoTIFF data formats than did educators. See Figure 9.

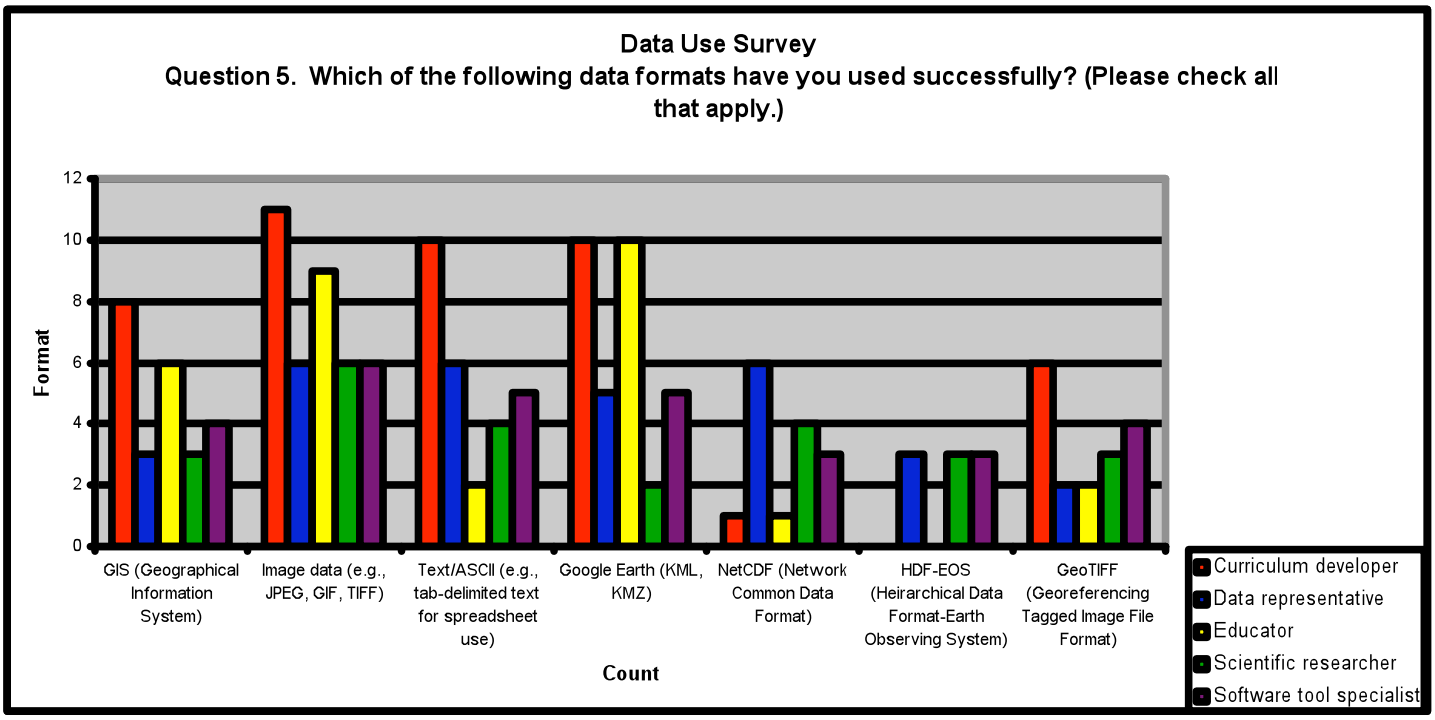

Figure 9. Data formats successfully used, disaggregated by professional role.

Question 6 asked participants what data sources they had used more than once; they could select as many as they wanted to. Figure 10 shows the responses. The results were similar to previous years.

NASA, USGS, and NOAA data were the most commonly selected data sources. IRIS, EarthScope, and UNAVCO were new categories this year; each received fewer than ten selections. NOAA-NGDC was also new and received 16 selections.

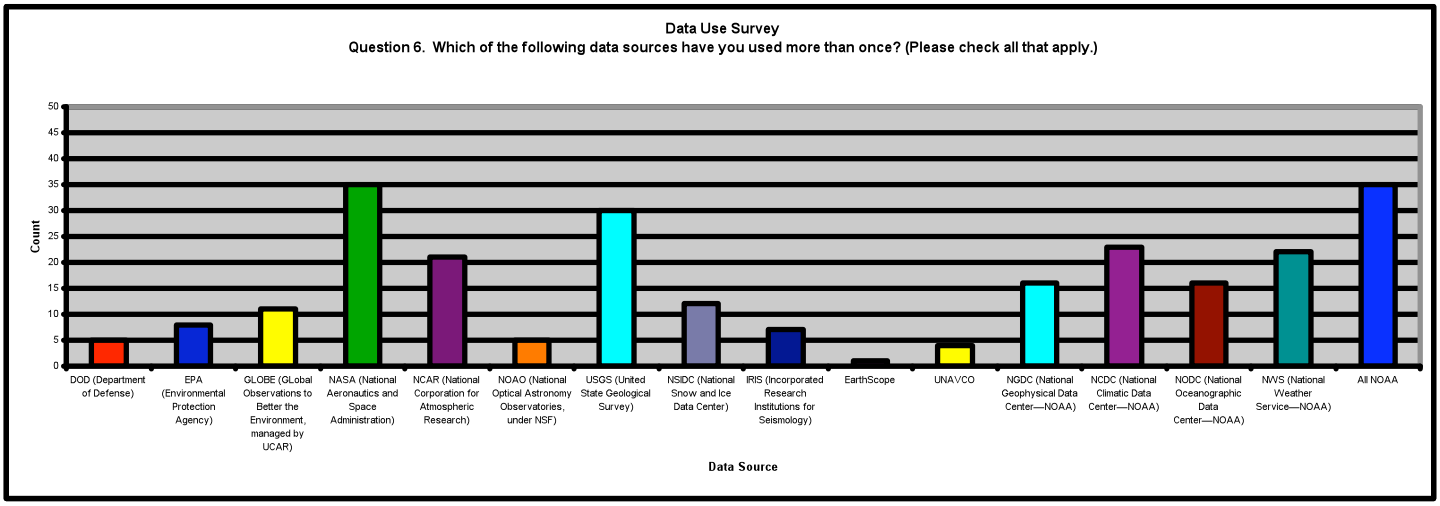

Figure 10. Data sources used more than once.

Other sources listed included the following:

- *NERRS data*
- *Geospatial Data Clea*
- *SSEC - UW Madison*

Question 7 asked participants if the tasks of reformatting and subsetting data are significant obstacles to their use of data. Of the 42 respondents, 20 said "Yes" and 22 said "No" (see Figure 11).

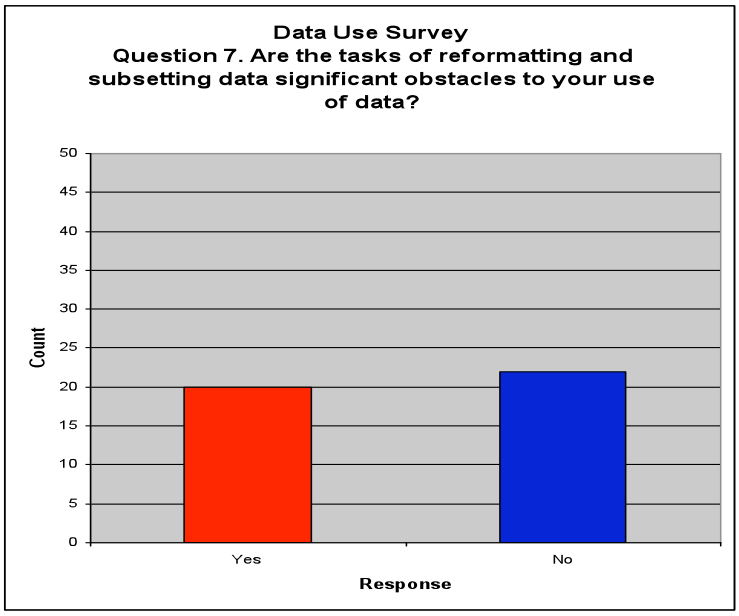

Figure 11. Responses to whether reformatting and subsetting data are obstacles.

If respondents answered Yes, they were asked what would be helpful in overcoming these obstacles in an open-ended question.

Three people replied they needed better instructions or documentation, two wanted better metadata, two needed more time to work on it, and three wanted training. Four people mentioned formatting as a problem, with ease of reformatting or standardized formats being requested. Three people wanted more customizable data, and two requested common or user-friendly software. The full replies were as follows:

- *1) Standard data formats 2) Detailed instructions on how to examine/use data*
- *Basic readers in typical programs eg Matlab, IDL that could be further customized.*
- *IT concerns about security prohibit use of software*
- *I prefer to find site where this is customizable or already done (not enough time)*
- *Better metadata describing middleware that is fairly available for re-formatting*
- *More instructions and/or web hosts*
- *but only from a team perspective*
- *TAKE DDS supporting more data sets*
- *Opendap*
- *sometimes… more training in gis*
- *user friendly software to customize data usage.*
- *more time to do this myself or… remote pre-processing so no local data processing*
- *If I knew how to do it!!*
- *Documentation, less grandiose "do everything for everyone" formats*
- *The major obstacle is usually incomplete metadata.*
- *agreed upon standard formats and systems that deliver data in those formats, tools that access data in these formats*
- *more training*
- *Searchable, ability to display with common, familiar software*

Question 8 asked what data analysis procedures participants' end-users or learners performed on data. They could select as many as they liked. Figure 12 provides a summary of the responses.

End-users were most likely expected to use visualization/imaging, graphs, statistics, and plotting/mapping procedures on data. These results were very similar to those gathered in 2007 for this question. Slightly more respondents had learners using visualization/imaging and slightly fewer used queries than in the 2007 survey. Responses in all other categories were similar to the previous year. A new category for 2008 was "Combine data from different sources" and it was selected 25 times, a strong total. No other analyses were mentioned in the open-ended option for this question.

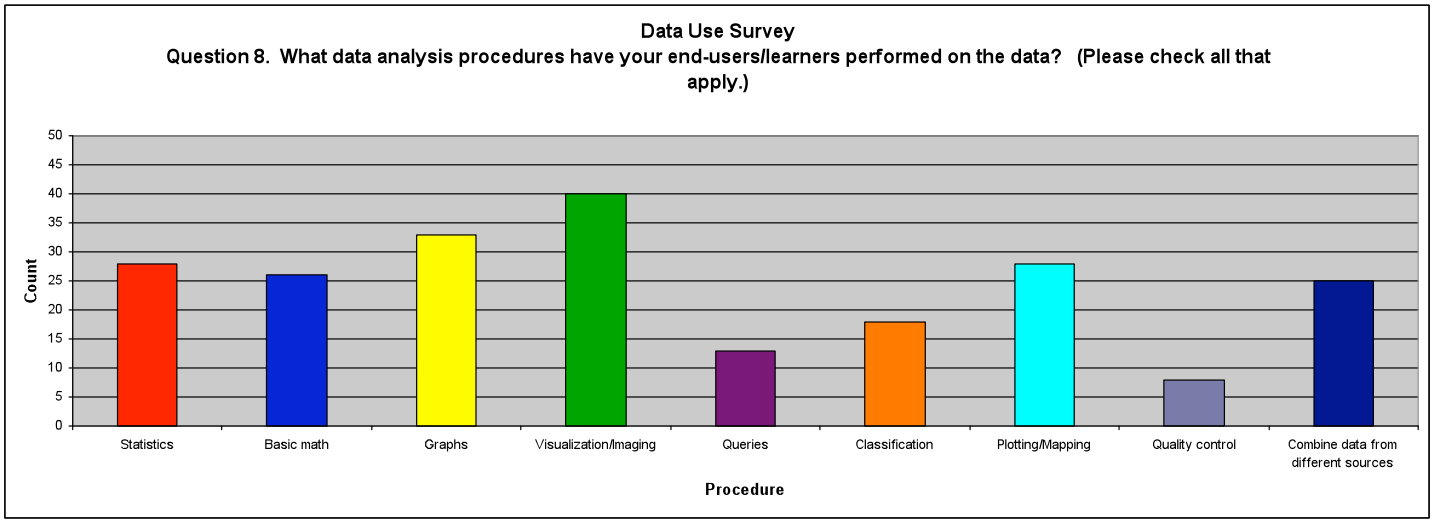

Figure 12. Data analysis procedures performed by end-users or learners.

Question 9 asked participants if they had made any attempts to obtain and use data sets that were NOT successful and, if so, what barriers they encountered. Figure 13 displays the barriers that they encountered.

Thirty out of thirty-eight respondents had been unsuccessful using data in the past. **Poor documentation, unusable file formats, and discoverability were the most commonly cited barriers to use (15 or more responses each).** Software unavailability, broken links, proprietary restrictions, dataset size, and software complexity were all mentioned by over 10 respondents as well. Bandwidth limitations and terminology/acronym problems were only mentioned by 7 and 6 respondents, respectively, while only one person cited computer hardware limitations.

These responses were slightly different from those in previous years. When adjusted for the total number of responses (198 in 2007 vs. 136 in 2008), there was a noticeable increase in those citing unusable formats, poor documentation, and bandwidth limitations, and a decrease in those citing incomplete datasets, hardware limitations, and prohibitive costs.

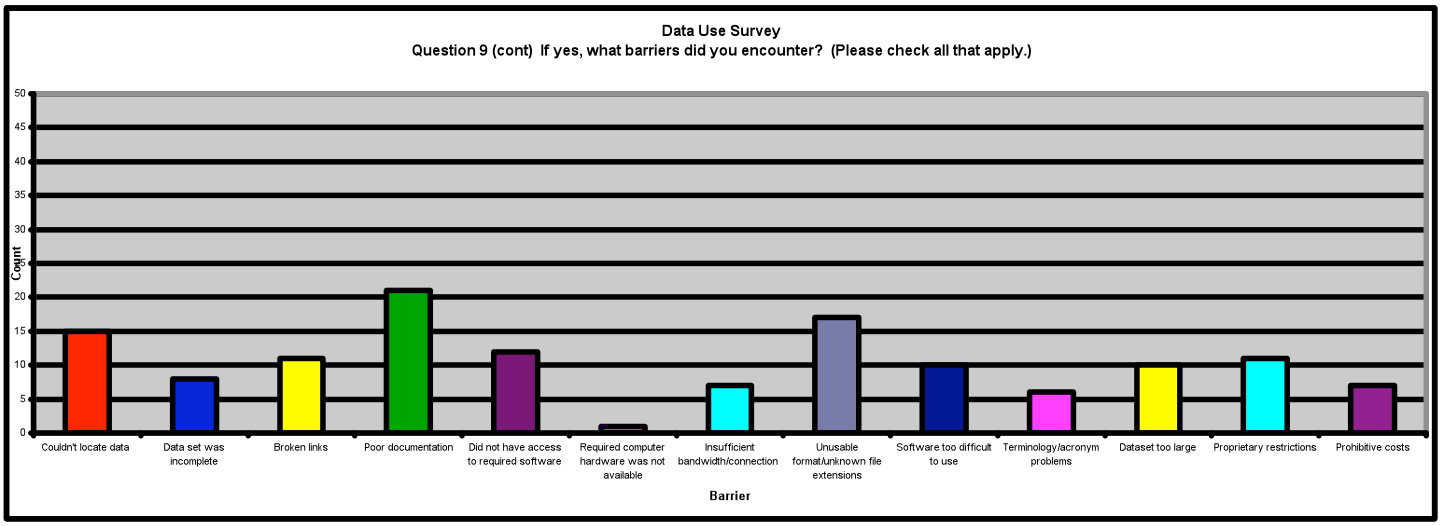

Figure 13. Barriers encountered when participants were unsuccessful in accessing data sets.

Three of the following additional comments from respondents indicated a lack of time available, patience, or training:

- *my students have limited access to computers/internet or the internet is too slow*
- *unsupported sensor type*
- *need more gis training*
- *lack of patience*
- *TIME to play with/ learn various tools.*

Question 10 asked participants what types of instruction or support are most helpful to them when using specific data sets. Figure 14 displays the responses.

Overall, examples, followed by step-by-step instructions were the most popular methods of instruction selected. Online tutorials and reference manual/documentation were also highly ranked.

These results were very similar to the previous year's workshop. In spite of fewer returned surveys in 2008 (45 vs 51), more responses to this question were entered this year. After adjusting for response rate, there were sizeable increases in the number of votes for FAQ, glossary of terms, training workshops, live demos, and videos. There were no entries in the open-ended option for this question.

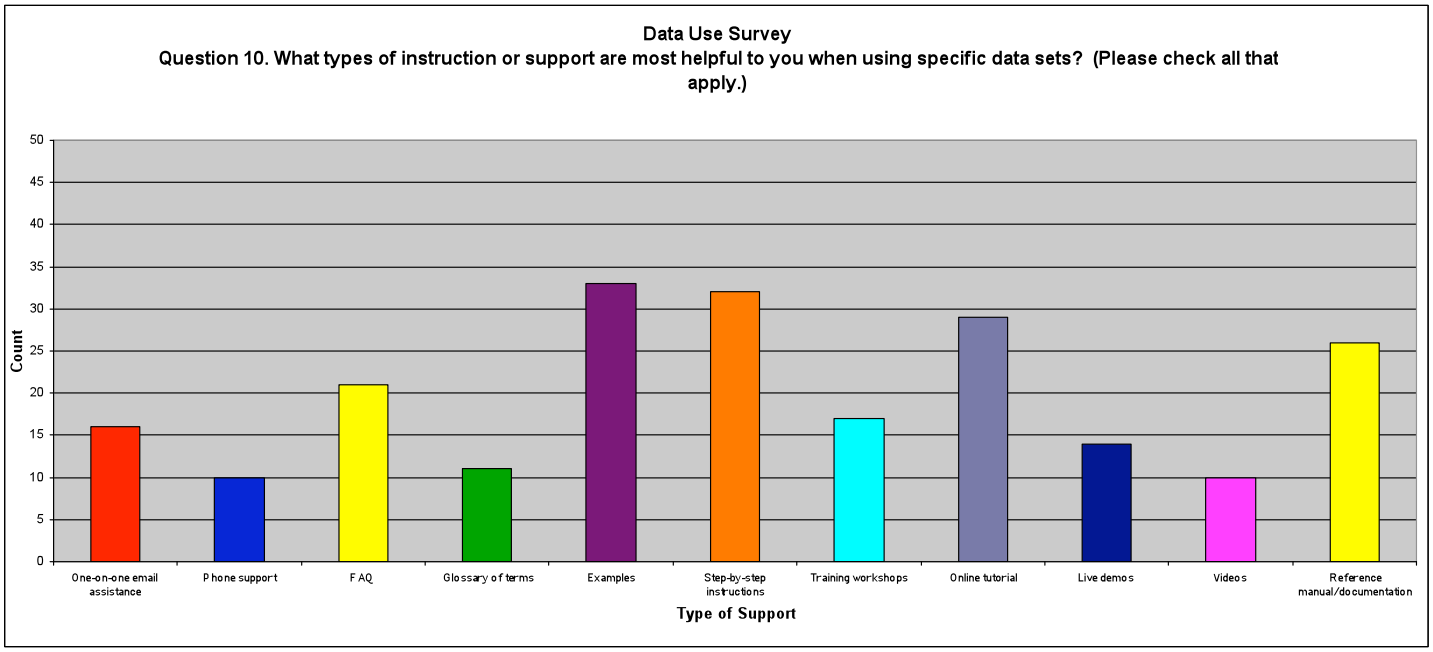

Figure 14. The most helpful types of instruction or support when participants use data sets.

When disaggregated by role, curriculum developers and educators more often selected videos as a support type than the other roles. Educators selected reference manual less often than the other roles. Scientific researchers did not select live demos, phone support, or training workshops at all. Data representatives and educators selected email assistance more often than the other roles. See Figure 15.

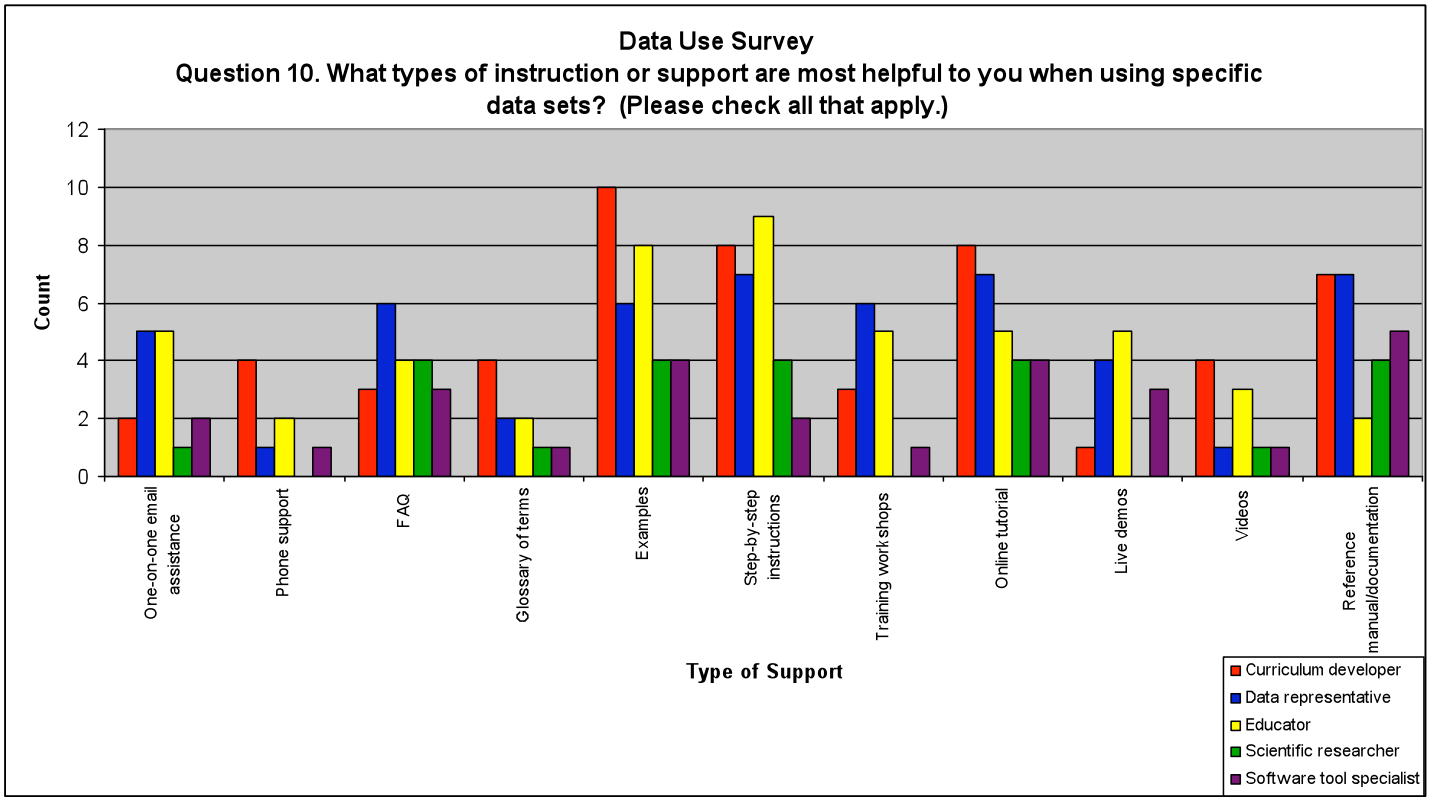

Figure 15. The most helpful types of instruction or support when participants use data sets, disaggregated by professional role.

Daily and Final Surveys

Thursday's survey had 51 respondents, Friday's had 47, and the Final Survey had 53.

Data gathered from the first two questions on the Thursday and Friday Surveys and the first three questions on the Final Survey are summarized in the Participants section earlier in this report. Responses to the rest of the daily surveys and the corresponding questions in the Final Survey are described together in the first part of this section. Analysis of the remainder of the Final Survey is at the end of this section.

Open-ended comments are in italics when quoted. When questions dealt with issues specific to a team and open-ended responses could shed some light on the team logistics, the name of the team is included in parenthesis after the quoted comment.

Most Valuable Aspects of the Workshop

Participants were asked to check the most valuable aspects of the workshop on the Thursday, Friday, and Final Surveys; multiple selections were allowed.

As in previous years, the data from all three surveys showed that the team breakout sessions were considered the most valuable part of the schedule (see Figures 16, 17, and 18). **Forty-nine respondents selected the breakout sessions as a valuable part of the workshop on the Final Survey.**

Thirty-nine of fifty-three respondents to the Final Survey selected at least one of the Tool Times as a valuable aspect of the workshop; the selections for each Tool Time session are shown in Figure 18 (with Google Earth being the most-selected). Friday's keynote talk was the more popular of the two, reflected in the data for both the Friday and the Final Survey.

Thursday Survey
The Thursday Survey showed similar valuation (15 to 17 selections) for five categories--the Wednesday evening Demo Session and Share Fair; the Keynote talk; Tool Time; Networking with others in the same field; and Networking with those in other fields. The breakout sessions, however, were ranked very highly (40 selections out of 51 returned surveys).

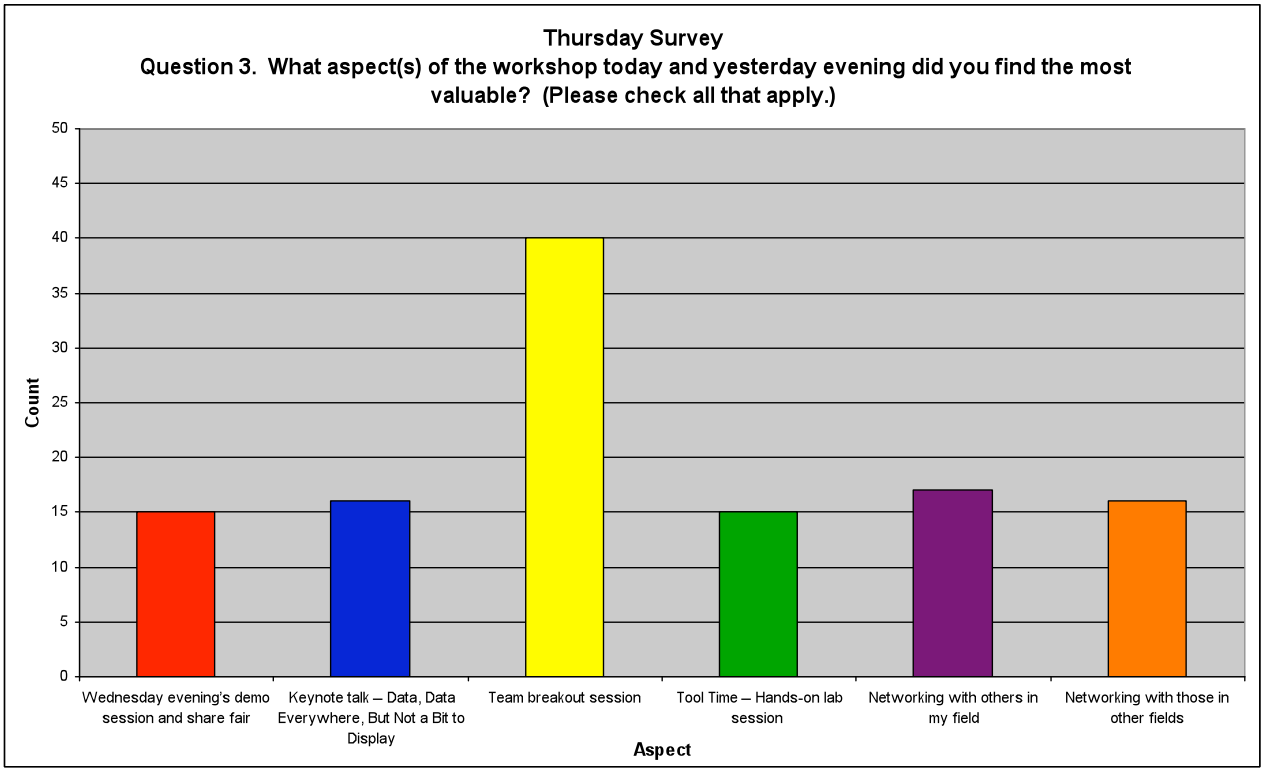

Figure 16. Most valuable aspects of Thursday's schedule.

Friday Survey

Team breakout sessions were the most valuable aspect of the day on Friday as well, with 36 selections out of 47 returned surveys. The Friday Survey showed the popularity of the keynote talk (24 votes, compared to 16 for the Thursday talk) and the Tool Time session (27 votes). The two networking categories were selected less often than they were on Thursday. Friday was when the very popular Google Earth Tool Time was offered.

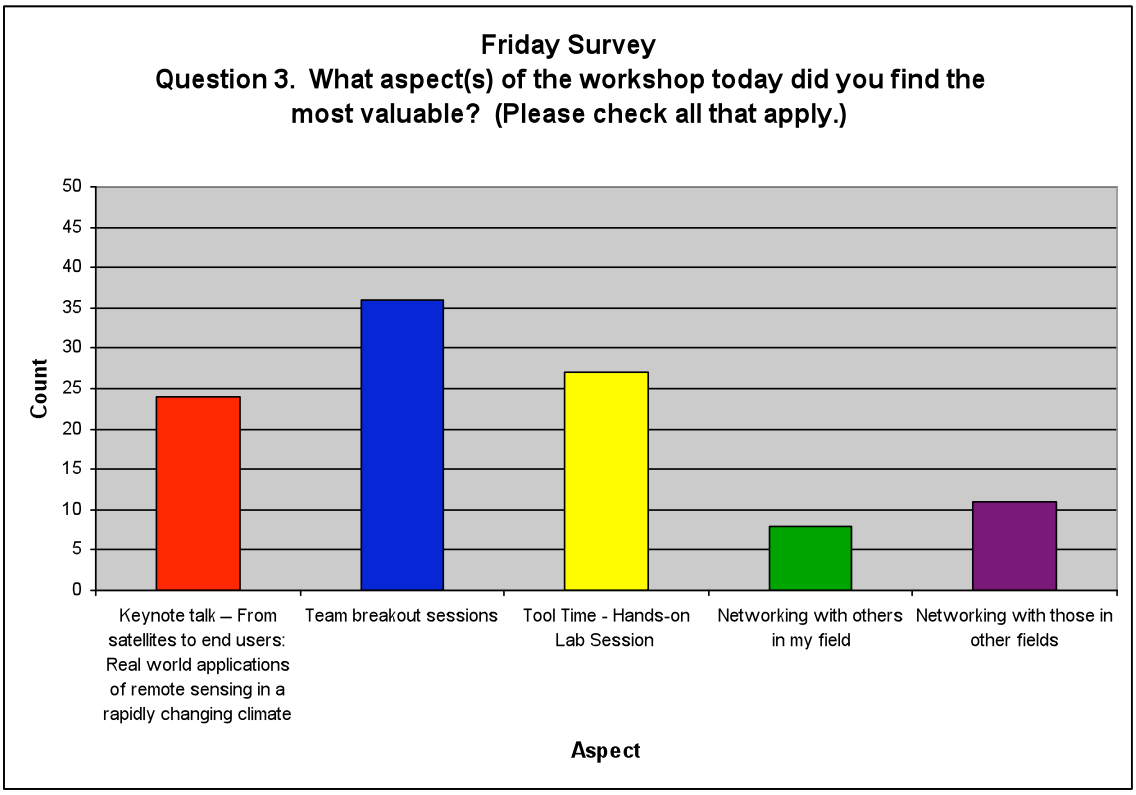

Figure 17. Most valuable aspects of Friday's schedule.

Final Survey

The Final Survey showed that by far the most valuable aspect of the workshop was the breakout sessions. This category received 49 selections out of 53 completed surveys. At least one Tool Time session was picked by 39 respondents. Networking and the Friday keynote talk all received between 25 and 30 selections. As in previous workshops, the final report-out was not seen as particularly valuable by participants. It is, however, a necessary part of the process.

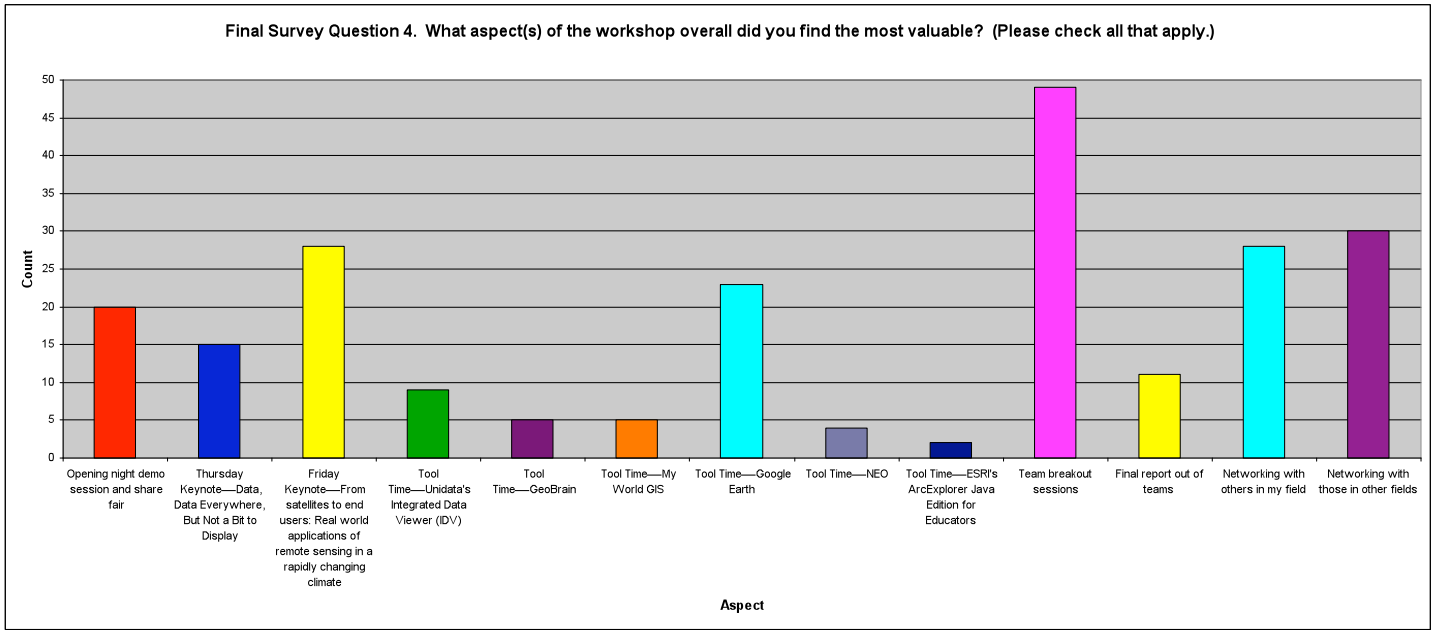

Figure 18. Most valuable aspects of workshop overall.

Demo Session and Share Fair

One pronounced difference between this workshop and those of previous years is the perceived value of the Demo Session and Share Fair (designated as a poster session in earlier workshops). Twenty people selected it as a valuable aspect of the workshop on the Final Survey in 2008. In past years, the votes for the poster session as valuable were well under ten. The format, size, and placement of the share fair in this year's schedule may have contributed to its success. Questions 7 and 8 in the Thursday Survey addressed the effectiveness of the Demo Session and Share Fair. Question 7 asked if the respondent had been a presenter at the Demo Session and Share Fair and, if so, the ways in which it was valuable (Figure 19).

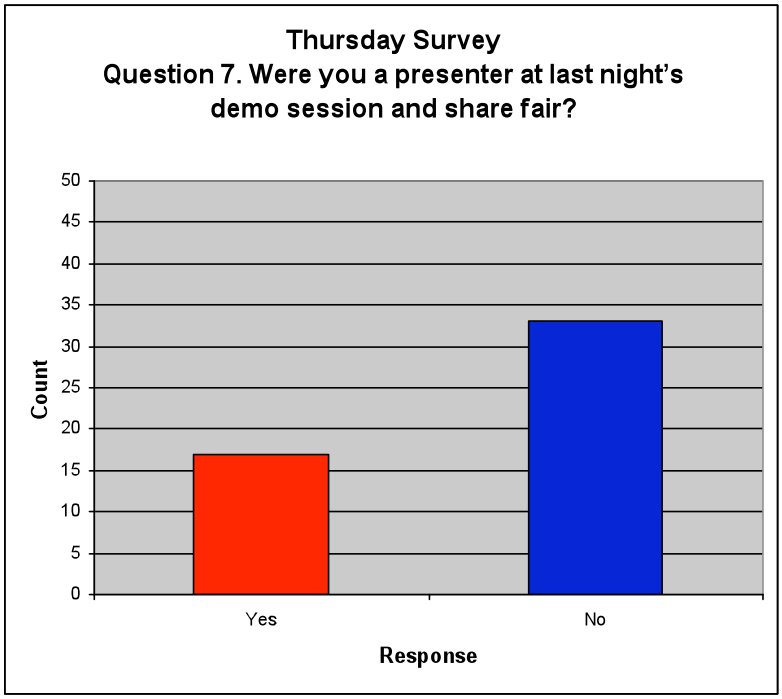

Figure 19. Number of respondents presenting at Demo Session and Share Fair.

The follow-up question asked presenters how the session was valuable to them. Five mentioned networking and talking with others; three valued interaction with potential data/tool users; two appreciated the time to work with their team. Replies were as follows:

- *Networking with others. Also, I learned about WMS.*
- *Networking*
- *providing dynamic ways for demonstrating and communicating with end users.*
- *Interaction with potential users and their feedback*
- *Networking with others 1-on-1 time w/ scientists*
- *great way to start, and provide info on add'l tools to be included*
- *bringing team members up to speed with data/tools*
- *to share about new software developments*
- *It gave me an opportunity to see how others interpret my tool*
- *yes, with team*
- *Promotion on our servers*
- *Networking*
- *got to talk w/ people, but not enough room for posters*
- *Somewhat, not as much traffic as hoped, but still ok*

Three non-presenters also offered comments on the value of the session—

- *Posters, discussions 1-on-1, chance to meet everyone in entirely different areas*
- *Networking*
- *Ideas for our lesson/chapter*

In response to Question 8 on Thursday's survey, all 32 participants who attended the Demo Session and Share Fair found it valuable (see Figure 20).

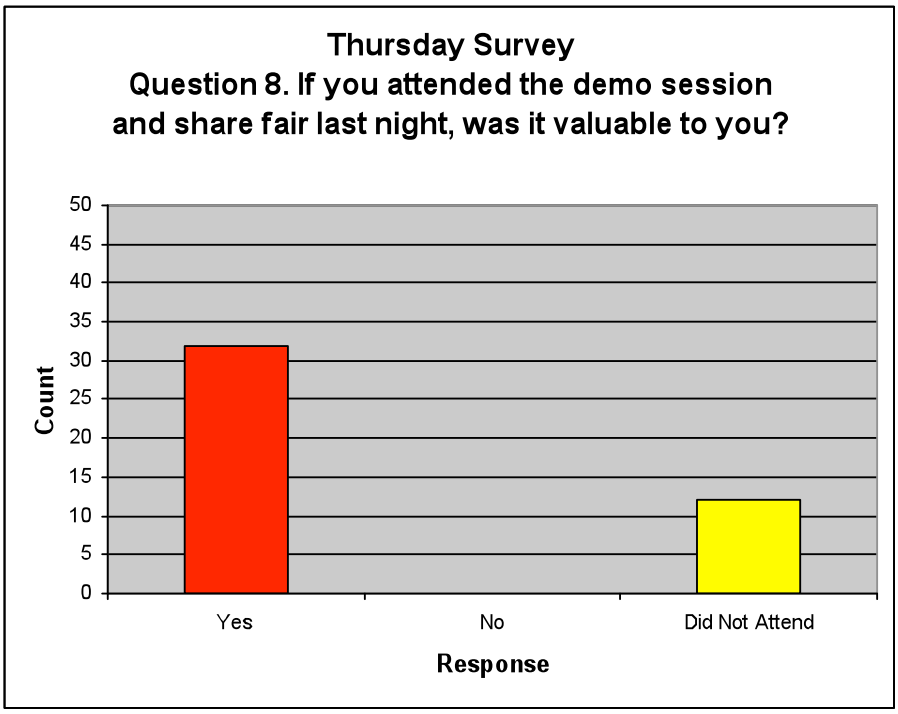

Figure 20. Count of those who attended the Demo Session and Share Fair and whether they found it valuable.

The Final Survey also had a question dedicated to the Demo Session and Share Fair. This question asked to what extent the event had facilitated learning about data access, tools, and educational uses of data. See Figure 21. **Responses show that the session was more successful than that of the previous year.**

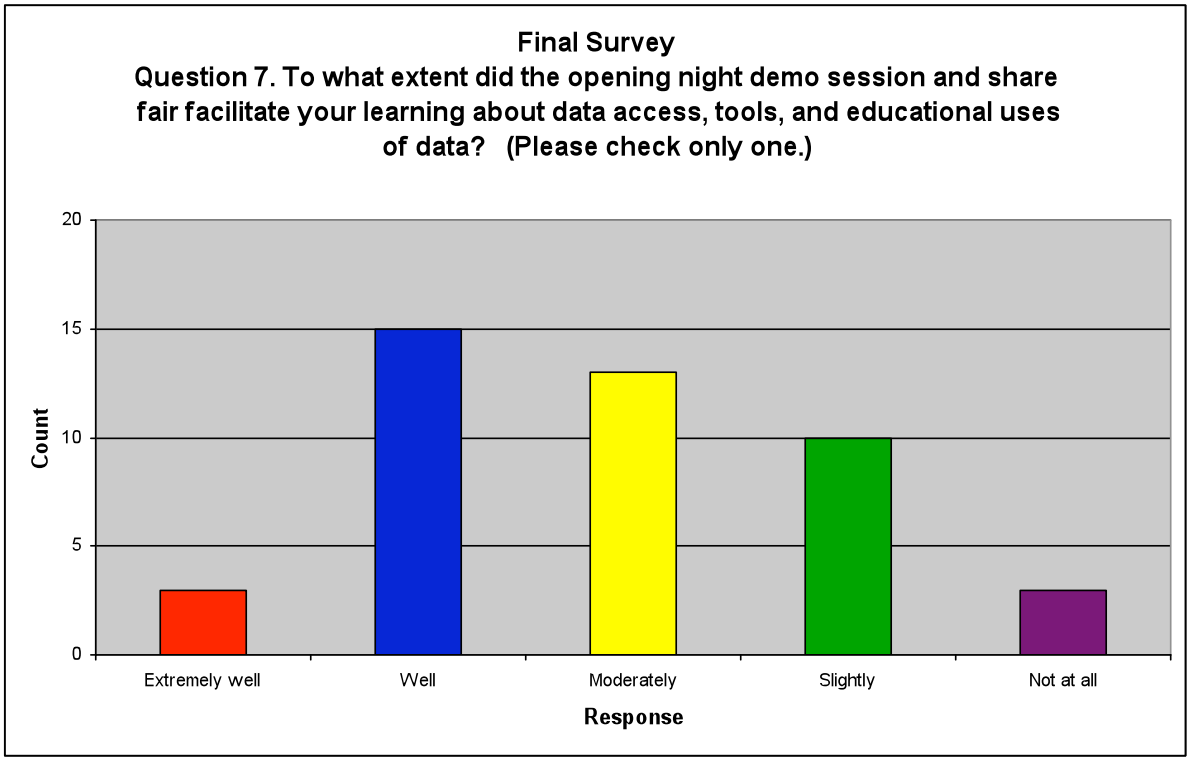

Figure 21. Effectiveness of the Demo Session and Share Fair for learning about data access, tools, and educational uses of data.

Ten additional comments on the session explained that they had missed the opening night reception. Two people suggested making it more formal. Other comments included the following:

- *Folks pretty much stuck to groups. Perhaps 1 min/30 sec intro at start would have more helped intro everyone to all the resources*
- *I really enjoyed Eric Pyle's Poster*
- *The smaller size this year facilitated a good interchange with share fair participants*
- *Too fast too much*
- *My fault that I didn't get more our of opening night, I came in late & was tired*
- *[might] want to make this a little more formal. That would give a better overall overview. I mostly talked to team members, brought them up to speed.*
- *mostly good for mingling*
- *possibly hold poster session in a more formal setting*
- *I like the share fair*
- *I used this time to meet new people which I found quite valuable*

Tool Time Sessions

On Thursday, the three Tool Time sessions were attended about equally (see Figure 22). Only two respondents did not report attending one of the sessions.

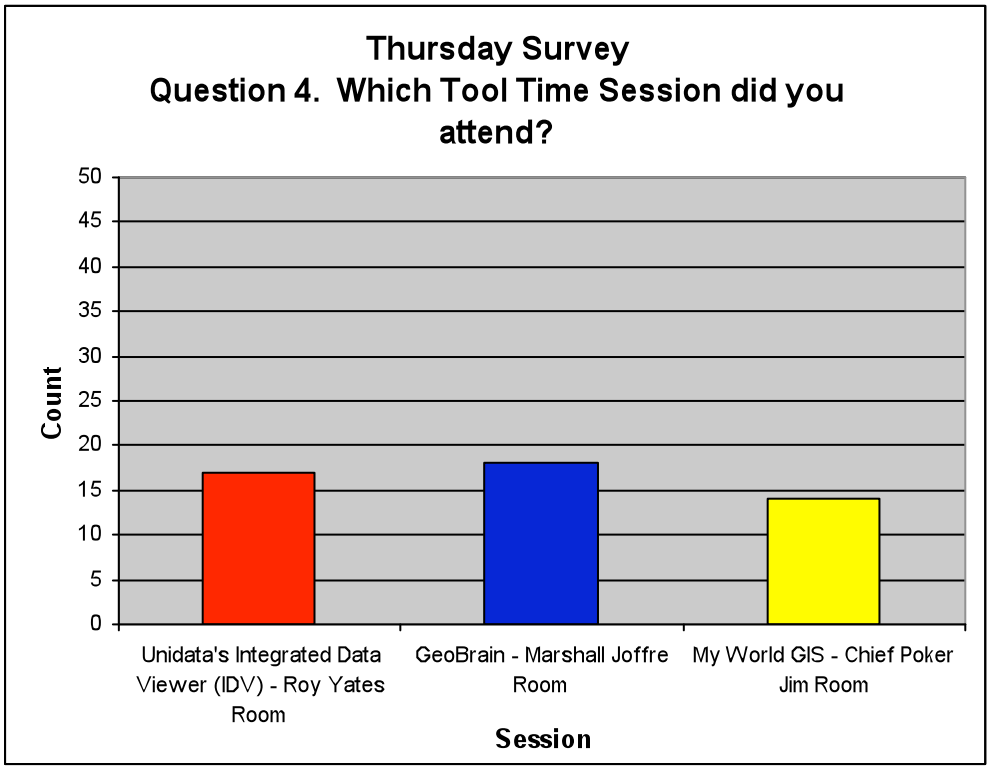

Figure 22. Tool Time attendance on Thursday.

Only 15 of the 49 people (31%) who attended Tool Time sessions on Thursday cited the session as a valuable aspect of the day. Disaggregated by session, 41% of those attending the IDV session listed the Tool Time as one of the most valuable aspects of the day; 36% of those attending My World GIS did so; 17% of those attending GeoBrain did so.

Question 6 on the Thursday Survey asked how attendees would have changed the day's session. Eleven of these responses were about the Tool Time sessions. Three comments from IDV and My World GIS had to do with making sure everyone has downloaded the application before the session begins. One other IDV comment was a suggestion that a printed outline would have helped with the session's effectiveness. The six comments from GeoBrain attendees all had to do with problems with that session not being well-prepared. Disaggregated by session, those comments were as follows:

IDV

- *Build time in to tool time just for downloads - use CDs or memory sticks to avoid bandwidth bottlenecks*
- *Tooltime: MAKE sure everyone has downloaded Application before session Have more opportunity before meeting to use application and data*
- *IDV session would have been a lot more effective if presenter would have handed out an outline of his presentation. If you took your eyes off the screen for a few seconds, you could miss crucial URL's or operations.*

GeoBrain

- *Need better preparation for GeoBrain tool time*
- *[Tool Time] session wasn't too well organized - would have been better to have smaller groups and everything set-up computerwise when we first walked in.*
- *Geobrain presentation had serious problems. :(*
- *better general [facilitation] in GeoBrain session. Presenters were sincere & dedicated, but needed help to get things going*
- *My [Tool Time] session was fairly painful. They tried hard, but in experience in leading workshops, language barrier & bandwidth hurt the success.*
- *I wish some presenters were a bit more prepared.*

My World GIS

- *Needed a handle on software download requirement prior to GIS World Tool time so that it could be done ahead of time.*

General Tool Time Comments

- *Tool time with more application to users interest. Emphasize the possibilities of the tool for a range of applications.*
- *would have liked the opportunity to learn about more tools than just the 1 ToolTime session.*

On Friday, the vast majority of respondents (32) attended the Google Earth session (see Figure 23). Nine attended NEO and three attended ArcExplorer. Three respondents did not report attending one of the sessions.

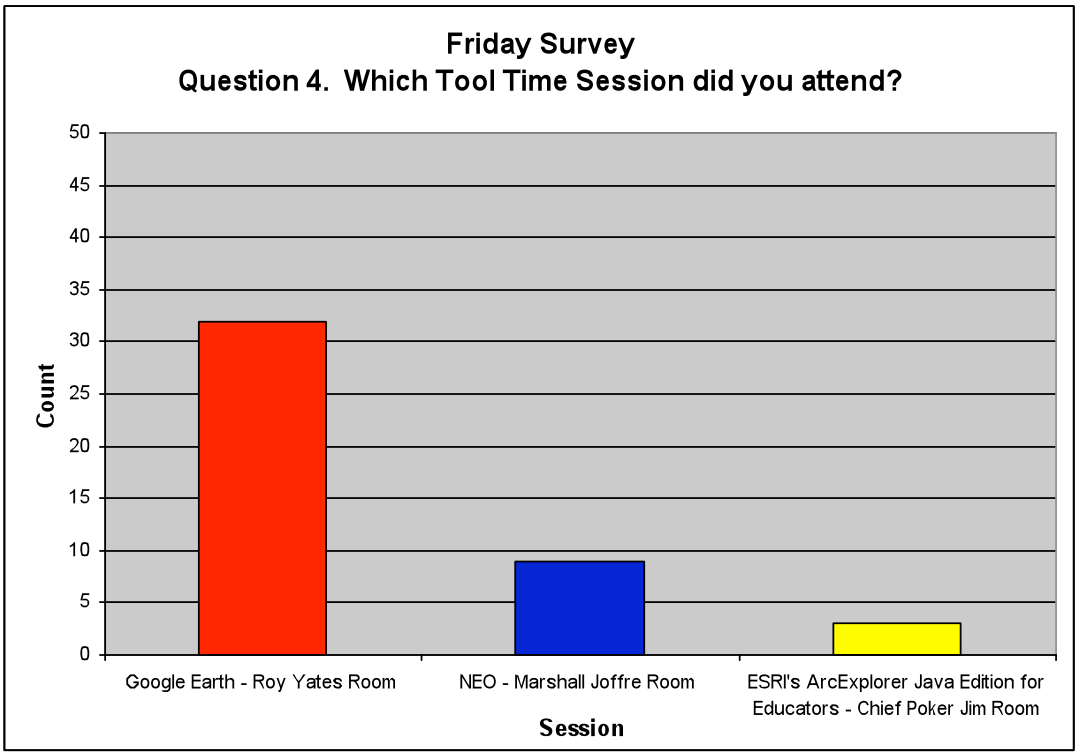

Figure 23. Tool Time attendance on Friday.

Twenty-seven of the forty-four people (61%) who attended Tool Time sessions on Friday cited the session as a valuable aspect of the day. Disaggregated by session, 66% of those attending the Google Earth session listed the Tool Time as one of the most valuable aspects of the day; 56% of those attending NEO did so; 33% of those attending ArcExplorer did so.

Question 6 on the Friday Survey asked how attendees would have changed the day's session. Three of these responses were about the Tool Time sessions; all were from people attending the Google Earth session and all were appreciative. The comments were as follows:

- *Less team break-out time - we didn't really need two double sessions today. Maybe make a second Tool Time available today.*
- *Nothing. The keynote and the google earth tool time are both excellent. I learned something new in each of them.*
- *Tool time was great (Google Earth) I wonder if talks could be more interactive?*

Figure 24 shows the Tool Time portion of responses to the Final Survey's Question 4. The Google Earth Tool Time received 23 votes as a most valuable aspect of the workshop in the Final Survey. The IDV Tool Time was selected by nine people. Other Tool Times received between two and five selections. Google Earth Tool Times have been the most popular in previous workshops, along with NEO.

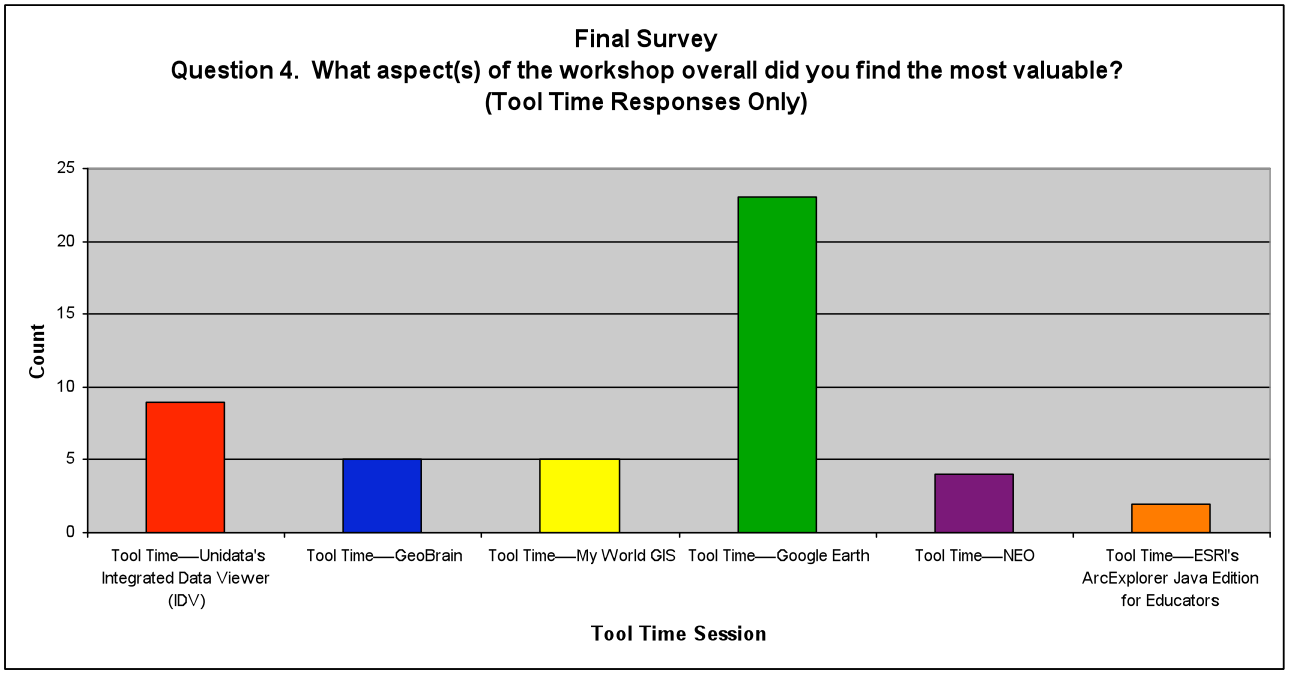

Figure 24. Tool Time responses to the Final Survey's question about most valuable aspects of the workshop overall.

Since Google Earth was attended by far more people than any other Tool Time, the value assessment shown in Figure 24 may seem over-emphasized. Because of this issue, the Tool Time votes in the Final Survey were adjusted for attendance in Figure 25. Based on the number of self-reported attendees on the Thursday and Friday Surveys, the percent or respondents who marked these sessions as one of the most valuable in the Final Survey are shown.

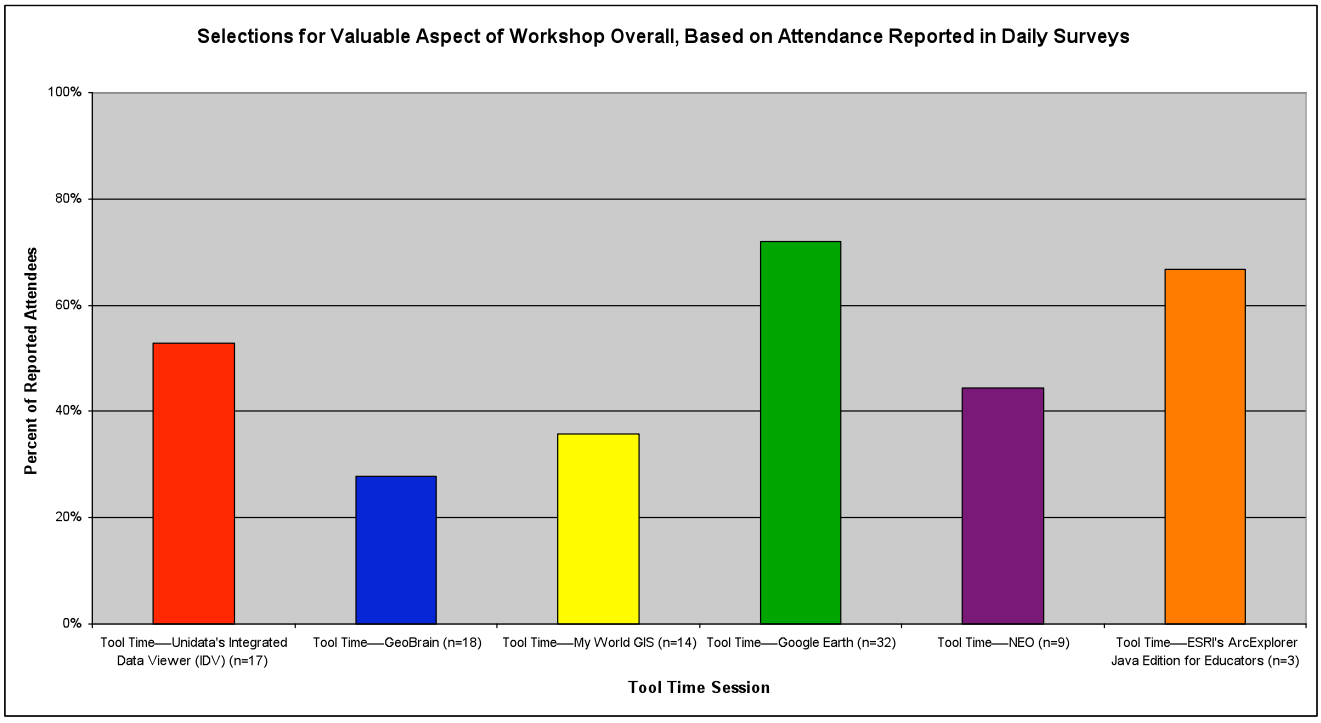

Figure 25. Tool Time selections as valuable aspects of the workshop in the Final Survey, presented as percentages of reported attendance in the Thursday and Friday Surveys.

Balance of the Workshop and Suggestions for Changes

Overall, most participants indicated that the workshop was well balanced. As in past years, there was a slight indicator in each of the three surveys for more emphasis on education and curriculum. Overall, the results showed an even better balance than in previous workshops.

Feedback on Thursday's session indicated general satisfaction with the balance of the workshop (see Figure 26). Thirteen of fifty-one respondents did, however, request more emphasis on education and curriculum.

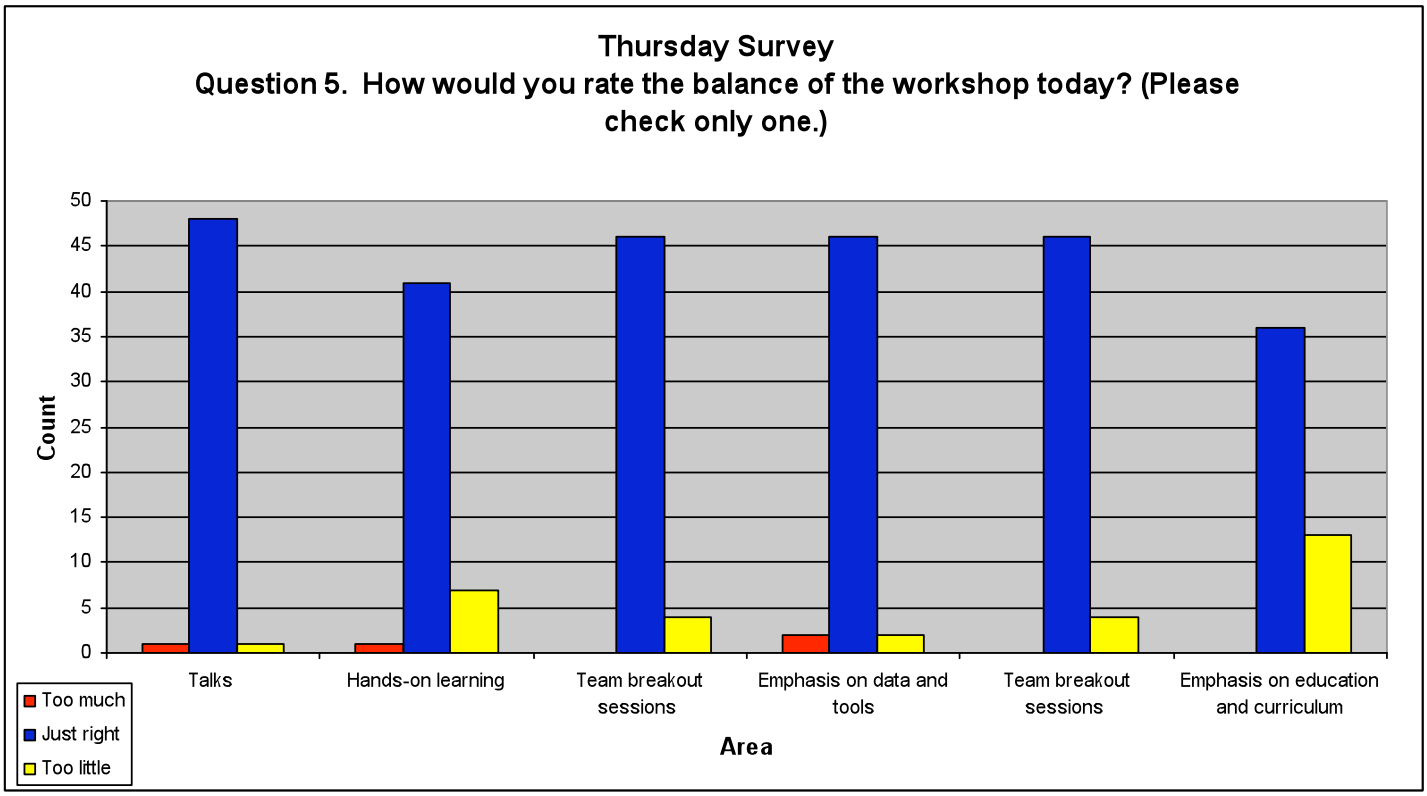

Figure 26. Balance of Thursday's session, by category.

Question 6 asked participants what aspects of Thursday's session they would have changed and why.

Comments included four requests for more time with their breakout groups—

- *Allowed more time for team breakout*
- *perhaps 2 breakouts instead of keynote + breakout*
- *could have spent all day working with team*
- *More time w/ group. Good conversation*

One respondent wished that breakout group members had been better prepared—

- *Team breakout session. Each member should be familiar with all the materials and information before they come.*

Five people explained that they would have liked more guidance in the goals of the workshop—

- *More specifics on educational goals*
- *We needed a print copy of our session goals.*
- *It seemed like we needed a little more clarity around the purpose of the chapter each team is creating. For example, How long are teachers/students expected to spend on a chapter*
- *In first session need to spend time providing a common vision for what an EET is and defining its primary audience and goals*
- *More guidance in the expectations of what these chapters can/should/shouldn't look like.*

A few people offered comments on the schedule and logistics—

- *Supply the breakout rooms w/ power strips*
- *too many breaks*
- *Our group has 6 members - that's too many. 5 should better maximum.*
- *I think that the day was well honed & organized - Nice Work! Educators as presenters might be nice.*

Eleven people commented there wasn't anything they would change. One person commented on difficulty switching from East Coast time to West Coast time.

Feedback on Friday's session also indicated general satisfaction, with the strongest request again being for more emphasis on education and curriculum from eight participants (Figure 27).

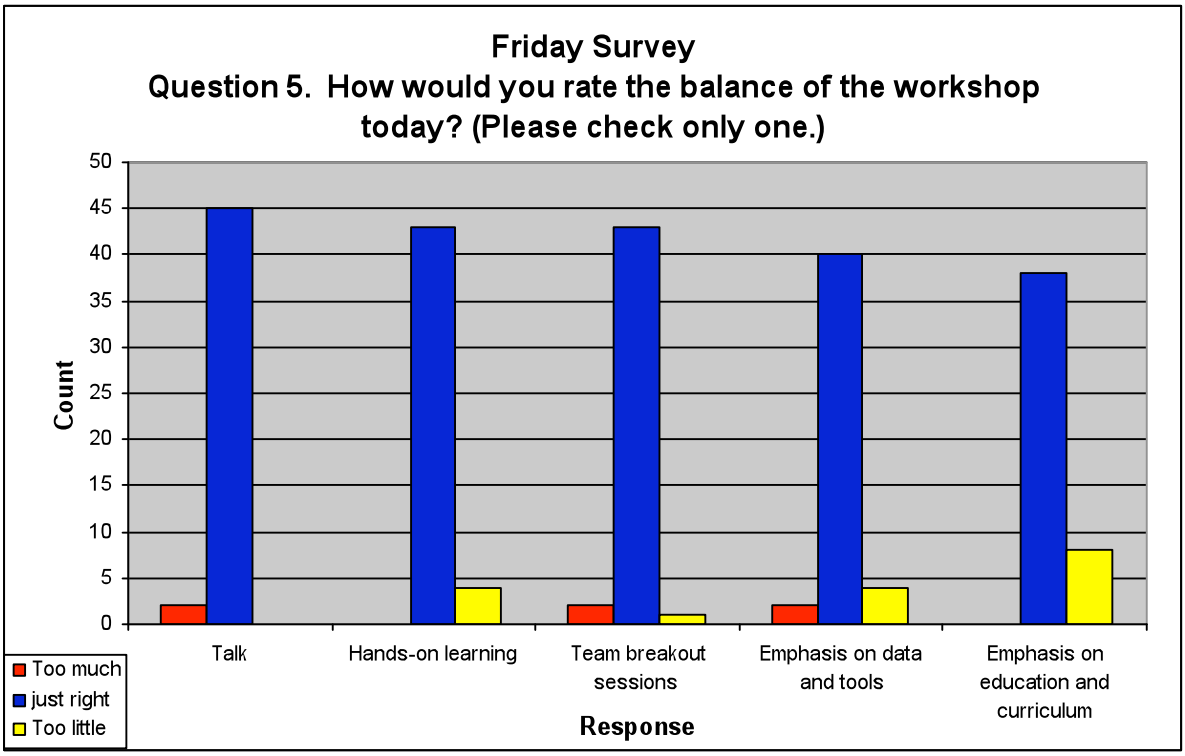

Figure 27. Balance of Friday's session, by category.

Question 6 asked participants what aspects of Friday's session they would have changed and why.

Nineteen people replied that there was nothing they would have changed. Two people suggested more educational emphasis. Two people wanted more breaks during the day. The other suggestions covered a variety of topics. Specific suggestions for changes were as follows:

- *More top-level guidance More breaks More Food*
- *Would have liked to focus a little more on education goals/learning objectives rather than still focusing on data.*
- *Less team break-out time - we didn't really need two double sessions today. Maybe make a second Tool Time available today.*
- *Another manager's reception after days activities (like yesterday) :).*
- *Tool time was great (Google Earth) I wonder if talks could be more interactive?*
- *- need more oppt for networking during the day - still haven't met the majority of the other team's members - an interim report from other teams would have been interesting'*
- *more learning outcome focus*
- *The keynote was great, as was the tool time. Today's sessions were very useful, but perhaps not tied in to education & circ. as well as they could have been.*
- *More breakout time!*
- *Outside time…or a window*
- *Add a break*

The Final Survey gathered balance feedback from participants at the end of the workshop. See Figure 28. **Results were very similar to the two daily surveys and were closer to "Just right" on average than previous workshops have been.**

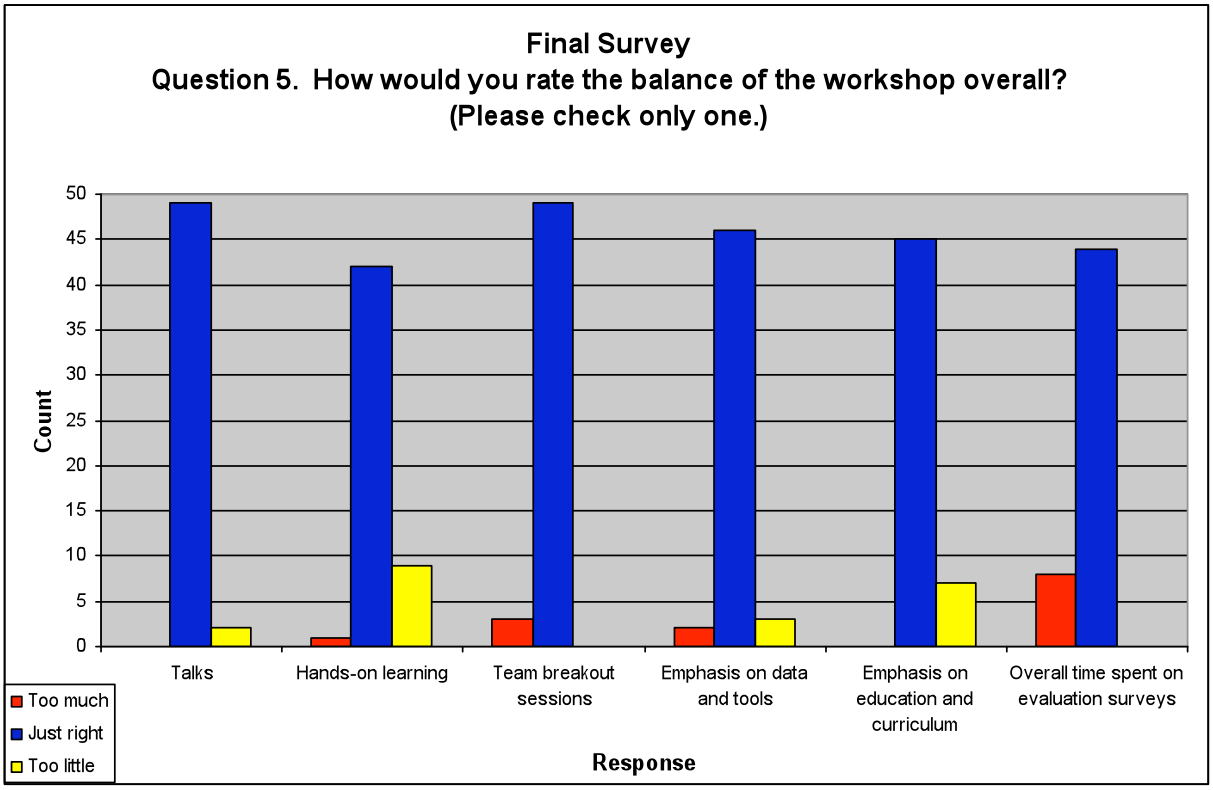

Figure 28. Overall balance of the workshop, by category.

Question 6 on the Final Survey asked what aspects of the workshop overall participants would have changed and how. **Nine people took the opportunity to make positive comments about the workshop instead of suggesting any changes.** Other responses were varied and are listed below; where team issues may be involved, the team designation appears at the end of the comment in brackets.

Pre-workshop Preparation

- *Overall I would get together with the team prior to workshop to nail down our data use more firmly. [UAF-SAR]*

Guidance

- *More guidance on overall mission and expectations [GLOBE]*

Tool Time

- *Pre-workshop, workshop on MyWorld & Google Earth*
- *MORE Interaction with other data sources through "tool time" sessions*
- *a little less team break out time maybe reduce by one session & replace with one more Tool Time opportunity to attend one I missed.*
- *omit geobrain workshop or make major changes*
- *Wider range of tool-time*
- *If you suspect that a particular tool time demo would be especially popular offer it both days (google Earth)*

Evaluation

- *Online evaluation*
- *Reduced number of surveys by one*

Educational Emphasis

- *better wiki, more emphasis of educational goals*
- *I would like more sessions with an educators/education emphasis - how should we teach? What is a good preparation for science careers.*

Schedule—More Networking

- *Forced networking*
- *More opportunities to interact & learn from other groups*
- *Have a(brief?) session that facilitates cross-team interactions*
- *I don't know how: but it would be good somehow on end of day 1 or start of day 2 to know what other teams are working on - so that if one finds something of direct interest one could interact more with those other teams.*
- *I think an all-inclusive evening social activity would be fun - could a game, live music, some cultural dance, etc.*

Schedule--Other

- *Break One day at 11 & START BACK @ 3:00 & work in the evening/with dinner. So people can see something other than a restaurant.*
- *extra day for hands on - in depth use of software?*
- *one larger break in the day*
- *A couple more (short) invited talks would be interesting…*
- *shift schedule to be 3 full days & not 2 half-days, 2 full-days*
- *No Saturday sessions*
- *Make longer, No Saturday Meeting*

Logistics

- *Not much. It is a very refined program. Only: larger text on name tags. Helps less young eyes to get names & affiliations.*
- *7 members - 5 might have been better*
- *Bandwidth*
- *Power strips in main meeting room. Faster internet*

Other Comments

- *great*
- *nothing – great*
- *I think it (the workshop) has really been well tuned over the past 3 years and there is a great mix. I don't feel anything needs to be changed.*
- *Everything is good*

- *Overall it was great. No suggestions for change*
- *After 5 years I think this workshop has achieved a very good balance of workshop activities.*
- *make sure recyclables are recycled*
- *I like the format*
- *Great as is!*
- *it was perfect*

Question 8 asked how well the team worked together (see Figure 29). **There was almost complete agreement among participants that the teams worked well or very well together.** The only response of "Moderately" came from someone on the GeoBrain team.

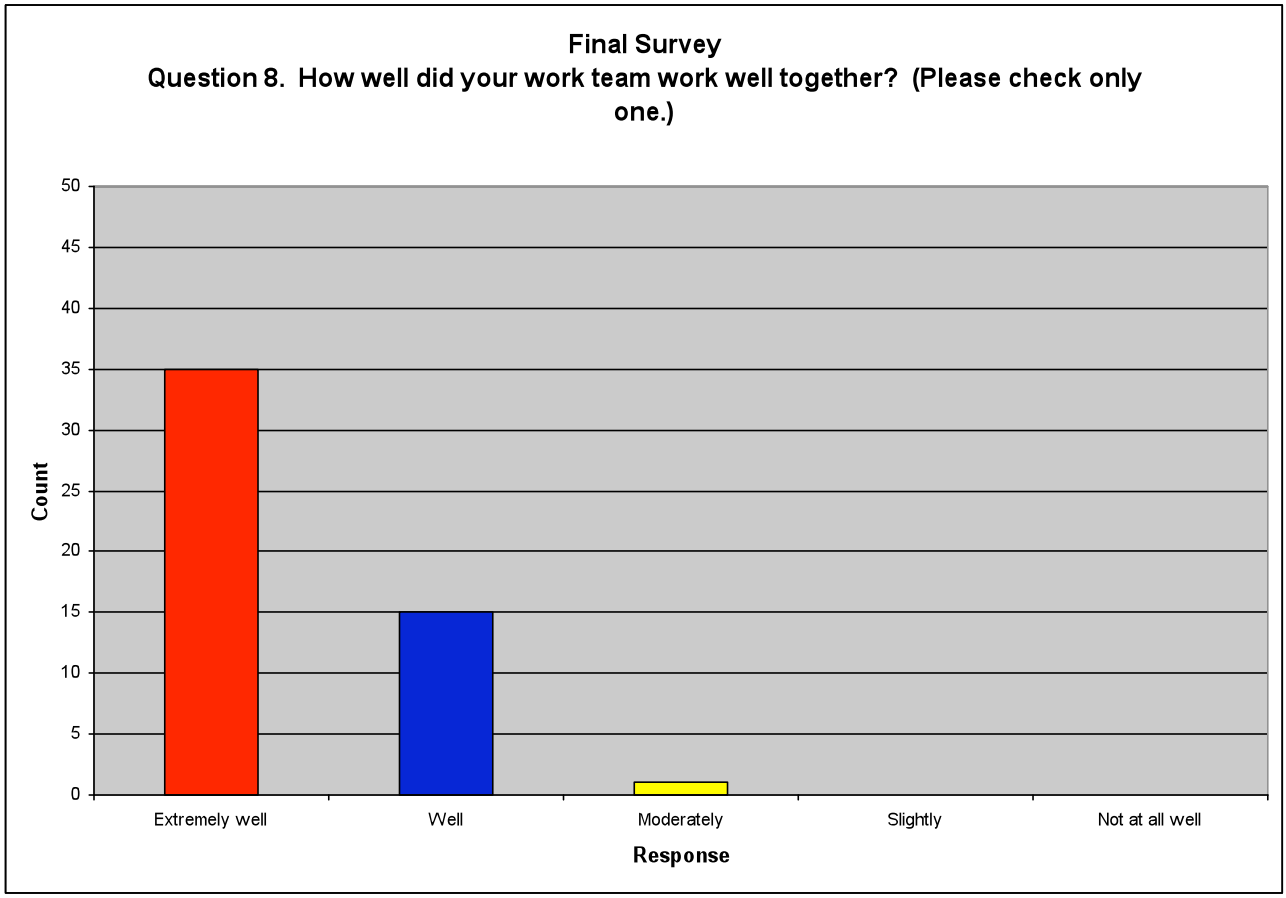

Figure 29. Rating of how well the team worked together.

Sixteen comments specified what worked well in their teams, and seven mentioned items that didn't work well. Five of the seven notes on things not working well were from the NODC team; four of these make reference to the team being unusually large (7) and that discussions went on too long and/or they needed more time. Comments on what worked well or didn't work well in the teams were as follows (with teams listed in brackets after each comment):

What Worked Well

- *Our pre-meeting work and conference calls made a significant difference in our ability to stay on schedule. [GLOBE]*
- *This was my best year yet. Having prior experience with some of the team members really helped [GLOBE]*
- *Educators were very attentive and excited to learn about our subject. Great Team! [NCDC]*
- *I feel that we all valued the knowledge & insight each team member brought. [NCDC]*
- *We worked very well together [NEO]*
- *All members of our team were extremely well organized and put together. [NEO]*
- *overall the group had a good dynamic & complementary expertise [NCDC]*
- *Nice size of group w/ different areas of expertise [UAF-SAR]*
- *Compatible personalities and styles. [UAF-SAR]*
- *People listened to each other and were very adaptive to changing their own ideas with input from others [UAF-SAR]*
- *Good mix, even when we change application and team roles around, worked well, because various tem members could fill different roles. [UAF-SAR]*
- *Great mix of people [UNIDATA-COMET]*
- *excellent synergy - the levels at which each member contributed [UW-Madison]*
- *Probably the best part was the fact that all of our backgrounds were very complementary [UW-Madison]*
- *great group of talented people [UW-Madison]*

- *very efficient [UW-Madison]*

What Didn't Work Well

- *could have used 1 or 2 more people [EO Time Series]*
- *At times other members of my team drifted into discussions that worked against our flow. [NCDC]*
- *Perhaps 30 more minutes per day on team breakout sessions would have been helpful. [NCDC]*
- *Some language difficulties [NCDC]*
- *We had too many members in our team (7). Lots of discussion & input, but it made it difficult to more forward sometimes. [NCDC]*
- *Our biggest problem was not having the data sets. It was a fairly large group, which made communication a bit chaotic at times [NCDC]*
- *it would have been good to have a scientist more familiar w/ the data to address some of the problems we encountered [NEO]*

Question 9 asked whether the respondents participated in the pre-workshop preparation activities and, if so, what they thought would be the most useful activities. See Figure 30. All who participated found the activities at least somewhat useful and the majority found them very useful. Eleven out of fifty respondents had not participated in the pre-workshop activities.

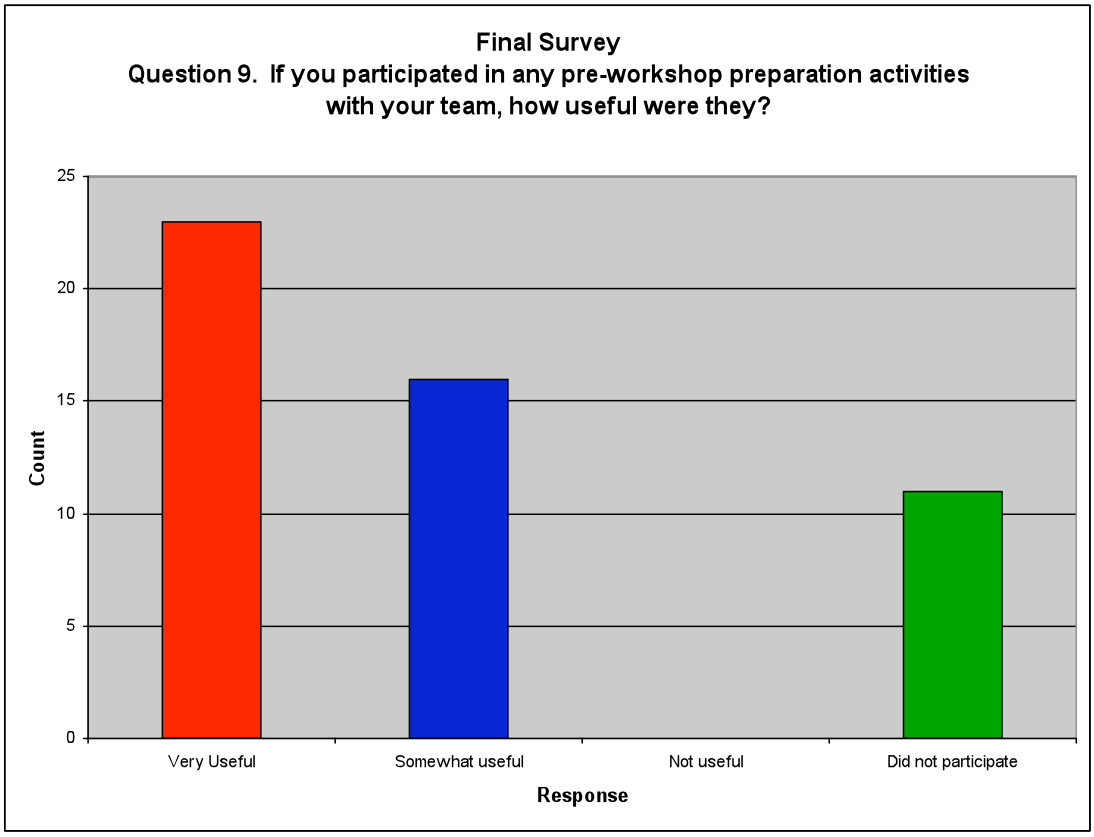

Figure 30. Pre-workshop activity participation analysis.

Results of these data were disaggregated by team to display any trends (Figure 31).

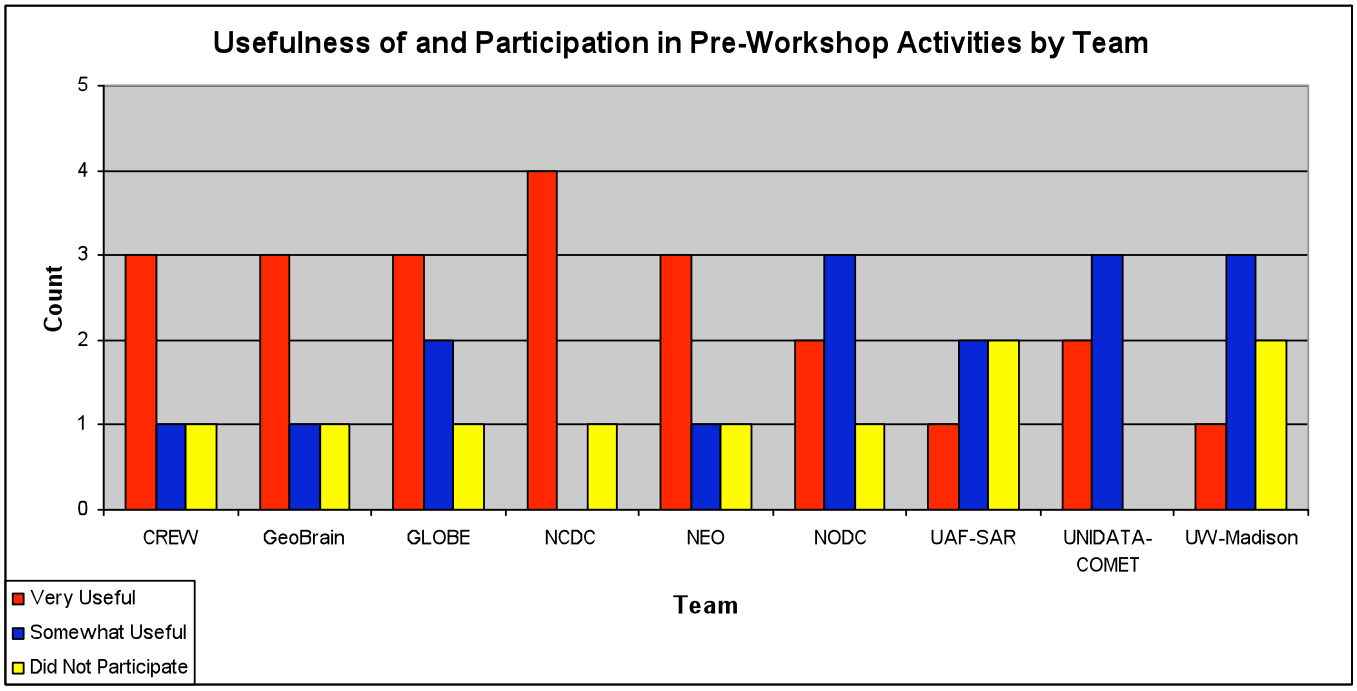

Figure 31. Usefulness and participation in pre-workshop activities, disaggregated by team.

Comments on what would be the most useful pre-workshop preparation activities are listed below with teams indicated in brackets at the end of each entry. Twenty-two people offered comments. **Ten people from eight different teams mentioned how helpful the telecons were; the one team not included in this group (CREW) received a comment that it was impossible to accomplish any pre-workshop preparation. Three emphasized the importance of familiarity with the tool (and data) as preparation. Two people mentioned the Data Worksheet. One mentioned that it's helpful to have a workshop veteran on each team.**

Tool Familiarity
- *team members should install software first (pre-workshop) [CREW]*
- *Ability to have data manipulation tool with data well in advance of workshop, I had no chance to review data have team members read a few key papers [NODC]*
- *Tutorial on using the tool w/ sample data [NODC]*

Online Interaction
- *Online interaction [NCDC]*
- *We had several email exchanges & telecalls beforehand, that was very useful. [UW-Madison]*

Telecons
- *Telecon about the team work and getting familiar with the team mates. [GeoBrain]*
- *team telecon [GeoBrain]*
- *Conference calls to "meet" all team members. Begin work on data sheet. [GLOBE]*
- *Team conference calls [NCDC]*
- *Our pre-workshop telecon allowed me to do prior thinking & planning & and to arrive somewhat more prepared. [NEO]*
- *Conference call was very useful except that many participants in the call weren't actually going to be here - so maybe leave them out next time? [NODC]*
- *The audio conference was good to meet & get everyone talking [UAF-SAR]*
- *Telecon to start discussion [UNIDATA-COMET]*
- *We had several email exchanges & telecalls beforehand, that was very useful. [UW-Madison]*
- *We had one or two telecons to get a broad topic agreed on. [UW-Madison]*

General Comments
- *This is a great idea very helpful [GLOBE]*

- *Data Worksheet preparation [NCDC]*
- *I have attended before so I am familiar with the routine. However, I also know that preparation with regards to how the workshop works and at least a basic discussion regarding the possible content of the chapter to be developed is crucial. [NEO]*
- *changed team at last minute - I don't have much time for pre-conference activities [NODC]*
- *Should have worked out a few more aspects before. Overall progress, however, was excellent. [UAF-SAR]*
- *Could have spent more time on tutorial [UNIDATA-COMET]*
- *Always have a veteran join in on a team This was very helpful [UW-Madison]*
- *Pre-workshop activity was minimal. I don't think it can be counted on, at least in our case. [CREW]*

Question 10 of the Final Survey asked, "What do you plan to do in your work as a result of this workshop that will facilitate the use of data?" **The 40 respondents commented on their plans to work on EET development and use (11), use of tools and data (6), classroom and outreach applications (11), and data and tool development (12).**

EET Development and Use

- *complete chapter/offer workshops [CREW]*
- *Go back over EET Chapters & add some additional details about our activity [NCDC]*
- *Have data & displays to put together. Help flesh out chapter. [NCDC]*
- *Suggest link to EET chapter off our web site [NCDC]*
- *I'll use EET chapters [UAF-SAR]*
- *help my project through to completion [UNIDATA-COMET]*
- *Get all the EET chapters & Data Sheets live [no team]*
- *I'll be collaborating w/ learn to extend & polish the time-change collection [EO Time Series]*
- *this "product" will be another trick in my bag - expanding use of data in my P.D. [UW-Madison]*
- *work w/ folks to finish up chapter Make use of some tools [UNIDATA-COMET]*
- *promote our EET, and possible others with educators [UW-Madison]*

Data and Tool Development

- *I plan on continuing to develop access methods for live data and materials to support it. [CREW]*
- *improved tools & data access [CREW]*
- *Improve the data service to better serve the users based on feedback from workshop. [GeoBrain]*
- *explore new data address methods [GLOBE]*
- *Incorporate MyWorld-friendly data for the GLOBE community [GLOBE]*
- *A few specific refinements to the NEO with regards to making certain options more obvious. [NEO]*
- *I plan to extend the datasets we have & to make refinements in the data selection & analysis tools. [NEO]*
- *Work on putting data online. [NODC]*
- *Improve facilities for adding data descriptions*
- *Publicize our data and access methods more [UNIDATA-COMET]*
- *Possibly create a hurricane season exploration tool in GE or find funding to undertake such an endeavor. [UW-Madison]*
- *Prepare several of the Google Earth datasets for people understanding hurricanes & meteorology. [UW-Madison]*

Tool and Data Use

- *I'll incorporate some of the tools and ideas in my own classroom [GeoBrain]*
- *Incorporate some of the tools In my development Develop workshops for our faculty [GeoBrain]*
- *plan to work more with Unidata & IDV tool [GLOBE]*
- *Incorporate more use of data. [UAF-SAR]*
- *Investigating software to use w/ google earth [UAF-SAR]*
- *use Google Earth more in instruction [UNIDATA-COMET]*

Classroom and Outreach Applications

- *Curriculum development [GLOBE]*
- *Run additional in-service sessions for geoscience faculty in the school district and neighboring schools. Plan to contribute to EET. [GLOBE]*
- *I am going to work with Betsy Youngman on curriculum development [NCDC]*
- *work on lessons [NCDC]*
- *I plan to use NEO and our module in Oceanography Lab [NODC]*
- *use tools, visuals, for my lessons [NODC]*
- *Wow - do you have an hour?? Develop content for my courses, develop Google Earth exercises, use new GIS for courses, work with new colleagues on collaborations. And more! [NODC]*
- *use the case studies as lecture material - maybe publish paper [UAF-SAR]*
- *I plan to increase data usage in my classroom at UMKC and also introduce data usage to Nigerian High School Students [UNIDATA-COMET]*
- *incorporate into other classes & materials [UNIDATA-COMET]*
- *I will use our lesson w/ my students & recommend it to colleagues [UW-Madison]*

Other Comments

- *I don't use data in my work [UAF-SAR]*

Question 11 asked participants to rank the value of the printed materials distributed at registration. Results are summarized in Figure 32.

Printed materials received for the meeting were rated excellent, above average, or average. Nobody ranked them as any less than average.

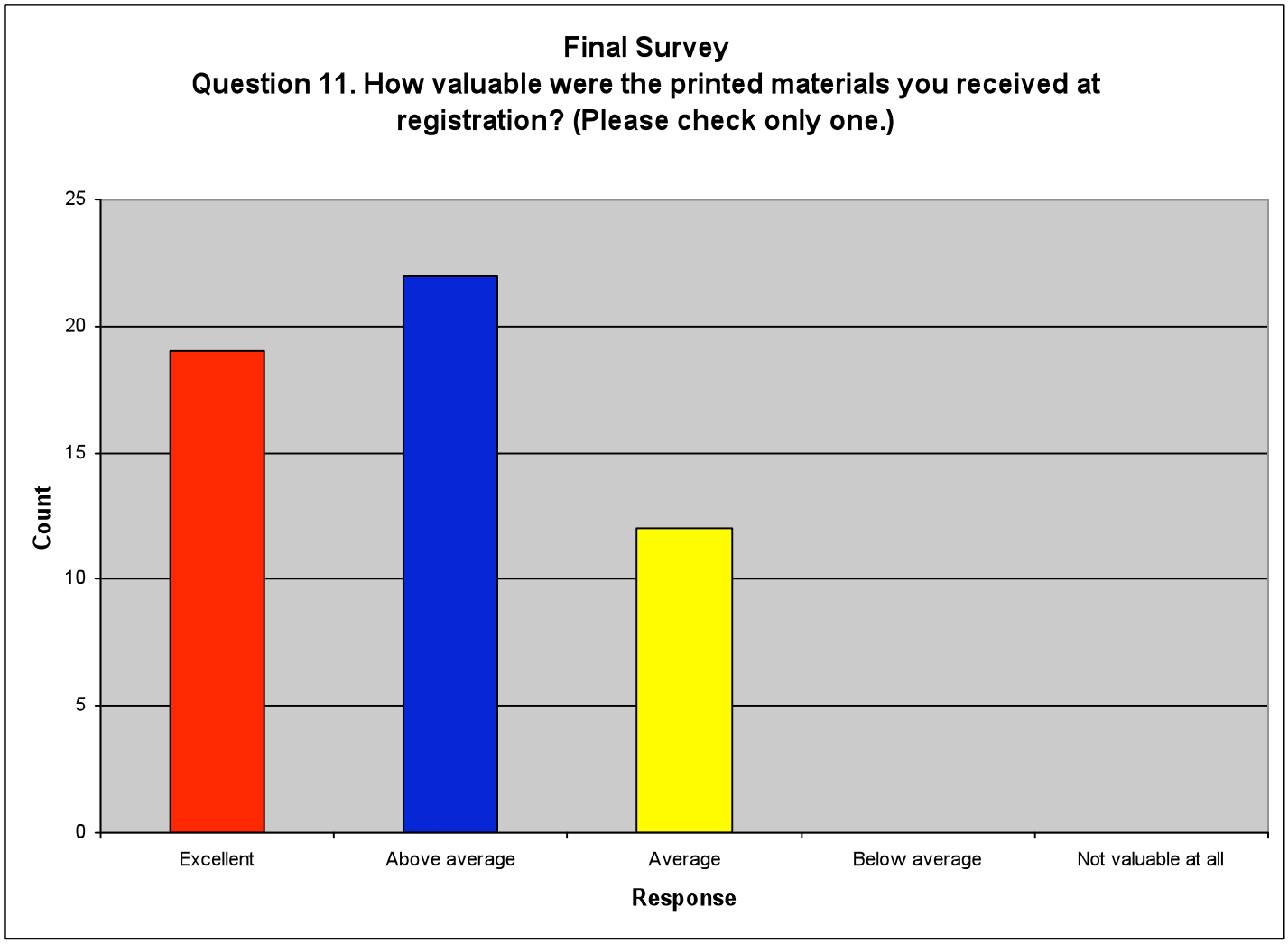

Figure 32. Rating of the printed workshop materials.

Seven people commented on the printed workshop materials. Five were appreciative, and one specified that they only used the agenda. One person requested that documents be printed double-sided.

The comments were as follows:

- *Informative. Good to have all info online also*
- *It was nice to have print out of different tool time & abstracts*
- *Please print documents double-sided!*
- *Fine - map was helpful*
- *Agenda was most valuable*
- *Never any doubt about what was next, what our roles were*
- *pretty much only used agenda*

Questions 12, 13, 14, and 15 addressed the success of the workshop logistics and websites (see Figure 33).

Online registration was found to be easy to use by 52 respondents (1 ranked it "fair"). The Wiki and information website were considered to be quite useful overall. The meeting facilities, housing, and food were ranked well above average, with very few ranking them "average" and nobody ranking them below average.

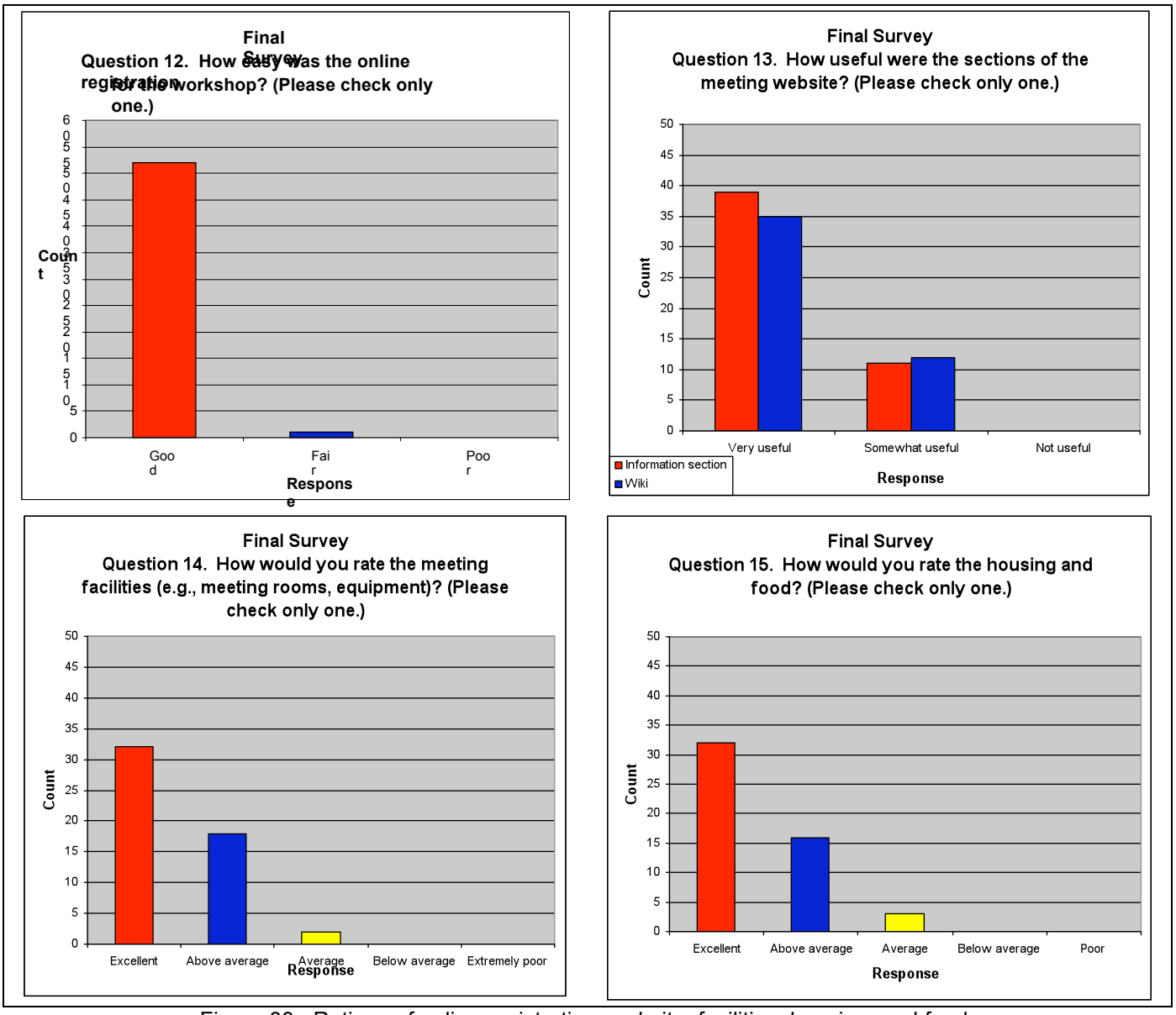

Figure 33. Ratings of online registration, website, facilities, housing, and food.

No additional comments were offered about the online registration.

Three people had positive things to say about using the Wiki, and two commented that they used the information section. Seven people reported problems with the Wiki, however.

Positive Aspects

- *Did not use much of the Info section but the wiki was great*
- *Wiki was great too! Info was good but a page describing what was expected of us would have also been helpful*
- *The Wiki was especially useful as a collaborative tool for our team.*
- *I looked at the info section a lot*
- *I referenced the web data regularly. Also I uploaded a fair bit of c…. onto the wiki.*

Negative Aspects

- *[Wiki] was very "buggy" this year*
- *After logging in on Team Page, only show documents loaded by team members NOT all teams.*
- *Problem - each group should be able to see only their stuff, not everyone's - very confusing*
- *Not crazy about the overall layout/format of the Wiki even though it was a very useful tool.*
- *The Wiki PG is a little weird - adds distracting "A^" chars and this morning I could not reliably save my work - the feedback appeared as tho words were being saved, but all was lost, alas*
- *had trouble accessing - turns out it was my (computer's) fault (CA Security firewall blocked it!)*
- *Wiki seemed a bit haphazardly laid out editing interface did not deal well with html*

Additional comments on the meeting facilities were complementary for the facilities and the hotel staff. One problem mentioned by five people was the bandwidth/wireless connection speed. The only other problems mentioned were the temperature and the acoustics in the Queen Marie Ballroom.

Wireless/Bandwidth Problems

- *Network bandwidth was marginal, I don't know if the wireless bandwidth was the problem or backbone.*
- *Wireless access was a bit slow.*
- *See earlier comments about power strips & internet speed. If it's financially possible, don't use sleeping rooms as meeting rooms.*
- *HVAC system doesn't work well wireless TOO slow*
- *Only trouble was slow internet speed/difficulty connecting at times*

Facilities Comments

- *good food*
- *facilities very nice*
- *food excellent*
- *One of the best venues I have attended*
- *The hotel staff were excellent! Extremely pleasant and helpful.*
- *Hotel Staff was very friendly*
- *tech support was very good*
- *Great place!*
- *loved LuAnn's room!*

Queen Marie Ballroom

- *A little cold in Queen Marie Ballroom*
- *Acoustics in Queen Whatever room were not so good! Projectors were good.*

All comments on the food and housing were positive except for two people who thought Thursday lunch was the same as Wednesday dinner (they were similar but not the same).

- *[housing was] excellent, [food comment:] should not serve leftovers, same food on Thursday lunch as the Wed dinner!*
- *Strong!*
- *facilities very nice*
- *fantastic lunches*
- *Very nice hotel (and city!)*
- *Good thing this workshop is only once a year - I'd gain too much weight from all this good food!*
- *Great*
- *Too much food!!*
- *Great Food. My room had a few problems, but overall very nice*
- *nice hotel*
- *It would have been nice to have something different for lunch on day 2 (same as dinner on day 1)*
- *fantastic - Tina was so helpful with special dietary needs*
- *thanks*
- *I especially appreciated the "no calorie" nature of the meals, and the excellent portion control*

Question 16 asked for any additional comments.

The 31 summary comments on the workshop included 20 that were purely appreciation for the workshop. Another eleven suggested possible improvements.

As in previous workshops, many participants greatly appreciated the format of the event and the experience itself. These positive comments were as follows:

- *Well done*
- *Excellent facilities. I don't see how they could be better. I liked the pace, time to network, and vibes. Great job!*
- *Excellent*
- *This is the first time I participated in this workshop. I think it is well organized and well run. Everything is good. I learned some new things.*
- *Thank you for including me in this experience. Again I feel like the Gary Larsen cartoon in which the student at the back of the class raises his hand and says "Can I leave now, my brain is full?" Good workshop*
- *I really liked the fact that the educator & curriculum participants were able to inform the tool specialist & data provider on creating new features during the workshop. The tool specialist was on the phone w/ a programmer implementing changes directed by the team effort.*
- *Good job!*
- *Great workshop!*
- *Pretty intensive but pacing was OK*
- *I thought it was very well organized. Tina, Mike, Tamara were very quick to respond to all questions*
- *I want to come back!!*
- *Very intense experience. My team came to work & accomplish something good.*
- *well organized*
- *the overall emphasis on team breakout time is really valuable.*
- *Outstanding job! Well balanced & planned.*
- *Very well organized. Thanks - great workshop*
- *Thanks for all your efforts to host & conduct an excellent workshop*
- *Great team. Very optimistic for a successful EET chapter and look forward to expanding the use of the IDV*
- *This is my third access data workshop, and I have actually used this model for smaller workshops that I've managed the days are long, but breaking them into*
- *Wonderful. Everybody brings expertise & leaves w/ new knowledge.*

Two people commented on the importance of pre-workshop preparation:

- *Our group prepared for the workshop by starting the data sheets and conceptualizing the activity well in advance of the workshop. Even so, we felt that we were just keeping up with the schedule. Formal preparations before the workshop seem very important.*
- *as an educator I felt like I was walking into a group that had already done their getting to know each other phone calls & planning & it was a little hart to catch up/contribute [UW-Madison]*

The following comment seems to address the topics of the chapters:

- *balance of Earth Sciences - geology, oceano, metero second biased towards atmos*

Two people suggested more educational angles for the workshop:

- *Great Ideas Need to identify the unique educational reasons that using professional tools and data help educators to address.*
- *Presentations by Educators as to how they are using Data in the Classroom*

The following person had a suggested addition to the schedule:

- *Great! Perhaps we could suggest lunch groups on second day organized by roles to discuss what's working, what's not in their teams, possible solutions to problems, etc*

One person had a question about field testing:

- *Would it be possible to introduce an opportunity for Educators to field test (i.e. implement) curricula developed at the workshop in classrooms?*

One person suggested providing a list of equipment for participants to bring:

- *I had no idea I would need a laptop and a wireless connection. I brought a laptop and bought a pcmua wireless card here, equipment needs should be clearly stated.*

Two people wanted time off from the workshop to be tourists:

- *It would have been fun to have the opportunity to visit some local area sites with other workshop participants. This would facilitate more networking opportunities!*
- *Break from 11 - 3 so people can see the city*

One person requested that future workshops not be on the West Coast:

- *I never converted to West Coast time. Felt like not fully functional whole time. How about the middle of the continent nest time!*

Interviews

Eight months after the workshop, telephone interviews were conducted with one representative from nine of the teams. The interview questions were the following:

> ***How many AccessData or Data Services Workshops have you been to over the years?***
>
> ***What difference has attending the workshop made to you and your work?***
>
> ***What features of the workshop do you consider the most valuable?***
>
> ***What makes the breakout sessions valuable?***
>
> ***How productive were team interactions before and after the workshop?***
>
> ***How can we improve the productivity and communications among your team members before and after the workshop?***

The results of these interviews are summarized below:

How many AccessData or Data Services Workshops have you been to over the years?

Two of the interviewees had been to three previous workshops and two had been to all five of them. This was the first workshop for the other five.

What difference has attending the workshop made to you and your work?

Two respondents mentioned the value they have gotten from connections with colleagues, potential data users, and educators they originally met at the workshop. Four others specifically mentioned how the opportunity to meet potential educational data users was very helpful to their work. One mentioned that it's always interesting to learn more from the educators about how they might use the data in their classrooms, and another said that the chapter will provide a valuable outreach component to their data collection. One respondent said that learning how to use Google Earth was very useful in work applications. Two people said there had been no particular difference in their work after attending the workshop; these were both first-time workshop attendees. The following quote from one respondent summed up the most common difference cited:

- *It has given me more focus for the educational sector of our community.*

What features of the workshop do you consider the most valuable? (and if breakout sessions are mentioned, What makes the breakout sessions valuable?)

Five of the respondents said that the most valuable part of the workshop was the breakout sessions. They explained that this was because of the large amount of work they got done during the breakout sessions with their teams--brainstorming, consolidating ideas, and solidifying their plans for their chapter. One person explained that having people with different backgrounds (on the team) is essential because those close to the data may have little or no understanding of the classroom and could trivialize some of the hurdles that educators run into, whereas an educator might not have any way of knowing how a data set could be used in a classroom to teach about a topic.

Four people commented that networking with the entire group (not just their team) was the most valuable part of the workshop. They really valued the informal times and the whole-group gatherings.

Two respondents added comments about specific features of the workshop that enhanced their experience. One person who had been to all the workshops commented that the pre-workshop activities done in 2008 allowed more work to get done in the breakout sessions than in earlier workshops since time didn't have to be spent getting acquainted. One participant emphasized how valuable it was to have an experienced workshop/EET person on their team for guidance.

Two other people added how much they valued an opportunity to work with and get their data out to educators.

How productive were team interactions before and after the workshop?

Four respondents said that the pre-workshop activities were very helpful. Having the chance to speak via telecon and email beforehand was helpful to get everyone thinking before the workshop itself. Three respondents mentioned that it was especially helpful having several of the team members located in the same area, so they could meet in person and loop the others not in the area by telephone or email.

Two people reported that their teams were late getting created, so they didn't have much time before the workshop to communicate.

One respondent reported that although things were quiet for a long time after the workshop, there has recently (in the last month) been a resurgence of activity from the curriculum developer to complete the chapter and things seem to be moving ahead now.

One person said that things have been moving along well since the workshop and that the chapter seems to be almost completed.

Six of the teams reported there being very little communication from their curriculum developer for the last six months or so, so they weren't sure what was going on. Several of these expressed frustration at this situation since they thought the chapter was close to completion by the end of the workshop.

In retrospect, several interviewees suggested that setting up some milestones and hard deadlines for the time period after the workshop might be helpful to encourage people to follow through on completing the chapter. They felt that things were too nebulous about when the project would be completed. One said:

- *There was an "off in the future" deadline like a year later that was too vague and distant.*

One person suggested that there be a three-month deadline for when the team would reconvene via telecon and review an alpha version of the chapter. A couple of the respondents thought there might be something they were supposed to be doing to get the team to finish the work, but they weren't sure what to do or who should do it.

In other comments, several people commented on how much they enjoyed the workshop and meeting the people who attended.

Two people asked for some follow-up reporting of the workshop results; one wanted to know if/when teachers used the chapter their team created and the other wanted to know what percent of the chapters get completed after each workshop. One three-time attendee added the following:

- *Every year the workshop gets better; the tools and timing were the best ever this year.*

Appendix I—Evaluation Instruments
AccessData Workshop 2008
Data Use Questionnaire

We are interested in attendees' perspectives on the use of data in education. We hope to improve our understanding of the ways in which data are being used and the ways in which data use may be made easier. This information may be used to help define future projects that focus on bringing data into the classroom. Thank you for your help.

1. What is your primary professional role at this workshop? (Please check only one.)

_____Curriculum developer
_____Data representative
_____Educator
_____Scientific researcher
_____Software tool specialist
_____Other; please describe _____

2. Please check any other professional activities you participate in:

_____Curriculum developer
_____Data representative
_____Educator
_____Scientific researcher
_____Software tool specialist
_____Other; please describe _____

3. For which learning goals have you successfully used data *within educational contexts*? (Please check all that apply.)

____Understanding weather
____Understanding the ocean
____Understanding geology/seismology
____Interpreting satellite imagery
____Understanding the scientific method
____Pattern recognition
____Meeting science standards
____Personal exploration and learning
____Climate
____Environmental science
____Other; please describe_____

_____

4. Which of the following data have you used successfully? (Please check all that apply.)

____Census
____Earthquake/volcano
____Satellite imagery (e.g., GOES, Landsat, MODIS, SeaWiFs)
____Sea surface temperature
____Topography data
____Tree ring data
____Climate/weather model simulation output
____Weather/climate observations (e.g., temperature, precipitation)
____Other; please list_____

5. Which of the following data *formats* have you used successfully? (Please check all that apply.)

____GIS (Geographic Information System)
____Image data (e.g., JPEG, GIF, TIFF)
____Text/ASCII (e.g., tab-delimited text for spreadsheet use)
____Google Earth (KML, KMZ)
____NetCDF (Network Common Data Format)
____HDF-EOS (Hierarchical Data Format-Earth Observing System)
____GeoTIFF (Georeferencing Tagged Image File Format)
____Other; please list_____

6. Which of the following data *sources* have you used more than once? (Please check all that apply.)

____DOD (Department of Defense)
____EPA (Environmental Protection Agency)
____GLOBE (GLobal Observations to Better the Environment)
____NASA (National Aeronautics and Space Administration)
____NCAR (National Corporation for Atmospheric Research)
____NOAO (National Optical Astronomy Observatories)
____USGS (United State Geological Survey)
____NSIDC (National Snow and Ice Data Center)
____IRIS (Incorporated Research Institutions for Seismology)
____EarthScope
____UNAVCO
____NGDC (National Geophysical Data Center—NOAA)
____NCDC (National Climatic Data Center—NOAA)
____NODC (National Oceanographic Data Center—NOAA)
____NWS (National Weather Service—NOAA)
____Other; please list _____

7. Are the tasks of reformatting and subsetting data significant obstacles to your use of data?

____ Yes _____No

If yes, what would be helpful in overcoming these obstacles?

_____

_____

8. What data analysis procedures have your end-users/learners performed on the data? (Please check all that apply.)

____Statistics
____Basic math
____Graphs
____Visualization/Imaging
____Queries
____Classification
____Plotting/Mapping
____Quality control
____Combine data from different sources
____Other; please describe _____

9. Have you made any attempts to obtain and use data sets that were NOT successful?

____ Yes _____No _____No opinion

If yes, what barriers did you encounter? (Please check all that apply.)

____Couldn't locate data
____Data set was incomplete
____Broken links
____Poor documentation
____Did not have access to required software
____Required computer hardware was not available
____Insufficient bandwidth/connection
____Unusable format/unknown file extensions
____Software too difficult to use
____Terminology/acronym problems
____Dataset too large
____Proprietary restrictions
____Prohibitive costs
____Other; please describe_____

_____

10. What types of instruction or support are most helpful to you when using specific data sets? (Please check all that apply.)

____One-on-one email assistance
____Phone support
____FAQ
____Glossary of terms
____Examples
____Step-by-step instructions
____Training workshops
____Online tutorial
____Live demos
____Videos
____Reference manual/documentation
____Other; please describe_____

Thank you for your feedback. Please return this form to a workshop staff person or to the drop-box at the registration table.

AccessData Workshop 2008
Thursday Feedback Questionnaire

1. What is your primary professional role at this workshop? (Please check only one.)

_____Curriculum developer
_____Data representative
_____Educator
_____Scientific researcher
_____Software tool specialist
_____Other; please describe _____

2. Please check any other professional activities you participate in:

_____Curriculum developer
_____Data representative
_____Educator
_____Scientific researcher
_____Software tool specialist
_____Other; please describe _____

3. What aspect(s) of the workshop today and yesterday evening did you find the most valuable? (Please check all that apply.)

_____Wednesday evening's demo session and share fair
_____Keynote talk – Data, Data Everywhere, But Not a Bit to Display; Jeff Weber, Unidata Program Center, Boulder, Colorado
_____Team breakout sessions
_____Tool Time – Hands-on lab session
_____Networking with others in my field
_____Networking with those in other fields
_____Other; please describe _____

4. Which Tool Time Session did you attend?

_____Unidata's Integrated Data Viewer (IDV) - Roy Yates Room
_____GeoBrain - Marshall Joffre Room
_____My World GIS - Chief Poker Jim Room

5. How would you rate the balance of the workshop today?

	Too much	Just right	Too little
Talks			
Hands-on learning			
Team breakout sessions			
Emphasis on data and tools			
Emphasis on education and curriculum			

6. What aspects of today's session would you have changed and how?

_____

_____

_____

7. Were you a presenter at last night's demo session and share fair?

____Yes ____No

If yes, in what ways was it valuable to you?

_____

_____

8. If you attended the demo session and share fair last night, was it valuable to you?

____Yes ____No ____Did Not Attend

Thank you for your feedback. Please return this form to a workshop staff person or to the drop-box at the registration table.

AccessData Workshop 2008
Friday Feedback Questionnaire

1. What is your primary professional role at this workshop? (Please check only one.)

_____Curriculum developer
_____Data representative
_____Educator
_____Scientific researcher
_____Software tool specialist
_____Other; please describe _____

2. Please check any other professional activities you participate in:

_____Curriculum Developer
_____Data Representative
_____Educator
_____Scientific researcher
_____Software tool specialist
_____Other; please describe _____

3. What aspect(s) of the workshop today did you find the most valuable? (Please check all that apply.)

_____Keynote talk – From satellites to end users: Real world applications of remote sensing in a rapidly changing climate; Anupma Prakash, Geophysical Institute, University of Alaska Fairbanks
_____Team breakout sessions
_____Tool Time - Hands-on Lab Session
_____Networking with others in my field
_____Networking with those in other fields
_____Other; please describe _____

4. Which Tool Time Session did you attend?

_____Google Earth - Roy Yates Room
_____NEO - Marshall Joffre Room
_____ESRI's ArcExplorer Java Edition for Educators - Chief Poker Jim Room

5. How would you rate the balance of the workshop today?

	Too much	Just right	Too little
Talks			
Hands-on learning			
Team breakout sessions			
Emphasis on data and tools			
Emphasis on education and curriculum			

6. What aspects of today's sessions would you have changed and how?

_____

_____

Thank you for your feedback. Please return this form to a workshop staff person or to the drop-box at the registration table.

AccessData Workshop 2008
Final Day Questionnaire

Please answer the following questions for us so that we can determine what we did well and what we can improve. Any identifying information will be kept confidential.

WORKSHOP CONTENT

1. Which was your work team?

_____CREW
_____GeoBrain
_____GLOBE
_____NCDC
_____NEO
_____NODC
_____UAF-SAR
_____UNIDATA-COMET
_____UW-Madison
_____Not on a team

2. What is your primary professional role at this workshop? (Please check only one.)

_____Curriculum developer
_____Data representative
_____Educator
_____Scientific researcher
_____Software tool specialist
_____Other; please describe _____

3. Please check any other professional activities you participate in:

_____Curriculum developer
_____Data representative
_____Educator
_____Scientific researcher
_____Software tool specialist
_____Other; please describe _____

4. What aspect(s) of the workshop overall did you find the most valuable? (Please check all that apply.)

_____Opening night demo session and share fair
_____Thursday Keynote—Data, Data Everywhere, But Not a Bit to Display
_____ Friday Keynote—From satellites to end users: Real world applications of remote sensing in a rapidly changing climate
_____Tool Time—Unidata's Integrated Data Viewer (IDV)
_____Tool Time—GeoBrain
_____Tool Time—My World GIS
_____Tool Time—Google Earth
_____Tool Time—NEO
_____Tool Time—ESRI's ArcExplorer Java Edition for Educators
_____Team breakout sessions
_____Final report out of teams
_____Networking with others in my field
_____Networking with those in other fields
_____Other; please describe _____

5. How would you rate the balance of the workshop overall?

	Too little	Just right	Too much
Talks			
Hands-on learning			
Team breakout sessions			
Emphasis on data and tools			
Emphasis on education and curriculum			
Overall time spent on evaluation surveys			

6. What aspects of the workshop overall would you have changed and how?

_____

_____

7. To what extent did the opening night demo session and share fair facilitate your learning about data access, tools, and educational uses of data? (Please check only one.)

Not at all	Slightly	Moderately	Well	Extremely well

Additional comments:

_____

_____

8. How well did your work team work together? (Please check only one.)

Not at all well	Slightly	Moderately Well	Well	Extremely well

Please comment on what did and didn't work in your team:

_____

_____

9. If you participated in any pre-workshop preparation activities with your team, how useful were they?

Not Useful	Somewhat Useful	Very Useful	Did Not Participate

Please comment on what would be the most useful pre-workshop preparation activities:

_____

_____

10. What do you plan to do in your work as a result of this workshop that will facilitate the use of data?

_____

_____

WORKSHOP LOGISTICS

11. How valuable were the printed materials you received at registration? (Please check only one.)

Not Valuable At All	Below Average	Average	Above Average	Excellent

Additional comments on the printed materials you received at registration:

_____

_____

12. How easy was the online registration for the workshop? (Please check only one.)

Poor	Fair	Good

Additional comments:

_____

_____

13. How useful were the sections of the meeting website? (Please check only one.)

	Not useful	Somewhat useful	Very useful
Information section			
Wiki			

Additional comments:

_____

_____

14. How would you rate the meeting facilities (e.g., meeting rooms, equipment)? (Please check only one.)

Extremely Poor	Below Average	Average	Above Average	Excellent

Additional comments:

_____

_____

15. How would you rate the housing and food? (Please check only one.)

Extremely Poor	Below Average	Average	Above Average	Excellent

Additional comments on housing and food:

_____

_____

GENERAL IMPRESSIONS OF WORKSHOP

16. Please use the space below to add any other comments you have, suggestions for improvements at future workshops, or any other ideas you would like to share with us.

_____

_____

_____

_____

17. If we may contact you further about your experience, please provide your contact information here:

_____

Please complete and turn in this form to a workshop staff person or to the drop-box at the registration table during your final day. Your feedback and comments will help to shape future AccessData workshops. Thank you for your participation!

Appendix II—Agenda

Agenda

2008 AccessData Workshop
Portland, Oregon
Embassy Suites, Downtown

Wednesday, April 30, 2008

5:00 - 9:00 pm	Workshop Registration Open, Fireside Room
6:00 - 9:00 pm	Demo Session and Share Fair, Fireside Room
6:00 - 7:30 pm	Dinner Buffet and hosted bar, Fireside Room

Thursday, May 1, 2008

7:00 - 8:30 am	Workshop Registration Open, Queen Marie Ballroom Foyer Turn in Data Use Questionnaires-yellow by 8:30 am
6:45 - 8:30	Breakfast available in the Arcadian Garden Dining Room
8:30 am	Workshop Begins, Queen Marie Ballroom
8:30 - 8:45	Welcome, Review of Logistics - Ben Domenico, Tina Campbell
8:45 - 8:55	Overview of AccessData Workshop Goals - Tamara Ledley
8:55 - 9:40	Keynote Presentation #1 - Data, Data Everywhere, But Not a Bit to Display – Jeff Weber, Unidata Program Center, Boulder, Colorado
9:40 - 10:00	Break
10:00 - 12:00	Team Breakout - Session 1 Meet your team members, Learn about the data, tools, and expertise represented on your team *TEAM ROOMS:* Alaska SAR - Room 113 CREW - Room 112 EO Time Series - Room 503 GeoBrain - Room 110 GLOBE - Watershed Dynamics - Room 111 NCDC - Room 104 NEO - Queen Marie Ballroom NODC - Room 432 Unidata/COMET - Room 403 UW-Madison - Room 105
12:00 - 1:00	Lunch Buffet in Arcadian Garden Dining Room
1:00 - 2:30	ToolTime Session 1 *Featured Tools and Rooms:* Unidata's Integrated Data Viewer (IDV) - Roy Yates Room GeoBrain - Marshall Joffre Room My World GIS - Chief Poker Jim Room See Tool Time descriptions for information about each session and links to download tools and/or data.
2:30 - 2:45	Break

2:45 - 4:20	Team Breakout - Session 2
4:20—4:30	Day 1 Evaluation Survey - Complete and submit in breakout rooms
5:00-7:00	Manager's Reception (complimentary drinks and snacks) in Arcadian Garden Dining Room
7:00	Dinner on your own.

Friday, May 2, 2008

6:45 - 8:30	Breakfast Buffet available in Arcadian Garden Dining Room
8:30 - 8:45	Welcome, Daily Logistics Overview - Tamara Ledley, Queen Marie Ballroom
8:45 - 9:30	Keynote Presentation #2 - From satellites to end users: Real world applications of remote sensing in a rapidly changing climate - Anupma Prakash, Geophysical Institute, University of Alaska Fairbanks
9:30 - 9:45	Break
9:45 - 10:50	Team Breakout - Session 3 Brainstorm possible storylines for educational activities
10:50 - 11:00	Break as needed
11:00 - 12:00	Team Breakout - Session 4 Evaluate suggested storylines and perform proof-of-concept checks, select one workable data-use scenario for development
12:00 - 1:00	Lunch Buffet, Arcadian Garden Dining Room
1:00 - 2:30	Tool Time Session 2 *Featured Tools and Rooms:* Google Earth - Roy Yates Room NEO - Marshall Joffre Room ESRI's ArcExplorer Java Edition for Educators - Chief Poker Jim Room See Tool Time descriptions for information about each session and links to download tools and/or data.
2:30 - 2:45	Break
2:45 - 3:30	Team Breakout - Session 5 Develop the case study and outline procedures for data access and analysis.
3:30 - 3:45	Break
3:45 - 4:20	Team Breakout - Session 6 Flesh out access and analysis procedures with info that will build users' knowledge about the data and tools; suggest ideas for going further.
4:20—4:30	Day 2 Evaluation Survey - Complete and submit in breakout rooms
5:00	Dinner on your own

Saturday, May 3, 2008

6:45 - 8:30	Breakfast Buffet in the Arcadian Garden Dining Room
8:30 - 8:50	Overview, Logistics, and Thank-yous (last time everyone is all together) - Tamara Ledley, Queen Marie Ballroom
8:50 - 9:35	Team Breakout - Session 7
9:35 - 9:50	Break
9:50 - 11:00	Final Team Breakout Session Finalize activity outline. Upload summary PowerPoint Slides and all documents to team wiki page.
11:00 - 11:15	Move to report out rooms, make certain team slides are available on projected computer.

	Group 1: Unidata-Comet, UAF-SAR, GeoBrain - Queen Marie Ballroom Group 2: GLOBE, CREW, NODC - Roy Yates Room Group 3: NCDC, NEO, UW-Madison - Marshall Joffre Room
11:15 - 11:45	Team Report Out Sessions
11:45 - 12:00	Complete and submit Final Evaluation Survey-blue
12:00	Lunch Buffet in the Arcadian Garden Dining Room (box lunches will be available for those who need to leave right away)