**Student Participant Evaluations of CIDER SUMMER'04 Tutorial Part (July 11 - July 24, 2004)**

*Evaluation #1*

Organization, logistics, location and venue were very good. I liked the idea of eating each meal together with other students. It makes students know each other, even for some people who were not so enthusiastic about meeting people in the beginning. Also the location was good, that it is not too far from the downtown so that we can visit there in the weekend and relax. It is good that the location was not too close to the downtown, to concentrate on the meeting during the weekdays.

Lectures content, level, pace, and the balance between lectures and tutorials were good. I hope there were some material ( not an intensive one, something like slides of lectures ) to see before visiting the meeting, so that I could have taken a few books I used to study earth science sometime ago. I could have connoted what I read in those days with the lecture.

It is nice to have the lectures video taped. It helps student whose English skill is not prefect. Those seems to be very good reference lectures and I would watch them again if I see more and specific connection of my research and other fields.

I hope there were enough time to review the result form the tutorial. Also sometimes it is good to have at least one faculty around during the tutorial. By discussing only among students ( including students from that field), once we were making extremely wrong conclusion about the result from the tutorial.

It was nice to learn about other fields. By seeing the connection with other fields and seismology, I started to learn what part of the result would be more important to promote the earth sconce. I thought (and hope) knowing the connection would make the research progress in meaningful direction.

The discussion we had on Thursday afternoon was very interesting. By looking at the discussion among faculties, I felt like we learned a lot, how much of the problem is not solved and etc. I think it is good to have more discussion time with a few faculty member plus all students. For example we all read a paper which is important in that filed and discuss why it is important, what is caveat and etc. This can be included in this first level tutorial. I'm not sure about the next level tutorial, I imagine that to be closer to a general meeting which focus on earth interior. But if there is a next level tutorial, it would be nice to include paper reading and discussion among students and faculties.

*Evaluation #2:*

TUTORIAL PART

Overall, the program was excellent. Staying in the dorms was nice, as we eating at Ortega. The food was mediocre, but that is beyond the control of CIDER. The dorms were nice because it allowed the students to interact outside of the classroom and improved the camaraderie. The disappointing aspect of the accommodations was that the faculty was so distant from the students. In many ways, we felt isolated, in that we couldnt easily leave campus. More interaction outside of the classroom would have been nice. We were all aware the faculty was busy preparing lectures, but it still would have been nice to have some interaction. Maybe some kind of evening sessions would be nice next time. Then again, everyone was pretty tired after the day.

KITP was a good choice for venue, mostly. While not true for everyone, the staff at KITP didnt seem to care for us. I didnt feel we were overly obnoxious, but they mostly ignored us. When you made an effort, service was good, especially in the front office. Having the lecture hall to ourselves was nice, but we really needed tables or desks so we could more easily take notes. I think it would have facilitated more interaction too.

The balance between lectures and tutorials was tricky. More tutorials would have been appreciated, however they shouldnt come at the expense of the lectures. Im not sure where the problem came from, but speakers didnt stick to the schedule. I think it was because there were always lots of questions and nobody wanted to cut their talk short. The level of the talks was fine, but the order could have been improved. For example, it might have been nice to start off with a slightly lower level seismology lecture than Adams talk on inversion. As a non-seismologist, I felt I would have appreciated one of Guys more elementary talks first. I also appreciated when we were given handouts of the talks, or abridged handouts. This would allow us to spend less time writing notes and concentrate more on learning from the lecture. The length of the tutorial part was just right. Any shorter and we wouldnt have had the time to start pulling it all together. Much longer isnt better either, as we were really burnt out for the lectures in the workshop part.

The tutorials were both good and frustrating. We spent quite a bit of time at the beginning of each just setting up the programs on the computers and trying to get them to run. Im not sure how you can get around that, but once we got going the tutorials were great. I think the biggest key is getting more tutorials into the program so you can expand on some of the lessons. Also, it would be good to try to get a number of the tutorials looking at the same issues/problems from several of the disciplines.

**WORKSHOP PART**

I thought the workshop was spectacular. I think the biggest issue was people not staying long enough to get anything out of it. The people that were only around for the first week missed out on the best part. I think it was necessary to have a couple days of lectures to get everyone up to speed and on the same page. However, after being in lectures for the previous two weeks I was completely burnt out. All of the students were really frustrated with most of the first week because we were ready to be working on anything while others wanted to sit around and argue the same details that have been argued for twenty years. I dont want to isolate anyone, as it was a lot of the faculty. Well, especially the ones who were not around for the first two weeks. I think another issue people had problems with was their choice of projects. The mantle heterogeneity group picked a problem they thought they could tackle and make progress on. The transition zone group did a lot of discussion at first and by the time they started breaking it down to look at individual projects there was not much time left. I think it is important to emphasize the need to pick feasible projects, and then to dive straight into them and not spend two or three days just discussing. Discussion

can definitely be a part of the process, but it might be better if it wasnt the whole project. The final thing I would like to bring up is trying to get the faculty to commit to the entire two weeks, if not longer. The people that got the most out of this workshop were the people who had been there the entire time. Those who were only there for a week, or less even, didnt seem to get all that much out of it. With exceptions, of course.

*Evaluation #3*

Overall, I thought it was a terrific tutorial as I learned a lot and had = a great time.

General Organization/logistics: I thought the organization and logistics = were handled very smoothly which is extremely impressive considering the = fact that this is the first such summer tutorial program.

Location/venue: Not much to say here, since the location was obviously = fantastic. Kohn Hall was also very nice, although it would have been = helpful to have a lecture room with some sort of pull-up desk or writing = area. Also, more computers in the library would have been helpful , = although it was a good experience working with other students on the = computer tutorials though. And it would be nice to have had the = computers in a central area, so the the tutorial leaders could be in the = same room as the participants for the entire time.

Schedule: I think the schedule was very ambitious and good. The days = felt very long the first week, but I was used to it by the second week.=20

Lecture content, level, pace, balance between lectures and tutorials: = The lecture content was generally excellent. I think it was very helpful = for me, since I have MANY holes in my deep Earth education. I would have = liked more background/introductory lectures (or readings) in the = beginning, and more current problems/cutting edge issue lectures later = (which was generally but not entirely the case) during the tutorial. I = think one tutorial per afternoon was about the right amount.

If we were to do this again (YOU DEFINITELY SHOULD!) for the next = generation of students, what should we do the same, what should we do = different? The location and format were very good, as well as the four = main topic areas. Sorry, I don't have many suggestions for = improvements...I'm sure some of the small glitches (e.g. computer = compatibility issues) would be ironed out in future tutorials. I think = having background papers/readings well in advance of the tutorial would = also have been helpful.

Should be consider the "next level" tutorial program, and what might = that focus on? This seems like a very good idea. It could focus on more = current research.

*Evaluation #4:*

I am really glad I decided to join the workshop. I have the feeling I could profit a lot in particular to extend my knowledge on other disciplines than seismology, but at the same time I also got in touch with other seismologists with different opinions and philosophies.

The organization was very close to perfect and I have been positively impressed by the lectures. In general, the content was appropriate for a heterogeneous public, giving the possibility to learn also to not specialists. I found the tutorials particularly interesting, because they gave the opportunity to really get a feeling how problems are solved in other disciplines and to get an idea of the major problems.

For me 2 lectures in the morning and 1 tutorial in the afternoon followed by discussion on the exercise would have been enough, although I know it would be a pity to cut down on the lectures. However some more time to review the treated material, I think would have been helpful. I found the 2 weeks time frame appropriate, longer it would have been too much, and I think people would start to loose concentration and focus.

I was impressed by the preparation level of the students and by the amount and quality of discussion risen among us.

Maybe to give the opportunity to the students to show what they are doing and to increase the discussion and the connection between everybody's work and what is being taught, it would be helpful to have posters. The students could prepare a poster, which could be hung throughout the period of the workshop and be discussed during the breaks or in some poster sessions in the evenings. Over a period of two weeks, it would be probably possible to talk to everybody.

I hope the second part of the program will be as successful as the first one and I am looking forward to hear about it.

*Evaluation #5:*

I think that tutorial had been very well done:

- excellent (to 1st order) lectures as well as notes all fine
- very good meeting peers and cross-communication
- appreciate hard work on lectures

The tutorial had given a very well posed general ideas of the global approach to Earth's studies from different disciplines but I think that:

- it would be easier to follow the lectures if we could have had the suggested reading or some preparation suggestions some time before starting
- it would be better to know about programs developed during lectures ahead in time; to have a copy of each lecture before its starting (it would be easier to follow it)
- have basic lectures to start, some terminology (ex. seismology, geochemistry, ?)

Tutorial comments:

- it would be interesting to have faculty participation in tutorials: tutorials get into groups with at least one "expert" and one staff member
- schedule very well organized but I would prefer more tutorials without cutting down on lectures
- it would be more useful to relate tutorial to morning lectures and reconvene at end of day by using "tutorials results"

GENERAL COMMENTS:

- table to write notes on? (ex: flip up desk)
- lectures room is cold, computer room is freezing!
- difficult to listen, from online notes, the questions made during lectures ? floating microphone?

By the end all had been very well done. I don't think I'm able to suggest how to organize better than you did (considering the concepts gave and the quality of lectures)

*Evaluation #6:*

1. I thought the organization was good considering this was first time. However I would have liked to receive more information before the tutorial started such as reading lists so I could prepare.

2. Location was great; nice facilities apart from lack of computers.

3. Schedule was good, a nice mix of disciplines. It was a shame to lose some lectures and tutorials.

4. I thought the level of lectures and tutorials was perfect, just what I was hoping for. However I was hoping for more tutorials.

5. I think the structure of lectures was great but it was disappointing that some tutorials were cut. Also extra time for discussion would be good. Maybe extending the tutorial by a few days?

6. It would be hard to justify a more detailed program as I think the summer program was so successful because it was such a broad topic. It would be good for everyone to get together, maybe during or after AGU to discuss progress since the workshop.

*Evaluation #7:*

general organization

- try to get reading list up on the web earlier
- size of class (# of people) was ideal
- keep it the same size in the future

location/venue

- great location
- desks/tables would be nice

schedule

- perhaps try to integrate lectures more in terms of topics
- have related topics for each discipline
- or have disciplines split up into days

lecture content etc.

- short introduction to UNIX
- glossary of key terms/concepts
- more discussion time
- of tutorial problems
- of lecture material
- balance was great
- content was fantastic

next generation

- there was great variety, which was awesome
- maybe make the tutorials group things (groups of 4-5 students)
- with at least one student in the given discipline in the group
- discussions may be good too

next level

- great idea
- Focus
- integrating the different disciplines and address specific problems

Thanks a lot to all of you for doing this short course. Overall it was amazing and it was definitely a positive experience. I really appreciate all of the effort that you put in.

*Evaluation #8:*

I love the location - Santa Barbara is beautiful and KITP is well run and well equipped. If CIDER is not fully funded (i.e., our own building), I definitely would recommend this venue. The dorms were adequate as was the food. The past two weeks have been especially useful. I've learned a lot (even in my own discipline!) and the new (or renewed) knowledge has sparked some ideas for experimental direction. The lectures were mostly excellent and obviously much effort was put into making them useful for our diverse crowd. I certainly appreciated that. The tutorials were also useful - I now have many more tools to work with and am aware of databases that I never knew existed. Some of the most beneficial aspects of this workshop was meeting our colleagues and networking. Wish we had more time.

*Evaluation #9:*

Overall - an excellent experience. Thank you.

1. Organization was great -I liked that nothing was written in stone and that everyone was open to change things around.

2. UCSB is nice. Having desks would have been very nice.

3. Schedule worked well. I like two lectures in the morning and only one tutorial (not 2) in the afternoon along w/ another lecture. Two tutorials in the afternoon would be too much. Talking about the tutorial afterwards is a plus.

4. I think an initial 10 minute tutorial on UNIX would have been nice and an intro level textbook list beforehand so we would be a little more prepared.

5. I think giving funding for one meal (dinner) instead of the dorms would have been nice. The food in the cafeteria is not so good and it was easy to get sick of. Most things I would do the same though. I like the diversity of students and lecturers. And I think the lecture material was great. There were some lectures that were very introductory and some about recent work ? well-rounded for a very multi-disciplinary audience.

6. I'm not sure that would work as well.

A very valuable experience. I learned a lot and met some great people. It's incredibly important to make the geoscience community more multi-disciplinary and this was a great first step!

*Evaluation #10:*

Overall I thought that the program was very well designed and executed, and considering this is the 'maiden voyage' of the short program tutorials it went rather seamlessly. The lectures were well thought out and provocative, and the tutorials reinforced lecture material. The informal nature of the lectures also provided opportunity to discuss material, and the instructors were very open to questions.

The format of three lectures a day, with a tutorial in the afternoon was effective. However, the continuity between lectures was often lacking, forcing students to change gears rapidly to another subject after becoming comfortable with the previous topic. Perhaps theme days, where the subject matter was focused on a particular topic, for example the CMB from a mineral physics, seismological, and geochemical perspective. Organization of lectures along these lines might also foster interdisciplinary discussion on these topics by highlighting the strengths and deficiencies of each brand of science. While the instructors did an excellent job introducing fundamental concepts of each field, I often felt the emphasis of multidisciplinary approaches to understanding the earth's interior was lost to the minutia of the lecture. Which is not to say that the instructors did not attempt to convey this message, they were just sporadic in their efforts. Perhaps the instructors could be organized in teams for each day of lectures so that they could come up with a coherent message between the lecture and themselves explore the points of contact between disciplines.

The introduction of the discussion section towards the end of the short course was nice, because it allowed the students to ask some of the questions they might not have felt comfortable with asking during the formal lectures. Also, these sections facilitated active learning, allowing the students to become involved in the material being taught.

KITP as a venue for this tutorial program was a good choice. The only shortcoming of the facility was the lack of desks in the lecture hall, but this is certainly a minor point.

An alternative to the three lectures per day and a tutorial format for the next level of short course, would be to have the first half of the program be lectures laying ground work for the second half of group work on small projects. This model has been used by the Summer of Applied Geophysical Experience (SAGE) field camp, which integrates several disciplines of shallow earth geophysics to good effect. Participants were encouraged to choose a discipline that they normally would not do, so that they could experience something new. The emphasis on group work fostered communication between people of different backgrounds and drew upon each individual's strengths. Although it might be more difficult with deep earth problems to come up with small projects I believe that education while doing real research is an excellent way to learn.

In sum, the program was successful in fostering dialog across disciplines of geoscience, and was a profound educational experience.

*Evaluation #11:*

First of all I would like to state that the tutorial part was well organized and I learned a lot in a short amount of time.

Given the classroom setting tables would be nice during lectures or chairs with armrest-tabletops.

The material covered in the lectures spanned most of the essentials. However I think a little more time devoted to labs/tutorials would have been nice. (Perhaps add a day or 2 for tutorials to the program)

Software: I would suggest letting participants know about the Apple-preference and if possible allow those that want to install software ahead of time (before the tutorial program starts). This includes informing participants about software dependencies (e.g., GMT, GRACE, GV, FINK, G77 etc.).

Schedule: Sometimes it might make more sense to finish a topic in a certain field, rather than spreading it over several days.

A follow up program would have to be very topic-specific if it is in lecture-format. Instead, it may be more beneficial for the participants to just come to the workshop part of the program.

*Evaluation #12:*

- This tutorial provides great opportunity to put people from different disciplines into one site and communicate with each other.
- The lectures are generally good. One problem is that the contents of lectures are not focused on the theme, "heterogeneity in the mantle". Another problem is that one lecturer prepared his lecture in a research seminar format instead of tutorial format. This makes people from different disciplines difficult to follow his lecture.
- It is really bad that in some tutorial, the computer program we are going to use is provided in Mac executable only. Linux and Windows executables should be provided as well.

*Evaluation #13:*

- Dorm situation - Great. - convenient. Good to have 1 person per room. I felt the dining hall food was completely fine for 2 weeks.
- UCSB - fantastic - a great setting to be in. It was nice that everything was within walking distance. The walk between KITP and the dining area/dorm was very pleasant.
- KITP - lecture hall was very good, good airflow and high ceilings made lecture great. It would have been nice to have tables to write on. The computer situation using the lab Macs could have been better - 1 room where everyone used the computers would be better than the dispersion that resulted.
- 9 am is a good starting time and 5 is a good quitting time. I feel that the breaks were very pleasant but probably longer than they needed to be. 10 mins or 15 mins would have been sufficient. Lunch could have been 1 hr as well. Lecture length was fine - never way too long. It would have been nice to have managed all the lectures before lunch and then to focus on tutorials after lunch. This might have allowed us significantly more "hands on" time and experience. Overall I would have liked more and better planned/executed tutorials.
- Lecture content was uniformly excellent. Pace, as far as I was concerned, was fine for what I understood and too fast for what I did not understand. I mentioned my thoughts on the tutorial above.
- For the next generation: Most importantly: provide the student participants with references for good background information such as intro textbook chapters and broad review articles. These should be provided at least 1 month before the workshop. I felt that I had to play catchup to a certain degree in my difficult areas - it would have been nice to have been able to prepare ahead of time.

  As I mentioned before the dorm/food situation was good.

  I also liked the Wednesday parties with the faculty, as well as lunches with the faculty - it was good to mingle. One thing that would be nice to include would be discussion sections w/ the faculty. We could break up students into groups w/ at least 1 specialist from each discipline and pair them w/ at least 1 faculty member to discuss a pertinent earth problem/issue/discovery. Small groups could discuss this issue and then come together for a larger group discussion. Starting straight out w/ a large group discussion is harder for everyone to feel comfortable bouncing ideas around.
- "next level": the next level for students might be more of a typical workshop for students focused more on student research presentation and focused discussion groups on particular topics.

*Evaluation #14:*

A.

- Need chairs with fold up table/writing pad. It is very inconvenient to take notes from a chair.
- Need microphones for the audience - questions not clear in web-video
- Very well organized lectures and tutorials - to "first order"!
- Very useful to have people from multiple fields interact so closely. Learned a lot from both faculty and 'students'.

B.,C.

Good location; Schedule intense, but that's why we are here! A longer stay would have been impractical for many people.

D.,E.

- Some lectures were better than others [esp. Lars, Bruce and Guy]; handing out notes allowed me to focus more on the lecture, instead of copying down from the slides. It was good to have notes while the lecture was going on, to go back and refer to previous slides/sections.
- Could have had more tutorials while keeping the number of lectures the same. Could have more efficient had we known what codes we will be playing with ahead of time (before we got here)
- It could also have been more efficient if we had been given a pre-requisite reading list (basic introductory material/references) BEFORE we started the tutorial session.
- Finally, a comprehensive recap at the end of each tutorial with the involvement of all the faculty would have been very useful.

*Evaluation #15:*

In my opinion the organization of the CIDER summer program was very good. KITP was a great place to have the meeting - I particularly appreciated the unlimited access to the library and computer room. The accomodation and food were fine.

The lectures were generally very good. I would perhaps recommend the first lecture of each discipline to be at a more introductory level, to get people familiar with the language, successes, problems and challenges concerning the subject. The tutorials were particularly good and I suggest to keep them in the same style. It would be interesting to organize the students to form mixed, multidisciplinary groups. Also, it would be nice to schedule a 5 minute "1 slide" presentation by each student in the first days of the course to speed up the process of knowing others research interests and skills.

The schedule was ok, but perhaps too intense at the beginning. The adjustment made: 2-3 lectures in the morning followed by one tutorial in the afternoon is more reasonable.

Finally, I think it would be interesting that at the end of the program each group of students would make a short presentation with ideas for a possible collaborative research project.