MINUTES OF THE FIRST PROJECT TEAM MEETING

First project meeting of the members of the NASA EOS Higher Education Alliance was held on January 12 and 13, 2006 at LAITS/GMU, 6301 Ivy Lane, Suite 620, Greenbelt, MD 20770.

January 12th

The meeting started at 9:00 AM with a brief introduction of the members attending the meeting. The following people attended the meeting:
Dr. Liping Di from George Mason University, Dr. Eugene Clothiaux from Penn State University, Dr. Guoqing Zhou from Old Dominion University, Dr. Robert Ford from Loma Linda University, Dr. Aditya Agrawal from University of Redlands, Dr. Mark Abolins from Middle Tennessee State University, Dr. Jim Henry from Middle Tennesse State University, Dr. Fand Qiu from University of Texas at Dallas, Dr. Wei Luo from Northern Illinois University, Mr. Ben Root from Penn State, Mr. Upendra Dadi from George Mason University, Ms. Meixia Deng from George Mason University, Dr. Peisheng Zhao from George Mason University, Dr. Aijun Chen from George Mason University and Mr.Yaxing Wei from George Mason University.

The meeting was kicked off by Dr. Ming-Ying Wei, the manager of education programs at the office of Earth Science of NASA. She welcomed the members attending the meeting. Dr. Wei summarized the context to the meeting. She hoped that this project would bring additional value in the teaching of Earth System Sciences. She said, "Your unique entry to the classroom is important for the success of the project."

Dr. Liping Di thanked Dr. Ming-Ying Wei for the funding and supports offered by NASA for the project. Then Dr. Liping Di gave a brief introduction to the project. Dr. Liping Di said that there are both technology and education components in this project. Everyone, especially, Mr. Ben Root, felt that there isn't enough awareness among the researchers about the tools and technologies available for handling large amounts of spatial data. Dr. Liping said that new technologies being developed are designed to partly replace human beings from handling certain tasks through automation. Dr. Ming left at 9:30 AM, after half an hour of her engaging presence.

9:30 AM: Meeting objectives and Logistics by Dr. Liping Di.

Dr. Di said that Dr. Menas Kafatos, the dean of School of Computational Science, had planned to come for the meeting. He could not make it due to some urgent work. Dr. Di gave a brief introduction of George Mason University and its research labs. After the introduction, he described the goals and objectives of the project and the present status of the project. The objectives of the meeting are discussed. One of the objectives of the meeting to know each other better. He said that more universities should be encouraged to be part of this project. He said Service Oriented Architecture (SOA) with web services

is the core technology for handling Earth science data in the future. He said both education and technology development are important components of the project. The GeoBrain project supports higher-education community by providing easy-to-access NASA data and geospatial web services as well as the platform for students in geoinformation sciences to learn the latest web service technologies.

9:40 AM: Project overview and current status: Dr. Liping Di

Dr. Di said that the research being done here is very multi-disciplinary. The process of learning and knowledge discovery in Earth Science is data intensive. The researchers are spending most of their time (2/3!) on searching the right data, finding them and ordering them and less time is going into actual analysis. This is a very inefficient way of doing the things now. There are 9 NASA data centers with data holding of about 3 peta bytes. But significant part of the data was never used even though all the data is free to everybody. He described the steps involved in knowledge discovery and out of those steps, the ones that can be made more efficient by developing new technologies. He said students are never exposed to the richness of NASA data. GeoBrain middleware technologies being developed at LAITS are designed to address this situation. He described the geo-object and geo-tree concepts. He said that it is very important that education partners clearly put some precise requirements for us. Getting requirements and feedback is one of the primary motives of the meeting.

Dr. Eugene Clothiaux said that at present there are lots of firewall issues with NASA data centers. Current hardware status is spelled out by Dr. Di. The current problems with Internet II in accessing to GeoBrain machine were discussed. Eugene suggested that some MODIS and MISR data and services located at his research lab could be made public through Geobrain.

11:25 AM: GeoBrain Data Access Tutorial by Mexia Deng

Ms. Mexia Deng briefly discussed the software technologies developed by LAITS. She presented the two major methods for accessing NASA EOS data through GeoBrain system. One way is using the Web interface for data products download which she gave a step-by-step demo of different user scenarios. The other way is using MPGC client functionalities, for which Dr. Peisheng Zhao gave a demo.

11:45 AM: Discussion and feedback on GeoBrain data access capabilities

Problems with data access are discussed. Data query did not work properly for some of the users. Eugene suggested that for each problem, once the problem is reported, all the problems should be put at a centralized place. Once the problem is resolved, it should be communicated back to everyone. Meixia pointed out that Twiki has been set up to serve exactly as Eugene suggested and Peisheng will demonstrate its use later.

Data access and other issues/problems with ECHO are discussed. Dr. Robert Ford said that Corona data is very useful. He suggested that the Corona data could be made accessible and registered in GeoBrain.

------------------**End of Morning Session**---------------------

1:45 PM: How to make a standalone geoprocessing function an interoperable web service: Upendra Dadi

In this presentation, Mr. Upendra Dadi defined some of the basic terms used in Web Services. The purpose is to give a basic idea of what web services are and remove some of the myths regarding web services. He said that web services should not be confused with services offer though web sites. Web sites rendered though web browsers are no way related to web services. The process of creating a web service from a standalone geoprocessing function was explained. It was felt that there is a need to make web service interface development automatic so that the community can use the services easily.

2:20 PM: Geospatial modeling and virtual product prototype demo by Yaxing Wei

Mr. Yaxing Wei defined various terms used in geospatial modeling like service type and data type. He gave a demonstration of how to built models using model-designer applet. Lots of questions were asked during the presentation. Mr. Ben Root said that model designer can be very useful teaching tool for students to get a feel of developing models using inputs, outputs and design methodology. A good idea suggested by Dr. Ford is to have a hour glass or a bar showing the progress of the execution of the model or at what stage the execution is at otherwise if the process takes long time without any feedback, the end user may not know the status of the process.

2:50: Discussion

Dr. Di explained the difference between abstract model and model instance. He said using web services many functions could be easily automated. The model, which is applied to one region, can be applied to other regions. He also briefly discussed another related project funded by National Geospatial-Intelligent Agency, which deals with automatic service chaining. The education partners were impressed by the capabilities and possibilities with the Geobrain System. Mr. Ben suggested that when writing a research paper, researchers could supply information about which services/processes are used.
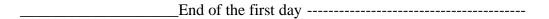
4:45 PM :Presentation by Dr. Wei Luo

After a 5 minute break, Dr. Wei Luo gave his presentation. Dr. Wei briefly introduced the departments and program at NIU and the facts about university. He was on sabbatical in last year. He appreciated today's presentations and said that it was a good learning experience. He gave several suggestions to improve GeoBrain system. He said that there

are too much technical details. An average user or beginner may find it daunting. It is not easy to use the system right now. More people need to be involved in the community. He said the next question is how to use the system on his own. He suggested that a glossary of the terms related to web services would be very useful. Also a FAQ page, probably in Twiki, would be useful. Excellent job has been done by LAITS according to him. Meixia thanked and said that such suggestions are very useful for the project and will be in action items. New courses will be developed in collaboration with two other professors. Wei Luo described the research projects he is working on.

5:15 PM: Presentation by Dr. Fang Qiu

Dr. Fang gave background information about UTD. He said that UTD is a very dynamic university with several new programs and constantly changing. He described his research work. He already had some experience with web services. He developed a web service for geo-referencing. He said that they have less number of licenses in their labs than required. He hoped that Geobrain could be used in their labs to fulfill the gap. He said there are issues with decoupling user interface from core functionalities. Dr. Ford suggested that IKONOS functions can be made available using GeoBrain web service technologies.

_____End of the first day ---

January 13th

9:00 AM: Presentation by Dr. Eugene Clothiaaux

Dr. Eugene described the research project involving using NASA EOS data and applications at Penn state meteorology department. He briefly described the courses in which GeoBrain data can be used. He wanted to access NASA EOS data in the netCDF format. He said high school monitoring projects could use GeoBrain. He uses lot of MODIS and MISR data in his research projects. He said we can work together to convert the code he developed for analyzing MODIS/MISR data into web services. He will collaborate with LAITS to do this. The tools developed at LAITS can be used to catalog all the web services, which can be used. The requirements were solicited from him for setting up the web services. He said GeoBrain could be used as platform over which a collaborative project involving Ohio state researchers and himself can be done. Dr. Liping Di said that WCS could be set up at Penn state to serve their data holdings. By the beginning of April, all of his code will be ready for converting into web services. A tutorial for setting up the web services on their machines would be useful. Dr. Di solicited suggestions required for improving GUI and usability of GeoBrain system.

Mr. Ben Root said that MPGC client is not self-explanatory. There isn't proper feedback for certain problems. Tutorial needs improvements. He said MPGC should be made fully

compatible with Linux. There is also need to port it to Mac., since most of the NASA people use Mac. Also, it is important that there is a list of what data is available (in addition to GeoBrain) using MPGC. There should be a page containing information about important datasets that are available using MPGC. He said LAITS should advertise not just a data provider but as an integrated solution provider so that everybody knows about it.

9:45 AM: Presentation by Dr. Mark Abolins.

Dr. Mark Abolins briefly presented the research work he is doing. He described briefly the GIS programs at MTU and the software and hardware resources at their labs. Some of his students worked with MPGC. Lot of time was spent by undergraduate students on MPGC. Several slides showing the data explored by his students were presented. Both undergraduate and graduate students have provided great feedbacks on further improving MPGC client, such as improvement of documentation and enhancement of the data processing capabilities. MPGC needs to be adapted for other OS. He suggested that all the courses developed using GeoBrain by participating institutions should include at least one element useable at another institutions. Sharing of curricula should be encouraged. He suggested GeoBrain should develop improved installation methods, improved tutorials for first-time users. He felt the need for a Quick start tutorial. He felt GeoBrain make data access centralized and easy to use. His presentation showed how undergraduate students can easily obtain data through MPGC for studying the impact of a hypnotized meteor on Chesapeake Bay area. He said the automatic data co-registration provided by GeoBrain is a big help for students doing such a project.

10:30 AM: Presentation by Dr. Robert Ford

Dr.Robert Ford introduced the Loma Linda university- its location and schools. He said there is lot of collaboration with Institutes at Redlands. He descried the GIS related programs at the university. The labs, centers and resources at the university are briefly described. Public health people could use the data services provided by GeoBrain for research on west Nile virus. The programs at the university for public health students with GIS concentration were briefly mentioned. He mentioned a research project, which used data of national parks of Honduras. He said GeoBrain could be used in the project. He described one of the course modules that are being developed at the institute. He showed some of the course web sites, which could use GeoBrain. He suggested that we should be directly connected with Mesostore - the Mesoamerica visualization and monitoring system. They may already have a WCS. Their link should be added in GeoBrain client. Some of the higher-level graduate students and public health students and undergraduates will use GeoBrain.

11:05 AM: Presentation by Dr. Guoquing Zhou

Dr. Zhou gave an overview of the Old Dominion University. The programs, labs and departments at the university are briefly described. They have some overseas components

to some of the programs. He showed some remote learning on-line remote sensing/GIS programs. He said, right now, to send the data and programs to remote students, he is burning CDs and sending to them. But now he probably could use GeoBrain for that purpose. He showed an example of how he used web-based software for teaching of geospatial data analysis.

He spelt out some of his objectives from the GeoBrain: Promote widespread use of GeoBrain, extend the use of GeoBrain via teaching, allow remote students to access GeoBrain system. He plans to develop/enhance course using GeoBrain. He would also like to add GeoBrain data standards into P-RS, GIS course. He gave a detailed presentation of how he will incorporate GeoBrain into teaching. Major future milestones that are planned were described.

------------------**End of Morning Session**----------------------

1:35 PM Presentation by Dr. Zhong-Guo Xia.

Dr. Zhong-Guo Xia could not come due to some personal reasons. Dr. Liping Di presented some of the slides given to him by Dr. Zhong-Guo Xia. Brief overview of Lehman College and programs within the college was presented. Courses and research projects that benefited from GeoBrain was presented. Slides with questions and recommendations were presented. He suggested adding a search option by row and path for Landsat Imagery. Keep the web sites updated by changing the contact email address.

1:50 PM Yahoo Group and Twiki for communication and collaboration by Dr. P. Zhao

Dr. P. Zhao gave a presentation of how to use Yahoo Groups and Twiki for communication and collaboration.

2:05 General Discussion, setting up panels, selection of Chairs and action items Coordinated by Meixia Deng

General discussion about using collaborative tools like windows remote assistance for communication and resolving any issues that may arise started immediately after Twiki was presented.

Meixia Deng brought out the roles of peer-review panel and course development/ enhancement panel. She asked for panels setting up and action items should be taken immediately after the project meeting.

Dr. Eugene suggested that peer-review might be premature at this time since there is not many geospatial model and module contributions from community at current stage. Dr. Liping Di emphasized that a formal review panel should be in place and someone should be selected as chair of the panel for reviewing the models or modules that are deployed at

Geobrain and validating them. Mr. Ben suggested setting up a ranking system for web services so that it is useful to others. Eugene considered the work involved in peer-review process and didn't feel comfortable to be in the peer-review panel. Meixia Deng said quality control should be taken care always in the project and it was the perfect time to set up the review panel when everyone was here for project meeting. She suggested that the development team serve as the initial review panel. Dr. Fang Qiu agreed to be the chair of the panel. With Dr. Robert Ford's suggestion and everyone's agreement, the term "quality assessment panel" will be used instead of "peer-review panel".

There wasn't any disagreement for course development/enhancement panel. All current education partners will serve as the initial panel members and Dr. Ford was chosen as the chair of the panel.

Finally, 12 action items were collected as the following:
1) Put all presentations on Twiki. Get everyone account and email notice by January 18th (GMU).
2) Every team member send written requirements, suggestions, questions, feedbacks, to TWIKI by 20th, January.
3) Fix online access problems for internet II users.
4) MPGC client "Quick Start" tutorial to Tuikwi by the end of January (Dr. Mark Abolins, Middle Tennessee).
5) MPGC for Mac, Linux (Ben, Penn State)
6) Setting up the data nodes about in the May (Dr. Eugene, Penn State)
7) Glossary, documentation, and improvement of the website etc. by the end of January. (Dr. Luo Wei, NIU)
8) Tutorial for geospatial web services (Peisheng Zhao, Upendra Dadi) by Feb. 10th.
9) GeoBrain logo improvement (Peisheng Zhao, Dr. Zhou) by January 20th.
10) Validating GRASS functions (Dr. Qiu, UT-Dallas).
11) Fliers to be prepared by the end of January (GMU).
12) Promote GeoBrain use and recruit non-funded members (all team members, Dr. Mark has some great ideas for recruiting international members.)

The meeting ended on a happy note at about 3:30PM on Friday.

(P.S. Dr. Hongmian Gong was absent from the meeting due to a cancelled flight. She turned in her ppt for the presentation).