Action Learning Scenario 4

Sept. 2000

Action Learning Scenario 4

- A unified database of bibliographic information about all reports published by the USGS and written by USGS authors is needed.
- There are many automated ways to address this need technically but there is resistance operationally to resolve this issue. Is this a people issue?
- How do we resolve the fact that we need this information in a single source?
- Team Leader: Joy Hood
- Champions: Barb Ryan, Ken Lanfear

USGS

Gateway Interface Development Task 1.11:
Develop a Publications Catalog to Support Finding USGS Bibliographic Information On-line

Summary

The USGS does not currently support a unified, up-to-date database to store and retrieve publications-related information, such as bibliographic elements and links to the publications themselves. The lack of such a system has resulted in increased difficulties for USGS personnel and customers to locate and obtain information about or including publications they may be interested in for their varying needs. This fact was underscored at the recent *Publishing 2000* workshop held in Denver, CO, May 8 –11, 2000. It is expected that the development and maintenance of such a system with high-level technologies would significantly enhance the ability of the USGS to meet the needs of the users for which the publications were developed for in the first place.

The primary goal of the project is to develop and maintain a unified database of bibliographic information about all reports published by USGS and all publications by USGS authors. The database must be complete, authoritative and up to date. That is, if a USGS publication exists, a bibliographic entry for it should be in this database and should be findable with reasonable search methods. The Gateway to the Earth will use this database as the single search point for USGS publications.

The initial phase (Tasks 1.11.1 to 1.11.5) of this project will be to develop a prototype database that can be compared to alternative approaches, such as contracting the database activity. Subsequent tasks are conditioned on the Design Team determining the prototype is a superior approach.

Task 1.11.1 Scoping
Meet or consult with parties involved in USGS bibliographic activities, including the USGS library and the AGI contractor to compile a list of all data sources to be included in a unified bibliography. Prepare a report on alternatives to developing the database, and set the criteria the database will have to meet to achieve success.
Outcome or Deliverables: List of data sources. Report on alternatives and criteria.
Schedule: Completed July 31, 2001

Task 1.11.2 Staffing
Hire personnel through existing staffing agreements with the University of Wisconsin-Madison and through the Wisconsin District. The core staff is trained in various aspects of database systems centered on Oracle technology. Extended, temporary, staff will be available for assistance tasks requiring lower-grade personnel.
Outcome or Deliverables:
Database team identified and hired.
Schedule: Completed by August 1, 2000

Task 1.11.3 Database Design
Develop and deploy a database design that will support all publications-related data elements that are produced by the USGS. This could include bibliographic information, abstracts, or the publications themselves. The design will include a preliminary user interface for testing.
Outcome or deliverable: A prototype system capable of locating any publication or abstract by word occurrence, synonyms, partial words, and several other text-searching metrics.
Schedule: Completed by September 30, 2000

Task 1.11.4 Procedures for Populating Database
Assemble example copies of USGS publication datasets. Develop and demonstrate procedures for automatically transforming and loading data elements from sources selected in Task 1.11.1.
Outcome or Deliverables: A cleaned dataset demonstrating the ability to construct a complete unified database.
Schedule: Completed December 31, 2000

Task 1.11.5 Decision on Alternatives
A team will evaluate the prototype and compare it to alternatives. Future tasks will be redesigned accordingly. The tasks as shown are conditioned on acceptance of the prototype.
Outcome or Deliverables: Design report.
Schedule: Completed March 31, 2001

Task 1.11.6 Interface
Create a web-enabled user interface to facilitate searches for publications by bibliographic data and content of associated abstracts and full documents. This interface will incorporate advanced text-search capabilities such as fuzzy matches, themes, and weighted search scores. The interface will need to provide a means of rapidly determining which document(s) they are interested in, and indicate where they can obtain it, if available.
Outcome or Deliverables: An operational web-based interface tool available for initial testing by a user group identified by the Gateway to the Earth design team.
*Schedule:*Completed September 30, 2001

Task 1.11.7 Populate Database
Load all identified data into the database. Design, test, and initiate routines for maintaining the database.
Outcome or Deliverable: Operational database.
Schedule: Completed September 30, 2002

Task 1.11.8 Geospatial Search Capability
Provide a means to index the data items geospatially in the database. Develop and deploy a web-enabled system to take advantage of this indexing for document searches, as specified by other Gateway tasks.
Outcome or Deliverables: Ability to spatially locate publications.
Schedule: Completed September 30, 2002

Funding: **Needs to be revised!**

FY 2000

($1000's)

Sub tasks And Activities	Hardware Software	USGS Personnel	Contractor Personnel	Total
1.1	0	8	0	8
1.2	7	11	3	21
1.3	0	13	2	15
1.4	2	6	6	14
1.5	2	4	6	12
1.6	0	2	4	6
Total	11	44	21	76

Estimated FY 2001 funding requirements: $180,000
Estimated FY 2002 funding requirements: $170,000
Estimated FY 2003 funding requirements: $76,000

Gateway Interface Development Task 1:
Develop a Publishing Warehouse to Support Finding Bibliographic Information and Serving Reports On-line

Prepared by Greg Allord
Version 1.0, May 23, 2000

Contents

Goal and Task Summary

The USGS does not currently support a unified, up-to-date database to store and retrieve publications-related information, such as bibliographic elements and/or the content of the publications themselves. The lack of such a system has resulted in increased difficulties for USGS personnel and customers to locate and obtain information about or including publications they may be interested in for their varying needs. This fact was underscored at the recent *Publishing 2000* workshop held in Denver, CO, May 8 –11, 2000. It is expected that the development and maintenance of such a system with high-level technologies would significantly enhance the ability of the USGS to meet the needs of the users for which the publications were developed for in the first place.

The primary goal of the project is to develop and maintain a robust database system for managing USGS publication content that is incorporated into the Gateway to the Earth initiative. The scope of this project is to design such a database system plus, working with the Publishing Issues Group, finalize appropriate procedures for serving reports using the World Wide Web. Such procedures will be consistent across all Bureau disciplines and report series.

Sub Task 1.11.1

Description

Identify the personnel requirements to manage and conduct appropriate Task 1 activities associated with the Publishing Warehouse. Hire personnel through existing staffing agreements with the University of Wisconsin-Madison and through the Wisconsin District. The core staff is trained in various aspects of database systems centered on Oracle technology. Extended, temporary, staff will be available for assistance tasks requiring lower-grade personnel.

Activities:

Identify, assemble, and fund the core USGS task management

Identify, assemble, and fund the core USGS Oracle specialists

Prepare the student employment contracts with the University of Wisconsin – Madison to procure services to supplement the USGS management and database team.

Consult government and publishing industry experts to ensure the viability of the intended methodology to accomplish this task.

Outcome or Deliverables:

USGS task management identified

USGS database team identified

Specialists hired or assigned and properly oriented to task goals

Support staff hired or identified and oriented to task goals

Task methodology, scope, and schedule verified

This task will be completed at the end of fiscal year 2000 and a completion report will be delivered at that time.

Sub Task 1.11.2

Description

Develop and deploy a database design that will support all publications-related data elements that are produced by the USGS. This system may optionally be expanded to support certain related datasets. This could include bibliographic information, abstracts, and the publications themselves.

Activities:

Create all data definitions for the database, including determining all data definitions used by the various Disciplines throughout the USGS.

Identify a test suite of publications to serve through on-line through the publications warehouse.

Develop a prototype for storing and retrieving a set of 10,000 publication abstracts.

Develop a web-enabled search form based on Oracle Context indexes of the abstracts as well as traditional search matches.

Outcome or deliverable:

A prototype system capable of locating any publication or abstract by word occurrence, synonyms, partial words, and several other text-searching metrics.

Serve at least 50 reports or fact sheets on-line through the publications warehouse.

Deliver a prototype production-level warehouse system to be delivered by September 30, 2000.

Inclusion of thesaurus lists as developed by Gateway to the Earth tasks.

This task will be completed at the end of fiscal year 2000 and a completion report will be delivered at that time.

Sub Task 1.11.3

Description:

Develop procedures for automatically transforming and loading data elements from diverse sources into the database system

Activities:

Assemble example copies of other USGS publication datasets and develop methods for transformation and loading bibliographic information.

Outcome or Deliverables:

A cleaned dataset of the majority of USGS publications, including bibliographic citations plus approximately 10,000 accompanying abstracts.

This task will begin during fiscal year 2000 and continue heavily into fiscal year 2001. It is anticipated that other sources of data may be accommodated throughout the length of task 1.11. A progress report will be delivered at the end of each fiscal year or more often if requested by the Gateway Design Team.

Sub Task 1.11.4

Description:

Create a web-enabled user interface to facilitate searches for publications by bibliographic data and content of associated abstracts and full documents. This interface will incorporate advanced text-search capabilities such as fuzzy matches, themes, and weighted search scores. The interface will need to provide a means of rapidly determining which document(s) they are interested in, and indicate where they can obtain it, if available. In addition, the system will serve the data item to the user if available in the database.

Activities:

Enhance the current web-interface program. Explore the capabilities of Oracle Intermedia text capabilities and other tools.

Outcome or Deliverables:

A web-based interface tool available for initial testing by a user group identified by the Gateway to the Earth design team.

This task will begin during fiscal year 2000 and continue into the next two fiscal years. User testing and feedback will begin in fiscal year 2001. A progress report will be delivered at the end of each fiscal year or more often if requested by the Gateway Design Team.

Sub Task 1.11.5

Description:

Provide a means to index the data items geo-spatially in the database. Develop and deploy a web-enabled system to take advantage of this indexing for document searches. For example, the ability to support queries by State, HUC, and other geo-spatial attributes.

Activities:

Create a data design to include q spatial footprint to specific bibliographic citations.

Create a wide variety of spatial reference datasets for linking to the above-referenced data design. This work will be coordinated with Task 5.

Outcome or Deliverables:

The added feature in the prototype to be able to spatially locate publications.

This task will begin during fiscal year 2000 and into fiscal year 2001. There are dependencies with Gateway Task 5 and we will work with that team to properly structure the geographic component for spatially indexing publications. A progress report will be delivered at the end of each fiscal year or more often if requested by the Gateway Design Team.

Sub Task 1.11.6

Description:

Develop a consistent understanding and method of serving reports that is consistent between all Bureau disciplines and report series. This task includes establishing a common set of expectations, guidelines, procedures, and data structure for reports served through the World Wide Web.

Activities:

Perform a review of existing policy and guidelines in place throughout the Bureau.

Using existing procedures established by ISCT and other groups, such as SPIDER, clarify a common set of procedures and formats for serving reports.

Review plans from other Federal and government agencies for serving reports online. Contact various commercial publishing groups to establish the existing industry baseline in order to build from that baseline.

Outcome or Deliverable:

Have a clearly articulated and agreed-on set of protocols available for those numerous offices producing reports. These procedures will include guidance for using a workflow that allows both print and web publishing. Initial work will begin in FY 2000 and will be completed in FY 2001.

This task will begin during fiscal year 2000 and continue into fiscal year 2001. It is anticipated that work will have to include policy development regarding USGS report series and this policy is subject to review by management both internal and external to the USGS. A progress report will be delivered at the end of each fiscal year or more often if requested by the Gateway Design Team.

Planned development beyond October 1, 2000

A prototype will be available by September 30, 2000. The level of effort is dependent on available funding in FY 2000. If adequate funds are not available then work will be rolled into FY 2001.

As new technology becomes available, it is assumed the Publications Warehouse will incorporate appropriate features into its system. Most likely these will affect the storage and delivery of the data items by providing more flexibility and/or speed of access. In addition, most productions systems undergo periodic modifications based on evolving user requirements, and it is expected this system will be no different in that regard.

New sources of data will require additional loading routines to be developed. It is possible the system will need to include capabilities to enhance data movement and/or storage of publication-related data before actual inclusion into the warehouse database.

Geo-spatial referencing of publications inside the database will enhance the ability of users to search for items based on aerial criteria, which could be defined immediately or in the future, as required. Map-referenced display of publication coverage areas, or other requested depictions, can be deployed with a map server optimized to leverage off of the Oracle Spatial information stored in the database.

More esoteric data objects could also be stored and retrieved over the web using Oracle Intermedia technology. Using this technology, users can rapidly locate and retrieve items of interest via standard database search methods, as well as certain methods specifically supported by the Oracle system. For example, images can be retrieved by criteria such as shape and color, which are automatically indexed by the system on the way into storage. Such a system could provide a means for USGS scientists and technicians to rapidly and efficiently deploy visual and audio information of keen interest to the general public, raising awareness of USGS activities overall.

Funding:
FY 2000

($1000's)

Sub tasks And Activities	Hardware Software	USGS Personnel	Contractor Personnel	Total
1.1	0	8	0	8
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Estimated FY 2002 funding requirements: $170,000
Estimated FY 2003 funding requirements: $76,000

Kenneth J Lanfear
08/22/00 06:43 AM

To: Nancy E Driver/OPS/USGS/DOI@USGS
cc:
Subject: Re: Gateway to the Earth

Nancy,
Here's a proposal that came out of the blue. As far as I can tell, there was no coordination with anyone else. This has gone nowhere. There's no shortage of suggestions of what to do!
-- Ken

----- Forwarded by Kenneth J Lanfear/WRD/USGS/DOI on 08/22/00 08:45 AM -----

Philip W Stoffer
03/13/00 01:29 PM

To: Kenneth J Lanfear/WRD/USGS/DOI@USGS
cc:
Subject: Re: Gateway to the Earth

Ken, Nancy Blair said you needed a digital version of my proposal. It is below, and I've also attached Word documents of the proposal and resumes of Mike Smith (AGI) and myself to answer any questions relating to our qualifications...

Thanks for this opportunity! Phil Stoffer (650)329-5028

USGSWEB.D RESUME-PHIL

RESUME-MIKE.

Promoting Secondary Earth Science Education:

A USGS Education Web Portal for *Gateway to the Earth*

With a Pilot for the Bay Area

Proposal for a USGS-AGI Cooperative Venture

Philip W. Stoffer (U.S. Geological Survey Library, Menlo Park, CA; pstoffer@usgs.gov)

Michael J. Smith (American Geological Institute, Alexandria, VA; msmith@agiweb.org)

Statement of Need

"If you build it, they will come." U.S. middle and high schools could be the largest market for USGS products and resources. However, many educators say that teachers will not use USGS materials unless they reside within a curriculum. The tight teaching agenda in most science texts does not allow teachers time, resources, or incentives to use USGS data. Secondary students find USGS web sites hard to use. Problems include technical jargon, accessibility, complexity, and scope. Therefore, only a small fraction of teachers and students tap the rich web-based data and resources of the USGS.

The USGS now has a great opportunity to respond to teacher and student needs. In 1996, the

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Statement of Need

"If you build it, they will come." U.S. middle and high schools could be the largest market for USGS products and resources. However, many educators say that teachers will not use USGS materials unless they reside within a curriculum. The tight teaching agenda in most science texts does not allow teachers time, resources, or incentives to use USGS data. Secondary students find USGS web sites hard to use. Problems include technical jargon, accessibility, complexity, and scope. Therefore, only a small fraction of teachers and students tap the rich web-based data and resources of the USGS.

The USGS now has a great opportunity to respond to teacher and student needs. In 1996, the National Research Council released the *National Science Education Standards*. The American Geological Institute (AGI) reacted with a national agenda for improving earth science education and two standards-based earth science programs. Later this year, AGI will publish Investigating Earth Systems (IES) for grades 5-8 and EarthComm (EC) for grades 9-12. The content of EarthComm and IES match many USGS research programs, and use of USGS data is built into these curricula. Thus, AGI's curricula are a foundation for cooperative investment that will greatly benefit the USGS.

The proposed project will advance secondary earth science education and support the mission of the USGS. It provides schools with "reliable scientific information to describe and understand the Earth." It supports USGS Strategic Plan goals to "enhance the mutually-beneficial relationship between USGS and our customers and partners." It also fosters our long-term goals for Information Infrastructure. It ensures "efficient data integration and access to satisfy both internal and external customers." By working with AGI's curricula, the USGS would receive broadened exposure in our nation's science education in the critical middle school and high school grades, and would be investing in future support of the Survey.

Project Description

Minor changes can make many USGS web sites more suitable for teachers and students. Keying these sites into an **Education Web Portal** for AGI curricula will help the USGS expand its service to teachers and students. The portal could also focus future USGS research ventures. By channeling publishing funds through a web portal program, USGS scientists will do more education outreach and web site development. Funds from this proposal will be used to:

1) Create a web portal to USGS **Gateway to the Earth** that makes it easy for teachers and students to use USGS data for inquiry.

2) Deliver workshops which train teachers to use the web portal, beginning in the Bay Area.

3) Engage USGS staff in education outreach by creating web pages for curricula that use our web portal infrastructure.

4) Expand the program to the nation in year two.

AGI Curricula: The education web portal will use AGI's new earth science curricula. AGI's curricula reflect National Standards and the interests of the geoscience community. They embody the current and past research programs of the USGS (see list of module titles in Appendix A). AGI's curricula also feature USGS data. The proposed web portal helps the USGS achieve its service mission while supporting curricula that foster earth science literacy for all students. In this project, AGI has agreed to 1). Supply manpower and materials to help USGS staff understand the curricula, 2). Refine student and teacher editions of the modules to increase the use of USGS web-based resources, 3). Help plan and assist with teacher training workshops, and 4). Recruit Bay Area teachers for workshops.

Bay Area Pilot: The San Francisco Bay area is an ideal setting to develop and test the web portal program. Its geologic setting is suited to curricula that feature inquiry and learning science in the community. It has many large school districts (some 2,000 teachers and 200,000 to 300,000 students per year could benefit). It has a wealth of USGS resources. It also has education and business communities that promote the Earth Sciences.

A regional pilot will make it easier to create and grow the program. AGI has used regional centers to move from field test to national commercial launch of its curricula. The Bay Area Earth Sciences Institute at SJSU is one of four AGI/university partners for EarthComm. The centers train teachers and gather evaluation data for the field test. Training methods developed at centers become models used to expand the programs to regions that seek standards-based curriculum. Early interest in AGI's curricula includes Ohio, West Virginia, Lexington, Louisville, New York City, Philadelphia, Los Angeles, and San Francisco.

The web portal project will begin in the Bay Area. In year one, it will create portals into regional USGS databases for community-based inquiry in EarthComm and IES. USGS and AGI staff will train EarthComm and IES teachers to help their students use the portal for inquiry. As classrooms use the portal during the school year, independent evaluators will collect formative feedback on the portal and the training program. In year two. the Bay Area pilot will be expanded to other communities (see list of potential markets in Appendix B).

Budget

The budget for the web portal program is shown in Appendix C. Personnel are crucial to the program. This includes a full-time Earth Science education specialist (Coordinator of Cooperative Education Programs) and administrative support staff (see position description in Appendix D). Funds are also used to defer the costs of web publication and expenses for travel, equipment, and workshop supplies. In year two, the Coordinator's role would shift toward planning events, managing funds, and building cooperative relationships with individuals both within and external to the USGS involved in earth science education in other metropolitan areas.

Conclusion: A Vision for the Future

The web portal program will serve as a model for cooperative actions involving the USGS and the educational communities throughout the United States and beyond. It helps the USGS accomplish its mission goals to collaborate with its partners and serve the information needs of the American public. Educational outreach initiatives by the USGS would benefit from AGI's experiences developing EarthComm and IES. Collaboration also builds a stronger connection between the USGS and the education community. The project will thus enhance our ability to push our highest priorities for national or global environmental concerns and public welfare amongst the people who will most influence our collective future: our nation's children.

Appendix A
AGI Curriculum Modules

High School (Grades 9-12)
EarthComm: Earth System Science in the Community: Understanding Our Environment

Earth's Dynamic Geosphere

- Volcanoes and Your Community
- Earthquakes and Your Community
- Plate Tectonics and Your Community

Understanding Your Environment

- Landscape Evolution and Your Community
- River Systems and Your Community
- Land Use Planning and Your Community

Earth's Fluid Spheres

- Oceans and Your Community
- Severe Weather and Your Community
- The Cryosphere and Your Community

Earth's Natural Resources

- Energy Resources and Your Community
- Mineral Resources and Your Community
- Water Resources and Your Community

Earth Systems Evolution

- The Solar System and Your Community
- Climate Change and Your Community
- Changing Life and Your Community

Middle School (Grades 5-8)
IES Investigating Earth Systems

Investigating Soil

Investigating Rocks and Landforms

Investigating Oceans

Investigating Dynamic Earth

Investigating Materials and Minerals

Investigating Energy Resources

Investigating Climate and Weather

Investigating Water as a Resource

Investigating Fossils

Investigating Solar System (proposed)

Investigating Biological Evolution (proposed)

Appendix B

Population Statistics For the 50 Largest Metropolitan Areas in the United States

METROPOLITAN AREA	POPULATION	SECONDARY SCHOOL EARTH SCIENCE STUDENTS**
1. NYC (NY-NJ-CT)	19,876,000	414,000
2. Los Angeles-Riverside-Orange County, CA	15,603,000	325,000
3. Chicago-Gary Kenosha, IL-IN-WI	8,642,000	180,000
4. Washington-Baltimore, DC-MD-VA-WV	7,207,000	150,000
5. San Francisco-Oakland-San Jose, CA	6,791,000	141,000
6. Philadelphia, Wilmington-Atlantic City, PA-NJ-DE	5,972,000	124,000
7. Boston-Worcester-Lawrencel-Brockton, MA-NH	5,828,000	122,000
8.Detroit-Ann Arbor-Flint, MI	5,439,000	113,000
9. Dallas-Fort Worth, TX	5,383,000	112,000
10.Houston-Galveston-Brazoira, TX	4,320,000	90,000
11.Atlanta, GA	3,627,000	76,000
12.Miami-Ft. Lauderdale, FL	3,515,000	73,000
13. Seattle-Tacoma-Bremerton, WA	3,368,000	70,000
14. Cleveland-Akron, OH	2,908,000	61,000
15. Phoenix-Mesa, AZ	2,840,000	59,000
16. Minneapolis-St. Paul, MN-WI	2,792,000	58,000
17. San Diego, CA	2,723,000	57,000
18. St. Louis, MO-IL	2,558,000	53,000
19. Pittsburgh, PA	2,361,000	49,000
20. Denver-Boulder-Greeley, CO	2,318,000	48,000
21. Tampa-St. Petersburg-Clearwater, FL	2,227,000	46,000
22. Portland-Salem, OR-WA	2,113,000	44,000
23. Cincinnati-Hamilton, OH-KY-IN	1,934,000	40,000
24. Kansas City, MO-KS	1,709,000	39,000
25. Sacramento-Yolo, CA	1,656,000	35,000
26. Milwaukee-Racine, WI	1,637,000	34,000
27. Norfolk-Virginia Beach-Newport News, VA-NC	1,545,000	32,000
28. San Antonio, TX	1,511,000	31,000
29. Indianapolis, IN	1,503,000	31,000
30. Orlando, FL	1,467,000	31,000
31. Columbus, OH	1,460,000	31,000
32. Charlotte-Gastonia-Rock Hill, NC-SC	1,350,000	28,000
33. New Orleans, LA	1,308,000	27,000
34. Las Vegas, NV-AZ	1,262,000	26,000
35. Salt Lake City-Ogden, UT	1,248,000	26,000
36. Buffalo-Niagara Falls, NY	1,165,000	24,000
37. Greensboro-Winton-Salem-High Point, NC	1,153,000	24,000
38. Nashville, TN	1,135,000	24,000
39. Hartford, CT	1,105,000	23,000
40. Rochester, NY	1,086,000	23,000
41. Memphis, TN-AR-MS	1,083,000	22,000
42. Austin-San Marcos, TX	1,071,000	22,000
43. Raleigh-Durham-Chapel Hill, NC	1,050,000	22,000
44. Jacksonville, FL	1,035,000	22,000
45. Oklahoma City, OK	1,031,000	21,000
46. Grand Rapids-Muskegon-Holland, MI	1,026,000	21,000
47. West Palm Beach-Boca Raton, FL	1,019,000	21,000
48. Louisville, KY	993,000	21,000
49. Dayton-Springfield, OH	945,000	20,000
50. Richmond-Petersburg, VA	943,000	20,000

*Source: US Census Bureau - 1999 Statistical Abstract of the United States

**Estimate assumes 1/48 of the population is enrolled in either middle school or high school earth science

Appendix C
Two-year Budget

Personnel: (two years) $180,000

Coordinator of Cooperative Educational Programs: GS 12/13/14

Office Automation Clerk GS 4/5/6

Web page publication expenses: ~$50,000

53 web pages (digital fact sheet series) including:

a) main web portal link (*$5,000),

b) 26 topical link pages highlighting AGI curriculum modules on Table ($26,000),

c) 26 topical link pages focusing on the SF Bay Area (*$14,000).

**Estimated costs for editing by Peter Stauffer, USGS WR-PIG*

An independent Internet server ($5,000)

Miscellaneous expenses: ~$30,000

Meeting and workshop supplies for weekend and summer teacher-training seminars that focus on Internet training (how to use the web pages while doing the curriculum). Funds would defray costs of meetings held at the Menlo Park facilities, local and regional teacher conferences, and at local schools (renting computers, meeting room space, travel expenses, etc.).

Total this proposal: **$260,000**

Appendix D
Position Description:
Coordinator of Cooperative Educational Programs

MAJOR DUTIES

A. Web Page Development:

1. Constructs a preliminary education web portal to *Gateway to the Earth* designed to organize and link existing USGS web resources to the detailed agenda within AGI's EC and EIS curriculum.
2. Constructs a series of web pages focusing on the physical environment of the SF Bay region at it relates to the detailed agenda within AGI's EC and EIS curriculum (targeting student learning levels).
3. Engages subject specialists (both USGS and non-USGS researchers and teachers) to be involved in web page design, content review, and publication.
4. Cooperates with teachers, researchers, etc., to establish feedback for web page revisions and redirection.

B. Coordination of Education Activities

1. Initiates planning coordination with the Director and facilitators of the AGI Education Curriculum Program and SF Bay Area educational program directors.
2. Promotes the National Earth Science Standards and the AGI Curriculum Agenda to USGS employees to foster interest and support for educational outreach activities in the SF Bay Area.
3. Facilitates planning and coordination with science program administrators and in SF Bay Area schools and school districts, regional teacher preparation programs (colleges, societies, and other regional and national institutions who support science education) to promote the National Earth Science Standards and the AGI Curriculum Agenda to regional educators.
4. Coordinates and conducts informational meetings and teacher training workshops to advocate USGS resources and cooperation with AGI's National Earth Science Education (K-12) Curriculum Agenda. Coordinates with school districts to find support to train teachers during professional development programs and summer curriculum training programs.
5. Engages USGS researchers to participate in educational outreach activities. Nurtures contacts within the SF Bay Area education community to establish a leadership cadre of teachers in support of the USGS/AGI cooperative agenda.
6. Facilitates resource exchanges between schools, area businesses, the USGS, and area land management organizations, mineral extraction and water resource management companies, etc., to foster development of kits in support of teaching curriculum modules for EC and IES. Plans and coordinates teacher training programs, field trips, etc. intended to support professional development for new teachers of Earth Science using the EC and IES curriculum.