Interim Report for Period: 01/2004 - 03/2004
Submitted on: 03/31/2004
Principal Investigator: Prescott, William H.
Award ID: 0321760
Organization: UNAVCO, Inc.
Title:
Support of UNAVCO Community and Facility Activities

Project Participants

Senior Personnel

Name: Prescott, William
Worked for more than 160 Hours: Yes
Contribution to Project:

Name: Meertens, Charles
Worked for more than 160 Hours: Yes
Contribution to Project:

Name: Shiver, Wayne
Worked for more than 160 Hours: Yes
Contribution to Project:
Overall responsibility for UNAVCO operations.

Name: Jones, Cecil
Worked for more than 160 Hours: Yes
Contribution to Project:
Responsible for UNAVCO financial operations

Post-doc

Graduate Student

Undergraduate Student

Name: Hamilton, Liberty
Worked for more than 160 Hours: Yes
Contribution to Project:
Assists with data archiving.

Name: Cabbagestalk, Kimberly
Worked for more than 160 Hours: Yes
Contribution to Project:
Assists with data archiving.

Technician, Programmer

Name: Price, Rose
Worked for more than 160 Hours: Yes
Contribution to Project:
Responsible for human resources, meeting planning, travel and payroll.

Name: Boler, Frances
Worked for more than 160 Hours: Yes
Contribution to Project:
Manages Facility Data Management and Archiving Group. Technical manager of the data management and archiving group; Oracle database sys. admin.; software development; implementation of the Facility GPS seamless archive retail system.

**Name:** Johns, Bjorn  
**Worked for more than 160 Hours:** Yes  
**Contribution to Project:** Manage Facility Project Group and Polar support projects

**Name:** Bartel, Beth  
**Worked for more than 160 Hours:** Yes  
**Contribution to Project:** Facility Field Engineer. Supports campaign and antarctic support projects.

**Name:** Kurnik, Charles  
**Worked for more than 160 Hours:** Yes  
**Contribution to Project:** Facility Antarctic Field Engineer.

**Name:** Owen, John  
**Worked for more than 160 Hours:** Yes  
**Contribution to Project:** Project Support Group Project Technician. Permanent and campaign equipment organization, logistics, shipping and warehousing.

**Name:** Sihombing, Effendi  
**Worked for more than 160 Hours:** Yes  
**Contribution to Project:** Project Support Group Equipment Technician

**Name:** Chick, Katie  
**Worked for more than 160 Hours:** Yes  
**Contribution to Project:** Project Administrator. Manages Facility administrative staff, budgets, and finances.

**Name:** Jeffries, Susan  
**Worked for more than 160 Hours:** Yes  
**Contribution to Project:** Database Programmer. Designs, develops and maintains Microsoft based Project and Operations information management system.

**Name:** Braucher, Jeff  
**Worked for more than 160 Hours:** Yes  
**Contribution to Project:** Systems Administrator. Desktop computer support.

**Name:** Riley, Jim  
**Worked for more than 160 Hours:** Yes  
**Contribution to Project:** Overall Facility web server development and administration.

**Name:** McCallum, Myron  
**Worked for more than 160 Hours:** Yes  
**Contribution to Project:** Systems Administrator. Overall Facility and community UNIX and Windows computer systems administration.

**Name:** Davis, Jon  
**Worked for more than 160 Hours:** Yes  
**Contribution to Project:**
Administrative Assistant. Desktop publishing, database reports and content management.

Name: Ruud, Oivind
Worked for more than 160 Hours: Yes
Contribution to Project:
Nework Engineer. Network engineering support of continuous data from NASA/GEN permanent stations; VSAT data communications.

Name: Sklar, Jay
Worked for more than 160 Hours: Yes
Contribution to Project:
Field Engineer. Permanent station and campaign field engineering.

Name: Greenberg, Jim
Worked for more than 160 Hours: Yes
Contribution to Project:
Field Engineer. Permanent station and campaign field engineering.

Name: Andreatta, Victoria
Worked for more than 160 Hours: Yes
Contribution to Project:
Field Engineer. Network engineering support to NASA and NSF permanent stations; Facility GPS testing and development.

Name: Gallaher, Warren
Worked for more than 160 Hours: Yes
Contribution to Project:
Senior Technician. Design, fabrication, implementation, repair and support of permanent station and campaign systems; receiver repair.

Name: Maggert, David
Worked for more than 160 Hours: Yes
Contribution to Project:
Archive permanent station data management; software development for database data entry and webaccess tools.

Name: Estey, Louis
Worked for more than 160 Hours: Yes
Contribution to Project:
Data Manager/Software Programmer. Develops and maintains permanent station data management software, TEQC, Web, and Map tools and Linux Sys. Admin.

Name: Lee, Mary
Worked for more than 160 Hours: Yes
Contribution to Project:
Archive Technician. Prepares and archives campaign data and metadata. Communicates with investigators to ensure data archival.

Other Participant

Research Experience for Undergraduates

Organizational Partners

University of California-San Diego

Other Collaborators or Contacts
Activities and Findings

Research and Education Activities: (See PDF version submitted by PI at the end of the report)
Activities information in attached file.

Findings:
UNAVCO exists to support NSF and NASA projects and as such it is the work of the supported communities that ultimately constitutes the findings related to this project. We summarize the work of the UNAVCO Facility in the 'Project Activities' section of this report.

Training and Development:
None to report at this time.

Outreach Activities:
We have interviewed applicants for the UNAVCO Education and Outreach Coordinator position and made an offer to the top candidate.

Journal Publications

Books or Other One-time Publications

Web/Internet Site

URL(s):
www.unavco.org

Description:
The unavco.org website is the primary web portal for UNAVCO Community, Facility and PBO activites. The website contains archive data and science products, engineering support resources, software, and education and outreach resources.

Other Specific Products

Contributions within Discipline:

Contributions to Other Disciplines:

Contributions to Human Resource Development:

Contributions to Resources for Research and Education:

Contributions Beyond Science and Engineering:

Categories for which nothing is reported:

Any Journal
Any Book
Any Product
Contributions: To Any within Discipline
Contributions: To Any Other Disciplines
Contributions: To Any Human Resource Development
Contributions: To Any Resources for Research and Education
Contributions: To Any Beyond Science and Engineering
October 2003 Newsletter

Subject: October 2003 Newsletter
To: UNAVCO Community
From: Will Prescott, President
Date: 20 October 2003

EarthScope Update

In September EarthScope achieved a significant milestone when it moved from the planning stage to the construction stage. UNAVCO, IRIS and Stanford signed cooperative agreements with the National Science Foundation for the construction of the EarthScope Facility. See the web page for more details including a summary of PBO hires, organization chart, Aspen workshop summary, Standing Committee activities.

Facility Update

The UNAVCO Boulder Facility was involved in a record number of field projects from Italy to Yellowstone to Denali. At the same time the Facility moved out of UCAR both physically and administratively. The move was accompanied by some internal restructuring and a few new hires. See the web page for more details including move, new org chart, new hires, and project reports.

Western Networks

A community proposal to fund a large fraction of the maintenance of 6 GPS networks in the Western US met with partial success. See the web page for more details including a list of networks involved, plans for now and planning for the future.

Cayuga Community College

UNAVCO and IRIS have begun working with Cayuga Community College in upstate New York to develop a Geographical information system for EarthScope. See the web page for more details including funding, goal, meetings.

Annual Meeting

Plans for the next UNAVCO annual meeting are beginning to take shape. The meeting will be held in Boulder Colorado on February 26th and 27th. The meeting will conclude with an open house at the new UNAVCO offices. See the web page for more details including a preliminary schedule of events, strategy for joint and separate UNAVCO/IRIS meetings for next few years.
Long Valley Meeting

UNAVCO assisted Paul Segall and David Hill in putting on a workshop in October. The workshop took place in Long Valley, California. See the web page for more details including the preliminary agenda and participant list.

New Location

UNAVCO offices in Boulder, CO have moved from their long-term location on Mitchell Lane to a new location just north of Boulder. The new building houses all of the existing Facility staff, the UNAVCO headquarters staff, and EarthScope/Plate Boundary Observatory staff. Address (Mail and Fedex):
UNAVCO, Inc.
6350 Nautilus Drive
Boulder, CO 80301-5554

General phone:
303-381-7500
(For individuals, see web page)

Headquarters fax:
303-381-7501

Facility fax:
303-381-7451

PBO Fax:
303-381-7552

New email and phone numbers for all staff can be found at:
Staff Directory

The UNAVCO, Inc web page (http://www.unavco.org) and the PBO web page (http://www.unavco.org/PBO) will remain where they are. The Facility web page (http://www.unavco.ucar.edu) will remain in its current location until integration of the Facility web site into the .org web site is complete.
October 2003 Newsletter

EarthScope Update

In September EarthScope achieved a significant milestone when it moved from the planning stage to the construction stage. UNAVCO, IRIS and Stanford signed cooperative agreements with the National Science Foundation for the construction of the EarthScope Facility. An NSF funded Major Research and Equipment Facility Construction (MREFC) project, EarthScope is the largest NSF earth science project ever. Ten representatives from UNAVCO, IRIS and Stanford attended a workshop (at Aspen, Colorado) organized by the physicists involved in the Laser Interferometric Gravimetry Observatory (LIGO). There we spent an intense three and one-half days hearing the good and bad experiences of large physics projects and, between talks, planning the management of EarthScope.

The PBO Standing Committee met in July at Stanford to discuss the strainmeter component of PBO. The committee made several recommendations that are under consideration by UNAVCO's Board of Directors. The report should be made public soon.

UNAVCO is in the final throes of making a decision on the GPS receiver procurement for PBO. Several receivers have been tested and the results of the test are being considered by a Technical Advisory Committee. Once the award is made, the results of the testing and the selected vendor will be made public.

Finally, UNAVCO has been busy hiring staff required for constructing PBO. The following report from the PBO Director summarizes the progress so far.

From Mike Jackson, PBO Director

The PBO is in the process of staffing key positions so we can move quickly to implement the PBO project plan. We have put together a strong project team. Please join me in welcoming the new staff to UNAVCO Inc, and PBO. We will make a broader announcement to the EarthScope, PBO and UNAVCO, Inc. communities. The enclosed attachment contains an updated organizational chart. I will update the PBO web site as time permits. By way of background, the process for hiring included extensive local and web-based advertising as well as emails to the UNAVCO community. Each position had 10 - 50 candidates from which the top three to five were selected for interviews. The interview teams included two to four senior managers as well as invited members where special expertise was required to evaluate candidates.

Senior Management Positions

PBO Operations Manager. Karl Feaux has accepted the PBO Operations Manager position. Karl comes to PBO with 10 years of field engineering, station installation and maintenance, and management experience. He has personally installed and/or supported many of the western US regional GPS networks. In the next few weeks Karl will be focusing his attention on hiring PBO Regional Engineers.

PBO Data and Data Products Manager. Greg Anderson has accepted the PBO Data and Data Products Manager position. Greg is currently a postdoc at the USGS in Pasadena and will join PBO around November 1. Greg brings a broad knowledge of GPS and strain data and data products based on his experience at the USGS and SIO. In the first few months Greg will be focused on establishing the PBO GPS and strainmeter data and data product SOW's and subcontracts.

Line Management Positions

PBO Senior Engineer. Dave Mencin accepted the position for the PBO Senior Engineer. Dave had extensive field and software development experience at UNAVCO before leaving for the private
sectors. Dave's specialties included over 15 years of GPS engineering experience with an emphasis on data communications and software development.

PBO Cost and Schedule Coordinator. Blaise Stephanus is the PBO Cost and Schedule Coordinator. Blaise brings over 20 years of Project and cost/schedule management experience to PBO. He has extensive experience in EVA (Earned Value Management) and other cost accounting methods required to account for PBO MREFC funds. Blaise's first tasks are to finalize the PBO work breakdown structure and baseline budget, work with the EarthScope office to define PBO Cost Performance Reports, and finalize the PBO budgeted cost of work scheduled.

Permit and Reconnaissance Coordinator. Kyle Bohnenstiehl has accepted the PBO Permit and Reconnaissance Coordinator position. Kyle comes to PBO from the Department of Interior where he oversaw land use and permitting activities for the Bureau of Indian Affairs. Kyle also has extensive experience in GPS control surveys, image acquisition and processing, and GIS.

**Engineering**

Rocky Mountain Regional Engineer. Steve Borenstein will fill the Rocky Mountain Regional Engineer position. Steve has a great deal of experience with power systems (solar, wind) and systems enclosures as a development and testing engineer at the Facility as well as previous experience as a Product Support Engineer at Sun.

Northern California Strainmeter Engineer. Bob Mueller is the Michael Jordan of the strainmeter community. He was at the top of his game when he retired and we have brought him back for his strong leadership and strainmeter engineering talents. Bob starts work around November 10.

**Support**

PBO Systems Administrator. Steve Smith is the PBO systems administrator. Steve has extensive UNIX/Linux networking experience that will serve us well is setting up the PBO remote offices. Steve came to us from CU.

PBO Administrative Assistant/Office Manager. Krista Barbour is the PBO Administrative Assistant. Krista handles PBO travel, purchasing, and meeting set up activities.

**Pending Hires**

Regional Engineers. We are actively interviewing people for the Regional Engineer Positions. We currently have short lists developed for most of the regions and anticipate finalizing the hires by early November.

Strainmeter Processing Technician. We currently employ Kathleen Hodgkinson on an hourly basis for strainmeter data processing. Kathleen has been working closely with Evelyn Roeloffs on a specific set of tasks as outlined by the PBO standing committee. We anticipate bringing Kathleen on as a full time member of the staff in late February of 2004.
PBO Staff List
updated 9/30/2003

UNAVCO
PBO

- Will Richert
  UNAVCO Inc President
- Michael Jackson
  PBO Director
- Krista Bader
  Administrative Assistant

- N. California Regional Engineer
  - TTH Engineer 1
  - TTH Engineer 1
  - U.S. Missile
  - S. California Regional Engineer
  - TTH Engineer 1
  - TTH Engineer 1
  - Spencer Reader
  - S. California Regional Engineer
  - TTH Engineer 1
  - TTH Engineer 1
  - Southern California
  - TTH Engineer 1
  - TTH Engineer 1
  - Rocky Mountain Regional Engineer
  - TTH Engineer 1

- TTH PBO Data and Web Administrator
- TTH Info Web / Comm's Coordinator
- TTH Equipment Depot Engineer
- TTH Campaign Engineer
- TTH Campaign Tech
- TTH Equipment Tech
- TTH Shipping and Receiving Tech
- TTH Software Database Developer
- TTH PBO Solution Coordinator
- TTH PBO Analyst
- TTH UNAVCO Archive Tech
- TTH SOPAC Archive Tech
- TTH Berkeley Archive Tech
- TTH Purchasing Coordinator
- TTH Procurement Coordinator
- TTH Contracts Officer
- TTH Property Manager
- TTH Accountant
- TTH Safety Officer
October 2003 Newsletter

Facility Update

Highlights of projects in Las Vegas, the Philippines, Brazil, Easter Island, the Seychelles, the Basin and Range and Idaho can be found on the facility web site: [http://www.unavco.org/facility/project_support/highlights/2003/2003.html](http://www.unavco.org/facility/project_support/highlights/2003/2003.html).


And the Facility supported a major effort to install instrumentation in the aftermath of the Denali Earthquake, both last winter and this fall.

The Facility also carried out an extensive evaluation of the GPS receivers being considered by the EarthScope Plate Boundary Observatory.

In September, Facility staff changed employers, from UCAR to UNAVCO, Inc. and moved all their offices into the new UNAVCO headquarters. This was a major undertaking that required an immense effort in planning and execution. It required a big effort on the part of many individuals to effect a smooth transition.

From Chuck Meertens, UNAVCO Facility Manager

The UNAVCO Facility has restructured in order to better serve new PBO responsibilities and to continue to provide quality support to community investigators and programs including NSF EAR and Polar programs and NASA. Network and Engineering support have been combined into an Engineering Group. A newly formed Equipment Group will provide technical and equipment support. The Data Group combines data management and archiving functions with project and operations database support to provide an integrated Information Technology support structure. A few engineers left the Facility to join and help create the PBO project. The new organization chart can be found at the bottom of this page.

We are pleased to announce a number of very capable new hires that have joined us over the past few weeks and to welcome these new UNAVCO Facility staff.

Steve Fisher (Head of the Facility Engineering Group)

Steve comes to UNAVCO, Inc., from Intuicom, a wireless data communications company that he formed and led for the last 5 years. Before his stint with Intuicom, Steve was employed by JPL as the NASA/SENH onsite program representative to UNAVCO, where he helped to provide programmatic coordination of the NASA activities. Steve brings 15 years of engineering and engineering management experience to the Facility. He managed many large-scale international projects, provided programmatic management for several NASA research programs and was central to the management of important ongoing initiatives such as the NASA Global GPS Network (GGN), SEHN GPS research application projects, the International GPS Service (IGS) and UNAVCO. Steve holds Bachelor and Master of Science degrees in Geospatial Information Engineering from the University of Wisconsin-Madison where he also pursued graduate studies in Business. Steve will head up the newly-formed Facility Engineering Group that is responsible for GPS network operations and field engineering for NSF and NASA core projects, NSF Polar projects, NSF PBO campaign engineering, and NSF Existing Network support.

Chuck Kurnik (Head of the Facility Equipment Group)

Chuck will be combining his more recent experiences as the UNAVCO Antarctic Support Manager with his previous career talents as an industrial Manufacturing and Quality Control Engineer in order to head UNAVCO’s newly formed
Equipment Group. In addition to ongoing NSF and NASA equipment support, this group will have the new responsibility for the handling, quality assurance, warehousing, shipping and receiving, technical support, inventory, tracking and maintenance of PBO permanent station and campaign equipment. Chuck received his M.S. Mechanical Engineering degree (2002) from Colorado State University, where his emphasis was in data communications, and his B.S. in Mechanical Engineering from the University of Illinois, Urbana-Champaign (1989). Chuck then worked as a Manufacturing Engineer and as a Quality Assurance Engineer with Nissan Forklift Corporation. He also worked with a flow and pressure instrumentation company as a Quality Control/Manufacturing Engineer. At UNAVCO, he acquired considerable experience with GPS networks and field engineering as well as project management.

**Oivind Ruud (Network Engineering Supervisor)**

Oivind has worked at UNAVCO since 1991 in technical and engineering roles. He has extensive experience with global and regional network engineering, communications systems, and field engineering and project management. He received his B.S. and M.S degrees in Electrical Engineering from the University of Colorado, Boulder, in 1991 and 1993, building upon his Control Systems Engineering degree from Oslo, Norway. Oivind will be taking on supervisory responsibilities for the new Network Support Section in addition to his duties as the NASA Network Engineer.

**Jim Greenburg (Engineering Support Supervisor)**

Jim Greenburg has worked as a field engineer at UNAVCO for over two years and has conducted campaigns and installed permanent stations around the globe. He came to UNAVCO with considerable experience with GPS surveying, including managing projects in Antarctica. He also provided technical support while working at Trimble and working on their hand-held controller design team and was a GPS/Surveying consultant and is well versed in GPS survey processing. He received his BA in Surveying and Geodetic Science from Ohio State. Jim will be responsible for supervising Facility engineers providing network and campaign field support for NSF, NASA, Polar, and PBO projects.

**Frederick Blume (Existing Networks Network Engineer)**

Frederick Blume has a PhD in Geophysics from the University of Colorado, Boulder, where he did his thesis research in high-precision GPS measurements in Nepal and India. As a graduate student and later as a post-doctoral research associate at the Cooperative Institute for Research in Environmental Sciences (CIRES), Dr. Blume led a number of GPS experiments in the western U.S., Venezuela, India, Nepal and Bhutan. He also has been the investigator and program manager of an IRIS/PASSCAL experiment for the last few years. Prior to entering his PhD studies, he had a six-year career at Amoco Production Company designing and conducting reflection seismological surveys in the field in Alaska. He also has an M.S. in Exploration Geophysics from Stanford and a B.S.E. from Princeton in Civil Engineering. Dr. Blume will be UNAVCO's primary participant in the new community Existing Networks project and will be providing Network Engineering support and helping to coordinate programmatic concerns for the project.

**Jon Davis (Administration/Database Assistant)**

Jon has over 10 years of experience as an Information Technology/Business professional with expertise in administration, accounting, desktop publishing, web-development, database administration and development, and programming. Jon comes to UNAVCO from Sportsmedicine Management Group where he worked for 6 years as an office manager and database/web developer. Jon brings added capability to UNAVCO's increasing IT and administrative needs.
October 2003 Newsletter

Western Networks

Last spring six of the existing GPS networks submitted a single proposal through UNAVCO asking for funds to operate the networks for five years. In the original plan, at the end of five years the operation and maintenance of the stations is to be taken over by EarthScope. The plan covered most of the stations in the AKDA, EBRY, BARD, BARGEN, and PANGA networks and half of the stations in the SCIGN network. NSF funded the proposal but cut the term to 18 months and directed us to find ways to eliminate duplication of activities. Representatives of the six networks are meeting in early November to discuss network operations and to plan a proposal for the 3-1/2 years between the end of the current proposal and the beginning of EarthScope responsibility for these networks.

AKDA  Alaska
BARD  Bary Area Regional Deformation
BARGEN  Basin and Range Geodetic Network
EBRY  Eastern Basin and Range/Yellowstone
PANGA  Pacific Northwest Geodetic Network
SCIGN  Southern California Integrated GPS Network

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Cayuga Community College

Cayuga Community College, located in the Finger Lakes region of upstate New York, has been funded by NASA to develop a Geographical Information System that will integrate into a single system, a variety of ancillary information about EarthScope stations. Details of the design of the system and the types of information to be included are still under discussion. Representatives from IRIS (Shane Ingate, Jim Fowler), UNAVCO (Will Prescott, Chuck Meertens, Mike Jackson) met with representatives from The Institute for the Application of Geospatial Technology (IAGT, Dana Piwiniski, Emily Constantine, Fred Pieper) in August to begin planning the effort and discussions are continuing.

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Annual meeting

Plans for the 2004 UNAVCO annual meeting are beginning to take shape. The meeting will be held in Boulder Colorado on February 26th and 27th. There will be 1-1/2 days of science sessions. Details of these sessions are under development. The meeting will conclude with an open house at the new UNAVCO offices. Also, please note that the 2005 UNAVCO Annual meeting will be held jointly with IRIS as was done in 2003. Following the the joint meeting last summer, the UNAVCO and IRIS governing bodies decided to hold joint meetings in alternate years. The expectation is that this plan will provide good communication between the overlapping communities (during the joint meetings), reduce the number of overall meetings, and still provide a forum for the parts of the two communities that do not have overlapping interests (during the non-joint meetings).

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October 2003 Newsletter

Long Valley Meeting

Results from the meeting are not available yet. The planned agenda and participation are included here.

Planned Agenda

<table>
<thead>
<tr>
<th>Wednesday, October 8 at Mammoth Mountain at Mammoth Lakes, CA</th>
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<tbody>
<tr>
<td><strong>Afternoon</strong></td>
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<td><strong>AM</strong></td>
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Planned Participants
<table>
<thead>
<tr>
<th>Name</th>
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</thead>
<tbody>
<tr>
<td>Alfred Anderson</td>
<td>University of Chicago</td>
</tr>
<tr>
<td>Maurizio Battaglia</td>
<td>UC Berkeley</td>
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<tr>
<td>Emily Brodsky</td>
<td>UCLA</td>
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<tr>
<td>Marcus Bursik</td>
<td>University at Buffalo, SUNY</td>
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<tr>
<td>Peter Cervelli</td>
<td>U.S. Geological Survey</td>
</tr>
<tr>
<td>J. Andres Chavarria</td>
<td>Duke</td>
</tr>
<tr>
<td>Lizet Christiansen</td>
<td>U.S.G.S.</td>
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<tr>
<td>William Cumming</td>
<td>Cumming Geoscience</td>
</tr>
<tr>
<td>Giuseppe De Natale</td>
<td>Osservatorio Vesuviano-INGV</td>
</tr>
<tr>
<td>Jacqueline Dixon</td>
<td>University of Miami</td>
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<td>Tim Dixon</td>
<td>University of Miami</td>
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<td>Douglas Dreger</td>
<td>UC Berkeley</td>
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<tr>
<td>John Eichelberger</td>
<td>University of Alaska Fairbanks</td>
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<tr>
<td>Bill Ellsworth</td>
<td>U.S. Geological Survey</td>
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<td>Sonia Esperanca</td>
<td>NSF</td>
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<tr>
<td>Christopher Farrar</td>
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<tr>
<td>Jonathan Fink</td>
<td>Arizona State University</td>
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<tr>
<td>Terry Gerlach</td>
<td>USGS/CVO</td>
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<td>Michael Hamburger</td>
<td>Indiana University</td>
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<tr>
<td>Michael Higgins</td>
<td>Universite du Quebec a Chicoutimi</td>
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<tr>
<td>Wes Hildreth</td>
<td>USGS</td>
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<tr>
<td>David Hill</td>
<td>U.S. Geological Survey</td>
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<tr>
<td>Shaul Hurwitz</td>
<td>U.S. Geological Survey</td>
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<tr>
<td>Michael Jackson</td>
<td>UNAVCO, Inc.</td>
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<tr>
<td>Barbara John</td>
<td>University of Wyoming</td>
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<tr>
<td>Name</td>
<td>Institution</td>
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<tr>
<td>Malcolm Johnston</td>
<td>U.S. Geological Survey</td>
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<td>Bruce Julian</td>
<td>U. S. Geological Survey</td>
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<tr>
<td>Peter La Femina</td>
<td>UM-RSMAS</td>
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<td>John Langbein</td>
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<td>Peter Lipman</td>
<td>U.S. Geological Survey, MS910</td>
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<td>Michael Lisowski</td>
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<td>Gail Mahood</td>
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<td>Peter Malin</td>
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<td>Margaret Mangan</td>
<td>USGS</td>
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<td>Doerte Mann</td>
<td>Stanford University</td>
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<tr>
<td>Brigette Martini</td>
<td>HyVista Corporation</td>
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<tr>
<td>Ben Mason</td>
<td>University of Cambridge</td>
</tr>
<tr>
<td>Kenneth McGee</td>
<td>U.S. Geological Survey, Cascades Volcano Observatory</td>
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<tr>
<td>Vicki Miller</td>
<td>Penn State Univ</td>
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<td>Craig Miller</td>
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[Return to Newsletter]
1.0 Interim Report for FY2004 (Jan-Mar) EAR-0321760 Support of UNAVCO Community and Facility Activities

This is the Jan-Mar, 2004, quarterly report for the 4-year NSF Cooperative Agreement (CA) “Support of UNAVCO Community and Facility Activities”. Under this award, the UNAVCO Facility has provided the GPS community with support to individual research projects, NASA SENH, the EarthScope Plate Boundary Observatory (PBO), and the community NSF Existing Western Networks project. This interim report includes support highlights (Section 1.1), a featured project for this quarter (Section 1.2), and a compilation of the monthly community updates for Jan-Mar 2004 (http://www.unavco.org/public_html/prescott/monthly-reports.html and Section 2). During this quarter, the Facility provided implementation, equipment, training, field support, and data management and archiving to campus and permanent station projects at locations around the world. Budgeting and planning support was also provided to projects in the proposal stage. Other activities included work on Community and Facility infrastructure and the UNAVCO Community Annual meeting, supported by this award.

UNAVCO Community Annual Meeting and Open House

(Above) U.S. Congressman. Mark Udall presented one of the keynote speeches at the UNAVCO Open House. Over 110 persons attended the UNAVCO Annual meeting, representing 39 institutions. The Facility/PBO presented posters and demonstrations at the Open House.
Annual Meeting Presentations

Recent advances in GPS technology and data processing
- Tom Herring, MIT, Loading effects and reference frame definition
- Geoffrey Blewitt, University of Nevada, Reno

Breakout Sessions
- Seismic imaging of strain transients
  - Paul Silver, Carnegie Institute of Washington
- Western GPS Networks
  - Fred Blume / Will Prescott, UNAVCO, Inc.

InSAR
- Mark Simons, Caltech,

Time-dependent modeling of geodetic time series
- Paul Segall, Stanford University

Breakout Sessions
- High rate GPS applications
  - Kristine Larson, University of Colorado, Boulder
- Before PBO: Opportunities for Research with Borehole Strainmeter Data
  - Evelyn Roeloffs, USGS Vancouver

Continental deformation: blocks or flow?
- Wayne Thatcher, USGS Menlo Park,

GPS measurements of active deformation in New-Zealand
- John Beavan, Institute of Geological and Nuclear Sciences

PBO with summary of NA reference frame working group activities
- Mike Jackson, UNAVCO, Inc.
- Geoffrey Blewitt, University of Nevada, Reno

Plus 31 science abstracts and associated posters.

1.1 Facility Highlights

Eastern Mediterranean Project Support: The Facility Engineering Group supported establishing two new GPS stations and upgrading communications at two existing stations within the Eastern Mediterranean project area. One of the new stations, near Riyadh, Saudi Arabia, is co-located at an existing SLR tracking station. Data from this station is important not only to the regional investigation, but also for global tracking network applications, such as performing GPS/SLR technique comparisons for reference frame and Earth orientation studies. Establishment of the Riyadh site is included in the project highlights section of the UNAVCO web site (http://www.unavco.org/facility/project_support/highlights/2004/saudi.html).

Plate Boundary Observatory Project Support: Testing of campaign GPS equipment was initiated in support of a competitive procurement for the PBO project. Testing addressed both data quality and usability aspects. Usability aspects are included in the project highlights section of the UNAVCO web site (http://www.unavco.org/facility/project_support/highlights/2004/receiver_testing1.html).
NASA SENH Program Support: An on call responsibility to back-up JPL in operating Global GPS Network was maintained during the Mars encounter period, when JPL computing and networking systems were more concerned than normal about possible failures. Several station maintenance tasks were conducted, including major work at the Easter Island station, where the monument had to be relocated and a tie survey conducted. The Easter Island work is included in the project highlights section of the UNAVCO web site (http://www.unavco.org/facility/project_support/highlights/2004/easterisland2.html).

Community Pricing on Select Equipment Established: Community pricing was established (or reestablished) for a number of vendors who supply equipment that is commonly used by the community and supported by the Facility, allowing UNAVCO members to take advantage of discounts that may not otherwise be available. Details of the pricing program can be found at the Facility web site (http://www.unavco.org/facility/project_support/campaign/equipment/purchase/purchase.html).

PBO Warehouse activities: GPS and ancillary equipment will be tested, packed, inventoried, and shipped to all PBO sites from the Boulder warehouse. Shelves, tools, and material handling equipment have been received for Phase 1 of the warehouse layout. The first shipment of Trimble NetRS receivers have been received as well, and configuration and testing are in process.

Project Equipment Support: Ten projects have received equipment and/or logistical support since January, including nine receivers for the San Simeon earthquake response (5 for PBO stations and 4 for campaign work performed by DeMets, U. of Wisconsin).

Permanent Station Data Management and Archiving: Data and metadata from the first four PBO sites installed are being archived at UNAVCO, made available on the Archive’s anonymous ftp pickup area, with data holdings published to the GSAC. In addition to the four new PBO sites, thirteen new sites from Alaska, Louisiana, California, Antarctica and Saudi Arabia were added for data management and archiving this quarter. This brings the total active global permanent, continuously operating stations archived at UNAVCO to 298. (Archive data access: http://www.unavco.org/facility/data/data.html)

1.1 Quarterly Featured Project

Project: Existing Western GPS Networks
Funding Source: NSF EAR Instruments and Facilities
UNAVCO Engineer: Fredrick Blume
Dates: 1 October 2003 - 31 March 2004
Location: Western North America

Description: The Existing US Networks Project web center has been launched on the UNAVCO Facility web site to provide information for project participants (http://www.unavco.org/facility/project_support/exnet/exnet.html). There are currently six regional GPS networks in the Western U.S., each devoted to the study of one (or more) tectonically distinct geological provinces. The UNAVCO Scientific Community, through UNAVCO, Inc, has obtained funding from the National Science Foundation to maintain the operations of a subset of these stations until March, 2005. During this initial 18 month project phase, stations will be maintained by the regional networks and by the UNAVCO Facility and 36 sites will be upgraded to Plate Boundary Observatory Project (PBO) standards with state of the art internet-capable GPS receivers, choke ring antennas, and digital IP-based communications. A new proposal, to be submitted to the Earthscope-PBO panel in July, 2004, is being prepared to cover the remaining 3 1/2 year period from March, 2005 through September, 2008. After this transition period, the existing networks will be operated by the PBO.

UNAVCO Facility Support: UNAVCO Engineer Freddy Blume has visited each of the existing regional networks to coordinate project operations and planning efforts. A provisional plan and revised budget was developed for Facility support during the initial 18 month project. Coordination of site selection between the multiple parties currently operating the networks was initiated and the first set of new equipment was ordered. An existing networks planning break out session at the UNAVCO Community meeting was conducted. On-going operations, data management and archiving support was provided by the Facility to the existing networks.

There are currently six regional GPS networks in the Western U.S. and 250 stations that are maintained by the networks and UNAVCO Facility under the NSF Existing Western GPS Networks grant.
2.0 UNAVCO Monthly Reports

2.1 - January 2004 Monthly Report

Facility (Chuck Meertens)

Engineering Group (Steve Fisher)

NSF-EAR Project Support

- Continued remote support of Eastern Mediterranean project. Purchasing, configuring, testing and preparing equipment for shipping to Saudi Arabia in early February. Helping to specify equipment for Eritrea permanent station installation.
- Continued supporting configuration and installation of equipment to Taal Volcano, Philippines.
- Prepared equipment and laboratory for long-term receiver testing project with K. Larson.
- Coordinated the return of a computer to UNAM for installation at station CPDP.

NSF-EAR Permanent Station Support

- Coordinated work objectives and sharing of responsibilities between network engineering staff.
- Continued development of Existing Networks Web interface (now on public beta server).
- Performed detailed recalculation of Existing Network project budget using revised 2003 activity figures derived in cooperation with the accounting group (Jones, Garcia, Wilson, Shiver), and produced firm figures for remaining funds available for travel, site upgrades and operations, future PI meetings, etc.
- Ordered 18 Trimble NetRS receivers and choke ring antennas for use in upgrading existing sites to PBO specifications.
- Developed preliminary plan for prioritizing, scheduling, and implementing upgrades based on network size, need, availability of CDMA communications, equipment delivery schedule, etc.
- Assembled GIS database of Western Networks, Verizon CDMA coverage, PBO sites, etc., for use in planning purposes.
- Developed agenda for Western Networks Operations Committee for both 18 month operational period and priorities for upcoming proposal.
- Received and analyzed detailed PANGA report and discussed details with PI's T. Melbourne and M. Miller in preparation for upcoming meeting and visit (February 5-10).
- Collecting information on supported sites. Identifying missing or incorrect information. Continually updating UNAVCO database as needed. Working on improving site reporting with various internal and external parties.
- Made contact with PI's and network operators to inform them of staffing changes.
- Reestablished weekly status reports for all the NSF networks.
- Collected documentation and diagrams for new permanent monument design.
- Set up an internal forum on the new DigiPost server. Wrote a program to allow seeding the forum with old emails from other group members that contain useful information.
• Conducted testing with Ashtech download software (SHARC). Figuring a way to get almanac data into the binex stream.

• Completed communications testing via VSAT to Guadalupe (GUAX). Restoring 30 second data flow and established new contract with GEAmericom for Space Segment lease.

• Continued supporting VSAT upgrades at Yellowstone/USGS collocated sites.

• Established new IP numbers for VSAT installations (MBAR, MSKU, GLPS).

• Continued to talk to Bhutan contacts about resurrecting Thimphu (TIMP) when circumstances permit.

• Provided monumentation consultation and information to Cayuga College for upgrade their Souminet station to geodetic quality.

• Consulted with INGEOMINAS on establishment of new permanent installation in Manizales, Colombia.

• Conducted site maintenance and troubleshooting for various NSF permanent stations and networks including: BAMO, NEWP, HEBE, RYAN, MTWO, SEY1, UDMC, GULFNET sites, Philippine L1 network, Galapagos network, IFRN, RABT, Yellowstone/Wasatch network, Hawaii L1, UNR1, Wasatch, Yellowstone, BARGEN, PANGA, and AKDA networks, including appropriate interfacing and discussions with their PI's and operators.

• Assumed responsibility for managing data flow from all the BARGEN network stations.

**NSF Polar Programs Support**

• Completed Greenland Summit and Raven camp map drawings for Arctic program.

• Planned technical implementation for Toolik Field Station RTK station project (Arctic program).

• Recommendation submitted to NSF for receiver pool upgrade.

• Initiated strain network measurements on the Taylor glacier.

• Re-established processing of Erebus continuous GPS network.

• Assisted in footprint survey at new, continuous GPS site on Franklin Island.

• Mapped a stream in the dry valleys.

• Supporting several projects in progress or planning stages in Antarctica (equipment and field support, training, and processing).

• Working to process, document, and archive all the current Antarctic projects and organize incoming equipment.

**PBO Project Support**

• Set-up and tested data processing capability for PBO campaign receiver testing. Prepared usability evaluation matrix. Prepared the laboratory, received first vendor's equipment, hosted a vendor visit, began collecting and processing data.

• Performed initial evaluation of joint US Seismic Array/PBO station project segment requirements in the Eastern US and decided to take on this aspect of the PBO project through the Facility.

**NASA Global GPS Network**

• Began redefining configuration requirements, documentation requirements and process for site PCs due to new hardware and operating system.
• Began testing 6 TurboRogues in inventory to assure they are operating properly before sending to remote global stations.
• Maintaining on call responsibility to back up GGN operations in case of system loading issues or failures at JPL during Mars encounters.
• Continued cleaning up and preparing for equipment return of old NASA equipment for inventory at JPL.
• Completed equipment testing and configuration at CORD, Argentina. Waiting on local collaborator availability for deployment.
• Planned follow-up visit to HARV to finalize VSAT installation.
• Shipped new site equipment to Easter Island (EISL) and finalized preparations for site visit (February 8-17).
• PC-104 computer configured and undergoing reliability tests for Uganda (MBAR) installation and site maintenance visit planned in coordination with IRIS/IDA.
• Reestablished PPP Internet link with Seychelles (SEY1) station. Planning for future VSAT upgrade in cooperation with IRIS.
• Began integrating data from Crimea (CRAO) station into IGS.
• New rackmount PC configured for Diego Garcia (DGAR) for upgrade deployment in February. New Internet connection procured and established at site.
• New TurboRogue tested and shipped to replace broken unit at Ivory Coast (YKRO).
• New TurboRogue tested and ready for deployment at Popocatepetl (POSW) to replace malfunctioning unit.
• Preparation of new computer to replace broken unit at Shanghai (SHAO) is underway.
• Negotiations for new agreement and long-term import solution for NASA equipment still ongoing at Armenia (NSSP).
• Obtained agreement for establishment of new monument and communications with collaborators at Diyarbakir (DYR2). Identified and testing receiver to be installed.
• Developed initial plan to support Arequipa (AREQ) station, as NASA SLR operations that supported part of the station operations costs will cease at the end of January. Working in cooperation with JPL, Clemson Univ. and local operators for solution to continue to operate the tracking station.
• Troubleshooting network problems at Usuda, Japan (USUD) and negotiating access from UNAVCO computers.
• Troubleshooting network problems at Sutherland, South Africa (SUTH) and negotiating access from UNAVCO computers.
• Made contact with local groups at Falkland Islands for permit negotiations and new site installation planning.
• Provided monumentation information and help to Francisco Bezerr (Brazil) for his five new installations that may contribute data to the GGN in the future.
• Continued discussing potential expanded role for UNAVCO in supporting real-time global network operations.
• Conducted site maintenance and troubleshooting for various GGN stations (AREQ, BOGT, CHPI, CRO1, MERS, YKRO, SHAO, EISL, USUD, SUTH).

**IGS Support**
- Continued consulting with Central Bureau Director on organizational issues.
- Planned and began editing Group poster to be presented at IGS workshop in March.

**Infrastructure/Staffing/Resource Allocation**

- Jim Normandeau, Network Engineer, began working at beginning of month—coordinated workload, trained on various aspects of UNAVCO operations and generally integrated Jim into the group.
- Made progress on several posters and displays for Facility open house in February.
- Shored up final details and announced GPS surveying course which will be offered to the PI/user community in April.
- Selected interviewees for Project Engineer position to be hired in February.
- Defined changes to be made to Facility permanent station support web pages. Made progress on redesign of campaign section.
- Testing Intuicom Internet protocol (IP) radio modems for their ability to bridge serial and IP data through the Internet as a low power/high reliability alternative to using site computers at permanent stations.
- Developed new and updated semi-automated software and system configuration PERL programs for field computers.
- Tested USB to serial adaptors with Redhat Linux v9.0 with US Robotics phone modems, GSM modems and Intuicom IP radio modems.
- Established T-Mobile account and tested data communications using GSM/cellular modems.
- Continued coordinating station database requirements with PBO. Specified changes to permanent station troubleshooting tool and revised access permissions and notifications to accommodate Facility staffing changes.
- Revising project documentation and reporting requirements.
- Assisted in reprogramming of NASA carryover funds from UCAR.
- Several group members endured financial system and timecard approval training.

**Equipment Group (Chuck Kurnik)**

**Facility**

- Continuing improvement in Facility Campaign Support Area
- Reorganized existing mezzanine
- Rented forklift and moved equipment to existing mezzanine
- Emptied two off-site storage lockers
- Setting up receiver repair area
- Training Facility Equipment Tech in receiver repair
- Developing Facility Emergency Response Plan
- Set up work area in warehouse
- Assisted in campaign training course development
- On-going web advisory committee
• Participate in current business process review
• Wired R&D area with power and GPS antenna cables
• Installed analog lines in R&D area
• Installed analog switching for engineering test purposes

**NSF/NASA Project Support**

• Provided equipment for MIT Field Camp Project
• Advised on equipment and scheduling for American Samoa campaign
• Major shipment to Saudi Arabia for agent permanent station
• GGN support: Major shipment to Easter Island for new permanent station

**PBO**

• Continuing support for San Simeon earthquake response
• Discussed draft warehouse plan with Facility and PBO management
• Hired Shipping and Receiving Technician
• Prepared two receivers for PBO recon support
• Analyzing current-state and developing future-state of PBO inventory management process
• Supplied reference receiver for PBO campaign receiver testing

**Data Group (Fran Boler)**

**Campaign archiving support**

• Archiving completed for: Albania 2002, American Samoa 2002, Aquifer Deformation 2003,
  Pokhara-Jomsom 2003, Nepal Khumbu 2003, and UNAVCO PBO Receiver/Antenna Testing
  2003.
• Data from 2 campaigns received, archiving initiated.
• Supplied .25 Gb of requested campaign data from 12 campaigns.

**Permanent station archiving support**

• Interim procedure for PBO data archiving, RINEXing and QCing implemented.
• First three PBO permanent stations added for interim data management and archiving.
• Five other new permanent stations added for ongoing data management/archiving (3
  GULFNET, 1 Denali, 1 Suominet).

**Staffing and Resource Planning**

• Interim procedure for PBO data archiving, RINEXing and QCing agreed upon with PBO Staff.
• Advertisement for new PBO Data Systems Engineer posted.
• Held a meeting with staff from the Facility, PBO and Headquarters to schedule and prioritize
development and enhancement of UNAVCO SQL Server databases.
• Staff assisted in candidate interviews and selection for the PBO GIS Support position.
Infrastructure support

- Hired consultant to set up security for new IIS server that communicates with the SQL Server database machine behind the firewall.

- Worked with PBO staff and consultants to plan modifications of UNAVCO Permanent Station database to meet PBO operations and metadata database needs.

- Began planning with Headquarters and Facility Equipment Group staff for database enterprise solution for requisition-purchase-shipping-receiving-inventory-repairs-testing business systems.

- Worked with System Administration staff to solve UNAVCO move-related mail and web server issues.

Software, GPS data formats

- Javascript/cgi web application for viewing GMT maps of UNAVCO GPS monument site positions, grouped as networks and/or campaigns with interactive selection criteria - initial development completed.

President's Office (William Prescott)

- Members Nominating Committee is finalizing list of candidates for Board Elections

- Annual Meeting and Open House planning (invitations sent, attendees approved, arrangements in progress)

- Strategic Planning Workshop dates (21-23 or 28-30 April) near final, attendees are being contacted

- Hosted Cayuga, PBO, USArray, EarthScope Mgt meeting at UNAVCO

- EarthScope Project Execution Plan was reviewed by an NSF Panel on January 22nd

- EarthScope Facilities Executive Committee met on January 22nd

- One-on-One Meetings with NSF, NASA program coordinators

- Hosted Stable North America Reference Frame Working Group at UNAVCO

- Interviewed candidate for UNAVCO Education and Outreach Position

- Coordinated initial UNAVCO involvement in San Simeon Earthquake response

- Circulated draft event response plan within UNAVCO staff
2.1 - February 2004 Monthly Report

Highlights

- Several Annual Reports available (See Facility for details)
- Progress on Existing Net effort (See Engineering Group/Permanent Stations for details)
- Antarctic office closed for the winter (See Engineering Group/Polar for details)
- Testing PBO Campaign Receivers (See Engineering Group/Project Support for details)
- Preparations for IGS meeting (See various for details)
- Annual meeting and associated events (See Pres. Off. for details)
- Strategic planning progress (See Pres. Off. for details)

Facility (Chuck Meertens)

- The UNAVCO Annual Report for FY2003 NSF award "Support of UNAVCO and Related Activities" is available on-line.
- The UNAVCO Annual Report for FY2003 NSF award "Acquisition of New GPS Equipment for the UNAVCO Community Pool in Support of Current and Emerging Solid-Earth Science Research Applications" was submitted.
- Both reports can be found at:
- With Carey Noll (NASA CDDIS), Michael Scharber (SOPAC) organized and prepared the position paper for the: "Data Transfer and Data Centers Session" of the upcoming IGS 2004 Meeting in Berne, Switzerland
- With Ramon Arrowsmith (Arizona State U.) submitted a request to hold a Topical Session at the November Geological Society of America meeting.
- Attended the NSF-sponsored Earth Science - CyberInfrastructure (ES-CI) coordinating committee meeting.

Engineering Group (Steve Fisher)

NSF-EAR Project Support

- Continuing remote support of Saudi Arabia project. Successfully upgraded communications at HALY site and downloaded data. Upgraded automated download software on Riyadh field computer. Troubleshooting non-mission-critical connection problems with HALY. Troubleshooting connection problems to new site in Jeddah. Shipped MicroZ receiver system for new site in Riyadh.
- Discussed issues relating to the Plum Island MA, GPS survey with PI and formulated a plan to clear up coordinate issues.

NSF-EAR Permanent Station Support

- Attended PANGA investigators meeting, Victoria B.C.
• Visited PANGA's operations headquarters at CWU in Ellensburg. 3. Met extensively with PANGA PI's Miller and Melbourne, PANGA technician Miner, and PBO regional engineer Hafner regarding ExNet/PBO operations and their impact on PANGA.

• Finalized operations and spending plan for remainder of current ExNet funding period (through 2/2005).

• Worked with Gene Arnn to finalize detailed project budget incorporating the above plan. This has been forwarded to Cecil Jones for entry into the Solomon accounting system.

• Co-authored document with W. Prescott detailing issues to be addressed by the ExNet Operations committee and PI's w.r.t. both the current funding period and the upcoming proposal, and distributed to the appropriate PI's and operations folks.

• Planned agenda and prepared presentations materials for Western Networks breakout meeting during Annual Meeting.

• Finalized and "went live" with the Existing Networks web center, the place to go for all information relevant to the project.

• Conducted extensive troubleshooting on stations in Wasatch and Yellowstone networks, involving communications and GPS receiver malfunctions.

• Supported AKDA's repair and re-establishment of the Seldovia station.

• Extensive personal communications with PI's and technical staff of all six networks regarding high priority issues and strategy.

• Continued network support and maintaining data flow from entire BARGEN network.

• Conducted remote site maintenance and troubleshooting for various NSF and NASA permanent station and networks including: RBAY, AREQ, FRED, HEBE, LMUT, CIC1, SELD, NSSP, GLPS, KAZA, PODG, CONZ, YKRO, IRZU, MONI SEY1, MTWO, TAAL, GODF, UNR1, PANGA

NSF Polar Programs Support

• Completed work on small projects and organized data and instrumentation from large incoming projects.

• Shipped equipment home and closed up the Antarctic office for the winter.

PBO Project Support

• Began preliminary work for US Array colocated stations -- working on site identification/selection.

• Continued PBO campaign receiver testing -- Rinexed, QC'd all data, started analysis and forming tables for report, started usability testing.

NASA Global GPS Network

• Finalized configuration and testing of field computer for SHAO site in China.

• Easter Island visit February 8-17. Old site (EISL) restored, daily offloads-weekly data transfers. New site (ISPA) installed, RTNT offloads via VSAT link.

• Ashtech equipment shipped to Rob in Saudi Arabia (from CORD eqp.) to accommodate new installation for GGN. Coordinating site visit at CORD (Argentina), equipment tested, awaiting deployment (Jay), now awaiting new Ashtech equipment from JPL.

• Second Hughes VSAT installation visit at HARV planned.
• PC-104 configured for Uganda (MBAR) installation and site maintenance visit planned in coordination with IRIS/IDA. Some hardware problems with PC-104 seems to be resolved.

• Diego Garcia (DGAR), new rackmount PC configured, plus Ashtech receiver equipment to be deployed February. New Internet connection completed, and purchased.

• Ivory Coast (YKRO), new TurboRogue tested, and will be shipped.

• Popocatepetl (POSW), new TurboRogue tested and ready for deployment (replace broken unit).

• Shanghai (SHAO), preparing new computer to replace broken unit, waiting for old computer unit to be confirmed to be returned.

• Armenia (NSSP), resolved new IP connection problems, site back up.

• Diyarbakir (DYR2), preparations for re-installing site after agreement for new monument and I-net connection, UNAVCO/JPL can provide new TurboRogue and computer equipment, plus negotiations for formal NASA agreement.

• Arequipa (AREQ), SLR operations ending at the end of January, negotiations with JPL, Clemson Univ. and local operators for solution to continued operations at Tracking Station.

• Arequipa (AREQ), due to computer access problems after IP change, UNAVCO Archive is pulling data files and distributing to IGS. Archive is conducting GGN-Backup tests for site in conjunction with this.

• Including Crimea (CRAO) station in the IGS, new log to be submitted.

• Including (two old) Saudi sites in the IGS as well, new logs needed.

• Gabon (MSKU) is still unreachable; Mauricio is attempting to resolve the problem with local contact.

• Seychelles (SEY1), ISP access resolved, and data is now flowing back to UNAVCO.

• Site maintenance for various GGN stations (AREQ, YKRO, SHAO, EISL, IRZU, UNR1, NSSP, KELY).

**IGS Support**

• Finishing IGS poster for March IGS workshop.

• Continued supporting organizational refinements.

**Infrastructure/Staffing/Resource Allocation**

• Negotiated community pricing for equipment with several vendors, developed NetRS FAQ and prepared new web section.

• Assisted in preparing 2003 receiver pool usage report for NSF.

• Prepared several posters, displays and demonstrations for open house.

• Software testing / installation:
  - Testing SCHEDG - program to replace EGADS to automate Ashtech downloads
  - updating/testing LAPDOGSs - bug fix for receivers that stop surveying for no apparent reason
  - Mhonarc - installed and testing. Need to fix search mechanism.
  - rfie - testing new capabilities of latest version (v2.55)
  - configuring GAMIT/GLOBK on Linux.
o developed a technique for LAPDOGS and EGADS to operate simultaneously and share same comm port

- Finalizing setup of internal threaded e-mail archive system for network operations.
- Continued testing "net bridge" radio modems connected to Ashtechs for their ability to stream (or other) data.
- Working with Data Management Group to establish downloading/ data transfer operations to support staff during vacation periods.
- Set up a LINUX server as a "depot" commonly used software developed and or maintained by NOG group.
- Testing "Boot Bar," a power strip with IP presence with ability to remotely control power for devices in field.
- Continuing development of software for improving process of field computer setup and configuration.
- New troubleshooting report tool implemented in database -- re-emphasized to the group to use the troubleshooting tool.
- Announced GPS training course: Signed up 13 external applicants.
- Interviewed 6 applicants for the project engineer job -- made offer, awaiting response.
- Started observation of a control network around UNAVCO for training and testing purposes.
- Assisted with planning and budgeting for a proposal to be submitted to NSF/Biology directorate.

**Equipment Group (Chuck Kurnik)**

**Facility**

- Shipping and Receiving Tech started
- Installed nameplates on all offices
- Met with Trimble to discuss UNAVCO/Trimble relationship
- Obtained UNAVCO pricing on Trimble software
- Completed warehouse preparation for Open House
- Completed UNAVCO Event Response Plan
- Completed 3 posters for Open House
- Reviewing Health & Safety plan

**NSF/NASA Project Support**

- 2 rx for PBO recon
- 1 additional rx for San Simeon response
- logistical support for GGN-EISL
- logistical support for GGN-NSSP
- logistical support for GGN-Ivory Coast
- logistical support for Irian Jaya 04
PBO

- Completed poster for Open House
- Planning PBO Campaign systems
- Present PBO Equipment Plan at Regional Engineer Kickoff meeting
- Assisted in PBO station installation at Marshall

Data Group (Fran Boler)

Campaign archiving support

- Data from one campaign received, archiving initiated.
- Supplied 1.1 Gb of requested campaign data from 5 campaigns.

Permanent station archiving support

- Fourth PBO permanent station added for interim data management and archiving.
- Six other new permanent stations added for ongoing data management/archiving (4 San Andreas Fault Creeping Segment, 1 Antarctica, 1 Saudi Arabia).
- Archived 3.2 Gb of older data associated with the San Andreas Fault Creeping Segment Network.
- UNAVCO is currently providing primary downloading and RINEXing for GGN station AREQ (Arequipa).
- Daily archive reporting tools upgraded in response to needs of Engineering Group staff.

Staffing and Resource Planning

- Trained Engineering Group staff to help cover routine absences of Data Group staff and to enhance cross group interactions.
- Reviewing of resumes submitted for the new PBO Data Systems Engineer is underway.
- Staff assisted in candidate interviews and selection for the PBO Software Engineer position.

Infrastructure support

- Obtained quotes for additional database and Archive RAID space as part of ramping up for PBO and Existing Networks archiving activities.
- With System Administration staff, planned hardware and systems configuration for Archive database server replacement.
- Coordinated work by consultant to set up security for new IIS server that communicates with the SQLServer database machine behind the firewall.
- Continued working with PBO staff and consultants to plan modifications of UNAVCO Permanent Station database to meet PBO operations and metadata database needs.
- Continued planning with Headquarters and Facility Equipment Group staff for database enterprise solution for requisition-purchase-shipping-receiving-inventory-repairs-testing business systems.
Software, GPS data formats

- Began work on Soc format (used in the JPL RTNT network) translator to be incorporated into TEQC.
- Began work on RTIGS (IGS Real Time) format translator to be incorporated into TEQC.
- Javascript/cgi web application for viewing GMT maps of UNAVCO GPS monument site positions, grouped as networks and/or campaigns with interactive selection criteria Ð additional development to prepare for implementation.

President's Office (Will Prescott)

- Arrangements for Annual Meeting
- Arrangements for Board Meeting
- Arrangements for Open House
- Coordinated Board of Director's Election
- Planning for Strategic Planning Retreat
- Recruited participants in Strategic Planning process
- Finalized Admin Asst PD
- All-Hands meeting for staff
- Interviewed candidates for Education and Outreach position
- EFEC meeting on 11th and 12th February 2004
- Communication with Congr. Udall's office re Open House
2.1 - March 2004 Monthly Report

Highlights

- All staff participated in providing background information for posters and displays to guests at the UNAVCO 2004 Annual Meeting and Open House.

Facility (Chuck Meertens)

- Attended the International GPS Service meeting in Berne; co-convened Data Transfer and Data Centers Session.
- Attended the GEON PI Workshop in Blacksburg, VA.
- Processing and analysis of the PBO Campaign receiver test data.

Facility Data Group (Fran Boler)

- Formulated and submitted a response to the PBO Draft Data Management Plan.

Campaign archiving support

- Monument issues resolved for two campaigns.
- Data from eleven campaigns received, archiving initiated.
- Supplied 0.4 Gb of requested campaign data from 10 campaigns.
- New shelving was added in the physical repository archive room that should be sufficient to handle two more years of storage.

Permanent station archiving support

- Two new permanent stations in Saudi Arabia added for ongoing data management/archiving (2 Saudi Arabia).
- 97,000 files and 13.5 Gb of data picked up via anonymous ftp during the period Feb 1 2004 – Mar 1 2004.
- Archived several months’ worth of data for two networks that drop off data intermittently.
- Began process of incorporating auto-gipsy processed coordinates for permanent stations into the archive database, site log database, and RINEX configuration files.
- Continued planning for incorporating ~200 Existing Networks sites into the UNAVCO permanent station Archiving process.

Staffing and Resource Planning

- Candidates contacted for interviews for the new PBO Data Systems Engineer.
**Infrastructure support**

- Configured new Microsoft webserver (achaia) in DMZ. Configured both ftp process for developers and locked down the SQL application.
- Staff assisted in the migration of the online purchasing tools from the hosted (Florida) server to our intranet server. Automated the transfer/sharing of Solomon data for these tools.
- Completed the automation of timecard notification system that was required as a workaround in the absence of a MAPI mail server.
- Reordered and installed the SSL certificate for [www.unavco.net](http://www.unavco.net).
- Assisted PBO staff with SQL connections for GIS tools.
- Staff assisted with installation and security lockdown of the new Solomon server and migrating the Solomon application from the existing server to the new server.
- Ordered additional database and Archive RAID space as part of ramping up for PBO and Existing Networks archiving activities.
- With System Administration staff, installed Oracle 9i on the replacement Archive database server system.
- Continued working with PBO staff and consultants to plan modifications of UNAVCO Permanent Station database to meet PBO operations and metadata database needs.

**Software, GPS data formats**

- Set up OPeNDAP virtual host opendap.unavco.org
- Continued work on Soc format (used in the JPL RTNT network) translator to be incorporated into TEQC.
- Continued work on RTIGS (IGS Real Time) format translator to be incorporated into TEQC.
- Completed initial version of Navcom format translator to be incorporated into TEQC.
- Setup a development area on a Windows system for TEQC.

**Engineering Group (Steve Fisher)**

**NSF/EAR Projects**

- Budget and planning support for Sierra Negra volcano monitoring project.
- Eastern Mediterranean project Saudi Arabia Stations wrapping up.
- Eritrea permanent station, defining equipment requirements and remote support.
- American Samoa project -- supporting remotely.
- Southern Salton trough project -- awaiting funding notification.
- Philippines site maintenance -- awaiting funding.
- Spain budget preparation -- defining support role.
- Kuril islands project -- awaiting funding notification.
- RETREAT project Italy -- schedule support in late summer/fall timeframe.
• Northern Thailand project -- awaiting funding notification.
• Mississippi River delta project -- resurvey and cleanup in planning.
• Alaska project -- site database, cleanup ongoing.
• Costa Rica volcano stations -- determine if PIs are interested in continuing operations.

**NSF/EAR Permanent GPS Networks Support**

• Visited SCIGN, BARGEN and BARD network centers for familiarization and planning.
• Working through site selection for stations to be potentially supported, considering other agency contributions to sub networks.
• Timeline and preliminary budget for Existing Networks Proposal.
• Technical planning and station engineering for first Existing Networks upgrades underway.
• Basin and Range networks -- anticipate ongoing support, field operations/data communications.
• Equipment sent to INGEOMINAS for Riobamba, Colombia support.
• Entertaining request to upgrade Guadalupe station to 1 second sampling -- coordinating with SCIGN.
• Several stations in troubleshooting and maintenance.

**NSF Polar Programs Support**

• Toolik Lake RTK project – planning.
• Univ. Delaware onsite training – planning.
• McCall glacier -- defining support.
• Barrow, AK project -- training in planning stage.
• Defining next season Antarctic activities and submit SIP.
• Current Antarctic season report in progress.
• Arctic season support in planning.

**NSF EAR/PBO Project Support**

• PBO campaign RX testing -- data processing, auto GIPSY and usability scoring underway.
• PBO US Array project -- awaiting kickoff e-mail.
• PBO Aleutians -- anticipate request for 1 month support in August timeframe.
• PBO volcano sub networks -- anticipate request for 2 trips.

**NASA Global GPS Network (GGN) Support**
• GGN network monitoring role/backup capability evolving -- planning meeting at JPL April 12-13.
• GGN computer configuration -- ongoing coordination on configuration specification.
• Specifying new PC104 system for remote global sites.
• Station activities
• Easter Island -- finalizing reports.
• Falklin Islands station -- plan recon and installation.
• MBAR installation in April.
• Diyarbarkir station -- internet testing, monument plans -- interacting.
• Cordova station -- need receiver from Stowers.
• Arequipa station -- continue to work out plan for continuing without SLR station support.
• Yerevan station -- configure Ashtech to accept meteorological data.
• Harvest station -- wrap up installation, reports.
• Raydomes and other equipment to LDEO/Kogan for Russia stations.
• Helwan station -- install GNEX.
• Shanghai station -- awaiting return on PC to send new.
• Send bootbar to Gabon station.
• Several stations in troubleshooting and maintenance.

IGS Support

• Two group members participated in Bern workshop.
• Several new or revised IGS logs in process.
• IRAN cartographic network station data -- coordinating dataflow to IGS.

Infrastructure/Community and Facility Activities

• Station environmental/physical aspects testing -- needs planning.
• Campaign receiver packaging/accessories -- planning beginning.
• Web site -- fixing broken links, improving engineering group sections, adding highlights.
• NetRS familiarity testing -- awaiting receiver availability.
• GAMIT/GLOBK capability -- in progress.
• Input for strategic planning meeting in April -- to be provided.
• Survey training class in April -- ready and waiting.
• Mesa club education/outreach -- planning, considering visiting to provide presentation.
• Peatland bogs project -- awaiting funding notification.
• Coordinate community receiver purchase, define external participants in planning.
• Receiver interface/data offload scripts are being evaluated/improved (LAPDOGS, SCHEDG, EGADS).

**Equipment Group (Chuck Kurnik)**  
**Facility**

• Reviewing Health and Safety Plan.
• Donated 12 solar panels to CU-Boulder.
• Reviewing quotes for PBO-related warehouse building improvements.

**NSF/NASA Project Support**

• Expedited equipment preparation due to tardy Antarctic shipment.

**Shipped NSF**

• Irian Jaya 2004.
• Nepal 2004 (the sequel).
• San Simeon Earthquake response (DeMets).
• Various PBO support.
• Breidamerkurjokull 2004.

**Shipped GGN**

• Diego Garcia.
• Ivory Coast.

**Planning**

• Plum Island 2004.
• Cascadia Slow Earthquake.
• S. Greenland GPR.

**PBO**

• Obtained budget approval for warehouse plan.
• Implementing Phase I of warehouse plan: ordering shelves and workbenches.
• Reviewing purchase requisition software to integrate with Solomon.
• Planning implementation of Solomon Inventory module.
• Meet with material handling supplier to discuss long-term needs.
• Investigating PBO Campaign monuments.
• Participate in PBO Campaign receiver usability review.
• Developed POD equipment-related requirements.