

**Notes from Telephone Conference**  
**ANSS-IMW Regional Advisory Committee (RAC)**  
**Tuesday, November 15, 2005 (3:00–4:30 pm MST)**

**Participants**

Walter Arabasz, Regional Coordinator/Recorder  
Rob Jackson — Colorado  
Roy Breckenridge — Idaho  
Robb Clayton — Idaho  
Ed Deal—Montana  
Mike Stickney (guest) — Montana  
Evonne Gantz — New Mexico  
Rick Allis — Utah  
Marv Halling — Utah  
Wallace Ulrich — Wyoming  
Art Frankel — At Large  
Diane Doser — At Large

Ivan Wong (At Large) inadvertently was not notified of the conference call

**Agenda**

1. Introduction and update — Walter Arabasz
2. Information item: Decision to have Art Frankel (a member both of the IMW -RAC and the ANSS National Steering Committee) represent the IMW -RAC at the Nov. 21 NSC meeting in Denver, CO
3. Consideration of new input from individual networks/states
4. Discussion to identify issues and priorities that should be conveyed to the ANSS National Steering Committee

Note: Outcomes of this conference call were included both in a written summary of IMW needs and a PowerPoint presentation given to the ANSS National Steering Committee on November 21, 2005. Both the written summary and the PowerPoint file are available online at <http://www.seis.utah.edu/anss/index.shtml>.

**1. Introduction and update**

Walter Arabasz briefly reviewed some information items included in an earlier e-mail broadcast on September 7, 2005, to participants in the ANSS-IMW Region (including the RAC). The FY2006 budget for ANSS includes the FY2005 base of \$5.5 M plus an increase of \$2.78 M, chiefly for upgrades to the National Earthquake Information Center (NEIC) in the aftermath of the December 2005 earthquake and tsunami. In January 2006, NEIC will begin 24x7 operations for earthquake surveillance. The President's FY2007 budget request will be submitted to Congress in early 2006. Deficit spending to pay for Hurricane Katrina is producing pressures to reduce the federal budget elsewhere; the impact on USGS and ANSS budgets for FY2007 remains to be seen.

## 2. Information item: Art Frankel to represent IMW-RAC at the Nov. 21 NSC meeting in Denver, CO

According to its charter (<http://earthquake.usgs.gov/anss/internal/nsc/docs/ANSSNSCCharter.pdf>), the ANSS National Steering Committee is charged with meeting with representatives of the National Implementation Committee and the regional advisory committees on an annual basis. Faced with the need to identify a member of the IMW-RAC who could attend the NSC meeting in Denver on November 21, Walter Arabasz made unsuccessful offers to three members of the RAC to attend the meeting. Ultimately, Art Frankel—who is a member both of the IMW-RAC and the NSC—agreed to represent the IMW-RAC.

## 3. Consideration of new input from individual networks/states

Prior to the teleconference, input from individual networks/states regarding needs from ANSS, beyond what had been submitted and compiled in November 2004, was distributed. Detailed written statements were provided by Idaho and Montana (more below), and general information was submitted by Utah and Nevada. Utah reported its highest-needs to be (1) software support from ANSS for Earthworm and (2) modernized software for seismic data analysis. Nevada signaled that it would present a statement of its needs directly to the NSC via a representative from Nevada who was planning to attend the meeting as a member of the National Implementation Committee.

[Note: Glenn Biasi of the University of Nevada, Reno, made the Nevada presentation to the NSC. Successes to date in Nevada include ShakeMap implementation and the installation of ShakeMap-quality strong-motion instrumentation in Nevada's two major urban areas—the Reno–Carson City area and Las Vegas. Among Nevada's needs from ANSS described by Glenn were: (1) upgrading of their telemetry to digital, (2) upgrading of regional stations, (3) additional strong-motion instrumentation, and (4) the availability of ANSS portable instrumentation, particularly for urban broadband sensors. According to Glenn: “Urban broadbands are the quickest means to gather data for basin response and basin structural study. This has two benefits. First, there is some hope of learning about basins before a destructive earthquake. With strong motion data it can take a long time. Second, portable broadbands are an efficient tool for bridging the gap for data users between sparse point data and the quasi-continuous data one gets from a 2-D [broadband] tomographic study by surface wave and noise cross-correlation methods.”]

**Roy Breckenridge (Idaho).** Roy Breckenridge, Idaho's state geologist, elaborated on Idaho's statement of needs (see <http://www.seis.utah.edu/anss/summary4NSC.pdf>, Attachment B). There has been little change in Idaho's situation during the past year. Idaho has no state support for seismic monitoring. Local networks are operated by the University of Idaho in northern Idaho, by Boise State University in west-central Idaho, and by the Idaho National Laboratory and Brigham Young University–Idaho in eastern Idaho. ANSS national-network coverage in Idaho is sparse, including one national backbone station at Hailey, ID, and another USNSN station at the Auburn Fish Hatchery, just inside the Idaho border west of Afton, WY.

A vigorous earthquake swarm in September 2005 in the Long Valley–Cascade–McCall area of western Idaho, north of Boise, illustrates

the problems associated with earthquake recording in Idaho. The swarm included shocks in the magnitude 3 to 4 range, many of which were felt by local residents. Unfortunately, the national backbone station at Hailey was off-line at the time because of satellite-telemetry

issues, and the ability of the USGS to locate the earthquake activity was seriously handicapped. Jim Zollweg of Boise State University carried out some recording with portable seismographs on a shoe-string budget. State agencies were hard-pressed to provide information about the earthquake activity to the Governor's office. According to Roy, the September earthquake activity highlighted three issues:

- The need for a readily deployable portable array to monitor earthquake activity in areas of poor network coverage.
- The inadequacy of national-scale seismic coverage of Idaho.
- The need for Idaho to establish a state seismic safety commission to spearhead earthquake issues and related needs in the state.

***Ed Deal and Mike Stickney (Montana).*** Ed Deal, Montana's state geologist, and Mike Stickney, operator of Montana's state seismic network, elaborated on Montana's statement of needs from ANSS (see <http://www.seis.utah.edu/anSS/summary4NSC.pdf>, Attachment A). Ed Deal's earthquake "war story" related to a magnitude 5.6 shock that occurred on July 26, 2005, near Dillon, MT. The earthquake was widely felt in Montana and neighboring states and caused damage (see <http://earthquake.usgs.gov/eqinthenews/2005/usazad>). At the time of the earthquake, Mike Stickney was on vacation camping, away from communications, and Ed suddenly found himself scrambling to deal with inquiries from the media and public. The situation was a stark example of an information gap that shouldn't happen in ANSS.

Mike Stickney explained that the seismic-monitoring situation in Montana was unlike that in Idaho. In Montana there's a functioning network of about 40 stations, all operating well. The problem, according to Mike, is too much data. Because of minimal personnel support, it's a great challenge to analyze available data—especially when an aftershock sequence occurs like that following the Dillon earthquake, which had more than 3,000 aftershocks. Accurate earthquake locations are needed, but because of a lack of good software Mike has to go through a convoluted process to do routine analysis.

In response to a question from Art Frankel, Mike reported that his network is getting only about \$27,000 from the USGS in FY2005. The level of funding isn't enough to support a technical position, and it's difficult to find capable part-time help. Ed Deal emphasized the importance of stable ongoing funding for network operations, especially for supporting any technical position.

#### **4. Discussion to identify issues and priorities that should be conveyed to the ANSS National Steering Committee**

Walter Arabasz reviewed the IMW needs summarized by the RAC in November 2004 (<http://www.seis.utah.edu/anSS/imw-needs.pdf>):

- the need for a coherent regionwide plan for seismic monitoring in the IMW Region
- helping "have not" networks and states in the IMW Region
- need for the availability of portable seismograph arrays to augment inadequate seismographic coverage in the IMW Region
- need to capture strong-motion data for large normal-faulting earthquakes, even if it means instrumenting areas with low population density
- need for USGS to continue refining and developing ShakeMap and ShakeCast

- need to convey the IMW perspective to the ANSS National Steering Committee, especially fundamental, first-order needs for seismic monitoring in the IMW

It was agreed that the first four bullets are still particularly relevant. Experience in IMW states continues to point out the need for portable seismographs—recognizing that rules for deployment would have to be established.

**General discussion—political activism.** Given the needs in the IMW region, especially the needs of “have not” states and networks, there was discussion about options for political activism. One suggestion raised was a joint letter by members of Congress from IMW states, expressing collective seismic-monitoring needs, to Senator Conrad Burns, chair of the Senate appropriations subcommittee for Interior and Related Agencies, which oversees the USGS (and hence ANSS) budget. Walter Arabasz suggested that the state geologists in the IMW region, together with their state emergency managers, may want to consider a joint letter to the director of the USGS. The RAC includes state geologists from Idaho, Montana, New Mexico, and Utah—and state geologists from Colorado, Nevada, and Wyoming are likely to be supportive of a well-framed initiative. (The state geologist’s position in Arizona is currently being filled.)

Wallace Ulrich of Wyoming suggested that some other useful contacts for political activism might be western associations of state legislatures and county commissioners. He noted that state geologists tend not to get [political] attention.

**Discussion—how to help “have not” states/networks.** Beyond saying that “have not” states and networks need to be helped by ANSS, discussion turned to exploring specific ways that ANSS could help—even with existing levels of ANSS funding.

- “Mutual-aid” pacts — Speaking to the Montana situation in which the Dillon, MT, earthquake occurred while Mike Stickney was on vacation, Diane Doser suggested that there be improved coordination and [“mutual-aid” pacts] among network operators.
- Field technician support — Most small “have not” networks in the IMW region (including networks in Montana, Idaho, Arizona, and New Mexico) are suffering from a lack of field technician support. Help in any form would be greatly useful.
- Joint meeting of IMW network operators and state stakeholders with ANSS program managers — A workshop-type meeting with Bill Leith (ANSS Coordinator) and Harley Benz (ANSS technical manager) to review needs and problems in the IMW region and to explore solutions was judged to be highly desirable. (This would be a good forum to begin addressing the need “for a coherent regionwide plan for seismic monitoring in the IMW Region.”)
- Information flow — “Have not” states in the IMW can readily be helped, when a disruptive earthquake occurs, by deliberate ANSS efforts to get information quickly to a state information outlet and/or key persons. This includes not only information products on ANSS Web pages but also personal contacts to provide up-to-date factual information and supplementary interpretive information where possible. Such a service would have been enormously valuable to Ed Deal, for example, when he was left without Mike Stickney’s availability when the Dillon, MT, earthquake occurred.
- Customized CISON Display — Wallace Ulrich pointed out the value to Wyoming of customized software developed by the USGS for the Teton region and associated with

CISN Display, see for example: <http://www.cisn.org/news/cdv1.04.12.13.html>). CISN Display provides emergency managers and other users with a Web-based earthquake notification system, including real-time maps of seismicity and other earthquake information products.

**Rob Jackson (Colorado).** Rob Jackson raised questions about how seismic monitoring is being carried out by NEIC and ANSS in states that don't have their own regional seismic network. In Colorado, for example, are national-scale stations being used to systematically monitor and locate smaller-magnitude earthquakes? Rob gave examples of recent earthquakes in western Colorado and in the Trinidad area of southern Colorado for which Web-site plots of the earthquake locations on aerial photos were misleading to the user, given that the earthquake locations had fairly large location errors. Error bars are needed to prevent misuse.

Roy Breckenridge similarly mentioned NEIC locations for earthquakes in the September 2005 Long Valley, Idaho, earthquake sequence. There too the earthquake locations were fairly poor.

Neither Art Frankel nor Walter Arabasz was familiar with NEIC procedures and magnitude thresholds for locating earthquakes in Colorado. Rob is interested in getting this information, and Walter agreed to pursue getting a general description of NEIC procedures and thresholds for detection and location as they relate to earthquake monitoring in the U.S. outside areas monitored by regional networks and using national-scale stations.

**Art Frankel (at large).** Art Frankel gave some perspective on ANSS priorities. ANSS has successfully accomplished the installation of free-field strong-motion stations in many urban areas and much of the installation of a national backbone network. Structural engineers now want to place emphasis on structural monitoring. For the IMW region, Art believes that adding free-field strong-motion stations is still more important than structural monitoring.

**Rob Jackson (Colorado) & Marv Halling (Utah).** Rob Jackson agreed with Art Frankel's statement about the need for more free-field instruments in the IMW region but emphasized the equal importance of structural monitoring to engineers, particularly information on non-linear inelastic building deformation that's needed to guide dynamic-analysis methods used by engineers. Marv Halling, a structural engineer at Utah State University, added that the engineering community was more likely to get needed information by instrumenting structures in areas of high seismicity like California. Nevertheless, he believes that other parts of the country need instrumentation for some structural monitoring, and more free-field coverage is still needed.

The teleconference ended at 4:30 pm (MST).