

**ANSS NetOps Workshop Summary
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The ANSS sponsored a workshop on February 6 and 7, 2006, in Salt Lake City, Utah, for seismic-network technical staff—engineers, technicians, data analysts, computer professionals, and a few seismologists. There were 42 participants from 22 organizations (counting various USGS entities as separate organizations). Three participants represented the NIC (Withers, Arabasz, Biasi). The list of workshop participants can be viewed at <http://www.ceri.memphis.edu/~withers/NetOps/> [Note: Paul Okubo and Barry Hirshorn appear on the list but were not able to attend.]

The workshop agenda (<http://www.ceri.memphis.edu/~withers/NetOps/agenda.v4.pdf>) covered a very full first day (8:00 am to 9:00 pm) and a shorter second day (8:00 am to 3:00 pm). Included were a wide variety of useful presentations on network-related tools, lively discussion sessions, and a site visit to the University of Utah's network center, where there were practical demos relating both to instrumentation and data processing/analysis.

During the workshop, participants considered issues they felt should be communicated to ANSS managers. One first-order, implicit message is that greater attention to the “people” part of ANSS needs to be a fundamental part of ANSS system building.

Some of the principal recommendations that emerged, in unranked order of importance, are as follows:

- a) There was great interest in the “INV” inventory software developed at NEIC and described by Mark Meremonte. Many of the regional-network staffers want to use the database software in their own networks and are asking ANSS to make it available to them—with appropriate instructions. Subsequent to the Workshop, Mark Meremonte provided answers to frequently asked questions.
- b) Individual networks should create a section on their Web sites containing basic and informative technical information about that network for useful access by staff from other networks.
- c) A centralized, non-public (password-protected) Web site should be created with the aim of sharing practical information among ANSS network-operations staff. The Web site would collect written experiences, “feature” descriptions of different hardware and software, and any information useful for common awareness and problem solving. Many favored a Wikipedia-like Web page—perhaps best handled by a non-USGS Web host. (Richard Godbee of Virginia Tech offered to help create and manage the Web site.)
- d) As part of, or separate from the above, there needs to be a Web site for “best practices” for ANSS network operators. This came out of IT security discussions, but probably applies to other topics as well.

- e) In order to continue the kind of sharing opportunity the NetOps workshop created, the workshop participants want an e-mail list (or lists) to be created for network-operations staff. Rather than create multiple lists, one suggestion was to use defined subject headers (e.g., radiohead, sysadmin, analyst, etc.) that would help users identify messages of interest.
- f) The workshop participants enthusiastically want more workshops like NetOps, which many of them considered “long overdue.” The opportunities for face-to-face sharing, hands-on demos, and an onsite visit to another network (in this case, UUSS) were greatly valued. Many would like the chance to see operations firsthand at a major California network center.
- g) Regarding future workshops: Trying to cover so much ground in the two-day NetOps workshop agenda made it difficult to stay on schedule. The next workshop should cover fewer topics. Separate special-focus workshops instead of parallel sessions would help “multi-hat” people. Involving more network seismologists and ANSS managers may be helpful in order to get knowledgeable people in the mix, regardless of title.
- h) Among the engineers and technicians, there were many overlapping interests but also separate interests. Those involved, for example, in strong-motion instrument siting and operations need to have a separate workshop to address many issues relating to ANSS instrumentation and siting standards and to promote better coordination among NSMP, CSMIP, and regional-network strong-motion personnel.
- i) Greater standardization within ANSS will make the sharing of human and technical resources easier. One way to foster a higher level of “interoperability” among network-operations staff is for ANSS to create short-term exchange programs or visiting opportunities, which would facilitate the sharing of human resources in times of need or crisis. In the case of data processing, it was apparent how analysis software was so notably network-specific. Enabling staff from one network to visit another network to learn their data processing procedures would have the dual benefit of (1) creating a pool of potential emergency helpers and (2) encouraging progress towards commonality through discovering better ways of doing things.
- j) Most of the networks represented at the NetOps workshop would benefit greatly from new software for more efficient data analysis.
- k) Because network engineers and technicians have an enormous stake in the quality and performance of government-furnished equipment provided to their networks, they want an opportunity to provide input on procurement specifications. They also need adequate time to evaluate new instruments when faced with the choice of selecting between or among different options.
- l) ANSS should press for procured data loggers that are not limited to communicate via only ftp or telnet. Due to IT security concerns, ssh and sftp are preferred.

- m) ANSS should consider a system-wide procurement mechanism for VSAT telemetry, given the challenges that individual networks face in dealing with diverse vendors, hardware incompatibilities, highly variable pricing structures, etc. Now, every network is on its own.
- n) There is a system-wide need in ANSS for fast replacement and/or turnaround of problem instruments. Possible solutions are: (1) to incorporate fast replacement and/or turnaround into procurement specs for vendors—as well as requiring that vendors submit equipment to ASL or somewhere for testing to verify that the equipment meets the procurement specs in the first place; or (2) to create an ANSS depot and repair facility that has spare equipment for fast replacement, is able to make basic repairs, and can deal directly with vendors to resolve individual or collective instrument problems. With the number of ANSS stations passing the 700 mark, and with the first generation of ANSS stations now five years old, more efficient approaches are needed for instrument repair and replacement.