

**CISN Advisory and Steering Committees**  
**Meeting Summary**  
**March 25, 2013**  
**CalEMA Headquarters**  
**Mather, CA**

**Participants**

**Advisory Committee**

*Present:*

Mark Johnson (Calif. Emerg. Mgmt Agency)  
Tracy Johnston (BART)  
Jennifer Lynnette (FEMA)  
Richard McCarthy (Seismic Safety Comm.)  
Bruce Patton (for Dan Dyce, CEA)  
Cliff Roblee (Caltrans)  
Peter Shearer (UCSD)  
Timothy Strack (Riverside Fire)  
Loren Turner (Chair, Caltrans)  
John Vidale (Univ. Wash.)

*Absent:*

Brad Agaard (USGS, Menlo Park)  
Lori Dengler (Humboldt State Univ.)

**Steering Committee**

*Present:*

Richard Allen (UC Berkeley)  
Mark Ghilarducci (Calif. Emerg. Mgmt Agency)  
Doug Given (USGS, Pasadena)  
Egill Hauksson (Caltech)  
Peggy Hellweg (UC Berkeley)  
Kate Long (Calif. Emergency Mgmt Agency)  
David Oppenheimer (USGS, Menlo Park)  
John Parrish (Chair, Calif. Geol. Survey)  
Tony Shakal (Calif. Geol. Survey)

*Absent:*

Tom Brocher (USGS, Menlo Park)  
Rob Graves (USGS, Pasadena)  
Mike Gurnis (Caltech)

**Guests:**

Jim Goltz (CalEMA)  
Hamid Haddadi (CGS)  
Xxx (UC Berkeley)

**Opening Remarks, Approval of Minutes**

John Parrish (Chair, Steering Committee) and Loren Turner (Chair, Advisory Committee) welcomed everyone to the meeting. Parrish introduced Mark Ghilarducci (Secretary, CalEMA). Mark welcomed everyone and mentioned that the Early Warning bill SB 135 is in Committee at this time. He said having

the legislative proposal was important. The Administration is interested and the Governor is watching closely. He said he was in DC the prior week, and there was a lot of interest in EEW. Volcano hazard application was also discussed. They were discussions on how to support EEW. Today one can't just go out and ask for major funding, when they are downsizing the federal government.

At the State level, he said getting General Fund dollars is tough, so a public/private idea is important. A Working Group was established, it is looking at how a public/private project would work. He said he wants a six-month turn around, to get something to give to Padilla, any bill would have to be ok for the Governor to sign. He said it would not be business as usual, but he thinks it can be done. He said he leads the Working Group, and he's interested in the problem. He said Parrish is also on the Working Group, as well as others. He said CalEMA isn't on the hunt to do early warnings, but wants to coordinate what is being done. He sees it as wave of the future. Hauksson underscored the importance of seismic networks and installing, upgrading and maintaining the equipment to have the seismic data needed for reliable warning. Shakal noted that a warning is an immediate application of the data, and additional benefit results when the data is also useful for improving future engineering design.

### **Strong Motion Data and ShakeMap**

Hamid Haddadi reviewed the progress of the Engineering Data Center. He noted that data files of all CISON strong motion channels, from all the partners, are now going to the Center and being processed and posted. Oppenheimer noted that the strong motion records of other regions in the US are also being integrated, with work well underway. Haddadi noted that the Virtual Data Center, originally developed at UC Santa Barbara, was now integrated into the Engineering Data Center, bringing in data from other countries as well.

Peggy Hellweg gave a presentation detailing statistics on the delivery times of ShakeMaps after earthquakes since the last meeting. Each center had different times, Southern California averaged about 4 minutes, and Northern California averaged about 6 minutes. CGS, which has just begun automatic generation as ShakeMap backup, was the latest, with an average near 10 minutes. Advisory Committee members agreed that the times look much better than at the last meeting, and they appreciated the progress CISON had made. Several individuals asked about the first version of ShakeMap – how many stations are in the first version, as opposed to the second or third. Hellweg said it was generally a 100 or less, but she would confirm that, again looking at the actual statistics. There was concern that the first version was used in derivative products like Shakecast, which may not use subsequent versions. The aspects of the backup ShakeMap generation by CGS were discussed. CGS will only publish a ShakeMap to the Internet and to Golden if no ShakeMap has been generated and posted by 10 minutes after the event. It was noted that sometimes it had taken 16 minutes for CGS to generate the ShakeMap. Haddadi explained that a new, much faster machine was being brought on line and that the scripts were being optimized, and that times were being significantly reduced. In terms of backup, if there were no CISON magnitude, CGS would use the NEIC magnitude. Oppenheimer noted that the magnitude generated by NEIC are generally good, but the locations are not. Vidale asked why it took an hour to correct the ShakeMap for the March 11, 2013 Anza event. Given said it was because staff could not delete a bad ShakeMap, and that this problem was now identified and being addressed.

## CISN and EEW

Doug Given reported on the status of EEW in CISN. He reported that the EEW algorithms worked correctly for the March 11 event. They predicted there would be no shaking, which is what happened. He said there is a beta client application, which is on many user PCs. He said there was to be a future transition, from a "Pilot" system to a "Production Prototype", at which time it will be reliable enough for taking action. He said in EEW applications, it is important to differentiate automated response versus human dependent response. When the warning times are short, automated response will be most important. He said GPS will be needed to improve accuracy for the biggest earthquakes, a lesson from Tohoku. He said when EEW is mature, USGS sees adding the EEW function on the existing base of seismic products. He thought CISN could be transformed by EEW, that there will need to be more staffed Tier 1 centers. He said the public private partnership is complex to initiate and to maintain. He said the Moore Foundation provided \$6M in funds for the next 3 years to CIT, BRK and UW, with coordination by the USGS. They estimate the total project costs for California to be \$23M one-time, and \$12M annual costs. For California plus the Pacific Northwest, these numbers become \$38M and \$17M. He said they were targeting 700 new or upgraded seismic stations, and 300 GPS stations.

In other developments, Hellweg reported that BART was online using the EEW product since August of 2012. Given reported on the [www.shakealert.org](http://www.shakealert.org) web site, a consortium of USGS, Caltech, UCB and UW. He said the USGS is committed to building a system for the highest risk areas of the US. He said they envisioned a 24/7 automated system approach, without staffing. Shearer asked how the costs would compare to present costs, and Given said it would be around double.

Oppenheimer asked if the State wanted EEW. John said he thought it was on board, and he said he and Ghillarducci compared notes, and the biggest issue was the costs, that it could not affect the General Fund, and there were no other funds available. Long agreed that there was support in CalEMA, but funding was the issue.

Hauksson gave a Strategic Planning SWOT analysis, reviewing CISN strengths, weaknesses, opportunities and threats. He mentioned that Frame Relay was being phased out, and the digital cell phone approach would be used. He was asked about reliability, and he said they had met last week with Verizon to understand this better. He said they were pursuing other possibilities as well, including having equipment at Verizon facilities and at Commonwealth Edison facilities. He said landlines are going away, and noted that the Japanese use satellite communication. That has some latency, and the cost is four times that of other methods. Oppenheimer noted that whatever the delays, the data is valuable to engineering and post earthquake analysis, even if it comes in significantly later.

It was suggested that CISN should look at how robust the Japanese system is compared to the US approach. Also, that a cost-benefit analysis be done, as it would help convince people. Hauksson noted that the reaction of the typical person on the street is that people want it. It was noted that the cost effectiveness of better structures may be clearer. Cost effectiveness is important, and Ghillarducci will discuss that when he meets with Padilla.

Goltz noted that SB 135 bill was all a positive development, and that it is a two year bill. He suggested that in addition to the Working Group, there should be a Blue Ribbon Panel to define a warning system more clearly, including what is actually needed, how it would be implemented, etc. Communication providers should be added to that group. He also noted that the full system has to be reliable, end-to-end, and the project should include education and outreach, and should sort out the roles of agencies besides the USGS.

### **Strategic Plan**

Turner and Parrish suggested that revision of the Strategic Plan would be useful. Egill thought he could have the SWOT analysis done by the end of May. Parrish asked for input to the Strategic Plan revision by the end of April, and he would pull it together from the suggestions.

Allen discussed the public/private partnership issue, in terms of how it could be as seen by CalEMA and the Governor's Office. Possible public/private parallels were suggested, like FedEx and the US Postal Service, and like the National Weather Service and Accuweather. He said partnerships are not ends, but means to ends, such as reducing costs, stimulating business, producing a better product, etc.

### **Steering Committee Breakout**

Parrish suggested there should be more meetings, in person or WebEx, to keep more momentum. On budget issues, he said he was in DC the prior week, and OMB staff said there would be across the board cuts in FY 13 and FY 14. He said sequestration doesn't mean no increase, but a slower rate of increase.

The group talked more about the public/private partnership issue. It was noted that CISN is already a public-private effort. Heaton suggested a utility tax as a good funding mechanism for EEW. Oppenheimer suggested not focusing on the private effort, noting that, as an example, the federal government puts up satellites, and no one else does. After a while the private effort may recede and go away.

Goltz mentioned more about the importance of a Blue Ribbon panel. It should include all networks and affected government agencies. He said the private company had moved into a vacuum, just as CISN was getting ready to do warning.

### **Reconvening with Advisory Committee**

Turner said he would prepare a letter from the Advisory Committee in late April identifying their comments, but noted that:

- The Advisory Committee had heard good things. A lot of good progress has been made on ShakeMap delivery times and standardized approaches.
- ShakeMap remains the core CISN product. Reliability, etc should be improved. They would like to request annual reports, using certain metrics.

- On EEW, an overall plan is needed, considering the impact relative to other work areas. EEW will take a concerted effort. It was unclear to the Advisory Committee what group was in charge of doing what. The group could look at a planning effort funded by the SSC. It could be part of the Blue Ribbon Panel.
- Expectations will be significant for the EEW products, and there should be consideration of preparing to deal with that, especially in the startup phases.
- The Advisory committee looked forward to approving the CISN Strategic Plan, including the revisions and Hauksson's SWOT analysis.

The next meeting was not scheduled at this time, but would be scheduled through canvassing later.