COSMOS

Consortium of Organization for Strong-Motion Systems

ANNUAL BUSINESS MEETING

12 November 2004
9:00—11:00 AM
Westin Hotel, Burlingame, California

Minutes

President Davis: Called the meeting to order at 9:00 AM. The agenda is given in Attachment A.

President's Report: James Davis
Welcomed the membership to the annual meeting. He acknowledged Claire Johnson, Carl Stepp, Norm Abrahamson, Maury Power, John Anderson, Ralph Archuleta, and Farzad Naeim for their contributions to COSMOS over the last year.

COSMOS purposes are advocacy for strong motion instrumentation systems, promoting communication and information transfer among users of strong motion data, and service to the strong motion community.

Advocacy: In the past year, COSMOS has played an important role in promoting the Advanced National Seismic System, ANSS. Three members of COSMOS are on the ANSS National Steering Committee – Carl Stepp, Farzad Naeim, and Eduardo Miranda. COSMOS also played a critical role of advocacy for ANSS at a particularly critical time. ANSS is a line item in the federal budget. Last year the administration aim was to cut ANSS. Our advocacy prevented that from occurring. This year, our efforts have helped the House bill to be increased. The House will have to enter a conference with the Senate when the lame duck Congress reconvenes. Since the Senate bill would result in level funding for ANSS, the conference could reduce that appropriation. President Davis has names of staff who support ANSS, in an email, distributed to all interested members at the meeting, from Emily Lehr Wallace, American Geophysical Institute Government Affairs Coordinator. The critical discussions will occur next week. President Davis stated that it is imperative that we all fax letters supporting ANSS. These will make a critical difference according to Emily Lehr Wallace. Senator Diane Feinstein will support the increase if it gets to the whole committee.

Information Transfer: The forum today, organized today by Norm Abrahamson, is an example of this activity. During the past year, Carl Stepp has organized a succession of workshops, sponsored by NSF. His report later in the agenda will describe those.

Service: The COSMOS Virtual Data Center is the crown jewel of our service. Ralph Archuleta will report on that later in the agenda.

Minutes from the 2003 Annual Meeting were approved by the Board shortly after the meeting.

Treasurer's Report – Maury Power
COSMOS has 4 core members, 2 strong motion program members, 9 institutional members, 1 affiliate member, and 37 individual members. The number of individual members is growing. FEMA is a significant new institutional member. Also International Civil Engineering Consultants came back after being absent for a year. The income reported from the membership is $79,119. The second category of income is from contracts and grants. Ten contracts and grants were active at some time during the last year.

Another type of contribution is avoidance of expenses to achieve COSMOS goals. Maury Power recognized the Southern California Earthquake Center and Federal Highway Administration for support of meetings, and the Pacific Earthquake Engineering Research Center for office space. He recognized also that Carl Stepp contributes his time, by not taking income for the position of Executive Director.

COSMOS is in sound financial condition. It had $124,000 in the bank at the end of October.

Executive Director's Report – Carl Stepp
Carl Stepp reported on outside contracts obtained by COSMOS. These are listed in Attachment B.

1. International Workshop on Processing of Strong-Motion Records. This grant supported a workshop in May, 2004 (National Science Foundation). The grant supported travel for 11 or 12 individuals from abroad. A report on record processing guidelines is in review. Stepp expects publication in early 2005. The report will include guidelines and a commentary on the guidelines by Dave Boore and Julian Bommer. Tony Shakal led workshop and is putting the report together. Other contributors to workshop planning included Tony Shakal, Dan O'Connell, Dave Boore, and others.

2. Planning for Site Selection, Installation and Operation of Geotechnical Strong-Motion Arrays (National Science Foundation). Conveners of this workshop included Pedro d'Alba, Robert Nigbor, Jamie Steidl, and Carl Stepp. This grant will support two workshops. The first was Oct 14-15, concentrating on developing an inventory of current and planned arrays. The Southern California Earthquake Center provided facilities and financial support for holding the workshop. At present, the recommendations and proceedings are in a draft form. Carl Stepp expects that they will be posted on the web soon, and published by 2005.

3. Development and Enhancement of COSMOS Strong-Motion VDC (USGS). Ralph Archuleta, Jamie Steidl, and Melinda Squibb of UC Santa Barbara operate the Virtual Data Center. The main funding for the VDC comes from NSF in a grant directly to U.C. Santa Barbara. However, COSMOS has provided almost matching funds, from our dues plus this USGS award to COSMOS. CGS also helps pay for enhancement. COSMOS supports an oversight panel, the COSMOS VDC workgroup. Members include David Boore, Paul Somerville, Dan O'Connell, and others.

4. In support of the Strong-Motion Recording Processing Guidelines (USGS). This constituted some USGS direct support for the workshop on record processing. The USGS also supported an outside project, led by Paolo Bazzurro to look at the effect of record processing techniques on linear or nonlinear estimates of structure response. The results of this study are expected to be published in a technical journal.

5. Archiving and Web Dissemination of Geotechnical Data II (Pacific Earthquake Engineering Research Center). The purpose is to develop a geotechnical Virtual Data Center. It will be a companion to strong motion virtual data center. Loren Turner of Caltrans has been steadfast supporter. Jennifer Swift and Jean Benoit are developing the data dictionary. The California Geological Survey, US Geological Survey and Pacific Gas and Electric have supported this project. They have delivered a pilot system, which can now be accessed on the web. Stepp requested COSMOS members to please exercise the system and to provide feedback to the developers. The databases are still limited. The Federal Highway Administration supported the workshop on geotechnical data in a significant way. Funds were not passed through COSMOS, but they brought many people to the workshop. The developers are thinking of how to achieve maximum coordination with the strong motion virtual data center.

COSMOS Virtual Data Center Update: Ralph Archuleta

Ralph Archuleta thanked COSMOS, NSF, CGS, ANSS, and USGS. Mindy Squibb recently checked other strong motion databases – none of the others have been updating since 2000. The COSMOS VDC has a 20% increase in earthquakes, stations, and accelerograms in the last year.

Significant additions this year include the San Simeon earthquake, 22 Indian earthquakes, 27 legacy NOAA accelerograms. Recent major earthquakes include Parkfield and Niigata, Japan.

Enhancements this year include the addition of design spectra overlays to response spectra, and the ability to download all records for an earthquake in a single zip file, for USGS and Japanese data. They are working on a COSMOS format converter.

Parkfield is a very significant earthquake. There is dense station coverage: 75 near-source ground motions, within 1.5 fault depths. Ralph gives much credit to USGS and CGS that they maintained the instrumentation networks at Parkfield in spite of skepticism about the prediction, as the time of the earthquake was not as predicted. Data was obtained that did trap the earthquake.

Users of the database download 4000-6000 records per month on average. Professor Kudo (Japan) downloaded the full data set to it offer in Japanese. Files from the providers. Google found them – 90000 web pages accessed. Archuleta emphasized that data files remain with the owners, and is downloaded form owners servers.

They are about to submit a proposal to renew to NSF. Letters from users will help getting support for his renewal proposal.

Overview of Recent Parkfield, CA Strong-Motion Observatons: Tony Shakal
The Parkfield earthquake generated 106 accelerograms, of which 44 are analog SMA1 and the rest digital. Near fault motions are highly variable. After years of waiting, this is by far the best close in data set for strong motion from an earthquake of this size.

The geology simpler on the west, more complex on the east. Most of the stations are on the west side. Rupture may have been partly bilateral. Ground motion prediction equations by Sadigh (1997) and by Campbell (1997) fit the data better than the model by Boore et al (1997). Peak acceleration contours are complex, showing three patches of high amplitudes. Attenuation arrays also show quite variable PGA going out the limbs. Along fault, there are high & low values. The station that recorded the 1966 earthquake known as Station 2 has been slightly moved from its location in 1966. It shows a transverse fault pulse that is somewhat different from 1966.

Turkey Flat was established as an opportunity for a blind prediction experiment, to evaluate our abilities to predict site response. The experiment was set up in late 1980s. According to the experimental plan, the data is being withheld except for the motion on the adjacent rock site. A workshop will be held in the spring to complete the blind prediction. This data is digital.

The largest motions occurred relatively close to Parkfield. Parkfield and some other stations very near the fault only experienced about 30% of gravity, but station FZ14 measured 1.3g and station FZ16 measured over 2.5g where the photo trace exceeded the width of the film in a narrow spike. Data from the analog stations are being released as soon as they are digitized.

President Davis noted that it is humbling when we get new data, and described this as an inestimably important outcome. He noted that sustaining these strong motion networks was not easy. The expectation that the data would be of great value was realized in these results and vindicates those efforts.

President Davis. Open discussion of COSMOS issues.
Nobody among the membership brought up issues for discussion.

Vacancy on COSMOS board: Bruce Bolt.
Tony Shakal has represented the California Geological Survey on the COSMOS board of Directors; however, he now wants to cede his position to Michael Reichle, who is currently the Acting State Geologist of California. This requires approval of the membership. Bruce Bolt nominated Reichle. Farzad Naeim seconded.

Paper ballots were distributed by Claire Johnson. Reichle was elected unanimously.

The meeting adjourned at 10:28 AM.

ATTACHMENT A

COSMOS

Consortium of Organizations for Strong-Motion Observation Systems

Annual Meeting

12 November 2004
9:00 AM – 4:45 PM
Weston Hotel, Burlingame, California

Business Meeting

9:00-9:05 AM	1. General Welcome/Approach to Conducting Meeting	James F. Davis
9:05-9:15 AM	2. President's Overview	James F. Davis
9:15-9:20 AM	3. Report of the Treasurer	Maurice Power
9:20-9:35 AM	4. COSMOS Virtual Data Center Update	Ralph Archuleta
9:35-9:45 AM	5. Executive Director's Update on COSMOS Workshops and Grants	J. Carl Stepp
9:45-10:05 AM	6. Overview of Recent Parkfield, CA. Strong-Motion Observations	Anthony F. Shakal, CSMIP
10:05-10:25 AM	7. Open Discussion of COSMOS Issues	
10:25-10:30 AM	8. Nomination to Fill Vacancy on COSMOS Board of Directors and Distribution of Paper Ballots	Bruce Bolt
10:30-11:00 AM	Break	

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Technical Program – Scaling of Ground Motions for Engineering Applications

11:00 - 11:10 AM	Introduction	Abrahamson
11:10 - 11:30 AM	Procedure for selection of ground motions from the CSMIP/PEER DGML project	Power

Effects of Scaling on Simple Parameters

11:30 AM - 12:00	Scaling effects for Newmark displacements	Watson-Lamprey
12:00 - 12:30 PM	Scaling effects for nonlinear oscillators	Abrahamson
12:30 - 1:30 PM	Lunch	

Effects of Scaling on Realistic Problems

1:30 - 2:00 PM	Scaling effects for high-rise buildings	Luco
2:00 - 2:30 PM	Scaling effects for earth dams	Sun
2:30 - 3:30 PM	Panel discussion of scaling guidelines (selected speakers)	
3:30 - 4:00 PM	Break	
4:00 - 4:30 PM	Summary	Abrahamson
4:30 - 4:45 PM	Technical topics for future COSMOS meetings	Davis
4:45 PM	Adjourn	

ATTACHMENT B

Contracts and Grants Extant during 2004 Calendar Year

Agency: California Strong-Motion Instrumentation Program
Amount: $22,187.00
Title: Strong Motion Recording and Utilization
Dates: August 22, 2003-May 31, 2004

Agency: California Strong-Motion Instrumentation Program
Amount: $22,919.00
Title: Strong Motion Recording and Utilization
Dates: September 1, 2004-August 30, 2005

Agency: Caltrans
Amount: $14,788
Title: Conversion of Caltrans CVT Archive (in support of PEER 2L02)
Dates: March 1, 2004-May 30, 2004

Agency: PEER Lifelines Program
Amount: $206,906
Title: Archiving and Web Dissemination of Geotechnical Data II (PEER 2L02)
Dates: May 15, 2002-March 30, 2005

Agency: USGS
Amount: $30,000 ($10,000 for VDC; $20,000 for Recording Processing Project)
Title: Development and Enhancement of COSMOS Strong-Motion VDC (03WRAG0046)
Dates: May, 1, 2003-August 30, 2006

Agency: NSF
Amount: $20,000
Title: International Workshop on Processing of Strong-Motion Records (NSF-0333336)
Dates: September 15, 2003-August 31, 2004

Agency: NSF
Amount: $88,050
Title: Geotechnical Strong-Motion Arrays (NSF-0338094)
Dates: September 15, 2003-August 31, 2004