

# **2005 COSMOS Technical Session**

## **Recommendations for the Selection and Scaling of Ground Motion Time Histories for Building Code Applications**

Co-sponsored by the  
California Geological Survey

Westin Hotel  
Millbrae, CA  
November 18, 2005

## Overview of Program

- Opening Remarks
- Presentations by Charlie Kircher, C.B. Crouse, Mark Sinclair, Norm Abrahamson, Paul Somerville and Bob Youngs
- Panel Discussion - includes questions and answers from audience

# About COSMOS

- **Consortium of Organizations for Strong-Motion Observations Systems**
- **Objectives**
  1. Develop policies and foster innovative ideas to **improve strong-motion measurements** and their **applications**.
  2. Promote the advancement of strong-motion measurement both on the ground and in structures and lifelines.
  3. Encourage the rapid, convenient, and responsive distribution of ground motion measurements according to COSMOS standards
  4. Serve as a consortium where organizations, institutions and individuals can work in collaboration to solving mutual problems
  5. Improve user influence on data acquisition and data dissemination processes

## About this Technical Session

- Prompted by Last Year's *COSMOS* Technical Session
- Request by Structural Engineering Community to Address the issues of concern in Building Code and Seismic Evaluation Standards regarding the use of time histories
- Provide an Opportunity for Dialog between Design Engineers, Seismologists and Peer Reviewers
- Hopefully develop a Consensus that can be used in future code and standard developments as well as near-term projects.

## Initial Panel Questions

- 1. Issues with current selection approaches and suggested improvements
- 2. Issues with current scaling approaches and suggested improvements
- 3. Selection and scaling of orthogonal and vertical components of motion
- 4. Maximum of 3 versus average of 7. What to do with the maximum of 7 values (hard to ignore but also hard to use).

## Initial Panel Questions (continued)

- 5. Does 7 records become 14 required analyses?  
(switch records 90 degrees and rerun)
- 6. Risk Consistent Time Series
- 7. Spectrum Compatible Scaling (Frequency Scaling) - a good thing or a bad thing
- 8. Code Scaling Criteria: SRSS vs geometric mean. The 1.3 vs 1.4 factor is SRSS is used. The 10% allowable reduction below the target spectrum, etc.