

Ground Motion Selection and Modification (GMSM) Working Group
Summary of Working Group Meeting
10am – 2pm June 26, 2006
PEER Headquarters

Participants: Norm Abrahamson, Paolo Bazzurro, Yousef Bozorgnia, Allin Cornell, Christine Goulet, Erol Kalkan, Nico Luco, Tom Shantz, Jon Stewart, Polsak Tothong and Jennie Watson-Lamprey

COSMOS/PEER Meeting & Questionnaire:

The COSMOS annual meeting this year will be joint with PEER. Yousef and Jennie will speak with a select group of practicing engineers to get more in depth answers to the questions in the original questionnaire. This group will likely include: Ron Hamburger, Bill Holmes, Jim Malley and Charlie Kircher. Farzad Naeim will also be contacted regarding the questioner. The questionnaire will be shortened to a few direct questions and distributed with the meeting announcement.

Method to be used to determine the pdf of the structural response due to "correct" ground motions (M7 Rrup10):

The purpose of this exercise is to get "true" responses of structural models. Later, simplified models will be compared with the "true" response. The proposed method:

1. A suite of records from Mw 6.75-7.25, Rrup 0-10km events was selected from PEER NAG database. A total of 98 records were distributed to the group the day of the meeting.
2. The suite will be run through each structural model using scale factors of 1, 2, 4 and 8.
3. The joint pdf of record properties as a function of magnitude and distance (and possibly other parameters) will be calculated.
4. Using the joint pdf of record properties and the model for building response the pdf of structural response for a M7 Rrup 10 event will be calculated.

The point of comparison for the ground motion selection procedures was discussed as to whether it should be conditioned on the design spectrum or not. The issue will be discussed further at the next meeting.

The list of time series to be used in the analyses can be found at the end of the document.

Working group members who are available to run analyses:

Erol presented the models that he has available. The group selected four models to use for the project:

1. 7-Story Concrete Van Nuys
2. 19-Story Steel
3. 6-Story Steel
4. 13-Story Steel

Erol will send the group the date of construction for his available models. An additional 20-story concrete model may be used if it of new construction.

Curt informed the group by email that he has models from 2-20 stories, using reinforced concrete construction. Christine will coordinate with Curt to get copies of his models and perform the analyses.

Polsak will see if Prof. Krawinkler has additional models that can be used.

The modelers are to begin analyses using the 98 time series provided, scaled to factors of 1, 2, 4 and 8. They will update the group as to how much time the analyses take. Yousef will see if the UCSD supercomputer is available to aid the modelers.

The modelers are to select the structural response parameter that the time series selection methods should capture. They will compile the structural response values for the 98 time series and distribute them to the group. The modelers will inform the working group about their progress and difficulties in running for the 98 records.

The modelers will provide the group with some structural parameters to aid in time series selection at the next meeting. These parameters should include: Fundamental period; and possibly higher mode periods; and pushover curve. Other desired characteristics will be discussed in the next meeting.

Summary of various time series selection and modification methods to be examined:

Nico and Christine will provide the group with a preliminary list of various candidate methods.

Working Group members discussed and showed their latest progress:

The following working group members showed and discussed their latest analyses and findings: Christine, Erol, Jennie, Nico, Polsak, Tom, and Yousef,

Time series to be used in analyses:

IMPVALL/I-ELC180.at2	IMPVALL/I-ELC270.at2
GAZLI/GAZ000.at2	GAZLI/GAZ090.at2
ITALY/A-AUL000.at2	ITALY/A-AUL270.at2
ITALY/A-BAG000.at2	ITALY/A-BAG270.at2
ITALY/A-CTR000.at2	ITALY/A-CTR270.at2
ITALY/A-STU000.at2	ITALY/A-STU270.at2
NAHANNI/S1010.at2	NAHANNI/S1280.at2
NAHANNI/S2240.at2	NAHANNI/S2330.at2
NAHANNI/S3270.at2	NAHANNI/S3360.at2

LOMAP/BRN000.at2	LOMAP/BRN090.at2
LOMAP/CAP000.at2	LOMAP/CAP090.at2
LOMAP/CLS000.at2	LOMAP/CLS090.at2
LOMAP/GIL067.at2	LOMAP/GIL337.at2
LOMAP/GOF160.at2	LOMAP/GOF250.at2
LOMAP/G01000.at2	LOMAP/G01090.at2
LOMAP/G02000.at2	LOMAP/G02090.at2
LOMAP/G03000.at2	LOMAP/G03090.at2
LOMAP/G04000.at2	LOMAP/G04090.at2
LOMAP/G06000.at2	LOMAP/G06090.at2
LOMAP/LGP000.at2	LOMAP/LGP090.at2
LOMAP/SJTE225.at2	LOMAP/SJTE315.at2
LOMAP/STG000.at2	LOMAP/STG090.at2
LOMAP/WVC000.at2	LOMAP/WVC270.at2
LOMAP/UC2000.at2	LOMAP/UC2090.at2
LOMAP/LOB000.at2	LOMAP/LOB090.at2
LOMAP/WAH000.at2	LOMAP/WAH090.at2
CAPEMEND/CPM000.at2	CAPEMEND/CPM090.at2
CAPEMEND/FOR000.at2	CAPEMEND/FOR090.at2
CAPEMEND/PET000.at2	CAPEMEND/PET090.at2
CAPEMEND/RIO270.at2	CAPEMEND/RIO360.at2
KOBE/AMA000.at2	KOBE/AMA090.at2
KOBE/FKS000.at2	KOBE/FKS090.at2
KOBE/KJM000.at2	KOBE/KJM090.at2
KOBE/KBU000.at2	KOBE/KBU090.at2
KOBE/NIS000.at2	KOBE/NIS090.at2
KOBE/PRI000.at2	KOBE/PRI090.at2
KOBE/SHI000.at2	KOBE/SHI090.at2
KOBE/TAZ000.at2	KOBE/TAZ090.at2
KOBE/TAK000.at2	KOBE/TAK090.at2
DUZCE/BOL000.at2	DUZCE/BOL090.at2
DUZCE/DZC180.at2	DUZCE/DZC270.at2
DUZCE/1058-N.at2	DUZCE/1058-E.at2
DUZCE/1059-N.at2	DUZCE/1059-E.at2
DUZCE/1061-N.at2	DUZCE/1061-E.at2
DUZCE/1062-N.at2	DUZCE/1062-E.at2
DUZCE/375-N.at2	DUZCE/375-E.at2
DUZCE/531-N.at2	DUZCE/531-E.at2
HECTOR/HEC000.at2	HECTOR/HEC090.at2
Lomap/lex000.at2	Lomap/lex090.at2