CURRICULUM VITAE

NAME AND TITLE Dr Julian J. Bommer

DATE OF BIRTH 19 July 1964

NATIONALITY British

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HIGHER EDUCATION

B.Sc. Civil Engineering (First Class Honours) 1985
Imperial College.

M.Sc. Soil Mechanics and Engineering Seismology 1986
Imperial College

Ph.D. Engineering Seismology 1991
University of London

APPOINTMENTS

2002- **Reader in Earthquake Hazard Assessment**
Department of Civil and Environmental Engineering, Imperial College

1999 - 2002 **Senior Lecturer in Engineering Seismology**
Department of Civil and Environmental Engineering, Imperial College

1994 - 1999 **Lecturer in Engineering Seismology**
Department of Civil and Environmental Engineering, Imperial College

1993 – 1994 **Lecturer**
Department of Civil Engineering, Universidad Centroamericana, El Salvador

1987 – 1992 **Research Associate**
Department of Civil Engineering, Imperial College

1986 – 1987 **Graduate Engineer**
Rendel, Palmer & Tritton Consulting Engineers, London

1985 **Graduate Engineer**
Dames & Moore International, London

LANGUAGES

Spanish (bi-lingual: fluent spoken, reading and writing).
Portuguese (intermediate speaking and reading, basic writing).

EDITORIAL RESPONSIBILITIES

- Technical reviewer of papers for *Journal of Earthquake Engineering*, *Géotechnique*, *Journal of Seismology*, *Earthquake Spectra*, *Natural Hazards*, *European Earthquake Engineering*, *ISET Journal of Earthquake Technology*, *Natural Hazard and Earth System Sciences*, *Earthquake Engineering & Structural Dynamics*, *Journal of Geophysical Research*
- Associate Editor of *Bulletin of the Seismological Society of America* 2005-
- Member of Editorial Board of *Engineering Geology* 2002-
- Member of Editorial Board of *Revista Internacional de Ingeniería de Estructuras* 2001-
- Member of editorial board of *Bulletin of Earthquake Engineering* 2002-
- Member of editorial board of *Soil Dynamics & Earthquake Engineering* 2004-
- Member of editorial board *Revista de Ingeniería y Ciencia* (Colombia)
- Editor on seismology, seismic risk and social issues for Geological Society of America Special Paper on *Natural Hazards in El Salvador*
- Reviewer of EERI Monograph on *Seismic Hazard and Risk Analysis* by Robin K. McGuire

PUBLICATIONS

Book Chapters

B1. Bommer, J.J. & S.G. Scott (2000). The feasibility of using real accelerograms for seismic design. *in* Implications of Recent Earthquakes on Seismic Risk, *eds*. A.S. Elnashai & S. Antoniou, Series of Innovation in Structures and Construction Vol.2, Imperial College Press, 115-126.

B2. Bommer, J.J. & D.M. Boore (2004). Engineering Seismology. *In*: Encyclopaedia of Geology, Academic Press, vol. 1, pp.499-514.

B3. Bommer, J.J. & F. Scherbaum (2005). Capturing and limiting ground-motion uncertainty in seismic hazard assessment. *In* Future Directions of Strong Motion Instrumentation, P. Gulkan & J.G. Anderson *eds*, Kluwer Academic Publishers, 25-40.

B4. Bommer, J.J., R. Pinho & H. Crowley (2005). Using a displacement-based approach for earthquake loss estimation. *In*: Advances in Earthquake Engineering for Urban Risk Reduction, G. Ozcebe *ed*., Springer, *in press*.

International Peer-Reviewed Journals

J1. Bommer, J.J. (1985). The politics of disaster - Nicaragua*. Disasters* **9**,4, 270-278.

J2. Bommer, J.J. & S. Ledbetter (1987). The San Salvador earthquake of 10th October 1986. *Disasters* **11**, 2*,* 83-95.

J3. Bommer,J.J. & N.N. Ambraseys (1989). The Spitak (Armenia, USSR) earthquake of 7 December 1988: a summary engineering seismology report. *Earthquake Engineering & Structural Dynamics* **18***,* 6, 921-925.

J4. Ambraseys, N.N. & J.J. Bommer (1990). Uniform magnitude re-evaluation for the strong-motion database of Europe and adjacent areas. *European Earthquake Engineering* **IV**, 2, 3-16.

J5. Ambraseys, N.N. & J.J. Bommer (1991). Database of European strong-motion records. *European Earthquake Engineering* **V**, 2, 18-37.

J6. Ambraseys, N.N. & J.J. Bommer (1991). The attenuation of ground accelerations in Europe. *Earthquake Engineering & Structural Dynamics* **20**, 12, 1179-1202.

J7. Bommer, J.J., D. Hernández, J. Navarrete & W. Salazar (1996). Seismic hazard assessments for El Salvador. *Geofísica Internacional* **35**, 227-224.

J8. Ambraseys, N.N., K.A Simpson & J.J. Bommer (1996). The prediction of horizontal response spectra in Europe. *Earthquake Engineering & Structural Dynamics* **25**, 371-400.

J9. Bommer, J.J., A. Udías , J.M. Cepeda, J.C. Hasbun, W.M. Salazar, A. Suárez, N.N. Ambraseys, E. Buforn, J. Cortina, R. Maradiaga, P. Méndez, J. Mezcua & D. Papastamatiou (1997). A new digital accelerograph network for El Salvador. *Seismological Research Letters* **68**, 426-437.

J10. Bommer, J., C. McQueen, W. Salazar, S. Scott & G. Woo (1998). A case study of the spatial distribution of seismic hazard (El Salvador). *Natural Hazards* **18***,* 2, 147-168.

J11. Bommer, J.J. & A.S. Elnashai (1999). Displacement spectra for seismic design. *Journal of Earthquake Engineering* **3**, 1*,* 1-32*.*

J12. Bommer, J.J. & A. Martinez-Pereira (1999). The effective duration of earthquake strong motion. *Journal of Earthquake Engineering* **3**, 2, 127-172.

J.13 Rodríguez, C.E., J.J. Bommer & R.J. Chandler (1999). Earthquake-induced landslides 1980-1997. *Soil Dynamics & Earthquake Engineering* **18**(5), 325-346.

J.14 Bommer, J.J., S.G. Scott & S.K. Sarma (2000). Hazard-consistent earthquake scenarios. *Soil Dynamics & Earthquake Engineering* **19**(4), 219-231.

J.15 Ambraseys, N.N., J.J. Bommer, E. Buforn & A. Udías (2001). The earthquake sequence of May 1951 at Jucuapa, El Salvador. *Journal of Seismology* **5**(1), 23-39.

J.16 Borzi, B., G.M. Calvi, A.S. Elnashai, E. Faccioli & J.J. Bommer (2001). Inelastic spectra for displacement-based seismic design. *Soil Dynamics & Earthquake Engineering* **21**(1), 47-61.

J.17 Bommer, J.J., G. Georgallides & I.J. Tromans (2001). Is there a near-field for small-to-moderate magnitude earthquakes? *Journal of Earthquake Engineering* **5**(3), 395-423.

J.18 Bommer, J.J. & C. Ruggeri (2002). The specification of acceleration time-histories in seismic design codes. *European Earthquake Engineering* **16**(1), 3-17.

J.19 Bommer, J.J. & C.E. Rodríguez (2002). Earthquake-induced landslides in Central America. *Engineering Geology* **63**(3/4), 189-220.

J.20 Murphy, W., D.N. Petley, J.J. Bommer & J.M. Mankelow (2002). Uncertainty in ground motion estimates of slope stability during earthquakes. *Symposium in Print on Landslides, Quarterly Journal of Engineering Geology and Hydrogeology* **35**(1), 71-78.

J.21 Bommer, J.J. (2002). Deterministic vs. probabilistic seismic hazard assessment: an exaggerated and obstructive dichotomy. *Journal of Earthquake Engineering* **6** (Special Issue 1), 43-73.

J.22 Bommer, J., R. Spence, M. Erdik, S. Tabuchi, N. Aydinoglu, E. Booth, D. del Re & O. Peterken (2002). Development of an earthquake loss model for Turkish catastrophe insurance. *Journal of Seismology* **6**(3), 431-446.

J.23 Bommer, J., B. Benito, M. Ciudad-Real, A. Lemoine, M. Lopez-Menjivar, R. Madariaga, J. Mankelow, P. Méndez de Hasbun, W. Murphy, M. Lovo-Nieto, C. Rodríguez-Pineda & H. Rosa (2002). The El Salvador earthquakes of January and February 2001: Context, characteristics and implications for seismic risk. *Soil Dynamics & Earthquake Engineering* **22**(5), 389-418.

J.24 Rey, J., E. Faccioli & J. Bommer (2002). Derivation of design soil coefficient (S) and response spectral shapes for Eurocode 8 using the European Strong-Motion Database. *Journal of Seismology* **6**(4), 547-555.

J.25 Restrepo-Vélez, L.F. & J.J. Bommer (2003). An exploration of the nature of the scatter in ground-motion prediction equations and the implications for seismic hazard assessment. *Journal of Earthquake Engineering* **7**(special issue 1), 171-199.

J.26 Spence, R., J. Bommer, D. del Re, J. Bird, N. Aydinoğlu & S. Tabuchi (2003). Comparing loss estimation with observed damage: a study of the 1999 Kocaeli earthquake in Turkey. *Bulletin of Earthquake Engineering* **1**(1), 83-113.

J.27 Bommer, J.J., J. Douglas & F.O. Strasser (2003). Style-of-faulting in ground motion prediction equations. *Bulletin of Earthquake Engineering* **1**(2), 171-203*.*

J.28 Bommer, J.J., N.A. Abrahamson, F.O. Strasser, A. Pecker, P-Y. Bard, H. Bungum, F. Cotton, D. Faeh, F. Sabetta, F. Scherbaum & J. Studer (2004). The challenge of defining the upper limits on earthquake ground motions. *Seismological Research Letters* **70**(1), 82-95.

J.29 Bommer, J.J., G. Maegenes, J. Hancock & P. Penazzo (2004). The influence of strong-motion duration on the seismic response of masonry structures. *Bulletin of Earthquake Engineering* **2**(1), 1-26.

J.30 Rolo, R., J. Bommer, B.F. Houghton, J.W. Vallance, P. Berdousis, C. Mavrommati & W. Murphy (2003). Geologic and engineering characterization of Tierra Blanca pyroclastic ash. *Geological Society of America Special Paper 375*, 55-67.

J.31 López, M., J. Bommer & R. Pinho (2003). Seismic hazard assessments, seismic design codes and earthquake engineering in El Salvador. *Geological Society of America Special Paper 375*, 301-320.

J.32 Bommer, J.J. & A.B. Acevedo (2004). The use of real earthquake accelerograms as input to dynamic analysis. *Journal of Earthquake Engineering* **8**(Special Issue 1), 43-91.

J.33 Bird, J.F. & J.J. Bommer (2004). Earthquake losses due to ground failure. *Engineering Geology* **75**(2), 147-179.

J.34 Crowley, H., R. Pinho & J.J. Bommer (2004). A probabilistic displacement-based vulnerability assessment procedure for earthquake loss estimation. *Bulletin of Earthquake Engineering* **2**(2), 173-219.

J.35 Bird, J.F., J.J. Bommer, J. Bray, R. Sancio & R. Spence (2004). Comparing loss estimation with observed damage in a zone of ground failure: a study of the 1999 Kocaeli earthquake in Turkey. *Bulletin of Earthquake Engineering* **2**(3), 329-360.

J.36 Bommer, J.J. & R. Mendis (2005). Scaling of displacement spectral ordinates with damping ratios. *Earthquake Engineering & Structural Dynamics* **33**(2), 145-165.

J.37 Boore, D.M. & J.J. Bommer (2005). Processing strong-motion accelerograms: needs, options and consequences. *Soil Dynamics & Earthquake Engineering* **25**(2), 93-115.

J.38 Hancock, J. & J.J. Bommer (2005). The effective number of cycles of earthquake ground motion. *Earthquake Engineering & Structural Dynamics* **34**(6), 637-664.

J.39 Bommer, J.J., F. Scherbaum, H. Bungum, F. Cotton, F. Sabetta & N.A. Abrahamson (2005). On the use of logic trees for ground-motion prediction equations in seismic hazard assessment. *Bulletin of the Seismological Society of America* **95**(2), 377-389.

J.40 Abrahamson, N.A. & J.J. Bommer (2004). Probability and uncertainty in seismic hazard analysis. *Earthquake Spectra* **21**(2), 603-607.

J.41 Sabetta, F., A. Lucantoni, H. Bungum & J.J. Bommer (2005). Sensitivity of PSHA results to ground motion prediction relations and logic-tree weights. *Soil Dynamics & Earthquake Engineering* **25**(4), 317-329.

J.42 Crowley, H., J.J. Bommer, R. Pinho & J.F. Bird (2004). The impact of epistemic uncertainty on an earthquake loss model. *Earthquake Engineering & Structural Dynamics, in press.*

J.43 Scherbaum, F., J.J. Bommer, H. Bungum, F. Cotton & N.A. Abrahamson (2004). Composite ground-motion models and logic-trees: methodology, sensitivities and uncertainties. *Accepted for publication in Bulletin of the Seismological Society of America.*

J.44 Bommer, J.J. & R. Pinho (2005). Adapting earthquake actions in Eurocode 8 for performance-based seismic design. *Accepted for publication in Earthquake Engineering & Structural Dynamics.*

J.45 Bommer, J.J. & J.E. Alarcón (2005). The prediction and use of peak ground velocity. *Accepted for publication in Journal of Earthquake Engineering.*

J.46 Bird, J.F., H. Crowley, R. Pinho & J.J. Bommer (2004). Assessment of building damage due to liquefaction. *Submitted to Géotechnique, July*.

J.47 Bird, J.F., J.J. Bommer, H. Crowley & R. Pinho (2004). Modelling liquefaction-induced building damage in earthquake loss estimation. *Submitted to Soil Dynamics & Earthquake Engineering, November.*

J.48 Bommer, J.J., S. Oates, J.M. Cepeda, C. Lindholm, J.F. Bird, R. Torres, G. Marroquín & J. Rivas (2004). Control of hazard due to seismicity induced by a hot fractured rock geothermal project. *Submitted to Engineering Geology, November.*

J.49 Cotton, F., F. Scherbaum, J.J. Bommer & H. Bungum (2004). Criteria for selecting and adjusting ground-motion models for specific target applications: applications to Central Europe and rock sites. *Submitted to Journal of Seismology, December.*

J.50 Bommer, J.J. & H. Crowley (2005). The effect of ground motion variability in earthquake loss modelling. *Submitted to Bulletin of Earthquake Engineering, March.*

J.51 Hancock, J., J.J. Bommer & J.E. Alarcón (2005). Correlations between duration and number of cycles of earthquake ground motion. *Submitted to Soil Dynamics & Earthquake Engineering, June.*

Discussions, Comments & Replies

D1. Ambraseys, N.N., K. Simpson & J. Bommer (1997). Reply to discussion on "The prediction of horizontal response spectra in Europe" by V.W. Lee. *Earthquake Engineering & Structural Dynamics* **26**, 295-300.

D2. Bommer, J.J. (2003). Uncertainty about the uncertainty in seismic hazard analysis. *Engineering Geology* **70**(1/2), 165-168.

D3. Bommer, J.J., F. Scherbaum, F. Cotton, H. Bungum & F. Sabetta (2004). Discussion of "Uncertainty analysis of strong-motion and seismic hazard" by R. Sigbjörnsson and N.N. Ambraseys. *Bulletin of Earthquake Engineering* **2**(2), 261-267.

D4. Strasser, F.O., V. Montaldo, J. Douglas & J.J. Bommer (2005). Comment on "Influence of focal mechanism in probabilistic seismic hazard analysis" by V. Convertito and A. Herrero. *Submitted to Bulletin of the Seismological Society of America*.

D5. Musson, R.M.W., G.R. Toro, K.J. Coppersmith, J.J. Bommer, N. Deichmann, H. Bungum, F. Cotton, F. Scherbaum, D. Slejko & N.A. Abrahamson (2005). Evaluating hazard results for Switzerland and how not to do it: A reply to "Problems in the application of the SSHAC probability method for assessing earthquake hazards at Swiss nuclear power plants" by J-U Klügel. *Submitted to Engineering Geology*.

Conference Proceedings

C1. Elnashai, A.S., K. Pilakoutas, J. Bommer & S. Ledbetter (1988). Comparison of damage due to two recent earthquakes: San Salvador and Kalamata (Greece). *Proceedings, Ninth World Conference on Earthquake Engineering,* August 2-9, Tokyo-Kyoto, Japan, vol. **III**, 963-968.

C2. Bommer, J.J. (1989). A field study of the Spitak-88 earthquake. *Proceedings, International Seminar on Spitak-88 Earthquake,* Yerevan, Armenia, USSR, 23-26 May, UNESCO, 161-175.

C3. Ambraseys, N.N. & J.J. Bommer (1992). On the attenuation of ground accelerations in Europe. *Proceedings, Tenth World Conference on Earthquake Engineering,* Madrid, Spain, 19-25 July, vol.**II** , 675-678.

C4. Bommer, J.J. & N.N. Ambraseys (1992). An earthquake strong-motion databank and database. *Proceedings, Tenth World Conference on Earthquake Engineering,* Madrid, Spain, 19-25 July, vol. **I**, 207-210.

C5. Ambraseys, N.N. & J.J. Bommer (1995). Attenuation relations for the use in Europe: an overview. *Proceedings, SECED Conference on European Seismic Design Practice,* Chester, 67-74, Balkema.

C6. Bommer, J.J. & A. Martínez-Pereira (1996). Prediction of strong-motion duration for engineering analysis and design. *Proceedings, Eleventh World Conference on Earthquake Engineering,* Acapulco, Paper No. 84.

C7. Salazar, W.M., N.N. Ambraseys & J.J. Bommer (1997). Compilation of a seismic catalogue for El Salvador and neighbouring zones. *Proceedings of Seminar on Evaluation and Mitigation of Seismic Risk in the Central American Region*, San Salvador, El Salvador, 67-76 [in Spanish]

C8. Cepeda, CM., W.M. Salazar & J.J. Bommer (1997). Attenuation equations for Central America: I. Peak ground acceleration. *Proceedings of Seminar on Evaluation and Mitigation of Seismic Risk in the Central American Region*, San Salvador, El Salvador, 119-128 [in Spanish]

C9. Salazar, W.M., J.M. Cepeda & J.J. Bommer (1997). Attenuation equations for Central America: II. Spectral ordinates. *Proceedings of Seminar on Evaluation and Mitigation of Seismic Risk in the Central American Region*, San Salvador, El Salvador, 165-174 [in Spanish]

C10. Martínez-Pereira, A. & J.J. Bommer (1998). What is the near field? *in* Seismic Design Practice into the Next Century, *ed*. E. Booth, Balkema, 245-252.

C11. Scott, S.G., J.J. Bommer & S.K. Sarma (1998). Definition of hazard-consistent ground motions through multi-parameter seismic hazard assessment. *in* Seismic Design Practice into the Next Century, *ed.* E. Booth, Balkema, 229-236.

C12. Bommer, J.J., S.G. Scott & S.K. Sarma (1998). Time-history representation of seismic hazard. *Eleventh European Conference on Earthquake Engineering*, Paris.

C13. Elnashai, A.S., J.J. Bommer & A. Martínez-Pereiera (1998). Engineering implications of strong-motion records from recent earthquakes. *Proceedings, Eleventh European Conference on Earthquake Engineering,* Paris.

C14. Faccioli, E., S.V. Tolis, B. Borzi, A.S. Elnashai & J.J. Bommer (1998). Recent developments in the definition of the design seismic action in Europe. *Proceedings, Eleventh European Conference on Earthquake Engineering,* Paris.

C15. Bommer, J.J. & A. Martínez-Pereira (2000). Strong-motion parameters: definition, usefulness and predictability. *Proceedings of the Twelfth World Conference on Earthquake Engineering,* Auckland, Paper No. 206.

C16. Bommer, J.J., A.S. Elnashai & A.G. Weir (2000). Compatible acceleration and displacement spectra for seismic design codes. *Proceedings of the Twelfth World Conference on Earthquake Engineering,* Auckland, Paper No. 207.

C17. Bommer, J.J. (2000). Seismic zonation for comprehensive definition of earthquake actions. *Sixth International Conference on Seismic Zonation*, Palm Springs.

C18. Rodríguez, C.E., J.J. Bommer, P. Méndez de Hasbun & R. Rolo (2001). Earthquake-induced landslide hazard in volcanic soils of Central America. *Proc. Second Ibero-American Conference on Earthquake Engineering* [in Spanish].

C19. López Casado, C., B. Benito, J.J. Bommer, M. Ciudad Real & J.A. Peláez (2001). Analysis of accelerograms recorded in the El Salvador earthquakes of 2001. *Proc. Second Ibero-American Conference on Earthquake Engineering* [in Spanish].

C20. Bommer, J.J & N. White (2001). A proposal for an alternative method of seismic zonation in the countries of Ibero-America. *Proc. Second Ibero-American Conference on Earthquake Engineering* [in Spanish].

C21. Spence, R., O. Peterken, E. Booth, N. Aydinoglu, D. del Re, J. Bommer & S. Tabuchi (2002). Seismic loss estimation for Turkish catastrophe insurance. *Seventh US National Conference on Earhquake Engineering*, Boston, July.

C22. Scott, C.W. & J.J. Bommer (2002). Seismic hazard in the UK – another look. *British Dam Society Conference*, Dublin, September.

C23. Sabetta, F. & J. Bommer (2002). Modification of the spectral shapes and subsoil conditions in Eurocode 8. *Proceedings of the Twelfth European Conference on Earthquake Engineering*, London, Paper No. 518.

C24. Tromans, I.J. & J.J. Bommer (2002). The attenuation of strong-motion peaks in Europe. *Proceedings of the Twelfth European Conference on Earthquake Engineering*, London, Paper No. 394.

C25. Bommer, J.J., R. Rolo, A. Mitroulia & P. Berdousis (2002). Geotechnical properties and seismic slope stability of volcanic soils. *Proceedings of the Twelfth European Conference on Earthquake Engineering*, London, Paper No. 695.

C26. Pennazzo, P., J.J. Bommer & G. Magenes (2002). The influence of strong-motion duration on inelastic structural demand. *Proceedings of the Twelfth European Conference on Earthquake Engineering*, London, Paper No. 694.

C27. Bommer, J.J., B. Benito, M. Ciudad-Real, M. Lopez-Menjivar, J.M. Mankelow, P. Mendez de Habsun, W. Murphy & C. Rodriguez (2002). The El Salvador earthquakes of 2001: implications for seismic risk from local and subduction earthquakes. *Proceedings of the Twelfth European Conference on Earthquake Engineering*, London, Paper No. 693.

C28. Murphy, W, J.J. Bommer & J.M. Mankelow (2002). Mechanisms of slope failure in volcanic soils during earthquakes. *Proceedings of the Twelfth European Conference on Earthquake Engineering*, London, Paper No.782.

C29. Booth, E., R. Spence, J. Bommer, O. Peterken, N. Aydinoglu & P. Gulkan (2002). Earthquake risk mitigation: lessons from recent Turkish experience. *Proceedings of the Twelfth European Conference on Earthquake Engineering*, Paper No.743, London, 9-13 September.

C30. Pinho, R. & J.J. Bommer (2002). A simplified approach to displacement-based earthquake loss estimation analysis. *Proceedings of the Twelfth European Conference on Earthquake Engineering*, Paper No. 738, London, 9-13 September.

C31. Musson, R.M.W., J.J. Bommer, M. Haynes & A. Ferretti (2002). Potential for application of PSInSAR data for tectonic modelling in subduction areas. *EOS Transactions*, AGU, vol. 83, pt. 47, Fall Meeting Supplement, p.F362 (abstract only).

C32. Bommer, J.J. (2003). Advances and challenges in seismic hazard assessment. *Proceedings of the Second Colombia National Conference on Earthquake Engineering*, Medellin [in Spanish]

C33. Bommer, J.J. & J. Hancock (2003). Influence of strong-motion duration in earthquake-indiced damage. *Proceedings of the Second Colombia National Conference on Earthquake Engineering*, Medellin [in Spanish]

C34. Bommer, J.J., A.B. Acevedo & J. Douglas (2003). The selection and scaling of real earthquake accelerograms for use in seismic design and assessment. *Proceedings of ACI International Conference on Seismic Bridge Design and Retrofit*, La Jolla California, American Concrete Institute.

C35. Abrahamson, N.A., J.J. Bommer, F.O. Strasser & A. Pecker (2004). The challenge of defining upper bounds on ground-motion parameters. *Seismological Research Letters* **75**(2), 282-283 (abstract only).

C36. Strasser, F.O., E. Priolo, A. Vuan, J.J. Bommer, P. Klinc & G. Laurenzo (2004). Preliminary results of simulations exploring the nature of extreme ground motions using a kinematic deterministic-stochastic finite-fault model: EXWIM. *Seismological Research Letters* **75**(2), 283 (abstract only).

C37. Strasser, F.O, J.J. Bommer & D.M. Boore (2004). What produces large earthquake motions?. *Seismological Research Letters* **75**(2), 289 (abstract only).

C38. Fearon, R.E., R.J Chandler & J.J. Bommer (2004). An investigation of the mechanics which control soil behaviour at fast rates of displacement. *Proceedings of the Skempton Conference: Advances in Geotechnical Engineering*, London, vol. 1, 441-452.

C39. Bird, J., T. O'Rourke, T. Bracegirdle, J. Bommer & I. Tromans (2004). A framework for assessing earthquake hazards for major pipelines. *Proceedings GeoPipe 2004*, London, Thomas Telford.

C40. Spence, R., E. Booth, J. Bird, J. Bommer, D. del Re & S. Tabuchi (2004). Comparing observed and estimated earthquake losses: use of the AIJ damage database following the 1999 Kocaeli earthquake. *Proceedings of the 5th Workshop on Implications of Recent Earthquakes on Seismic Risk*, Bristol.

C41. Bird, J., R. Sancio, J.D. Bray & J.J. Bommer (2004). The ground failure component of earthquake loss estimations: a case study of Adapazari, Turkey. *Proceedings of the Thirteenth World Conference on Earthquake Engineering*, Vancouver, Canada, Paper no. 803.

C42. Lubkowski, Z., J. Bommer, B. Baptie, J. Bird, J. Douglas, M. Free, J. Hancock, S. Sargeant, N. Sartain & F. Strasser (2004). An evaluation of attenuation relationships for seismic hazard assessment in the UK. *Proceedings of the Thirteenth World Conference on Earthquake Engineering*, Vancouver, Canada, Paper no. 1422.

C43. Hancock, J. & J.J. Bommer (2004). The influence of phase and duration on earthquake damage in degrading structures. *Proceedings of the Thirteenth World Conference on Earthquake Engineering*, Vancouver, Canada, Paper no. 1989.

C44. Hancock, J. & J.J. Bommer (2004). Predicting the number of cycles of ground motion. *Proceedings of the Thirteenth World Conference on Earthquake Engineering*, Vancouver, Canada, Paper no. 1990.

C45. López, M., J. Bommer & P. Méndez (2004). The seismic performance of bahareque dwellings in El Salvador. *Proceedings of the Thirteenth World Conference on Earthquake Engineering*, Vancouver, Canada, Paper no. 2646.

C46. Tromans, I., D. Marlow & J. Bommer (2004). Spatial distribution of pipeline damage in Düzce caused by the 1999 Kocaeli and Düzce earthquakes. *Proceedings of the Thirteenth World Conference on Earthquake Engineering*, Vancouver, Canada, Paper no. 2916.

C47. Bird, J. & J.J. Bommer (2004). Evaluating earthquake losses due to ground failure and indetifying their relative contribution. *Proceedings of the Thirteenth World Conference on Earthquake Engineering*, Vancouver, Canada, Paper no. 3156.

C48. Strasser, F.O., J.J. Bommer & N.A. Abrahamson (2004). The need for upper bounds on seismic ground motion. *Proceedings of the Thirteenth World Conference on Earthquake Engineering*, Vancouver, Canada, Paper no. 3361.

C49. Bommer, J.J. (2004). Earthquake actions in seismic design codes: can current formats meet the needs of PBSD? *Proceedings of an International Workshop on Performance-based Seismic Design: Concepts and Implementation*, PEER 2005/05, Pacific Earthquake Engineering Research Center, Berkeley, California, 469-480.

C50. Bommer, J.J., R. Pinho & H. Crowley (2005). Using displacement-based earthquake loss assessment in the selection of seismic code design levels. *Proceeding of COSSAR'05 (International Conference on Structural Safety and Reliability),* Rome, 3567-3574.

Reports

R1. Ledbetter, S.R. & J.J. Bommer (1987). The San Salvador earthquake of 10th October 1986. *A field report by EEFIT.* SECED, Institution of Civil Engineers, London, 99 pp.

R2. Bommer, J.J. & N.N. Ambraseys (1989). The Spitak (Armenia, USSR) earthquake of 7 December 1988: a preliminary engineering seismology report. *ESEE Research Report No. 89-1,* March, Imperial College, London, 84 pp.

R3. USGS (1989). Lessons learned from Loma Prieta , California, earthquake of October 17, 1989. *U.S. Geological Survey Circular 1045,* Washington D.C., 48 pp (member of technical staff).

R4. Elnashai, A.S., J.J. Bommer & A.Y. El-Ghazouli (1989). The Loma Prieta (Santa Cruz, California) earthquake of 17 October 1989: seismological, geotechnical and structural field observations. *ESEE Research Report No. 89-11,* December, Imperial College, London, 197 pp.

R5. Ambraseys, N.N., A.S. Elnashai, J.J. Bommer, F. Haddar, P. Madas, A. Elghazouli & J. Vogt (1990). The Chenoua (Algeria) earthquake of 29 October 1989. *ESEE Research Report No. 90-4,* July, Imperial College, London, 124 pp.

R6. Ambraseys, N.N., J.J. Bommer & S.K. Sarma (1992). A review of seismic ground motions for UK design. *ESEE Research Report No. 92-8,* November, Imperial College, London, 50 pp.

R7. Bommer, J. (1994). Engineering Seismology. *Papeles Técnicos F93001*, Universidad Centroamericana, San Salvador, El Salvador, 431 pp [in Spanish].

R8. Elnashai, A.S., J.J. Bommer, C.I. Baron, D. Lee & A.I. Salama (1995). Selected engineering seismology and structural engineering studies of the Hyogo-ken Nanbu (Great Hanshin) earthquake of 17 January 1995. *ESEE Research Report No. 95-2,* 258 pp.

R9. Bommer, J. (1996). Earthquakes, ubranization and seismic risk in San Salvador. *Boletín PRISMA* **18**, San Salvador, El Salvador [in Spanish].

R10. Bommer, J., W. Salazar & R. Samayoa (1997). Seismic risk in the Metropolitan Region of San Salvador. Report prepared for US Agency for International Development, 128 pp. [in Spanish].

R11. Bommer, J.J., Elnashai, A.S., G.O. Chlimintzas & D. Lee (1998). Review and development of response spectra for displacement-based seismic design. *ESEE Res. Report No. 98-3,* 163 pp.

R12. Borzi, B., A.S. Elnashai, E. Faccioli, G.M. Calvi & J.J. Bommer (1998). Inelastic spectra and ductility-damping relationships for displacement-based seismic design. *ESEE Research Report No.98-4*, 157 pp.

R13. Paulson, C. & J. Bommer (2001). Preliminary observations on the El Salvador earthquakes of January 13 and February 13, 2001. *EERI Newsletter* **35**(7), July, 12 pp.

R14. Bommer, J., B. Borzi, G. Chlimintzas, A. Elnashai, D. Lee, E. Faccioli & S. Tolis (2001). Definition of displacement response spectra for design. *In* Seismic Actions, *eds*. E. Faccioli & R. Paolucci, *ECOEST2/ICONS Report No.1*, p.3-34.

R15. Musson, R.M.W. & J.J. Bommer (2002). Evaluation of PSInSAR results from Japanese sites for the development of earthquake loss modelling. *BGS Technical Report No. CR/02/124*, British Geological Survey.