

EC PROJECT
EVG1-CT-2002-00069



REL. I. E. F.



RELIable Information on Earthquake Faulting

Large Earthquake Faulting and Implications for the Seismic
Hazard Assessment in Europe:
The Izmit-Duzce earthquake sequence of August-November 1999
(Turkey, Mw 7.4, 7.1)

Deliverable 28
Third Year
January 2006

Publications

PARTNER 6: Department of Earth Science, University of Bergen (Norway)



List of publications

The Department of Earth Science, University of Bergen (UiB) Norway, being responsible for the WP 6: Integration of multidisciplinary data for seismic hazard assessment and WP 9: Multidisciplinary seismic hazard assessment, prepared different publications. The preparation of reports, documents, posters and publications, was achieved in collaboration with all partners of the RELIEF Project (EOST-IPG, Strasbourg, Institute of Geophysics at ETH Zurich, INGV Rome, UiB Bergen, ITU Istanbul and Brunel University).

The publications and related databank are available (and can be downloaded) from the RELIEF website

<http://www.ingv.it/paleo/RELIEF/index.html>

Below is a list of all publications and presentations in international workshops, conferences and meetings related with project.

1. Papers in International Scientific Journal

- Pulido, N., Ojeda, A., Atakan, K. and Kubo, T. 2004. Strong ground motion estimation in the Marmara Sea region (Turkey) based on a scenario earthquake. *Tectonophysics*, **391**, 357-374.
- Akinci, A., Malagnini, L., Herrmann, R.B., Gok, R and Sørensen, M.B. (in press). Ground motion scaling in the Marmara region, Turkey, accepted for publication in *Geophysical Journal International*.
- Sørensen, M.B., Oprsal, I., Bonnefoy-Claudet, S., Atakan, K., Mai, M., Pulido, N., Yalciner, C. (in review). Local site effects in Ataköy, Istanbul, Turkey, due to a future large earthquake in the Marmara Sea. Submitted to the *Geophysical Journal International*.
- Sørensen, M.B., Pulido, N., and Atakan, K. (in review). Sensitivity of ground motion simulations to earthquake source parameters: A case study for Istanbul, Turkey. Submitted to the *Bulletin of the Seismological Society of America*.
- Atakan, K., Birgören, G., Sørensen, N., Özel, O., M., Pulido, Fahjan, Y., Durukal, E., and Erdik, M. (in prep.). Earthquake hazard in Istanbul: Correlations between the ground motion simulations and the Istanbul Early Warning and Rapid Response System (IEWRRS) station records. To be submitted.
- Oglesby, D.D., Mai, P.M., Pucci, S., Pantosti, D., and Atakan, K. (in prep.). Dynamic rupture in the presence of fault discontinuities: An application to the faults in the Marmara Sea. To be submitted.
- Atakan, K., Sørensen, M.B., and Pulido, N. (in prep.). Earthquake source complexity in the Marmara Sea and its influence in ground motion simulations. To be submitted to the Proceedings of the 1st International Conference on Earthquake Engineering and Seismology (ECEES-2006), Geneva, Switzerland, Sept. 2006.

PhD Thesis in preparation

Sørensen, M.B., Seismic hazard and ground motion modeling in high-risk areas, and seismotectonics of selected areas in Norway, PhD Dissertation, Department of Earth Science, University of Bergen, Norway.

2. Presentations at International Conferences or Invited Lectures

- Pulido, N., Ojeda, A., Atakan, K. and Kubo, T. 2002. Strong ground motion estimation at Istanbul (Turkey) based on an earthquake scenario: Preliminary results. 11th Japan Symposium on Earthquake Engineering, Tokyo, Japan, November 2002.

- Atakan, K., Meghraoui, M., Pulido, N., Ojeda, A., and the RELIEF Consortium. 2003. RELIEF Project and seismic hazard along the North Anatolian Fault Zone. 34th Nordic Seminar on Detection Seismology, Flåm, Norway, 4-6 June 2003.
- Pulido, N., Ojeda, A., and Atakan, K. 2003. Scenario based strong ground motion modelling in Istanbul and the adjacent regions. International Union of Geodesy and Geophysics (IUGG) General Assembly, IUGG-2003, 30 June – 11 July 2003, Sapporo, Japan.
- Pulido, N., Ojeda, A., and Atakan, K. 2003. Ground motion simulations in the Marmara Sea region based on scenario earthquakes along the North Anatolian Fault Zone. METU-MTA-GSJ International Workshop on the North Anatolian and East Anatolian Fault Systems, 3-12 September 2003, Ankara, Turkey.
- Atakan, K., Pulido, N., Ojeda, A., and the RELIEF Consortium. 2003. Seismic hazard in the Marmara Region based on ground motion simulations (in Turkish). 15th Geophysical Convention of Turkey, 20-24 October 2003, Izmir, Turkey.
- Meghraoui, M., Pantosti, D., Akyuz, S., Leroy, S., Mai, M., Atakan, K. 2004. The RELIEF Project: Large earthquake faulting and implications for the seismic hazard assessment in Europe, the 1999 Izmit-Duzce earthquake sequence (MW 7.3 – 7.1, Turkey). 32nd International Geological Congress, 20-28 August 2004, Florence, Italy. (Poster presentation).
- Sørensen, M.B., Pulido, N., Ojeda, A., Atakan, K., and Erdik, M. 2004. Ground motion simulations at Rapid Response recording sites in Istanbul, Turkey. European Seismological Commission (ESC) XXIX General Assembly, 12-17 Sept. 2004, Potsdam, Germany.
- Sørensen, M.B., Bonnefoy-Claudet, S., Atakan, K., and Yalciner, C. 2004. Local site effects and noise characteristics in Atakoy area, Istanbul, Turkey. European Seismological Commission (ESC) XXIX General Assembly, 12-17 Sept. 2004, Potsdam, Germany.
- Sørensen, M.B., Oprsal, I., Pulido, N., Mai, M., and Atakan, K. 2004. 3D modeling of local site effects in Atakoy area, Istanbul, Turkey. European Seismological Commission (ESC) XXIX General Assembly, 12-17 Sept. 2004, Potsdam, Germany. (Poster presentation).
- Sørensen, M.B., Pulido, N., Bonnefoy-Claudet, S., and Atakan, K. 2004. Ground motion simulations and site effect estimation for Istanbul, Turkey. The 35th Nordic Seminar on Detection Seismology, 29 Sept. – 1 Oct. 2004 Åkersberga, Stockholm, Sweden.
- Meghraoui, M., Pantosti, D., Akyuz, S., Leroy, S., Mai, M., Atakan, K. 2005. The RELIEF Project: Large earthquake faulting and implications for the seismic hazard assessment in Europe, the 1999 Izmit-Duzce earthquake sequence (MW 7.3 – 7.1, Turkey). Hokudan Symposium on Active Faulting, 17-24 January 2005, Hokudan, Japan.
- Meghraoui, M., Pantosti, D., Akyuz, S., Leroy, S., Mai, M., Atakan, K. 2005. The RELIEF Project: Large earthquake faulting and implications for the seismic hazard assessment in Europe, the 1999 Izmit-Duzce earthquake sequence (MW 7.3 – 7.1, Turkey). Seismological Society of America, Eastern Section Meeting, April 2005.
- Meghraoui, M., Pantosti, D., Akyuz, S., Leroy, S., Mai, M., Atakan, K., RELIEF Working Group. 2005. The RELIEF Project: large earthquake faulting and implications for the seismic hazard assessment in Europe, the 1999 Izmit-Duzce earthquake sequence (MW 7.3-7.1, Turkey). European Geosciences Union General Assembly 2005, Vienna, Austria, 24-29 April 2005. (Poster presentation).
- Sørensen, M.B., Oprsal, I., Bonnefoy-Claudet, S., Atakan, K., Mai, M., Pulido, N., Yalciner, C. 2005. Local site effects in Ataköy, Istanbul, Turkey: empirical data vs. synthetics from hybrid modelling. European Geosciences Union General Assembly 2005, Vienna, Austria, 24-29 April 2005.
- Sørensen, M. B., Pulido, N., Atakan, K., Ojeda, A., Erdik, M. 2005. Ground motion simulations for a M=7.5 scenario earthquake in the Marmara Sea and implications for the city of Istanbul, Turkey. European Geosciences Union General Assembly 2005, Vienna, Austria, 24-29 April 2005. (Poster presentation).
- Sørensen, M.B., Pulido, N., Atakan, K., Ojeda, A. and Erdik, M. 2005. Ground motion simulations for a M=7.5 scenario earthquake in the Marmara Sea and implications for the city of Istanbul, Turkey. 36th Nordic Seminar on Detection Seismology, Copenhagen, Denmark, June 8-10, 2005.
- Atakan, K. 2005 (invited). Seismic hazard in Istanbul: Six years after the disastrous earthquakes in 1999. Keynote lecture at the International Symposium on the Geodynamics of the Eastern Mediterranean: Active Tectonics of the Aegean”, Istanbul, Turkey, June 15-18, 2005.
- Atakan, K. (invited). 2005. Istanbul'daki deprem tehlikesi ve yer hareketi simülasyonları. (in Turkish). Middle East Technical University, Ankara, Turkey, 23 September 2005.

- Sørensen, M.B., Oprsal, I., Bonnefoy-Claudet, S., Atakan, K., Mai, M., Pulido, N., and Yalciner, C. 2005. Local site effects in Ataköy, Istanbul, Turkey: empirical data vs. synthetics from hybrid modeling. IASPEI General Assembly, Santiago, Chile, 2-8 October 2005. (Poster presentation).
- Sørensen, M.B., Pulido, N., Atakan, K., Ojeda, A., and Erdik, M. 2005. Ground motion simulations for a M=7.5 scenario earthquake in the Marmara Sea and implications for the city of Istanbul, Turkey. IASPEI General Assembly, Santiago, Chile, 2-8 October 2005.
- Atakan, K. (invited). 2005. İstanbul'daki deprem tehlikesi hakkında bilmek istediklerimiz. (in Turkish). Dokuz Eylül University, Izmir, Turkey, 1 November 2005.
- Atakan, K., and Sørensen, M.B. 2005. Earthquake hazard in Istanbul: general overview. RELIEF Project Final Meeting, Istanbul, Turkey, 24-25 November 2005.
- Sørensen, M.B., Atakan, K., and Pulido, N. 2005. Ground motion simulations for Istanbul: a parameter sensitivity study. RELIEF Project Final Meeting, Istanbul, Turkey, 24-25 November 2005.
- Atakan, K., Sørensen, M.B., Pulido, N., Erdik, M., Ojeda, A., Durukal, E., Oprsal, I., Bonnefoy-Claudet, S., Mai, P.M., Birgören, G., Özel, O., Fahjan, Y., Meghraoui, M., Pantosti, D., Akyüz, H.S., Leroy, S., Pucci, S., Yalciner, C.C. and the RELIEF-Team. 2005. Earthquake hazard in Istanbul: synthesis and implications for the end-users. RELIEF Project Final Meeting, Istanbul, Turkey, 24-25 November 2005.
- Atakan, K. 2005. Paleosismik verilerin deprem tehlikesi degerlendirmesindeki önemi ve uygulanmasi (in Turkish). RELIEF Project Final Meeting, Istanbul, Turkey, 24-25 November 2005.
- Oglesby, D.D., Mai, P.M., Atakan, K., Pantosti, D., and Pucci, S. 2005. Dynamic rupture in the presence of fault discontinuities: An application to the faults in the Marmara Sea. AGU Fall Meeting, San Francisco, USA, Dec.5-9, 2005.
- Atakan, K. (invited) 2005. İstanbul'daki deprem tehlikesi hakkında bilmek istediklerimiz: Kapsamlı araştırmalardan istenilen uygulamaya gecisdeki zorluklar (in Turkish). Istanbul Büyük Şehir Belediyesi (IBB, Istanbul Metropolitan Municipality), Istanbul, Turkey, Dec. 14, 2005.
- Atakan, K. (invited) 2006. Jordskjelvsrisiko i Istanbul: Utfordringer I en by med 12 millioner mennesker. Seminar on "Jordskjelv som naturfenomen of samfunnsrisiko", Norsar, Kjeller, 1 March 2006.
- Atakan, K., Akyüz, S., Zabci, C., Demircioglu, M.B., Durukal, E., and Erdik, M. 2006. Seismic sources along the North Anatolian Fault for seismic hazard assessment. European Geosciences Union (EGU-2006) General Assembly, Vienna, Austria, 2-7 April 2006.
- Atakan, K., Sørensen, M.B., and Pulido, N. 2006. Implications of fault behaviour in the Marmara Sea on ground motion simulations and seismic hazard assessment. European Geosciences Union (EGU-2006) General Assembly, Vienna, Austria, 2-7 April 2006.
- Sørensen, M.B., Pulido, N., and Atakan, K. 2006. Seismic hazard in Istanbul, Turkey, based on ground motion simulations, and uncertainties in the predicted ground motion levels. European Geosciences Union (EGU-2006) General Assembly, Vienna, Austria, 2-7 April 2006.
- Durukal, E., Sanli, B., Gündüz, A.S., Sørensen, M.B., Richwalski, S., Sesetyan, K., Atakan, K., Madariaga, R., and Wang, R. 2006. A "benchmarking" exercise on the performance of kinematic ground motion simulation codes. European Geosciences Union (EGU-2006) General Assembly, Vienna, Austria, 2-7 April 2006.
- Oglesby, D.D., Martin, P.M., Atakan, K., Pucci, S., and Pantosti, D. 2006. Fault geometry and rupture dynamics in the Marmara Sea, Turkey. "100th Anniversary Earthquake Conference Commemorating the 1906 San Francisco Earthquake" by Seismological Society of America, Moscone Center, San Francisco, USA, April 18 - 21, 2006.
- Atakan, K., Sørensen, M.B., and Pulido, N. 2006. Earthquake source complexity in the Marmara Sea and its influence on ground motion simulations for Istanbul. 1st European Conference on Earthquake Engineering and Seismology (ECEES-2006), Geneva, Switzerland, 3-8 September 2006.

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