

BIOGRAPHICAL SKETCH FOR: ANTHONY LOMAX

E-mail: anthony@alomax.net Web: <http://www.alomax.net> Location: Mouans-Sartoux, France

EDUCATION:

- B.A. in Geophysics, University of California at Berkeley, USA (1981).
- Ph.D. in Geophysics/Seismology, University of California at Berkeley, USA (1992).

POSITIONS HELD:

- Currently: Independent scientific, seismological and educational software consultant, ALomax Scientific (<http://alomax.net/als>), Mouans-Sartoux, France (2001-present). Work with major, national and international, earthquake monitoring centres, educational institutions, organisations and companies.
- Research Scientist, Seismology, Géosciences-Azur, CNRS/Univ. of Nice, Valbonne, France (1997-2001).
- Post-Doctoral Research Fellow, Seismology, University of Trieste, Italy (1997).
- Post-Doctoral Research Fellow, Seismology, Utrecht University, the Netherlands (1993-1997).
- Research Assistant, Seismographic Stations, University of California at Berkeley, USA (1986-1993).
- Staff Scientist, Seismographic Stations, University of California at Berkeley, USA (1984-1986).
- Staff Scientist, Woodward-Clyde consultants, San Francisco, USA (1981-1984).

EXPERTISE (THEORY, METHODOLOGIES, ALGORITHMS):

- Seismic-event detection, location and characterization, rapid time-series analysis. Application to: earthquake, microseismic, hydro-acoustic, volcano, and mine-hazard monitoring; earthquake and tsunami early-warning, ...
- Probabilistic, global-search optimization and inverse methods. Application to: absolute and relative seismic event detection and location in 3D models on large and small scales; monitoring-network design and performance; wave propagation; seismicity studies, ...
- Analysis and relocation of historical earthquakes. Application to Californian, Italian and other earthquakes.
- Modelling and analysis of seismic wave propagation in complex structures. Developed the "Path-Summation" method for fast wave modelling in 3-D structures with an analogue of Feynman path-integrals.
- Interactive visualization, analysis and dissemination of scientific information for research, monitoring and education.

COMPUTER SCIENCE SKILLS:

- Design and implementation of advanced software for earthquake detection and location, real-time and automatic seismic-event analysis, 3-D earth models, wave propagation, 3-D geographic information display, 3-D animation, genetic algorithm and simulated annealing optimization, frequency-time analysis of time series data, very fast database access, and many other tasks.
- Algorithm optimization, data structures, object-oriented design and distributed, internet applications.
- Designed and implemented interactive, graphical applications for processing, analysis, simulation, display and database access of scientific and other data.
- Proficient in the C and Java languages; experienced in HTML, Javascript, Python, Bash, C++, FORTRAN and others.
- Development of software with NetBeans and Eclipse, on Linux/UNIX/MaxOSX and Windows platforms.

SELECTED PRODUCTS

- Early-est: A lightweight software package for automated, real-time earthquake monitoring and tsunami early-warning (<http://early-est.alomax.net>).
- NonLinLoc: Methodologies and software for non-linear, global search earthquake location in 3D structures (<http://www.alomax.net/nlloc>).
- Seismological visualization and analysis software in Java and C ("Seismogram Viewer", "Seismicity Viewer", "FilterPicker", ...; see <http://www.alomax.net/software.html>).

SELECTED RECENT PUBLICATIONS

- Stabile, T.A., G. Iannaccone, A. Zollo, **A. Lomax**, M. F. Ferulano, M. L. V. Vetri, L. P. Barzaghi (2013), **A comprehensive approach for evaluating network performance in surface and borehole seismic monitoring**, *Geophys. J. Int.*, **192**, 793-806.
- **Lomax, A.** and A. Michelini (2012), **Tsunami early warning within 5 minutes**, *Pure and Applied Geophysics*, **169**.
- **Lomax, A.**, C. Satriano and M. Vassallo (2012), **Automatic picker developments and optimization: FilterPicker - a robust, broadband picker for real-time seismic monitoring and earthquake early-warning**, *Seism. Res. Lett.*, **83**, 531-540.
- **Lomax, A.** and A. Michelini (2011), **Tsunami early warning using earthquake rupture duration and P-wave dominant period: the importance of length and depth of faulting**, *Geophys. J. Int.*, **185**, 283-291.
- **Lomax, A.**, A. Michelini, A. Curtis (2009), **Earthquake Location, Direct, Global-Search Methods**, in Complexity In *Encyclopedia of Complexity and System Science*, Part 5, Springer, New York, pp. 2449-

2473.

- **Lomax, A.** and A. Michelini (2009), **Tsunami early warning using earthquake rupture duration**, *Geophys. Res. Lett.*, **36**, L09306..
- **Lomax, A.** and A. Michelini (2009), **Mw_{pd}: A Duration-Amplitude Procedure for Rapid Determination of Earthquake Magnitude and Tsunamigenic Potential from P Waveforms**, *Geophys. J. Int.*, **176**, 200-214.
- Satriano, C., **A. Lomax** and A. Zollo (2008), **Real-time evolutionary earthquake location for seismic early warning**, *Bull. Seism. Soc. Am.*, **98**, 1482-1494.
- **Lomax, A.** (2008), **Location and Tectonics of the Focal Region of the California Earthquake of 18 April 1906**, *Bull. Seism. Soc. Am.*, **98**, 846-860.
- **Lomax, A.**, A. Michelini and A. Piatanesi (2007), **An energy-duration procedure for rapid determination of earthquake magnitude and tsunamigenic potential**, *Geophys. J. Int.*, **170**, 1195–1209.
- Satriano, C., **A. Lomax** and A. Zollo (2007), **Optimal, Real-time Earthquake Location for Early Warning**, in *Earthquake Early Warning Systems*, Gasparini, P., G. Manfredi and J. Zschau (eds.), Springer, Berlin, pp. 45-63.
- **Lomax, A.**, (2005), **A Reanalysis of the Hypocentral Location and Related Observations for the Great 1906 California Earthquake**, *Bull. Seism. Soc. Am.*, **95**, 861-877.
- **Lomax, A.** and A. Michelini (2005), **Rapid Determination of Earthquake Size for Hazard Warning**, *Eos Trans. AGU*, **86**, 19, 185-189.
- **Lomax, A.**, (2005), **Rapid estimation of rupture extent for large earthquakes: application to the 2004, M9 Sumatra-Andaman mega-thrust**, *Geophys. Res. Lett.*, **32**, L10314..

Full publication list and links at: http://www.alomax.net/pub_list.html