

**Martín Medina–Elizalde CV**

Visiting Assistant Professor  
Amherst College,  
Amherst MA

Adjunct Faculty  
Department of Geosciences,  
University of Massachusetts, Amherst

**Work**

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**EDUCATION:**

2002–2007 UNIVERSITY OF CALIFORNIA, SANTA BARBARA

- Ph.D. Interdepartmental Program in Marine Sciences, University of California, Santa Barbara. Supervisor: Prof. David W. Lea, Advisors: James Kennett and Jordan Clark.

1997–2000 CENTER OF RESEARCH OF ADVANCED STUDIES, YUCATAN

- MS. Marine Biology/Coral Geochemistry/Contamination of Natural Systems, Center of Research and Advanced Studies, Yucatán, Supervisor: G. Gold–Bouchot.

1994–1997 UNIVERSIDAD DE BAJA CALIFORNIA SUR, MEXICO

- BA. Marine Biology, Universidad de Baja California Sur, México (University of Southern Baja California)  
Scleractinian coral population dynamics and reproduction.

## **EMPLOYMENT RECORD:**

2014–Present Amherst College, Department of Geology

- Visiting Assistant Professor

2012–2013 CENTRO DE INVESTIGACION CIENTIFICA DE YUCATAN

- Assistant Professor, Cancún and Merida Campuses, México

2010–2012 NATIONAL OCEANOGRAPHY CENTRE, SOUTHAMPTON (NOCS)

- Postdoctoral Research Fellow, University of Southampton, United Kingdom

2007–2009 NOAA GLOBAL AND CLIMATE CHANGE

- Postdoctoral Fellow, University of Massachusetts, Amherst  
University Corporation for Atmospheric Research (UCAR)/(NOAA)

2000–2001 MARINE GEOCHEMISTRY LABORATORY

- Laboratory Technician, CINVESTAV–IPN, México  
Evaluation of environmental impacts of oil platforms located in the Campeche Sound, Gulf of México: hydrocarbon and trace metal content in sediments, fish and water.

## **TEACHING EXPERIENCE:**

GEOLOGY 109 CLIMATE CHANGE, GLOBAL WARMING AND ENERGY RESOURCES

- Geology Department, Amherst College

GEOLOGY 331 PALEOCLIMATOLOGY

Geology Department, Amherst College

GS 4 INTRODUCTION TO OCEANOGRAPHY

- Earth Science Department University of California Santa Barbara. An introduction to oceanography covering the major physical, chemical, and geological features of the oceans, their role in earth history, and potential use as a natural resource.
- Laboratory facilitation.

GS 130 GLOBAL WARMING; SCIENCE AND SOCIETY

- Earth Science Department, University of California Santa Barbara. An introduction to the scientific and societal issues surrounding global climate change.
- Includes introduction to physical climatology, greenhouse effect, climate history, anthropogenic changes, and future predictions.
- Student discussion and debate on the potential societal scenarios available to mitigate future climate change.

SPRING 2015

GEOLOGY 121: SURFICIAL EARTH DYNAMICS

Geology Department, Amherst College

## **RESEARCH SKILLS:**

- Isotope Geochemistry
- Paleoclimate reconstructions from corals, stalagmites and marine sediment Archives.
- Laboratory Instrumentation: Atomic Absorption Spectrometry, ICP Mass

- Spectrometry, Light isotope ratio Mass Spectrometry.
- Mg/Ca Paleothermometry, trace elements and organic compounds

**COMPUTER SKILLS:**

- Grapher, Analyseries, Arand
- Adobe Illustrator, Photoshop
- Platforms: Mac OS X, MS Windows
- Word processing: Microsoft Word, Word Perfect, Power Point

**LINGUISTIC SKILLS:**

- Fluent: Spanish and English

**PROFESSIONAL ACCOMPLISHMENTS, HONORS AND AWARDS:**

- “Global and Climate Change postdoctoral Fellowship” University Corporation for Atmospheric Research (UCAR) and National Oceanographic and Atmospheric Administration (NOAA) (Dec 2007–Dec 2009) (Value: US\$ 120,000.00)
- UC Mexus–Conacyt Ph.D. Scholarship (2002–2007) (Value: US\$ 220,000.00)
- Invited to the Academy Colloquium “Constraining estimates of future climate variability from geological records at the Netherlands Royal Academy of Art and Science, Amsterdam, the Netherlands. 29–31 March 2011 (Conveners: Henk Dijkstra, Eelco Rohling and Sluijs Appy) (Travel Grant £ 2000.00).
- German Research Foundation travel grant to attend the International Workshop on Pliocene climate, in Bordeaux, France (2009) (Value: US\$ 1,500.00).
- NSF fellowship to attend the DISCCRS IV Symposium (2008) (Value: US\$ 1,500.00).
- National Science Foundation Travel Grant to attend the AGU Chapman Conference on Tropical–Extratropical Climatic Teleconnections; “A Long–Term Perspective” (2005) (US\$ 1,200.00).
- Wendell Philips Woodring Memorial Graduate Fellowship, for the thesis of highest merit. University of California Santa Barbara (2003) (US\$ 1,500).
- Nejat’s Memorial Marine Science, for the best written essay, Interdepartmental Program in Marine Science, University of California, Santa Barbara (2003) (US\$ 3,000).

**GRADUATE AND UNDERGRADUATE STUDENTS ADVISED**

- M.Sc. Fernanda Lases–Hernandez (graduated 2013)
- B.A. Thomas Enzminger (class 2015)

**PROFESSIONAL SOCIETY MEMBERSHIP:**

- PALAEOSENS (Since 2011)
- American Geophysical Union (since 2002)
- DISCCRS (since 2007)
- AAAS (since 2008)
- National Speleological Society (NSS) (since 2009)

## PUBLICATIONS:

- **Medina-Elizalde M.** A global compilation of coral sea-level benchmarks: implications and new challenges, *Earth and Planetary Science Letters*, **362**, 310 (2013).
- Bolton, C. Liao Chang, Steven Clemens, Kazuto Kodama, Minoru Ikehara, **Martin Medina-Elizalde**, Greig A. Paterson, Andrew P. Roberts, Eelco J. Rohling, Xiang Zha, A 500,000 year record of Indian summer monsoon dynamics recorded by eastern equatorial Indian Ocean upper water-column structure, *Quaternary Science Reviews* **77**, 167 (2012).
- K.M. Grant, E.J. Rohling, C. Bronk-Ramsey, M. Bar-Matthews, C. Satow, **M. Medina-Elizalde**, A.P. Roberts, Millennial-scale timing of phase relationships between sea-level, high-latitude climate, and monsoon maxima over the last 160,000 years. *Nature* **491** 744-747 (2012)
- PALAEOSENS group (authors presented in alphabetic order)  
D. Beerling, A. Berger, P.K. Bijl, M. Crucifix, R. deConto, S.S. Drijfhout, A. Fedorov, G. Foster, A. Ganopolski, J. Gregory, J. Hansen, B. Hoenisch, M. Huber, P. Huybers, H. Hooghiemstra, L.J. Lourens, D. Lunt, R. Knutti, D. Lea, V. Masson-Demotte, **M. Medina-Elizalde**, G. Meehl, B. Otto-Biesner, M. Pagani, H. Pälike, G.J. Reichert, H. Renssen, A. Ridgwell, E.J. Rohling, D. Royer, M. Siddall, T. Stocker, M. den Toom, E. Tziperman, P. Valdes, J.C. Zachos, R.E. Zeebe. **Making sense of palaeoclimate sensitivity**, *Nature* **491**, 683-690 (2012)
- **Medina-Elizalde M.** and Rohling E.J. Classic Maya civilization collapse related to modest reduction in precipitation, *Science* **335**, 956 (2012).
- Rohling, E.J., **Medina-Elizalde, M.**, Shepherd, J.G., Siddall, M., Stanford, J.D. (2012) Sea surface and high-latitude temperature sensitivity to radiative forcing of climate over several glacial cycles, *J. Climate*, **25**, 1635-1656.
- Stanford, J.R., R. Hemingway, E.J. Rohling, P.G. Challenor, **M. Medina-Elizalde**, and J. Lester (2011) Sea-level probability for the last deglaciation: a statistical analysis of far-field records, *Global and Planetary Change*, vol. 79, 193-203.
- **Medina-Elizalde M.**, Burns J. S., Lea, D., Polyak V., Asmerom Y., and Vuille M., A., Lucien von Gunten, L. (2010) High resolution climate record from the Yucatán Peninsula spanning the Mayan Terminal Classic Period, *Earth and Planetary Science Letters*, 10538.
- **Medina-Elizalde M.** and D. W. Lea. (2010) The Late Pliocene equatorial Pacific. *Paleoceanography*, PA 2008, 2009PA001780.
- **Medina-Elizalde M.**, Lea W. D. and M. Fantle (2008) Implications of Seawater Mg/Ca Variability for Plio- Pleistocene Climate reconstruction, *Earth and Planetary Science Letters*, doi:10.1016/j.epsl.2008.03.014.
- Hansen J., Sato M., Reto R., Ken Lo., Lea D. and **Medina-Elizalde M.** (2006) Global Temperature Change. *Proc. Nat. Acad. Sci.* 103, 14288-14293.

- **Medina–Elizalde M.,** and Lea W. D. (2005) The Mid–Pleistocene Transition in the Tropical Pacific. *Science* 310, 1009. This paper was published in electronic format in *Science Express* on October 13, 2005.
- **Medina–Elizalde, M.,** G. Gold–Bouchot and V. Ceja–Moreno (2002) Lead contamination in the Mexican Caribbean recorded by the coral *Montastraea annularis* (Ellis and Solander). *Marine Pollution Bulletin* 44(5): 421–423.

#### **PUBLICATIONS IN SUBMITTED AND IN PREPARATION:**

- **M. Medina–Elizalde,** Polanco J., Lases–Hernandez F., Bradley R., Burns, S. Maya civilization collapse associated with decreased hurricane activity (Quaternary Science Reviews in review).
- **Martín Medina–Elizalde<sup>a</sup>,** Stephen J. Burns, Chuan–Chou Shen, Fernanda Lases–Hernandez and Josué Polanco–Martinez “High–resolution stalagmite record from the Yucatan Peninsula spanning the Maya Pre–Classic period”. In preparation for Global and Planetary Change: special issue “Climate Change and Archaeology in Mesoamerica: A Mirror for the Anthropocene: Guest Editors: Tim Beach, Amy Frappier, and Cary Mock.

#### **POPULAR PUBLICATIONS:**

- Martín Medina–Elizalde y Fernanda Lases–Hernández, Perspectiva no favorable para la Península de Yucatán (Unfavorable perspective for the Yucatan Peninsula (Ciencia y Desarrollo) (in review).
- Medina–Elizalde M. (2009). La Paradoja del Desarrollo Turístico de Quintana Roo, México (*The Paradox of the Tourist Development in Quintana Roo, México*). *Río Hondo* 87, 3–7.
- Medina–Elizalde M. (2009) “Estudio Paleoclimático sobre la Historia de la Civilización Maya” (*Paleoclimatic study on the History of the Mayan Civilization*) *La Jornada* Newspaper (México) (<http://ciencias.jornada.com.mx/ciencias/investigacion/ciencias-de-la-tierra/investigacion/>).
- Medina–Elizalde M. (2007) “Aspectos confusos sobre el calentamiento Global” (*Confusing aspects about Global Warming*) *La Jornada* newspaper (México) (2007). (<http://ciencias.jornada.com.mx/ciencias/investigacion/ciencias-de-la-tierra/investigacion/>).
- Medina–Elizalde M. (2005) Las Glaciaciones, el Dióxido de Carbono y el Calentamiento Global (*Glaciations, Carbon Dioxide and Global Warming*). *Avance y Persp.* 24, 45.

## NEWS COVERAGE:

\*Given upon request; recent press coverage of Medina–Elizalde Science Feb 2012.

- ‘Radio Espectador’ (Uruguay) live interview radio broadcast featuring research on the mild droughts and collapse of the ancient maya civilization (2012).
- ‘Santa Barbara Newspress’ and the ‘El Mexicano’ (California) newspapers featuring research on the role of greenhouse gases in tropical climate evolution (2005).
- Live interview for ‘TeleMundo’, broadcasted in the USA and Latin America, a discussion about the contributions of my research to the global warming theory (2005).
- Science Daily:  
<http://www.sciencedaily.com/releases/2005/10/051014073357.htm>
- UCSB Press Release: <http://www.ia.ucsb.edu/pa/display.aspx?pkey=1352>
- NASA Newsroom:  
<http://earthobservatory.nasa.gov/Newsroom/view.php?id=28449>  
<http://adsabs.harvard.edu/abs/2010E%26PSL.298..255M>

## CONFERENCE PRESENTATIONS: INVITED

- **Medina–Elizalde M.** 3000–year stalagmite precipitation record from the Yucatán Peninsula: decoding the Climate History of the Yucatan Peninsula. Conference: *“New Perspectives on Past Climate Change and Societal Disruption”*. Conveners: Mark Pagani, Simone Galeotti and Peter Douglas. Urbino, Italy, June 2014.
- **Medina–Elizalde M.** Rohling J Eelco; Katherine Grant; Jenny Stanford; Andrew P Roberts, A global compilation of coral sea level benchmarks: implications and new challenges American Geophysical Union. San Francisco, USA, 2011.
- **Medina–Elizalde M.** Tropical Pacific thermal evolution, the 100 ky cycles, and the role of greenhouse gases during the late Pliocene glaciations, Workshop on Pliocene Climate. Bordeaux, France, 23–25 October 2009 (Conveners Johan Etourneau and Nabil Khélifi).
- **Medina–Elizalde M.** The Classic Maya civilization: “knockout” in the eighth round of drought, Lamont Doherty Earth Observatory. Columbia University, November 26 2009.
- **Medina–Elizalde M.** A synoptic view of past climates in the Yucatan Peninsula and the fate of ancient Maya Kingdoms. University of Richmond. October 25 2012. (WATCH in the UR website and Youtube:  
[http://www.youtube.com/watch?v=MVKgFjcUFw4&feature=player\\_embedded](http://www.youtube.com/watch?v=MVKgFjcUFw4&feature=player_embedded))

- **Medina–Elizalde M.** A synoptic view of past climates in the Yucatan Peninsula and the fate of ancient Maya Kingdoms. Amherst College. October 15 2012.
- **Medina–Elizalde M.** El calentamiento global: contexto histórico e impactos (Global warming: historical context and impacts). Universidad del Valle de Mexico, March 2012.
- **Medina–Elizalde M.** El calentamiento global: contexto histórico e impactos. (Global warming: historical context and impacts) March, 2012.

#### OFFERED

- **Medina–Elizalde M,** Burns J. S., Lea, D., Polyak V., Asmerom Y., and Vuille M., A Late Holocene Stalagmite Climate Record from the Yucatan Peninsula, Mexico. American Geophysical Union. San Francisco, EUA, 2008. *Poster*
- **Medina–Elizalde M.** and Lea D. The Late Pliocene Equatorial Pacific. American Geophysical Union. San Francisco, USA, 2007. *Talk*
- **Medina–Elizalde M,** Lea D., Fantle M. Implications of seawater Mg/Ca variability for Plio– Pleistocene Tropical Climate reconstruction. American Geophysical Union. San Francisco, EUA, 2007. *Poster*
- **Medina–Elizalde M.** Global Warming: Scientific Aspects, historical context and climatic impacts. 1st Environmental Conference. Secretaria de Desarrollo Urbano y Medio Ambiente (SEDUMA). Mexico, 2007. *Talk*
- **Medina–Elizalde M.** and Lea D. The Western Equatorial Pacific Thermal Evolution. American Geophysical Union. San Francisco, USA, 2003, 2004 and 2006. *Talk*
- **Medina–Elizalde M.** and Lea D. The Mid–Pleistocene Transition In The Tropical Pacific. American Geophysical Union. San Francisco, USA, 2005. *Talk*
- **Medina–Elizalde M.** Lea D. and Spero H. Temperature History of the Western Equatorial Pacific over the last 1.3 Ma. American Geophysical Union, 1st Conference on Tropical–Extratropical Climatic Teleconnections; A Long–Term Perspective. Hawaii, USA, 2005. *Talk*
- **Medina–Elizalde, M.** and Gold–Bouchot, G. Contaminación de Plomo a partir de registros coralinos del Caribe Mexicano. 1er Congreso Nacional sobre Arrecifes de Coral. Veracruz, Veracruz, México. (2002). *Talk*
- **Medina–Elizalde, M.** and Gold–Bouchot, G. Chronology of Pb/Ca ratios in *Montastrea annularis* del Caribe Mexicano. XII Congreso Nacional de Oceanografía. Huatulco, Oax., México (2000). *Talk*