

## CURRICULUM VITAE

**Name:** Román Alvarez

**Sex:** Male

**Nationality:** Mexican

**Present position:** Professor

**Address:** Institute of Applied Mathematics and Systems (IIMAS)  
National University of Mexico, UNAM  
Circuito Exterior, Ciudad Universitaria  
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Mexico City

**Ph.D. degree:** Geoscience, University of California, Berkeley. 1972

### **Employment Record:**

Mar 1972 - Oct 1973 Assistant Research Geophysicist, University of California, Berkeley

Oct 1973 - Dec 1976 Investigador Titular "A", Institute of Geophysics, UNAM.

Jan 1977 - Dec 1979 Investigador Titular "B", Institute of Geophysics, UNAM.

Jan 1980 - Mar 1981 Investigador Titular "C", Institute of Geophysics, UNAM.

Mar 1981 – Jul 1996 Investigador Titular "C", Instituto de Investigaciones en Matemáticas Aplicadas y Sistemas (IIMAS), UNAM.

Dec 1986 – Aug 1989 Head, Department of Physical-Mathematics, Instituto de Investigaciones en Matemáticas Aplicadas y Sistemas, UNAM.

Aug 1989 - Sep 1997 Director, Institute of Geography, UNAM.

Mar 1999- Professor, Department Physical-Mathematics, IIMAS, UNAM

### **Recognitions and Relevant Activities**

- Feb 1973 - Jan 1974 Co-investigator with H. F. Morrison (Principal Investigator) in the NASA Lunar Sample Program, Project NGR-05-003-572 "The Study of Electrical Conduction Mechanisms in Lunar Samples", University of California, Berkeley.
- Jan 1974 - Jan 1978 Principal Investigator in the NASA Lunar Sample Program, with the project "Electrical Conduction Mechanisms in the Lunar Regolith", Instituto de Geofísica, UNAM.
- Sep 1979 Best Paper Award, Geothermal Resources Council, USA.
- Mar 1983 - Mar 1984 Project Coordinator "Space Sciences in Mexico: A Historical and Critical Appraisal", IIMAS, UNAM / International Development Research Center, Canada.
- 1988 General Coordinator of the III Latin American Symposium on Remote Sensing, of the Sociedad de Especialistas Latinoamericanos en Percepción Remota, Acapulco, December 5-9.
- 1987 - 1996 National Coordinator of the Mexican Chapter of Sociedad de Especialistas Latinoamericanos en Percepción Remota.
- Aug 1992 Panelist in *Symposium on Space Technology in Developing Countries-Making it Happen*", sponsored by ONU/IAF/COSPAR/ AIAA/, Washington, D. C: USA
- Apr. 1993 General Rapporteur of the Second Space Conference of the Americas, Santiago de Chile, April, 1993.
- 1993 - 1996 Member of the Delphi Panel of Technology Transfer and Applications Experts. Ottawa University, Canada.
- 1994- Member of the Mexican Academy of Engineering (Academia Mexicana de Ingeniería).
- Nov 1995 - Nov 1997 President, Remote Sensing Society of Latin-American Specialists in Remote Sensing (Sociedad de Especialistas Latinoamericanos en Percepción Remota y Sistemas de Información Espacial, (SELPER).
- Dec. 1997 Key Note Speaker, International Symposium on Spectral Sensing Research, San Diego.

- 1999 Juror, National University Prize in Exact Sciences Research, 1999.
- 1999 Juror, Recognition to Young Academicians of the National University, 1999.
- 2000 Juror, National University Prize in Exact Sciences Research, 2000.
- 2000 Juror, Recognition to Young Academicians of the National University, 1999.
- 2002-2007 Member of the Post-graduate Committee in the Earth Sciences, National University of Mexico, (UNAM).
- 2006 Member of the Evaluation Committee of “Premio México” (Mexico Prize). Scientific Consultant Council, Presidency of the Mexican Republic. February, 2006.

### **Editorial Activities**

- 1979 Editor, Special Issue on Los Humeros Caldera, *Geofísica Internacional*, Mexico.
- 1990 Member of the Editorial Committee of *SELPER Dictionary on Remote Sensing Terminology*. Trilingual: Spanish, English, Portuguese. Edited by SELPER and the Canadian International Development Agency, Printed in Canada.
- 1990 Editor, *SELPER Memoir*, The Acapulco Symposium, 229 pp. Soc. Esp. Latinoamericanos en Percepción Remota y Sist. Inf. Espacial. Mexico.
- 1990 - 1998 Editor of the *SELPER-México Bulletin*, of the Mexican Chapter of Sociedad de Especialistas Latinoamericanos en Percepción Remota (SELPER), bimonthly from 1990 (43 issues) 1400 copies per issue.
- 1992 - 1994 Editor of *GEOUNAM, Bulletin of the Earth Sciences*, UNAM 1996-1998.
- 1993 General Rapporteur, *Second Space Conference of the Americas*, Santiago de Chile, abril 26-30.

- 1995 Editor, *SELPER Memoir*, Puerto Vallarta Symposium, 973 pp. Soc. Espec. Latinoamericanos en Percepción Remota y Sist. Inf. Espacial.
- 1996 - Appointed Editor, Special Issue on Remote Sensing, *Investigaciones Geográficas*, Boletín Esp. No. 5, 1996, 103 pp.
- 1996 - 1999 Editorial Adviser, *Encarta Enciclopedia*, Spanish Version, Microsoft Corporation, USA.
- 2000- Member of the Editorial Committee of *Revista Digital Universitaria*, UNAM.

### **Publications from 2002:**

- Alvarez, R. (2002). Banderas Rift Zone: A plausible NW limit of the Jalisco Block. *Geophys. Res. Lett.* **29** (20), art. No. 1994, Oct. 15, (doi:10.1029/2002GL016089).
- Lunetta, R.S., R. Alvarez, C.M. Edmonds, G. Lyon, C.D. Elvidge, R. Bonifaz, and C. García. (2002). NALC/Mexico land-cover mapping results: implications for assessing landscape condition. *Int. Jour. Remote Sensing*, **23**, No. 16, 3129-3148.
- Alvarez, R., R. Bonifaz, R. Lunetta, C. García, G. Gómez, R. Castro, A. Bernal, and A.L. Cabrera (2003). Multitemporal land cover classification of Mexico using Landsat MSS imagery. *International Journal of Remote Sensing*, **24**, No. 12, 2501-2514.
- Aguirre-Gómez, R., Salmerón, O. and Alvarez, R (2003). ENSO's effects in central western Mexican Pacific waters: Comparative analysis, 1996-1999. *Geofísica Internacional* **42**, 377-388.
- Manzo Delgado, L.L., Aguirre, R. and Alvarez, R. (2004) Multitemporal analysis of land surface temperatures using NOAA-AVHRR: preliminary relationships between climatic anomalies and forest fires, *International Journal of Remote Sensing*. **25**, No. 20/October 2004, 4417-4424. DOI: 10.1080/01431160412331269643
- Delgado-Granados, H. P. Julio Miranda, R. Alvarez, E. Cabral-Cano, L. Cárdenas-González, F. Correa-Mora, M. Luna Alonso, and C. Huggel (2005). Study of Ayoloco glacier at Iztaccíhuatl volcano (Mexico): hazards related to volcanic activity-ice cover interactions. *Z. Geomorph. N.F.*, Suppl. Vol. 140, 181-193. Jul. 2005.
- Arzate, J., Alvarez, R., Yutsis, V., Pacheco, J. and López-Loera, H. (2006). Geophysical modeling of Valle de Banderas graben and its structural relation to Bahía de

Banderas, Mexico. *Revista Mexicana de Ciencias Geológicas*. v. 23, num. 2, p. 184-198, 2006. [http://satori.geociencias.unam.mx/23-2/\(5\)Arzate.pdf](http://satori.geociencias.unam.mx/23-2/(5)Arzate.pdf)

Alvarez, R. (2007). Submarine topography and faulting of Bahía de Banderas, Mexico. *Geofísica Internacional*, **46**, No. 2, 93-116, 2007.  
<http://www.igeofcu.unam.mx/divulgacion/geofinternacional/iframes/anteriores/2007/02/Alvarez.pdf>

Manzo-Delgado, L., S. Sánchez-Colón, and R. Alvarez. (2009). Assessment of seasonal forest fire risk using NOAA-AVHRR: a case study in central Mexico. *Int. Journal Remote Sensing*, **30**, No. 19, 4991-5013.

García-Aguirre, M.C., R. Alvarez, R. Dirzo, E. Mejía, and J. Bauer. (2010). Effect of deforestation on runoff of a small watershed nearby Mexico City, during 1977 to 2001. Special Issue of the *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (J-STARS)* focusing on "Multi-temporal Imagery Analysis".

García-Aguirre, M.C., Alvarez, R. Dirzo, R., Ortiz, M.A. and Mah Eng, M. (2010). Delineation of biogeomorphic land units across a tropical natural and humanized terrain in Los Tuxtlas, Veracruz, México.. *Geomorphology*, 121, 245–256, 2010.  
<http://dx.doi.org/10.1016/j.geomorph.2010.04.019>

Alvarez, R., López-Loera, H. and Arzate, J. (2010). Modeling the marine magnetic field of Bahía de Banderas, Mexico, confirms the half-graben structure of the bay. *Tectonophysics*, 489 (2010) 14–28. doi:10.1016/j.tecto.2010.03.012

García-Aguirre, M.C., Alvarez, R., Aceves, F. (2011). Geology and Geomorphology in Landscape Ecological Analysis for Forest Conservation and Hazard and Risk Assessment, Illustrated with Mexican Case Histories. *Geology Book 1*, Chapter 4, 16 p. Intech Press, 2011.

Aguirre-Gómez, R., Salmerón-García, O. and Alvarez, R. (2012). Satellite observations of the effect of ENSO on the Tehuantepec and Papagayo upwellings. *Interciencia*, **37**, no. 11, 828-832.

Corbo, F. Arzate, J., Alvarez, R., Aranda-Gómez, J.J., H. López-Loera, and V. Yutsis. (2013). Subduction of the Rivera plate beneath the Jalisco block, as imaged by magnetelluric data. *Rev. Mex. C. Geol.* **30**, 268-281.

Alvarez, R. (2013). Redefinition of the terminus of the Middle America Trench. *International Journal of Geosciences*, **4**, 766-776. doi:10.4236/ijg.2013.44070

- Andrade, E and Alvarez, R. (2014) Remote sensing characterization of the effects of *Anastrepha striata* & *Anastrepha ludens* on guava cultures in Mexico, *Journal of Agricultural Science and Technology A* **4** (2014) 663-678.
- Alvarez, R. and Yutsis, V. (2015). Southward Migration of Magmatic Activity in the Colima Volcanic Complex, Mexico: An Ongoing Process. *International Journal of Geosciences*, 2015, 6, 1077-1099 Published Online September 2015 in SciRes. <http://www.scirp.org/journal/ijg> <http://dx.doi.org/10.4236/ijg.2015.69085>
- Alvarez, R. and Yutsis, V. (2015). The elusive Rivera-Cocos plate boundary: not diffuse. From: Wright, T. J., Ayele, A., Ferguson, D. J., Kidane, T. & Vye-Brown, C. (eds) *Magmatic Rifting and Active Volcanism*. Geological Society, London, Special Publications, 420, 83-103. <http://doi.org/10.1144/SP420.8>
- López-Rodríguez, F., Velasco-Herrera, V.M., Alvarez, R. Gómez-Chávez, S. and Gazzola, J. (2016). Analysis of ground penetrating radar data from the tunnel beneath the Temple of the Feathered Serpent in Teotihuacan, Mexico, using new multi-cross algorithms. *Adv. Space Res.* (2016), <http://dx.doi.org/10.1016/j.asr.2016.03.004>
- Alvarez, R. (2017). Mapping Geologic Interfaces that may alter seismic wave propagation in the Mexico City basin. *Geofísica Internacional*, **56-1**: 37-56. DOI: 10.19155/geofint.2017.056.1.4
- Alvarez, R., F. Corbo Camargo, F. and Yutsis, V. (2017). Geophysical modelling of Isla Isabel: a volcanic island on the Mexican continental margin. From: Nemeth, K., Carrasco-Nuñez, G., Aranda-Gomez, J. J. & Smith, I. E. M. (eds) *Monogenetic Volcanism*. Geological Society, London, Special Publications, 446, 295-310. <https://doi.org/10.1144/SP446.13>
- Alvarez, R., F. Corbo Camargo, F., Yutsis, V. and Arzate, J. (2017). A volcanic center in Mexico's Pacific continental shelf. From: Nemeth, K., Carrasco-Nuñez, G., Aranda-Gomez, J. J. & Smith, I. E. M. (eds) *Monogenetic Volcanism*. Geological Society, London, Special Publications, 446, 281-293. <https://doi.org/10.1144/SP446.12>.
- Alvarez, R. and Yutsis, V. (2017). Potential fields modeling of the Serdán-Oriental basin, Eastern Mexico. *Journal of South American Earth Sciences*, **80**, 375-388. <https://doi.org/10.1016/j.jsames.2017.10.003>
- Alvarez, R. & Figueroa, G. (2018) Radiometric Mapping of Hydrothermal Alterations in Isla Isabel, Mexico Applied Geophysics with Case Studies on Environmental, Exploration and Engineering Geophysics. DOI: <http://dx.doi.org/10.5772/intechopen.80530>
- Camacho, M. & Alvarez, R. (2020)

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Camacho, M. and Alvarez, R. (2021) Geophysical Modeling with Satellite Gravity Data: Eigen-6C4 vs. GGM Plus. *Engineering*, 13, 690-706. <https://doi.org/10.4236/eng.2021.1312050>

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[Alvarez, R. and Camacho, M.](#) (2023). Plumbing System of Hunga Tonga Hunga Ha'apai Volcano. *Journal of Earth Science*, 34(3): 706–716. <https://doi.org/10.1007/s12583-022-1792-0>