

CURRICULUM VITAE

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DATE AND PLACE OF BIRTH: Heredia, Costa Rica, November 7, 1960.
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AREAS OF INTEREST: Seismotectonics, volcano geophysics, crustal deformation,
local body wave tomography.

ACADEMIC HISTORY

June 1994: Ph.D. in Earth Sciences (Geophysics)
University of California, Santa Cruz.
USA.
June 1991: M.Sc. in Earth Sciences
University of California, Santa Cruz.
USA.
August 1984: Post-degree in Seismology
International Institute of Seismology and Earthquake Engineering
Tsukuba, Japan.
August 1983: BS. in Geology
Universidad de Costa Rica
Costa Rica

PROFESSIONAL EXPERIENCE

July 1980-November 1982: Teaching Assistant, Central American School of Geology,
Universidad de Costa Rica.
Dec. 1980-Feb. 1981: Field geology Assistant on petroleum exploration, Costa Rica
Refinery of petroleum (RECOPE).
Dec. 1981-Feb. 1982: Field geology assistant in petroleum exploration, Costa Rica
Refinery of Petroleum Exploration (RECOPE).
Dec. 1982-August 1983: Assistant in the evaluation and integration of oil prospecting data,
Costa Rica Refinery of Petroleum Exploration (RECOPE).
September 1984-present: Researcher at the Observatorio Vulcanológico y Sismológico de
Costa Rica, Universidad Nacional, Heredia, Costa Rica.
November 1986-June 1988: Director of the Observatorio Vulcanológico y Sismológico de
Costa Rica, Universidad Nacional, Heredia, Costa Rica.
January 1990-June 1994: Teaching and Research Assistant, University of California, Santa
Cruz, California, U.S.A.
June 1997-May 2002: Director of the Observatorio Vulcanológico y Sismológico de
Costa Rica, Universidad Nacional, Heredia, Costa Rica.

HONORS

- 1983-1984 Fellowship given by the Japan International Cooperation Agency (JICA) to study seismology in Japan.
- 1985 Fellowship given by the United Nations Educational, Scientific and Cultural Organization (UNESCO) to attend a training course in tectonics, seismology and seismic risk assessment in the German Democratic Republic.
- 1987 Fellowship given by the Costa Rica National Emergency Committee to attend the First International Congress on Natural Disasters in Cuba.
- 1987 Invited to California by the Jet Propulsion Laboratory (JPL) and the University of California at Santa Cruz, as a non-fee consultant for the preparation of a GPS campaign in Costa Rica.
- 1988-1990 FULBRIGHT fellowship to obtain a Master degree in Earth Sciences at the University of California, Santa Cruz.
- 1997 Awarded the Costa Rica National Price in Science “Clodomiro Picado” given by the Ministry of Science and Technology and the Ministry of Culture
- 1997 Awarded Scientist of the Year by the Costa Rica Newspaper La Nacion.
- 1999 Fellowship given by the Japan International Cooperation Agency (JICA) to visit Japan and begin scientific cooperation in seismotectonics between Japan and Costa Rica.
- 2001 Member of the Expert Mission of United Nations Development Program to El Salvador to evaluate earthquake information release after the January and February 2001 earthquakes.
- 2002 Incorporated to the Costa Rica Academy of Sciences (in the Board of Directors since 2004).
- 2003 Awarded the “Roberto Brenes Mesén Price” for Academic Excellence by the National University, Costa Rica.
- 2004 Awarded the “Golden Lamp Price” by the Canadian College for roll model in science.

SCIENTIFIC CONTRIBUTIONS (since 1993)

- Lundgren, P.; Kornreich, S.; Protti, M.; Hurst, K.; GPS measurements of crustal deformation associated with the 22 April 1991, Valle de la Estrella, Costa Rica earthquake; *Geophys. Res. Lett.*, Vol. 20, No. 5, p. 407-410, 1993.
- Protti, M.; and Schwartz, S.; Mechanics of back arc deformation in Costa Rica: Evidence from an aftershock study of the April 22, 1991, Valle de la Estrella, Costa Rica, earthquake (Mw=7.7); *Tectonics*, Vol. 13, No. 5, p. 1093-1107, 1994.
- Protti, M.; Guendel, F.; and McNally, K.; The geometry of the Wadati-Benioff zone under southern Central America and its tectonic significance: results from a high-resolution local seismographic network; *Phys. of the Earth and Planet. Inter.*, 84, p. 271-287, 1994.
- Protti, M.; Guendel, F.; and McNally, K.; Correlation between the age of the subducting Cocos Plate and the geometry of the Wadati-Benioff zone under Nicaragua and Costa Rica. In P. Mann (Editor), *Geologic and Tectonic Development of the Caribbean Plate Boundary in Southern Central America*. *Geol. Soc. Am. Special Paper 295*, 309-326, 1995.

- Protti, M.; and 14 other co-authors; The March 25, 1990 (Mw=7.0 MI=6.8) earthquake at the entrance of the Nicoya Gulf, Costa Rica: its prior activity, foreshocks, aftershocks and triggered seismicity; *Jour. Geophys. Res.* Vol. 100, No. B10, pp. 20345-20358, 1995.
- Protti, M.; Schwartz, S. Y.; and Zandt, G.; Simultaneous Inversion for earthquake location and velocity structure beneath central Costa Rica; submitted to the *Bull. of the Seismol. Soc. Amer.* Vol. 86, No. 1A, pp. 19-31, 1996.
- Hagerty, M., S. Schwartz, S., M. Protti, M. Garcés, y T. Dixon; Observations at Costa Rica Volcano Offer Clues to Causes of Eruptions, *Eos, Trans., Am. Geophys. Union*, Vol. 78, No. 46, p.565-571; 1997.
- Fisher, D. M., Gardner, T. W., Marshall, J. S., Sak, P.B., Protti, M.; Effect of subducting sea-floor roughness on fore-arc kinematics, Pacific coast, Costa Rica; *Geology*; v. 26; no. 5; p. 467-470; 1998.
- Guendel, F.; y M. Protti; 1998; Sismicidad y sismotectónica de América Central; *Física de la Tierra*, No. 10, p. 19-51.
- Lundgren, P.; Protti, M.; Donnellan, A; Heflin, M.; Hernández, E.; and Jefferson, D.; 1999; Seismic cycle and plate margin deformation in Costa Rica: GPS observations from 1994 to 1997; *Jour. Geophys. Res.* Vol. 104, No. B12, p. 28915-28926; 1999.
- Guendel, F.; y Protti, M.; Actividad Sísmica Frente a las Costas de Quepos, Pacífico Central, Costa Rica; submitted a la *Revista de Vulcanología, Sismología y Tectónica*, 1999.
- Protti, M.; Importancia de una alerta temprana en caso de terremoto para edificaciones esenciales vulnerables: un posible ejemplo para Costa Rica; *Revista EIRD Informa – América Latina y el Caribe*; No. 3, 2001.
- Garcés, M.; M. Hagerty; S. Schwartz, y M. Protti; Analysis of the infrasonic harmonic voicings of volcanoes; remitido a *Science*, Nov. 30, 2001.
- Dixon, T., L. Dorman, E. Flueh, P. Lundgren, E. Norabuena, M. Protti, S. Schwartz; 2001; Imaging the Seismogenic Zone in Costa Rica with Geodesy and Seismology; *Margins Newsletter* No. 6, p. 1-3, Spring 2001.
- Protti, M.; Güendel, F.; Malavassi, E.; 2001, Evaluación del Potencial Sísmico de la Península de Nicoya, Editorial FUNA, Universidad Nacional 143 p.
- Newman, A.; S. Schwartz, V. Gonzalez , H. DeShon, M. Protti, and L. Dorman; Along-strike variability in the seismogenic zone below Nicoya Peninsula, Costa Rica; *Geophysical Research Letters*; Vol. 29, No. 20, 2002.
- Protti, M.; The Costa Rica Subduction Zone: Large Variations in Short Distances along the Trench; volume of abstracts; *IRIS 14th Annual Workshop*; Waikoloa, Hawaii; 2002.
- Protti, M.; y V. González; 2002; Monitoreo geodésico de una Brecha Sísmica Madura: Nicoya, Costa Rica, *Memorias del VII Congreso Internacional de Ciencias de la Tierra y Simposio Internacional IAG Deformaciones Recientes de la Corteza Terrestre en SudAmerica y Alrededores*; Santiago de Chile, 21-25 de octubre del 2002, 21 p.
- DeShon, H. R.; S. Y. Schwartz; S. L. Bilek; L. M. Dorman; V. González; J. M. Protti; E. R. Flueh; and T. H. Dixon; Seismogenic Zone Structure of the Southern Middle America Trench, Costa Rica; *Journal of Geophysical Research*; Vol. 108, No. 10, 2491; doi:10.1029/2002JB002294; 2003.
- Norabuena, E., Dixon, T. H.; Schwartz, S. Y.; DeShone, H.; Newman, A.; Protti, M.; González, V.; Dorman, L.; Flueh, E.R.; Lundgren, P.; Pollitz, P.; Sampson, D.; Geodetic and Seismic Constrains on some Seismogenic Zone Processes in Costa Rica; accepted to the *Journal of Geophysical Research*; Vol. 109, 2004.
- Inuma, T.; M. Protti; K. Obana; V. Gonzalez; R. van der Laat; T. Kato; S. Miyasaki; Y. Kaneda; E. Hernandez; Inter-plate coupling in the Nicoya Peninsula, Costa Rica, as deduced from a trans-peninsula GPS experiment; *Earth and Planetary Science Letters* 223, 203-212; 2004.

MOST RECENT ABSTRACTS (since 2000)

- Protti, M., S. Schwartz, T. Dixon, V. González, F. Güendel, L. Dorman, D. Sampson, P. Lundgren, E. Hernández, T. Marino; Delimitación de la zona sismogénica del segmento de la zona de subducción por debajo de la Península de Nicoya, Costa Rica, volumen de resúmenes presentados ante el I Congreso de Investigación de Universidades Estatales, San José, Costa Rica; 2000.
- Protti, M.; y E. Malavassi; 2000; Produciendo relieve con terremotos: el caso del valle del Diquis, la fila Costeña y el vale del General-Coto Brus; resumen presentado ante el I Congreso de Investigación de Universidades Estatales, San José, Costa Rica.
- Lundgren, P.; M. Protti, A. Donnellan, M. Heflin, E. Hernández, and D. Jefferson; 2000; Deformación cortical de Costa Rica asociada al ciclo sísmico: observaciones por medio de GPS entre 1994 y 1997; resumen presentado ante el I Congreso de Investigación de Universidades Estatales, San José, Costa Rica.
- Protti, M., E. Malavassi, E. Fernández, E. Duarte, V. Barboza, T. Marino, E. Hernández, R. van der Laet, M. Martínez, R. Sáenz, J. Barquero; 2000; Metodologías empleadas por el OVSICORI-UNA en la vigilancia de volcanes activos en Costa Rica; resumen presentado ante el I Congreso de Investigación de Universidades Estatales, San José, Costa Rica.
- Güendel, F.; Protti, M.; y González, V.; 2000; Sismicidad en pares (duplets) frente a las costas de Quepos, Pacífico central, Costa Rica; resumen presentado ante el I Congreso de Investigación de Universidades Estatales, San José, Costa Rica.
- Protti, M.; S. Schwartz, T. Dixon, R. Shapiro, M. Hagerty, E. Hernández, D. Sampson, T. Marino, E. Norabuena and R. van der Laet; 2000; Deformación del volcán Arenal: más de cuatro años de registro continuo; resumen presentado ante el I Congreso de Investigación de Universidades Estatales, San José, Costa Rica.
- Protti, M.; Schwartz, S.; Dorman, L.; Dixon, T.; Lundgren, P.; Gonzalez, V.; Guendel, F.; A near field study of a seismogenic zone: the Nicoya, Costa Rica, segment of the Middle America Trench; Volume of Abstracts of the 31st International Geological Congress, Rio de Janeiro, Brasil, 2000.
- Protti, M.; Seismicity and seismotectonics of Central America with emphasis on intraslab seismic activity; Volume of Extended Abstracts of the Workshop on Intraslab Processes and Earthquake Hazards in the Cascadia Subduction System; p.53-57, Sept. 2000.
- Protti, M; González, V; Vega, F; Schwartz, S; Sampson, D; Newman, A; DeShon, H; Bilek, S; Dorman, L; Sauter, A; Flueh, E; First Seismic Results from the Nicoya, Costa Rica, SEIZE Initiative; Eos Trans. AGU, 81 (48), Fall Meet. Suppl., 2000.
- Schwartz, S Y; Bilek, S L; DeShon, H; Dixon, T H; Dorman, L M; Flueh, E; Lundgren, P; Newman, A V; Norabuena, E; Protti, M; Sampson, D; González, V; Imaging the Costa Rican Seismogenic Zone with Seismology and Geodesy; Eos Trans. AGU, 81 (48), Fall Meet. Suppl., 2000.
- Norabuena, E; Dixon, T H; Dorman, L M; Flueh, E; Lundgren, P; Newman, A V; Protti, M; Schwartz, S Y; Geodetic and Seismic Constraints on the Costa Rican Seismogenic Zone; Eos Trans. AGU, 81 (48), Fall Meet. Suppl., 2000.
- Protti, M.; Importancia de una alerta temprana en caso de terremoto para edificaciones esenciales vulnerables: un posible ejemplo para Costa Rica; Resúmenes de Ponencias presentadas ante el Seminario Hemisférico sobre Fuerzas Armadas Humanitarias (FAHUM) y Desastres Naturales; San José, Costa Rica; 2001.
- Protti, M.; Importancia de una alerta temprana en caso de terremoto para edificaciones esenciales vulnerables: un posible ejemplo para Costa Rica; Revista EIRD Informa – América Latina y el Caribe; No. 3, 2001.

- DeShon, H. R.; Schwartz, S. Y.; Bilek, S. L.; Dorman, L.M.; Protti, M.; González, V.; Characteristics of the Central Costa Rica Seismogenic Zone Determined from Microseismicity; EOS Trans. AGU, 82 (47) Fall Meet. Suppl., Abstract. Dec. 2001.
- Newman, A. V.; Schwartz, S. Y.; DeShon, H.; Sampson, D.; Protti, M.; González, V.; Guendel, F.; Dorman, L.; Avants, M.; Characteristics of the Nicoya Peninsula, Costa Rica, Seismogenic Zone from Microseismicity; EOS Trans. AGU, 82 (47) Fall Meet. Suppl., Abstract. Dec. 2001.
- Avants, M.; Schwartz, S.; Newman, A.; DeShon, H.; Protti, M.; Guendel, F.; Large Underthrusting Earthquakes Beneath the Nicoya Peninsula, Costa Rica; EOS Trans. AGU, 82 (47) Fall Meet. Suppl., Abstract. Dec. 2001.
- Schwartz, S.; Newman, A.; Protti, M.; Vallee, M.; A Large Tensional Outer-Rise Earthquake in the Nicoya Seismic Gap, Costa Rica; EOS Trans. AGU, 82 (47) Fall Meet. Suppl., Abstract. Dec. 2001.
- Fisher, D. M.; Gardner, T. W.; Sak, P.; Marshall, J. S.; Protti, M.; Uplift Patterns in the Forearc of the Middle America Trench, Costa Rica: Implications for Mass Balance and Fore-Arc Kinematics; EOS Trans. AGU, 82 (47) Fall Meet. Suppl., Abstract. Dec. 2001.
- Protti, M.; The Costa Rica Subduction Zone: Large Variations in Short Distances along the Trench; volume of abstracts; IRIS 14th Annual Workshop; Waikoloa, Hawaii; 2002.
- De Shon, H.R.; S. Schwartz; J. S. Revenaugh; M. T. Hagerty; M. Protti; Statistical Studies on Summit Explosions and Tremor. Arenal Volcano, Costa Rica; EOS Trans. AGU, 83 (47), Fall Meet. Suppl. Abstract V22C-03, 2002.
- Baugh, L.A.; S. Schwartz; D. E. Sampson; T. Dixon; P. La Femina; M. Protti; R. van der Laat; Geodetic Measurements Providing Insight Into Magna Dynamics at Arenal Volcano, Costa Rica; EOS Trans. AGU, 83 (47), Fall Meet. Suppl. Abstract T11E-07, 2002
- Protti, M.; K. Obana; T. Iinuma; S. Miyasaki; T. Kato; Y. Kaneda; A Continuous GPS Transect over the Locked of the Nicoya, Costa Rica, Underthrust Seismogenic Zone; EOS Trans. AGU, 83 (47), Fall Meet. Suppl. Abstract G22A-03, 2002.
- Newman, A. V.; S. Schwartz; V. Gonzalez; J.M. Protti; H. R. DeShon; L. M. Dorman; Evidence for a Thermally Controlled Seismogenic Updip Limit for Subduction at Nicoya, Costa Rica; EOS Trans. AGU, 83 (47), Fall Meet. Suppl. Abstract T51E-04, 2002.
- Dorman, L.M.; A. W. Sauter; S. Y. Schwartz; H. DeShon; A. Newman; M. Protti; S. Bilek; E. Fluh; T. Dixon; Seismic Attenuation in the Subduction Zone of Costa Rica; EOS Trans. AGU, 83 (47), Fall Meet. Suppl. Abstract T52B-1204; 2002.
- Iinuma, T., M. Protti, K. Obana, S. Miyazaki, V. González, R. van der Laat, T. Kato, Y. Kaneda, E. Hernández, Nicoya, Costa Rica, Trans-peninsula GPS Experiment and Inter-plate Coupling, Volume of Abstracts of the Annual Meeting of the International Union of Geodesy and Geophysics, Sapporo, Japón, 2003.
- DeShon, H., S. Y. Schwartz, S. L. Bilek, A. V. Newman, L. M. Dorman, J. M. Protti; SEISMOGENIC ZONE STRUCTURE ALONG THE MIDDLE AMERICA TRENCH: RESULTS FROM THE COSTA RICA SEISMOGENIC ZONE EXPERIMENT; Volume of Abstracts of the Annual Meeting of the International Union of Geodesy and Geophysics, Sapporo, Japón, 2003.
- Marshall, J. S., Khaw, F., Parra, J. G., Annis, L.K., and Protti, M., MARINE TERRACES, SUBDUCTION EARTHQUAKES, AND QUATERNARY UPLIFT OF THE NICOYA PENINSULA, COSTA RICA, CENTRAL AMERICA, Geol. Soc. Am., Abstracts with Program, V 34, 2003.

- Protti, M., V. González, Recovering the Importance of Monitoring Networks of Natural Processes in the Concept of Early Warning Systems; II International Conference on Early Warning Systems, Bonn, Germany, 2003.
- Auger, L.S.; G. Abers, G. Rossi; T. Plank; K. Fisher; V. Gonzalez; M. Protti; W. Strauch; Crustal Thickness Along the Central America Volcanic Arc; Eos Trans. AGU, 85(47), Fall Meet. Suppl., Ababstract T33B-1387; 2004.
- González V.; M. Protti, K. Fisher; C. A. Rychert; A Walker, G. A. Abers; L. Auger; E. Syracuse; T. A. Plank; Preliminary Earthquake Locations From the Costa Rica Component of the TUCAN Network; Eos Trans. AGU, 85(47), Fall Meet. Suppl., Ababstract T21B-0525; 2004.
- Fisher, K.; C. A. Rychert; A Walker; G. A. Abers; L. Auger; E. Syracuse; T. A. Plank; M. Protti; V. González; W. Strauch; P. Perez; Mantle Anisotropy beneath Costa Rica and Nicaragua and the TUCAN Broadband Seismometer Array; Eos Trans. AGU, 85(47), Fall Meet. Suppl., Ababstract V12A-02 Invited; 2004.
- DeShon, H.R.; S. Y. Schwartz; L.M. Dorman; A. V. Newman; M. Protti; V. González; Seismogenic zone structure along the Middle America Trench, Nicoya peninsula, Costa Rica, from 3D local earthquake tomography; Eos Trans. AGU, 85(47), Fall Meet. Suppl., Ababstract S51B-0157; 2004.
- Marshall, J. S.; F. Khaw; J. G. Parra; L. K. Annis; M. Protti; Coastal Deformation Patterns Along the Nicoya Seismic Gap, Pacific Coast, Costa Rica; Eos Trans. AGU, 85(47), Fall Meet. Suppl., Ababstract T13C-1393; 2004.
- Abers, G.A.; L. Auger; E. Syracuse; T. Plank; K.M. Fisher; C. Rychert; A. Walker; J. Protti; V. González-Salas; W. Strauch; P. Perez; Imaging the Subduction Factory Beneath Central America: The TUCAN Broadband Seismic Experiment; Eos Trans. AGU, 85(47), Fall Meet. Suppl., Ababstract T21B-0524; 2004.
- Sitchler, J. C.; D. M. Fisher; T. W. Gardner; M. Protti; Active Thrusting in the Inner Fore arc of Middle America, Costa Rica; Eos Trans. AGU, 85(47), Fall Meet. Suppl., Ababstract T32C-06; 2004.
- Protti, M; V. González; T. Kato; T. Iinuma; S. Miyasaki; K. Obana; Y. Kaneda; P. LaFemina; T. Dixon; S. Schwartz; A Creep Event on the Shallow Interface of the Nicoya Peninsula, Costa Rica Seismogenic Zone; Eos Trans. AGU, 85(47), Fall Meet. Suppl., Ababstract S41D-07; 2004.
- Auger, L.S.; G. Abers, G. Rossi; T. Plank; K. Fisher; V. Gonzalez; M. Protti; W. Strauch; Crustal Thickness Along the Central America Volcanic Arc; Eos Trans. AGU, 85(47), Fall Meet. Suppl., Ababstract T33B-1387; 2004.
- González V.; M. Protti, K. Fisher; C. A. Rychert; A Walker, G. A. Abers; L. Auger; E. Syracuse; T. A. Plank; Preliminary Earthquake Locations From the Costa Rica Component of the TUCAN Network; Eos Trans. AGU, 85(47), Fall Meet. Suppl., Ababstract T21B-0525; 2004.
- Fisher, K.; C. A. Rychert; A Walker; G. A. Abers; L. Auger; E. Syracuse; T. A. Plank; M. Protti; V. González; W. Strauch; P. Perez; Mantle Anisotropy beneath Costa Rica and Nicaragua and the TUCAN Broadband Seismometer Array; Eos Trans. AGU, 85(47), Fall Meet. Suppl., Ababstract V12A-02 Invited; 2004.
- DeShon, H.R.; S. Y. Schwartz; L.M. Dorman; A. V. Newman; M. Protti; V. González; Seismogenic zone structure along the Middle America Trench, Nicoya peninsula, Costa Rica, from 3D local earthquake tomography; Eos Trans. AGU, 85(47), Fall Meet. Suppl., Ababstract S51B-0157; 2004.

- Marshall, J. S.; F. Khaw; J. G. Parra; L. K. Annis; M. Protti; Coastal Deformation Patterns Along the Nicoya Seismic Gap, Pacific Coast, Costa Rica; Eos Trans. AGU, 85(47), Fall Meet. Suppl., Ababstract T13C-1393; 2004.
- Abers, G.A.; L. Auger; E. Syracuse; T. Plank; K.M. Fisher; C. Rychert; A. Walker; J. Protti; V. González-Salas; W. Strauch; P. Perez; Imaging the Subduction Factory Beneath Central America: The TUCAN Broadband Seismic Experiment; Eos Trans. AGU, 85(47), Fall Meet. Suppl., Ababstract T21B-0524; 2004.
- Sitchler, J. C.; D. M. Fisher; T. W. Gardner; M. Protti; Active Thrusting in the Inner Fore arc of Middle America, Costa Rica; Eos Trans. AGU, 85(47), Fall Meet. Suppl., Ababstract T32C-06; 2004.
- Protti, M; V. González; T. Kato; T. Iinuma; S. Miyasaki; K. Obana; Y. Kaneda; P. LaFemina; T. Dixon; S. Schwartz; A Creep Event on the Shallow Interface of the Nicoya Peninsula, Costa Rica Seismogenic Zone; Eos Trans. AGU, 85(47), Fall Meet. Suppl., Ababstract S41D-07; 2004.

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