

Dr. Guaciara M. dos Santos

Research Project Scientist

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EDUCATION

- Ph.D. "Implementation of Accelerator Mass Spectrometry - AMS - in Brazil" 1999. Applied Nuclear Physics and Heavy-Ion Collisions Group, Institute of Physics of the Fluminense Federal University (Universidade Federal Fluminense, UFF), Niteroi, State of Rio de Janeiro, Brazil
- M.S. "O Estado Eletrônico Fundamental da Molécula de Na₂". A Na₂ X1Σg⁺ and (1)1Πg Eletronic States Long Range Analysis. 1995. Laser Spectroscopy Group, Institute of Physics of the Fluminense Federal University (Universidade Federal Fluminense, UFF), Niteroi, State of Rio de Janeiro, Brazil
- Undergraduate General Physics. 1995. Institute of Physics of the Fluminense Federal University (Universidade Federal Fluminense, UFF), Niteroi, State of Rio de Janeiro, Brazil.
- Teacher license
- B.A. General Physics. 1992. Institute of Physics of the Fluminense Federal University (Universidade Federal Fluminense, UFF), Niteroi, State of Rio de Janeiro, Brazil.

PROFESSIONAL EXPERIENCE

- 2011-present Research Project Scientist III, KCCAMS/UCI Facility
- 2008-2011 Research Project Scientist II, KCCAMS/UCI Facility
- 2006-2008 Specialist I, KCCAMS/UCI Facility
- 2004-2006 Associate Specialist III, KCCAMS/UCI Facility
- 2002-2004 Associate Specialist I, KCCAMS/UCI Facility
- 2002-present Manager of the sample preparation laboratory, KCCAMS/UCI Facility
- 1999-2001 Post-doctoral Fellow on Accelerator Mass Spectrometry technique at the Nuclear Physics Department, Australia National University (Advisors Dr. Keith Fifield, Nuclear Physics Department, ANU and Prof. Michael Bird, Earth Science Department), Canberra, Australia.

FELLOWSHIPS, HONORS AND GRANTS

- NSF Paleoclimate Program (US\$ 60,763) Principal Investigator, 2014-2017 Collaborative Research - Hydrological changes in the tropical Andes for the last centuries inferred from tree rings: ITCZ and ENSO under a changing climate – Status: pending
- Awarded NSF grant #EAR-1144888 (US\$ 431,439) Principal Investigator, 2012-2015 - Is carbon biosequestration by plants feasible? Revealing the source of carbon embedded in phytoliths by using isotope analyses (delta13C and 14C measurements) and nanoparticles.
- May to November, 2001 - Bridging Post-doctoral Fellow - ANU, Canberra, Australia - granted by the Institute of Advanced Studies, Research School of Physical Sciences and Engineering, ANU, Australia
- 1999-April, 2001 - Post-doctoral Fellow - ANU, Canberra, Australia - granted by the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Brazil.

RESEARCH INTERESTS AND RESPONSABILITIES

- Isotopic analyses (14C-AMS and IRMS measurements) on carbon occluded in biogenic structures: phytoliths of higher plants and deep-sea sponges.
- Study of source partitioning of soot-black carbon.
- Year-of-death determinations and dietary analyses using Isotope measurements;

- Carbon cycle studies using radiocarbon and stable isotope measurements;
- Radiocarbon analyses of purified compounds - lignin phenols in rivers, and phospholipid fatty acids, alkanes and black carbon in oceanic sediments;
- Ultra-small graphite samples and its applications;
- Carbon in the oceans: Tracing natural processes with rare isotopes, Southern California coast.
- Quality control on graphite sample preparation for AMS measurements: background improvements, precision and reproducibility on regular and ultra-small samples;
- Accelerator Mass Spectrometry (AMS) operation, developments and applications.
- Ion-source development for AMS measurements;
- Supervision of ¹⁴C-AMS sample preparation for numerous students, pos-docs and professionals from UCI and outside visitors.
- Supervision and consultation on ¹⁴C-AMS sample preparation procedures and laboratory set up with numerous laboratories.

PROFESSIONAL AFFILIATIONS

Member of the Physical Society of Brazil (Sociedade Brasileira de Física)

Member of American Geophysical Union (AGU)

EDITORIAL REVIEWS

Nuclear Instruments and Methods

Radiocarbon Journal

Rapid Communications in Mass Spectrometry

NSF

EDUCATIONAL ACTIVITIES

Associate in Instruction (summer of 2011, 2009, 2007, 2006, 2005 and 2004): UCI short course - "The use of Radiocarbon in Ecology and Earth System Science". Assisted in instruction for ¹⁴C - AMS sample preparation procedures of carbonaceous raw materials and, AMS system operation and analyses of data.

UNDERGRAD STUDENTS, GRAD STUDENTS AND POSTDOCTORAL SPONSOR (*indicates direct mentoring):

Current:

- Advisor of Dr. Paul Reyerson*, Specialist (2012 – present), NSF grant
- Advisor of Araks Harutyunyan* (October 2012- present), Undergraduate student. Project: Below ground sources of phytoliths of higher plants
- Advisor of Hector Martinez* (May 2011 – present), Assistant Specialist. Project: Year-of-death determinations and dietary analyses using Isotope measurements.

Former:

- Co-advisor of Dr. Simon Fahrni, Postdoctoral (2011 - 2013), KCCAMS
- Co-advisor of Shari Bush* (May 2011 – 2013), Assistant Specialist. Project: ¹⁴C-AMS carbonate samples screening method.
- Co-advisor of Dr. Ben Fuller, Researcher (September 2012 – February 2013), NSF grant
- Co-advisor of Dr. Julie Ferguson, Postdoctoral (2011 - 2012), KCCAMS
- Co-mentor of a REU student John Kearney and a PhD candidate Gergana Mouteva during the Summer of 2012 along with the Dr. Czimczik. Their findings were presented at the American Geophysical Union Fall Meeting of 2012.
- Advisor of Kaelyn M. Ormsby* (January 2010 – June 2011), Assistant Specialist. Project: Testing Behavioral variability in ABA chemical pretreatment, and ¹⁴C and Stable Isotope dietary Inferences in Modern Humans.
- Co-advisor of Karla Acaylar (2009). Undergrad Senior Thesis: Time-Series Isotope Measurements ($\delta^{13}\text{C}$ and ¹⁴C) of Southern California Surface Seawater Dissolved Inorganic Carbon (DIC).
- Advisor of Elise N. Hinger* (2007-2009), Undergrad Project: Carbon Isotope Measurements of Surface Seawater from a Time-Series Site off Southern California. With this project Ms. Hinger received the

Undergraduate Award in Research for 2008, and today she is at the Dept. Fish, Wildlife and Conservation Biology.

SCIENTIFIC ADVISORY, DISCUSSION PANELS AND SPECIAL INVITATIONS

- Member of the Scientific Advisory Panel (SAP) and chairman of the 12th Accelerator Mass Spectrometry Conference, Wellington, New Zealand, March 20-25, 2011.
- Speaker for the discussion panel of the Graphitization Workshop organized by J. Turnbull & C. Prior, 20th International Radiocarbon Conference, Hawaii, May 03 to June 05, 2009.
- Member of the discussion panel of the NOSAMS Compound Specific Radiocarbon Analyses (CSRA) Workshop, Woods Hole Oceanographic Institution, Sample Preparation, Ion Sources, Modern Accelerators—The Current State of the Art, June 29 and 30, 2010

INVITED PRESENTATIONS

- Invited speaker (workshop series – 2 lectures) of the XVIII EVJAS-FNE (XVIII Escola de Verão Jorge André Swieca de Física Nuclear Experimental), Institute of Physics of the Fluminense Federal University, Niteroi, State of Rio de Janeiro, Brazil - 27 de janeiro a 7 de fevereiro de 2014
- Invited speaker (plenary session) of the RTFNB2013 (Reunião de Trabalho sobre Física Nuclear no Brasil), September 20013, Sao Sebatiao, Brazil – declined due to conflict of schedule.
- Invited speaker - Department lecture series at the CEREGE, Aix en Provence, France, on July 06, 2012, titled "Direct 14C-AMS dating of biosilica of higher plants: tracking the origin of phytolith C of extracted phytoliths from contemporary living grasses".
- Invited speaker (lecture session) of the International Workshop on Small Scale Radiocarbon Analysis, September 2011 at the Laboratory of Ion Beam Physics, ETH Zürich, Switzerland. The good and the bad of small-scale 14C-AMS sample preparation and analysis by GM Santos
- Invited speaker (plenary session) of the IX Latin American Symposium on Nuclear Physics and Applications, Quito, Ecuador, July 18-22, 2011. Beyond archaeology: 14C-AMS and the global carbon cycle by GM dos Santos
- Invited speaker, session convener and chair for the 6th International Symposium "Radiocarbon and Archaeology", Paphos, Cyprus, April 10-15, 2011. Solving the 14C Phytolith Puzzle: Can carbon in phytoliths from living grasses be thousands of years old? By GM. Santos, R Corbineau, MD. Whiteside, KK. Treseder, JR. Southon, A Alexandre and PE. Reyerson.
- Invited speaker (lecture session) of the International Symposium of the Peopling of the Americas, December 16 to 22, 2006 at the Capivara National Park, Piaui, Brazil. 14C-AMS as a tool for archaeological investigation: Implications for Human Settlement in South America by G.M. Santos

PRESENTATIONS

- 1) AmeriDendro 2013, Tucson, USA, May 13 to 17. Assessing the potential of Paraná pine (*Araucaria angustifolia*) for high precision Southern Hemisphere 14C calibration. Guaciara M. Santos, Roberto Linares, Claudio S. Lisi and Mario Tomazello Filho:
- 2) 21th International Radiocarbon Conference, the UNESCO headquarters, 8-13 July 2012, Paris, France.
 - a) Biosilica of higher Plants: Exclusive photosynthetic origin of phytC debunked by 14C & 13C measurements of extracted phytoliths from contemporary living grasses. Guaciara M. Santos, Rémi Corbineau, Paul E. Reyerson, Anne Alexandre, John R. Southon (S03-O-05)
 - b) Behavioral variability in the ABA chemical pretreatment close to the 14C age limit. Santos G.M., Ormsby K. (S03-P-062)
- 3) 6th International Symposium of Radiocarbon and Archaeology, Pafhos, Cypress, April 10, 2011. Solving the 14C phytolith puzzle: Can carbon in phytoliths from living grasses be thousands of years old? Guaciara M. Santos, Rémi Corbineau, Matthew D. Whiteside, Kathleen K. Treseder, John R. Southon, Anne Alexandre, Paul E. Reyerson
- 4) 12th International Conference on Accelerator Mass Spectrometry, March 2011, Wellington, New Zeland. G.M. Santos, K. Ormsby, B. Fuller,
- 5) AAFS2011 - 63rd Annual Scientific Meeting - American Academy of Forensic Sciences, February 21-26, 2011, Chicago, IL. Radiocarbon and Stable Isotope Results of Fingernails of Breastfed Mother-Infant

- Pairs to Investigate Deviation of Year-of-Birth Determinations Due to Diet. Kaelyn M. Ormsby, Guaciara M. Santos, and Benjamin T. Fuller
- 6) AGU 2010 Meeting of the Americas, Foz do Iguaçu, Brazil. Is DIC $\Delta^{14}\text{C}$ Still a Useful Tracer for Observing Changes in Upwelling? Time-series of Carbon Isotopes in Surface Seawater from a Southern California Coastal Site. Guaciara M Santos, Elise N. Hinger, Karla Acaylar, Ellen R.M. Druffel, Sheila Griffin and Kathleen R. Johnson; OS13A-12
 - 7) 20th International Radiocarbon Conference, May 2009, Hawaii, USA. Blank assessment for ultra-small samples: chemical extraction and separation vs. AMS. GM Santos and John R Southon
 - 8) AGU Fall Meeting Abstracts, 2008, San Francisco, USA. Concentration and ^{14}C Content of Total Organic Carbon and Black Carbon in Small (< 100 ug C) Samples from Low-Latitude Alpine Ice Cores. NM Kehrwald, CI Czimczik, GM Santos, LG Thompson, L Ziolkowski
 - 9) 11th International Conference on Accelerator Mass Spectrometry, September 2008, Rome, Italy. The Phytolith C puzzle: a tale of background determinations and accuracy tests" G.M. Santos et al.; p.93 (P1_107).
 - 10) 11th International Conference on Accelerator Mass Spectrometry, September 2008, Rome, Italy. ^{14}C based source apportionment of small (<100micro-gC) samples of total organic carbon (TOC) and black carbon (BC) in ice from Naimona'nyi, Tibet" C. Czimczick et al. p.94 (p1_108).
 - 11) 19th International Radiocarbon Conference 2006, Keble College, Oxford, UK, April 2006.
 - a) Technical progress in AMS ^{14}C -AMS sample preparation at the KCCAMS Facility: Status report and performance of small samples. G.M. Santos et al.; p.171 (118 P-66).
 - b) Delta ^{14}C of Dissolved Inorganic Carbon in surface seawater from a time-series site of Southern California" G.M. Santos et al.; p.247 (183 P-32).
 - 12) 10th International Conference on Accelerator Mass Spectrometry 2005, Berkeley, California, USA; September 5-10, 2005.
 - a) Ultra small-mass ^{14}C -AMS sample preparation and analysis at the KCCAMS Facility. G.M. Santos, J.R. Southon, S. Griffin, S.R. Beaupre and E.R.M. Druffel; p.81 (P-II D19).
 - b) Evaluation of iron and cobalt powder brands as suitable catalysts for ^{14}C -AMS target preparation. G.M. Santos, M. Mazon, S. Rifai, J.R. Southon and R. Moore; p.83 (P-II D25).
 - 13) 38th Annual Meeting of SNEAP 2004, McMaster University, Hamilton, Ontario. SNEAP 2004 Laboratory Report: KCCAMS Facility, UC Irvine. Guaciara M. Santos and John R. Southon
 - 14) 18th International Radiocarbon Conference, September 2003, Wellington, New Zealand. Magnesium perchlorate as an alternative water trap in AMS graphite sample preparation: a report on sample preparation at the KCCAMS Facility at the University of California, Irvine, G.M. Santos et al; p.32(P-1-45).
 - 15) Seventh Australasian Conference on Isotopes in the Environment 2001, Robertson, New South Wales, Australia, Sep 2001. Radiocarbon Dating Using an ABOX-SC (acid-base-wet oxidation pretreatment with stepped combustion) Procedure, as an Alternative Chemical Pre-treatment and Some Applications, G.M. Santos et al.; p.59
 - 16) 17th International Radiocarbon Conference 2000, Judean Hills, Israel, Jun 2000. Cronology of Atmospheric Mercury Deposition in the Amazon Region Brazil ", G.M. Santos et al; p. 209
 - 17) 17th International Radiocarbon Conference 2000, Judean Hills, Israel, Jun 2000. Radiocarbon Dating of Rotoehu Tephra, New Zealand", G.M. Santos et al; p. 210
 - 18) XX Reunião de Trabalho em Física Nuclear no Brasil, Guaratinguetá, Brazil, Aug-Sept 1997. Results of a Bragg Detector Built for the AMS Program, G.M. Santos et al; p. 28
 - 19) XVIII Encontro Nacional de Física da Matéria Condensada, Caxambú, Brazil, Jun 1995. O Estudo do Estado Eletrônico Fundamental $X1\Sigma^+$ and $(1)1\Pi_g$ da Molécula de Na_2 , pela Técnica de Espectroscopia Transformada de Fourier Associada a Fluorescência Induzida, G.M. Santos et al; p.9
 - 20) XVIII Encontro Nacional de Física da Matéria Condensada, Caxambú, Brazil, Jun 1995. Análise dos Estados Eletrônicos $X1\Sigma^+$ and $(1)1\Pi_g$ da Molécula de Na_2 na Região de Longo Alcance; G.M. Santos et al; p.24

OTHER PRESENTATIONS (*presenter's name is italicized*)

- 1) AGU Fall Meeting 2013, San Francisco, USA, December 9-13, 2013 – UPCOMING EVENT
 - a) Origin of Phytolith Carbon Revealed by Isotopic Measurements of Extracted Phytoliths from FACE Grasses. *Paul E. Reyerson*; Guaciara Santos; Anne E. Alexandre; Araks Harutyunyan; Franz Badeck; Luigi Cattivelli – B11I-01 - Oral

- b) Radiocarbon source apportionment of urban and wildfire black and organic carbon aerosol. *Gergana Mouteva*; Simon M. Fahrni; Guaciara Santos; James T. Randerson; Claudia I. Czimczik - A34A-04 -Oral
- 2) XXXVI RTFNB 2013 - XXXVI Reuniao de Trabalho sobre Fisica Nuclear no Brasil 2013, Maresias, SP, September 1-5. Towards calibration of the 14C curve for the Southern Hemisphere using subtropical Parana pine (*Araucaria Angustifolia*) from Brazil. *R. Linares*, G.M. Santos, K.D. Macario, P.R.S. Gomes, C.S. Lisi and M. Tomazello Filho
- 3) Goldschmidt August 25-30, 2013, Florence, Italy. Testing Accuracy of Combined Zircon (²³⁸U/²³⁰Th) and (U-Th)/He Dating Against Radiocarbon Dating. *Danisik M*, Shane P, Schmitt A, Hogg A, Santos G, Evans N, Storm S, Fifield K, Lindsay J & Alloway B
- 4) The 7th IBIS (Isotopes in Biogenic Silica) international meeting 2013, Helsinki, Finland, June 3-5. Radiocarbon and $\delta^{13}\text{C}$ measurements of extracted phytoliths from living grasses - where are we now? *Reyerson, Paul*, Santos, Guaciara, Alexandre, Anne, Corbineau, Rémi, Harutyunyan, Araks, Southon, John, Badeck, Franz, Cattivelli, Luigi
- 5) AGU ASLO 2013 - Aquatic Sciences Meeting 17-22 February 2013. Temporal Variability In The Age Of Carbon Exported By The Mekong River, Cambodia: A Comparison Between Lignin Phenols And Bulk Organic Matter. *Ellis, E. E.*; Ingalls, A. E.; Richey, J. E.; Keil, R. G.; Santos, G. M.; Druffel, E. R.
- 6) AGU Fall Meeting 2012, San Francisco, USA, December 3-7, 2012
- Re-investigating the isotopic fractionation corrections in radiocarbon measurements. *Simon Fahrni*; Guaciara M. Santos; Xiaomei Xu; John R. Southon; V11F-08.
 - Simple, rapid, and cost effective: A screening method for 14C analysis of small carbonate samples. *Shari Bush*; Guaciara M. Santos; Xiaomei Xu; John R. Southon; PP13B-2078.
 - Understanding the variations in the vegetation of Cabo Frio, Southeastern coast of Brazil, during the Quaternary. *Kita Macario*; *Heloisa H. Coe*; Jenifer Gomes; Fabiana Oliveira; Paulo Roberto Gomes; Carla Carvalho; Roberto Linares; Eduardo Alves; Guaciara M. Santos; PP41B-2002.
 - Temporal variations in sources and concentrations of black and organic carbon aerosols in the LA Basin. *Gergana Mouteva*; John Kearney; Simon Fahrni; Guaciara M. Santos; Claudia I. Czimczik; A51B-0037.
- 7) 21th International Radiocarbon Conference, the UNESCO headquarters, 8-13 July 2012, Paris, France.
- Isotopic differences between hair and nails in modern humans: pre-treatment inadequacy or not? *Martinez De La Torre H.*, Ormsby K., Santos G., Fuller B. (S19-P-356).
 - Sources of Extraneous Carbon Contamination in Samples Collected by Preparative Capillary Gas Chromatography. *Zhang D.*, Druffel E., Xu X., Southon J., Santos G. (S03-P-038)
 - Rapid sample preparation of Dissolved Inorganic Carbon (DIC) in natural waters using a headspace –extraction approach for radiocarbon analysis on AMS. *Gao P.*, *Xu X.*, Zhou L., Pack M.A., Griffin S., Santos G.M., Southon J.R., Ferguson J. (S03-P-072)
 - Carbon blank investigation on quartz filters: A potentially critical aspect for high precision measurements of 14C in particulate organic carbon (POC) *Stills A.*, Xu X., Zeng F., Santos G.M., Southon J.R., Adam Z.C., Griffin S., Ruacho M. (S03-P-086)
 - Re-investigating the isotopic fractionation corrections in radiocarbon measurements. *Fahrni S.M.*, Santos G.M., Southon J., Xu X. (S01-P-150)
 - Seasonal variability in radiocarbon reservoir age due to upwelling recorded in *Mytilus californianus* shells. *Ferguson J.*, Johnson K., Santos G., Meyer L., Tripathi A. (S06-P-185)
 - Simple, rapid, and cost effective: An improved screening method for 14C analysis of small carbonate samples. *Bush S.*, Santos G., Southon J., Xu X. (S10-P-263)
 - Intercomparison of 14C analysis of carbonaceous aerosols. *Szidat S.*, Bench G., Bernardoni V., Calzolari G, Chiari M., Czimczik C., Derendorp L., Dusek U., Elder K.L., Fedi M.E., Genberg J., Gustafsson Ö., Kirillova E., McNichol A.P., Perron N., Santos G.M., Stenström K., Swietlicki E., Ushida M., Wacker L., Zhang Y., Prevot A.S.H. (S15-P-336)
- 8) AGU Fall Meeting 2011, San Francisco, USA, December 5-9, 2011. Is 14C-AMS analysis of phytoliths a suitable tool? *Rémi Corbineau*, Guaciara M Santos, Anne Alexandre, Paul E Reyerson
- 9) Celebrating 20 years of Earth System Science at UC Irvine; September 15-16, 2011; Location: Arnold and Mabel Beckman Center of the U.S. National Academies of Sciences and Engineering UC Irvine Croul Hall: POSTERS:

- a) Plant, phytoliths and photosynthesis: debunking a myth. Guaciara dos Santos, John Southon, Kathleen Treseder
 - b) Partitioning of fire and combustion contributions to black carbon aerosols across the U.S. using radiocarbon measurements and modeling. Claudia Czimczik, Guaciara dos Santos, James T. Randerson, Yang Chen
 - c) Using archaeological shells to investigate Paleoclimate. Julie Ferguson, Kathleen Johnson, Guaciara Santos
 - d) The Keck Carbon Cycle AMS Lab – a major ESS Facility. John Southon, Ellen Druffel, Sue Trumbore, Claudia Czimczik, Xiaomei Xu, Guaciara Santos, Sheila Griffin, Dachun Zhang, Chandra Bertrand, Alexandra Magana, Alysha Coppola, Julie Ferguson, Massimo Lupascu, Shari Bush, Hector Martinez, Dina Saleh, Mariela Ruacho, Aubrey Stills, Danielle Glynn, Francesca Hopkins, Mary Pack, Pan Gao
- 10) 8th International Meeting on Phytolith Research 2011, Estes Park, Colorado, USA. Towards 14C-AMS dating of phytoliths? A new protocol for getting pure samples of phytoliths from harvested plants. Rémi Corbineau, Guaciara M. Santos, Anne Alexandre, Paul E. Reyerson
 - 11) Goldschmidt June 24-29, 2012, Montréal, Canada. Testing Efficacy of Zircon (238U/230Th) + (U-Th)/He and Radiocarbon Dating Methods on the New Zealand Late Quaternary Tephra: Danisik M, Shane P, Schmitt A, Hogg A, Santos G, Evans N, Storm S, Fifield K & Lindsay J
 - 12) Goldschmidt August 14-19, 2011 in Prague, Czech Republic (2011) Intermediate Water $\Delta 14C$ off Brazil between 3-40 ka BP: Ruckelshausen M, Kowsmann R, Godoy JM, Santos GM & Mangini A
 - 13) AGU Fall Meeting 2010, San Francisco, USA; December 13-17, 2010
 - a) 14C and delta13C in Mytilus californianus shells as a proxy of upwelling intensity. JE Ferguson, KR Johnson, GM Santos, L Meyer, K Acaylar, AK Tripati
 - b) Temporal Insights on Biomarker-Based Climate Records. N Drenzek, RH Stanley, GM Santos, JR Southon, ER Druffel, D Montlucon, KA Hughen, TI Eglinton
 - 14) 106th Annual Meeting, and Pacific Section 2010, American Association of Petroleum Geologists. Testing Modern Controls on Seasonal 14C Variations in Seawater DIC and Mytilus Californianus Shells: The Potential for a New Upwelling Proxy. Kathleen R. Johnson, Julie Ferguson, Laura Meyer, Karla Acaylar, Guaciara Dos Santos, and Aradhna Tripati.
 - 15) Goldschmidt Conference 2010, Knoxville, Tennessee, USA. Developing radiocarbon within California mollusk shells as a proxy of upwelling intensity. J. Ferguson, Meyer L, Johnson K, Santos G, Acaylar K.
 - 16) AGU ASLO Ocean Sciences Meeting, February, 2010, Portland, OR. HPLC purification of higher plant-derived lignin phenols for radiocarbon dating: E E Ellis, A E Ingalls, K McDuffee, R G Keil, G M dos Santos, E R Druffel
 - 17) 20th International Radiocarbon Conference, May 2009, Hawaii, USA.
 - a) The Keck Carbon Cycle Ams Laboratory, University Of California Irvine: Status Report. Robert K Beverly, Denis Tauz, Will Beaumont, Shenil Patel, Kaelyn M Ormsby, GM Santos, John R Southon
 - b) Compound-Specific Radiocarbon Analyses of Phospholipid Fatty Acids And Alkanes In Oceanic Sediments Using Preparative Capillary Gas Chromatographic and AMS Techniques. Ellen R M Druffel, Dachun Zhang, Xiaomei Xu, Lori A Ziolkowski, John R Southon, G dos Santos, Susan E Trumbore
 - 18) Goldschmidt 2009, Davos, Switzerland, June 2009. Deep Sea Corals off Brazil Verify a Reduction of NADW Formation during H3, H1 and the YD: Mangini A, Godoy JM, Godoy ML, Kowsmann R, Santos G, Ruckelshausen M, Schroeder-Ritzrau A & Wacker L.
 - 19) Unknown knowns and Known Unknowns: Chemical Oceanography in a Changing World. Feb, 2009. Savannah GA. Poster: 14C and 13C characteristics of suspended populations in an oligotrophic water column. Close H, Druffel ERM, Eglinton TI, Dos Santos G, Ingalls AE and Pearson A
 - 20) Gordon Research Conference, Organic Geochemistry. August 2008. Holderness NH. Poster: 14C and 13C characteristics of suspended populations in an oligotrophic water column. Close H, Druffel ERM, Eglinton TI, Dos Santos G, Ingalls AE and Pearson A
 - 21) 11th International Conference on Accelerator Mass Spectrometry, September 2008, Rome, Italy. Carbon Isotope Measurements of Surface Seawater from a Time-Series Site off Southern California. Hinger, E., Santos, G.M., Druffel, E.R.M. and Griffin, S.; p.133 (P2_061).
 - 22) AGU Fall Meeting 2007, San Francisco, CA, USA, December 10-14, 2007

- a) Multi-Isotope (13C, 14C, D/H) Insights into Abrupt Climate Shifts in the Tropical Atlantic Basin. *Drenzek, N.*; Hughen, K.; Eglinton, T.; Bice, M.; Montlucon, D.; Sessions, A.; Druffel, E.; Southon, J.; Dos Santos, G.
 - b) Temporal Dynamics of Terrestrial Organic Matter Transfer to the Ocean. *Drenzek, N.*; Eglinton, T.; Hughen, K.; Montlucon, D.; Druffel, E.; Southon, J.; Dos Santos, G.; Poussart, P.; Schefuss, E.; Dickens, A.
- 23) AGU Fall Meeting 2006, San Francisco, USA; December 11-15, 2007.
- a) Quantifying Archaeal Community Autotrophy in the Mesopelagic Ocean Using Natural Radiocarbon. *SR Shah*, AE Ingalls, RL Hansman, LI Aluwihare, GM Santos, E Druffel, A Pearson
 - b) Temporal constraints on the transfer of particulate organic carbon from the continents to the oceans. *TI Eglinton*, NJ Drenzek, AF Dickens, P Poussart, E Schefuss, D Montlucon, ER Druffel, J Southon, G Dos Santos, K Hughen
 - c) $\Delta^{14}\text{C}$ of DIC in Surface Seawater from a Time-Series Site off Southern California. *Hinger, E.N.*; Dos Santos, G.M.; Griffin, S.M.; Druffel, E.R. (OS21B-1581).
- 24) 19th International Radiocarbon Conference 2006, Keble College, Oxford, UK, April 2006. Improving MC-SNICS: recent ion source development at the Keck Carbon Cycle AMS Facility” *J.R. Southon* and G.M. Santos; p.309 (229 P-78).
- 25) Gordon Research Conference 2006, Organic Geochemistry. August 2006. Holderness NH. Poster: Microbial membrane lipids as tracers for terrestrial organic carbon in coastal sediments. *Walsh EM*, Ingalls AE, Keil RG, dos Santos GM, Druffel RM
- 26) Gordon Research Conference 2005, Chemical Oceanography. August, 2005. Tilton, NH. Poster: Archaeal metabolisms in the “Twilight Zone.” *Ingalls AE*, Pearson A., Shah, S, Hansman RI, Aluwihare, LI, Santos GM, Griffin S, and Druffel ERM.
- 27) International Symposium on Utilization of Accelerators 2005, Dubrovnik, Croatia. High throughput, high precision ^{14}C AMS with a small accelerator. J. Southon, G.M. Santos, E.R.M. Druffel, S. Griffin, S.E. Trumbore, X. Xu
- 28) 10th International Conference on Accelerator Mass Spectrometry 2005, Berkeley, California, USA.
- a) Exploring the minimum sample size limit for CSRA: Lessons from Water column” Ann Pearson, *Anitra E Ingalls*, Sunita R Shah, Roberta L Hansman, Lihini I Aluwihare, Guaciara M Santos, Sheila Griffin, Ellen RM Druffel.; p.46 (CMPD 3).
 - b) Life with MC-SNICS Part II: recent ion source development at the Keck Carbon Cycle AMS Facility” *J.R. Southon* and G.M. Santos; p.3 (IONS 6)
- 29) 38th Annual Meeting of SNEAP 2004, McMaster University, Hamilton, Ontario Life with MC-SNICS: ion source development at the Keck Carbon Cycle AMS facility, University of California, Irvine. *John Southon* and Guaciara dos Santos
- 30) 18th International Radiocarbon Conference, September 2003, Wellington, New Zealand.
- a) Ion source development at the KCCAMS Facility, University of California, Irvine, J. Southon and G.M. Santos; p.41(P-2-71).
 - b) The Keck Carbon Cycle AMS Laboratory, University of California, Irvine: two installations, initial operation, and a background surprise”, *J. Southon*, G.M. Santos et al; p.23(11-C-1).
 - c) Radiocarbon measurements in monthly coral bands during the 1760s from the Eastern equatorial Pacific Ocean: Ventilation changes in the upper ocean annual and longer timescales, *Druffel, E.R.M.*, S. Griffin, J. Hwang, T. Komada, S.R. Beaupre, K.C. Druffel-Rodriguez, G.M. Santos, and J. Southon; p. 24(12-C-3).
- 31) MC-SNICS Workshop 2003, National Electrostatics Corp., Middleton, WI, USA. Developments and improvements of the MC-SNICS source, funded by USA NSF, November 3-4, 2003. *J. Southon* and G.M. Santos
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Manuscripts in preparation

- 1) Andreu-Hayles L & Santos GM. Tree-ring/ ^{14}C -AMS cross-dating of wood species from tropical Andes, journal TBD

- 2) Guaciara M. Santos, Roberto Linares, Claudio S. Lisi and Mario Tomazello Filho Assessing the potential of Paraná pine (*Araucaria angustifolia*) for high precision Southern Hemisphere 14C calibration, to be submitted at *Radiocarbon*

Editorial Reviewed Articles

- 1) Santos, G.M., J. R. Southon, A. Alexandre, R. Corbineau and *P. E. Reyerson 2012 Interactive comment to reply the "Comment on: "Possible source of ancient carbon in phytolith concentrates from harvested grasses" by G. M. Santos et al. (2012) by L. A. Sullivan and J. F. Parr." *Biogeosciences Discuss.*, 9, C6114–C6124
- 2) Guidon, N., A.M. Pessis, F. Parenti, C. Guerin E. Peyre and G.M. dos Santos (2002) Pedra Furada, Brazil: Paleoindians, Paintings and Paradoxes, an interview published in *Athena Review (Quarterly Journal of Archaeology, History and Exploration)* 3(2): 42-52.

Peer-Reviewed Journal Articles

- 1) Gao P., Xu X., Zhou L., Pack M., Griffin S., Santos G., Southon J., and Liu K. Rapid sample preparation of dissolved inorganic carbon in natural waters using a headspace-extraction approach for radiocarbon analysis by accelerator mass spectrometry, *submitted to Limnology and Oceanography: Methods*
- 2) Drenzek N.J., Hughen K.A., Stanley R.H.R., Montluçon DB., Southon JR, Santos GM, Druffel ERM, Eglinton TL. 2013 The Temporal Dynamics of Terrigenous Organic Matter Transport to Marine Sediments: A Molecular 14C Perspective, *submitted to Geochimica et Cosmochimica Acta*
- 3) Coe HG, Macario KD, Gomes J, Chueng KF, Oliveira FM, Gomes PRS; Carvalho C, Linares R, Alves EQ; Santos GM. Understanding the variations in the vegetation of Sao Joao River basin, Southeastern coast of Brazil, during the Quaternary, using phytoliths and isotopic analyses, *accepted to Palaeo3*.
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